

# Standardised Expanded Nutrition Survey (SENS) FINAL REPORT

Yida settlement & Ajuong Thok refugee camp  
Ruweng State  
South Sudan

Survey conducted: October/November 2016



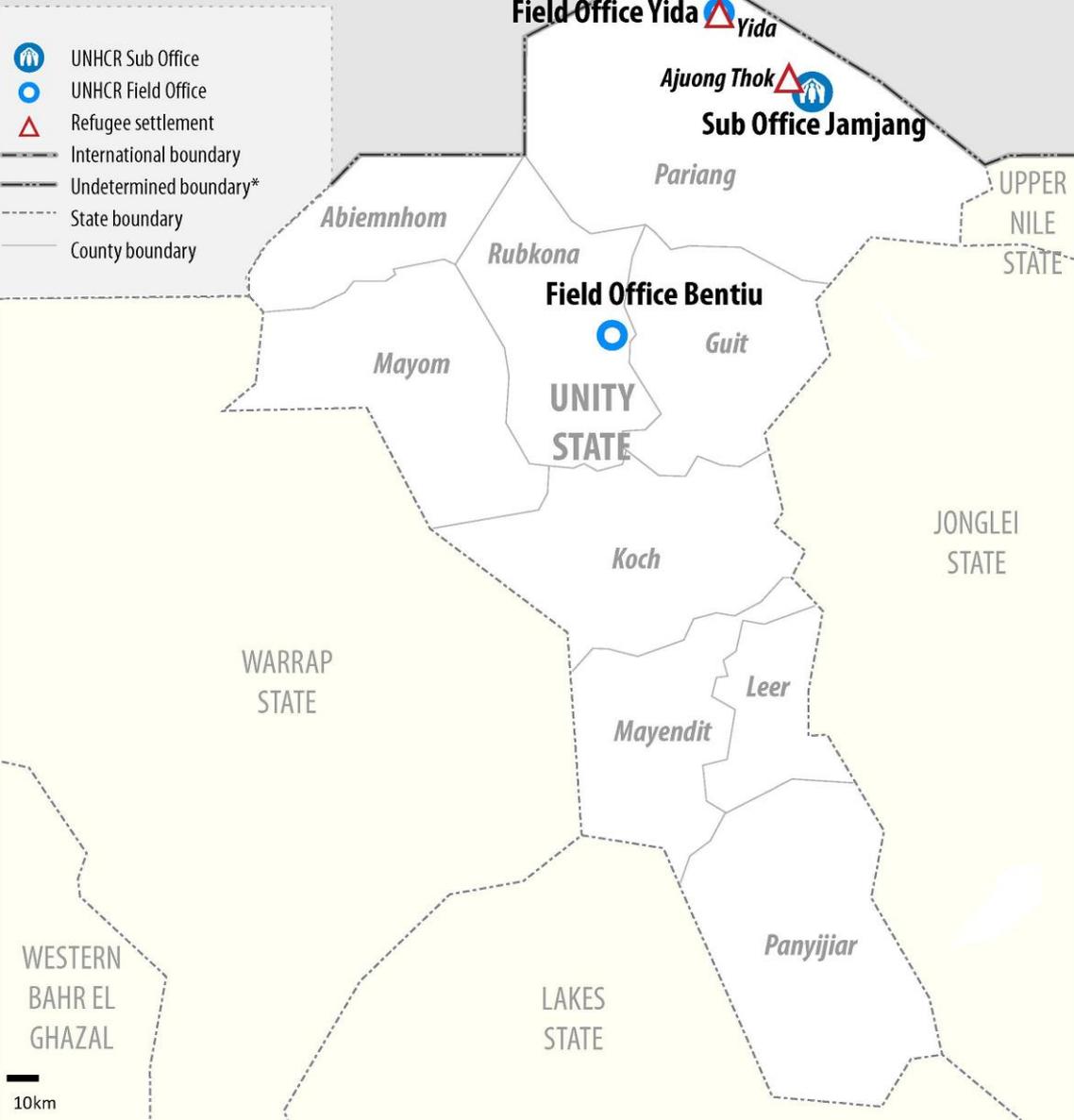
UNHCR

IN COLLABORATION WITH

(WFP, AHA, SP, IRC)



# UNHCR Presence in South Sudan, Unity State



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 Ruweng 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 in Yida refugee settlement was 60,157 while Ajuong Thok had a population of 39,217. According to the UNHCR led Standardised Expanded Nutrition Survey (SENS) in 2015 and corroborating the data with the UNHCR proGres database, 25.9% of the Yida population is children under 5 years while the same age group accounts for 22.7% of the Ajuong Thok population.

The nutrition survey was conducted between October and November 2016. The United Nations High Commissioner for Refugees (UNHCR) led and coordinated the survey in collaboration with the World Food programme, Samaritan's Purse (SP) and Africa Humanitarian Action (AHA).

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 determine the population's access to, and use of, improved water, sanitation and hygiene facilities.
9. To determine the ownership of mosquito nets (all types and LLINs) in households.
10. To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women.
11. To establish recommendations on actions to be taken to address the nutrition situation in Ajuong Thok and Yida refugee locations.

#### **Secondary objectives:**

1. To determine the coverage of therapeutic feeding and targeted supplementary feeding programmes for children 6-59 months.
2. 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, 2013 guidelines and the Standardised Monitoring and Assessments of Relief and Transitions (SMART) guidelines, see [www.sens.unhcr.org](http://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 version July 9, 2015 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 parameters used to calculate the sample size are as shown in the table below:

**Table 1: Parameters used to calculate sample size**

Location	% population under 5	Estimated GAM prevalence	Desired Precision	Design Effect	Non response rate	Average household size	Number of Children (ENA)	Number of Households
<b>CLUSTER SURVEYS</b>								
<b>Ajuong Thok</b>	<b>22.7 %</b>	<b>8.4 %</b>	<b>3</b>	<b>1.3</b>	<b>5 %</b>	<b>6.1</b>	<b>362</b>	<b>393</b>
<b>Yida</b>	<b>25.9 %</b>	<b>7.9%</b>	<b>3</b>	<b>1.3</b>	<b>5 %</b>	<b>6.9</b>	<b>440</b>	<b>288</b>

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 in all the sampled households and all non-pregnant women 15 to 49 years in every other sampled household;
- Mosquito net coverage; targeting every other sampled household; and
- Water, Sanitation and Hygiene (WASH); targeting all the sampled households.

The Food Security module was not included in the survey as there are discussions with WFP to carry out a more comprehensive food security assessment.

Data was collected using the Open Data Kit (ODK) mobile phone technology by 6 teams of 4 members per team, each team had two phones.

## Results

The table below is a summary of the survey results

Table 2: Summary of Results SENS 2016 Yida and Ajuong Thok, Ruweng State, South Sudan

	Yida		Ajuong Thok		Classification of public health significance or target (where applicable)
	Number / total	% (95% CI)	Number / total	% (95% CI)	
<b>CHILDREN 6-59 months</b>					
<b>Acute Malnutrition (WHO 2006 Growth Standards)</b>					
Global Acute Malnutrition (GAM)	28/356	7.9 (4.9-12.5)	16/372	4.3 (2.5-7.4)	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	21/356	5.9 (3.3-10.6)	13/372	3.5 (1.9-6.4)	
Severe Acute Malnutrition (SAM)	7/356	2.0 (0.9-4.3)	3/372	0.8 (0.3-2.4)	
Oedema	0/356	0(0-0)	0/372	0(0-0)	
<b>Mid Upper Arm Circumference (MUAC)</b>					
MUAC <125mm and/or oedema	13/362	3.6 (2.0-6.5)	11/379	2.9 (1.4-5.8)	
MUAC 115-124 mm	12/362	3.3 (1.7-6.2)	9/379	2.4 (1.1-5.2)	
MUAC <115 mm and/or oedema	1/362	0.3 (0-2.2)	2/379	0.5 (0.1-2.1)	
<b>Stunting<sup>1</sup></b>					

<sup>1</sup> 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)	
<b>(WHO 2006 Growth Standards)</b>					
Total Stunting	117/351	33.3 (27.3-39.9)	150/367	40.9 (36.3-45.6)	Critical if ≥ 40%
Severe Stunting	40/351	11.4 (8.0-16.0)	57/367	15.5 (11.9-20.1)	
<b>Programme coverage</b>					
Measles vaccination with card or recall (9-59 months)	292/332	88.0 (83.6-93.2)	278/354	78.5 (72.1-85.0)	Target of ≥ 95%
Vitamin A supplementation within past 6 months with card or recall	308/363	84.8 (78.8-90.9)	302/383	78.9 (72.2-85.6)	Target of ≥ 90%
Programme coverage TFP (enrolment of SAM)	2/8	25(0-67)	4/9	44.4(4.5-84.4)	
Programme coverage TSFP (enrolment of MAM)	4/26	15.4(0-32.0)	4/18	(22.2(0-46.1)	
<b>Diarrhoea</b>					
Diarrhoea in last 2 weeks	78/362	21.5 (12.3-30.8)	107/383	27.9 (21.0-34.9)	
<b>Anaemia</b>					
Total Anaemia (Hb <11 g/dl)	198/361	54.8 (49.6-60.1)	199/371	53.6 (48.4-58.9)	High if ≥ 40%
Mild (Hb 10-10.9)	110/361	30.5 (25.4-35.6)	95/371	25.6 (20.3-30.9)	
Moderate (Hb 7-9.9)	86/361	23.8 (19.9-27.8)	97/371	26.1 (21.6-30.7)	

	Yida		Ajuong Thok		Classification of public health significance or target (where applicable)
	Number / total	% (95% CI)	Number / total	% (95% CI)	
Severe (Hb <7)	2/361	0.6 (0-1.4)	7/371	1.9 (0.3-3.5)	
<b>CHILDREN 0-23 months</b>					
<b>IYCF indicators</b>					
Timely initiation of breastfeeding	152/198	76.8 (68.5-85.0)	151/190	79.5 (73.6-85.3)	
Exclusive breastfeeding under 6 months	30/49	61.2 (41.2-81.3)	24/40	60.0 (35.5-84.5)	
Continued breastfeeding at 1 year	31/34	91.2(80.8-100)	23/29	79.3(63.9-94.7)	
Continued breastfeeding at 2 years	9/21	42.9(22.5-63.2)	13/25	52.0(28.4-75.6)	
Introduction of solid, semi-solid or soft foods	16/33	48.5(25.3-71.7)	16/30	53.3(31.0-75.7)	
Consumption of iron-rich or iron-fortified foods	118/149	79.2(72.0-84.9)	114/150	81.4(74.2-87.0)	
Bottle feeding	1/198	0.5(0-1.5)	5/191	2.6(0-5.9)	
<b>WOMEN 15-49 years</b>					
<b>Anaemia (non-pregnant)</b>					
Total Anaemia (Hb <12 g/dl)	40/146	27.4 (21.5-33.3)	60/158	38.0 (29.9-46.0)	High if ≥ 40%
Mild (Hb 11-11.9)	22/146	15.1(10.4-19.8)	33/158	20.9(14.1-22.7)	
Moderate (Hb 8-10.9)	17/146	11.6(7.2-16.0)	25/158	15.8(9.5-22.2)	
Severe (Hb <8)	1/146	0.7(0-2.0)	2/158	1.3(0-3.0)	

	Yida		Ajuong Thok		Classification of public health significance or target (where applicable)
	Number / total	% (95% CI)	Number / total	% (95% CI)	
<b>WASH</b>					
<b>Water quality</b>					
Proportion of households using improved drinking water source	281/281	100.0(100.0-100.0)	376/376	100 (100.0-100.0)	
<b>Water quantity</b>					
Proportion of households that use:					
≥ 20 lpppd	137/281	48.8 (41.7-55.8)	222/376	59.0 (50.2-67.8)	Average quantity of water available per person / day ≥ 20 litres
15 - <20 lpppd	77/281	27.4 (21.3-33.4)	76/376	20.2 (14.5-25.8)	
<15 lpppd	67/281	23.8 (16.6-31.1)	78/376	20.7 (13.1-28.4)	
Average water usage in litres/person/day	20.0lpppd		22.3lpppd		
<b>Satisfaction with drinking water supply</b>					
Proportion of households that say they are satisfied with drinking water supply	152/281	54.1 (41.1-67.1)	245/376	65.2 (54.5-75.8)	
<b>Safe excreta disposal</b>					
Proportion of households that use:					
An improved excreta disposal facility (improved toilet facility, 1 household)	47/265	17.7 (8.6-26.8)	123/369	33.3 (20.6-46.1)	
A shared family toilet (improved toilet facility, 2 households)	60/265	22.6 (12.6-32.7)	61/369	16.5 (8.4-24.7)	

	Yida		Ajuong Thok		Classification of public health significance or target (where applicable)
	Number / total	% (95% CI)	Number / total	% (95% CI)	
A communal toilet (improved toilet facility, 3 households or more)	40/265	15.1 (7.2-23.0)	63/369	17.1 (7.5-26.9)	
An unimproved toilet (unimproved toilet facility or public toilet)	118/265	44.5 (29.4-59.7)	122/369	33.1 (17.9-48.2)	
<b>MOSQUITO NET COVERAGE</b>					
<b>Mosquito net ownership</b>					
Proportion of households owning at least one LLIN	103/152	67.8 (56.6-78.9)	197/234	84.2 (76.3-92.1)	Target of >80%
Average number of persons per LLIN (mean)	4.4		2.9		2 persons per LLIN
<b>Mosquito net utilisation</b>					
Proportion of household members (all ages) who slept under an LLIN	568/1086	52.3	987/1324	74.5	
Proportion of children 0-59 months who slept under an LLIN	145/232	62.5	249/294	84.7	
Proportion of pregnant women who slept under an LLIN	21/32	65.6	42/54	77.8	

## Results Interpretation

The GAM prevalence in both Yida and Ajuong Thok is within the UNHCR acceptable <10% target for refugee settings. In Ajuong Thok, GAM is 4.3% 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). There is need to give more attention in Yida population as the upper confidence limit is above the 10% UNHCR target. According to SPHERE standards, the GAM threshold is 15%.

The table below shows the malnutrition public health significance classification among children under 5 years old.

**Table 3:** Classification of low weight for height Public Health Significance for Children Under 5 Years of Age

Prevalence %	Critical	Serious	Poor	Acceptable
Low weight-for-height	≥15	10-14	5-9	<5

Source: WHO (1995) Physical Status: The Use and Interpretation of Anthropometry and WHO (2000). The Management of Nutrition in Major Emergencies

Stunting prevalence in Yida is at 33.3% which is classified as serious (WHO classification) while in Ajuong Thok it is 40.9% which is above the 40% threshold of public health significance (WHO classification). There is no significant change in stunting between the 2015 and the 2016 findings.

The table below shows the low height for age public health significance classification among children under 5 years old.

**Table 4:** Classification of low height for age Public Health Significance for Children Under 5 Years of Age

Prevalence %	Critical	Serious	Poor	Acceptable
Low height-for-age	≥40	30-39	20-29	<20

Source: WHO (1995) Physical Status: The Use and Interpretation of Anthropometry and WHO (2000). The Management of Nutrition in Major Emergencies

Measles and vitamin A coverage fell short of the 95% and 90% coverage target respectively in both Yida and Ajuong Thok.

Enrolment in the MAM and SAM treatment programmes is below 50% from the survey findings which is low. These results are however not sufficient to draw conclusions on programme coverage enrolment due to the small sample size.

Diarrhoea cases in the last two weeks of survey was reported as 21.5%, and 27.9% in Yida and Ajuong Thok respectively. This is high and requires concerted effort to reduce the caseload.

Total anaemia prevalence in children 6 to 59 months is critical as it is above the 40% level of public health significance (WHO classification) in the two surveyed populations. Anaemia prevalence in women aged 15-49 years (non-pregnant) is of medium public health significance in Yida and Ajuong Thok.

The table below shows public health significance classification of anaemia among children 6 to 59 months.

**Table 5:** Classification of Anaemia Public Health Significance

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

Source: WHO (2000) The Management of Nutrition in Major Emergencies

The rate of exclusive breastfeeding is around 60% in both locations which is a decrease from the 70% recorded in 2015. The decrease however is not statistically significant as there is an overlap of the confidence intervals. The IYCF indicator should be interpreted with caution as the sample size is small to conclusive findings.

All the sampled households have access to improved drinking water sources in Yida and Ajuong Thok. The water usage indicator is 20.0 litres per person per day (lpppd) in Yida and 22.3lpppd in Ajuong Thok. The average water consumption is above the SPHERE standard of 15lpppd and the UNHCR standard of ≥20lpppd.

Half the population in Yida are satisfied with the drinking water supply while two thirds of the Ajuong Thok population are satisfied. There are therefore more water issues in Yida than there are in Ajuong Thok.

A third of the population in Ajuong Thok and 44% in Yida does not have access to improved toilet facilities, with the majority 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 Yida and above 80% in Ajuong Thok. The average number of persons sharing a mosquito net is more than the recommended 2 people per net. This shows that although households have mosquito nets, there are not enough to be used by all household members. The availability of mosquito nets is lower in Yida than in Ajuong Thok. This can be attributed to the limitation to the lifesaving activities only in Yida in light of this settlement's exit strategy. The last mass mosquito net distribution in Yida was in 2014. In 2016, mosquito nets in Yida were only distributed to children under 5 and to pregnant women.

## Recommendations

### Immediate Term

1. UNHCR and nutrition partners should continue implementing and strengthening the preventive and curative nutrition interventions.
2. UNHCR to ensure the partner in Yida builds the capacity of the County Health Department (CHD) to provide nutrition services to both the host community and the Yida residual caseload.
3. The BSFP targeting children 6 to 23 months and PLW should be an all year round activity and UNHCR in collaboration with WFP and Nutrition partners should ensure the integration of BSFP with maternal and child health (MCH) interventions.
4. There is need for UNHCR and partners working in nutrition to ensure the anaemia strategy is finalised and implemented to address the high anaemia levels in the camps. Emphasis should be put on screening and referral of severe and moderate anaemia cases.

5. There is need to pursue the provision of micronutrient rich nutrition supplements to young children such as Lipid based Nutrient Supplements (LNS) or Micro Nutrient Powders (MNP) as part of the anaemia strategy.
6. UNHCR and health partners should work to improve measles and vitamin A coverage through routine vitamin A supplementation and immunisation campaigns.
7. Nutrition partners; IRC, SP and AHA should strengthen the IYCF programmes in order to improve the exclusive breastfeeding rates and other key IYCF indicators. The UNHCR multi sectorial IYCF framework should be operationalised.
8. UNHCR and WASH partners to continue improving the water supply in Ajuong Thok especially walking distances and irregular water supply. Water storage in the camps should be worked on at household level in order to have households use narrow-necked or covered containers for storing drinking water.
9. Given the high prevalence of diarrhoea, it is recommended that UNHCR and WASH partners should work to improve hygiene promotion and latrine coverage targeting family latrines.
10. It is recommended that UNHCR continues to lobby the local authorities to avail more land for agricultural purposes by refugees in Ajuong Thok and Pamir. The land should be accompanied with strong agricultural extension work.
11. Nutrition partners should improve and strengthen the active case finding strategies so as to have all malnourished children admitted in the appropriate nutrition programmes early enough.
12. There is need to continue lobbying and advocating for refugees to be reinstated to 100% GFD basket.

### **Medium Term**

1. The MAM and SAM programme coverage is low. UNHCR and Nutrition partners to consider conducting a coverage assessment of the curative nutrition interventions which identifies nutrition services access barriers and boosters among the refugees.
2. UNHCR and partners to continue supporting and expand livelihoods programming 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.
3. 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 situation, food utilisation and available coping mechanisms. It is highly likely that some refugees can be assisted to have the coping mechanisms be livelihood sources.
4. It is recommended that UNHCR and health partners design ways of improving the ANC coverage, this can be achieved through integration with the BSFP for PLW among other approaches.

5. UNHCR should consider introducing indoor residual spray before the next rainy season as a malaria prevention measure.
6. Health and community services stakeholders should come up with messaging on the appropriate use of mosquito nets by refugees.
7. Targeted mosquito net distribution should be done following a proper assessment of the population groups in need.

### **Long Term**

1. 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.
2. 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.
3. 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.

## **1 Introduction**

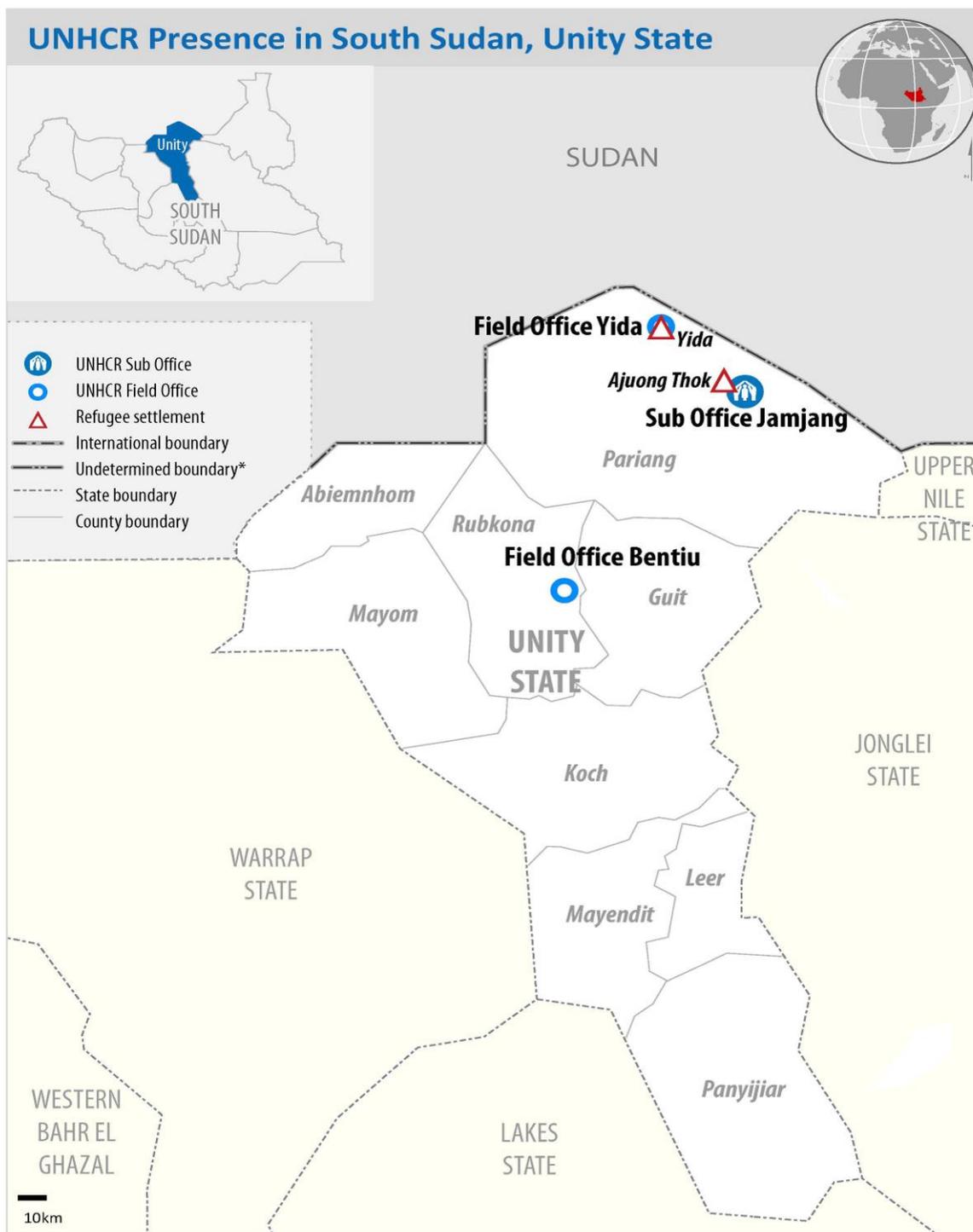
Yida and Ajuong Thok refugee locations in Pariang County of South Sudan's Ruweng State are home to refugees from the South Kordofan State of the neighbouring Sudan. The two locations are less than 50km away from the northern border of South Sudan and Sudan and 73km apart. The refugees started arriving 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. The refugee population in Yida is being relocated to the newly established Pamir refugee camp which is less than 15km South East of Ajuong Thok. At the time of the survey close to 1000 refugees had been relocated from Yida to Pamir. The plan is to voluntarily relocate all the refugees in Yida.

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 rainy 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.

Figure 1: 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**

The SENS was conducted between October and November 2016, at which time Ajuong Thok and Yida had population figures of 39,217 and 60,157 individuals respectively (UNHCR ProGres data October 2016). There has been a decrease in the Yida population compared to the previous year while the population in Ajuong Thok increased. The decrease of the Yida population is attributed to the relocation of refugees from Yida to Ajuong Thok and to the newly opened Pamir refugee camp. Relocation of refugees from Yida to Pamir was ongoing during the survey. According to the 2015 SENS survey and corroborated with the UNHCR ProGres database, children between the age of 6 and 59 month accounted for 25.9% of the population in Yida and 22.7% in Ajuong Thok.

The two main religions among the refugee populations are Christianity and Islam. The refugees are mainly from the Nuba Mountains are of South Kordofan and are mainly referred as Nubans. Nubans are mainly agriculturalists who also rear livestock such as cattle, goats and sheep. The main crops grown are sorghum, groundnuts, cowpeas and sesame. Maize is grown at a very small scale while sorghum is the staple grain. 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 practice cultivation of sorghum but at a very small scale.

### **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 refugees' 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 stop providing ration cards to new arrivals except they move to other refugee locations other than Yida. This government directive stipulated that new arrivals unless they move to Ajuong Thok or any other camp, Pamir in this case can only be registered in Yida but cannot receive a ration card which entitles them to food assistance.

According to the recent Joint Assessment Mission (JAM) 2015, 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. This food basket provides slight above the 2100Kcal min daily energy requirements. This basket composition was however cut by 30% due to funding constraints from August 2015 and now provides 1470Kcal per person per day. Following the looting of the WFP warehouses in Juba during the Juba July 2016 fighting between the government and opposition, WFP has not been able to replenish the vegetable oil stock in Yida and Ajuong Thok. This prompted the reduction of the vegetable oil ration size by 50% beginning September 2016 so that the available quantity could last through to the December 2006 distribution cycle. If the food ration cuts continue this may lead to possible deterioration of food security and nutrition situation among refugee populations.

From the Post Distribution Monitoring (PDM), refugees report that food from the GFD basket runs out around day 25 of each distribution cycle prompting refugees to come up with coping strategies to get to the next distribution. Some of the coping strategies include reducing number and size of meals. The most affected households are family sizes one to three. Refugees also report selling and/or exchanging some of the cereal ration for milling purposes.

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 Ruweng State are sourced from outside the country and transported by road from Juba 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. In the event there are fresh foods and vegetables in the market, chances are that they would have been brought by refugees from across the border.

### **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 whole blood transfusion. There is a government owned Primary Health Care Centre (PHCC) in Pariang, the county headquarters which is run by CARE with support from UNHCR among other partners. The government, with support from UNHCR is planning to upgrade the PHCC to hospital status, to this end it has been communicated verbally that the facility is now a hospital but there is no official communication to that effect. Official communication noting the hospital status of the facility will result in the government allocating more resources for the facility. As part of the upgrade, with support from UNHCR, the PHCC now has the capacity for minor surgeries including caesarean section. A new maternity block, x-ray room and staff accommodation was built at the facility. This now enables the facility to provide 24 hour services especially to emergency cases. The ultrasound machine is now functional while the x-ray machine is awaiting certification of the x-ray room by government radiologists. Equipping and upgrading 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.

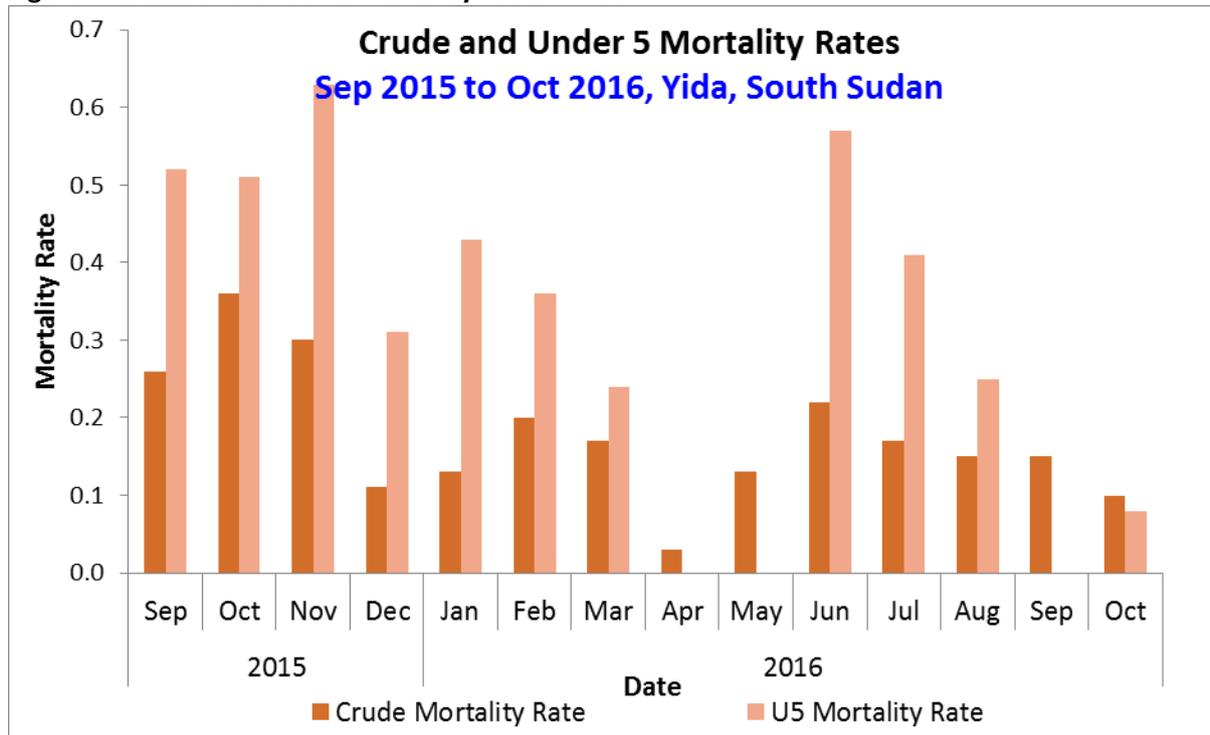
To improve refugees' health seeking behaviour and to have sustainable community health programme, UNHCR, nutrition, WASH and health agencies have come up with a comprehensive community health programme. This entails having community health workers (CHW) with the capacity of working in all three areas.

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.

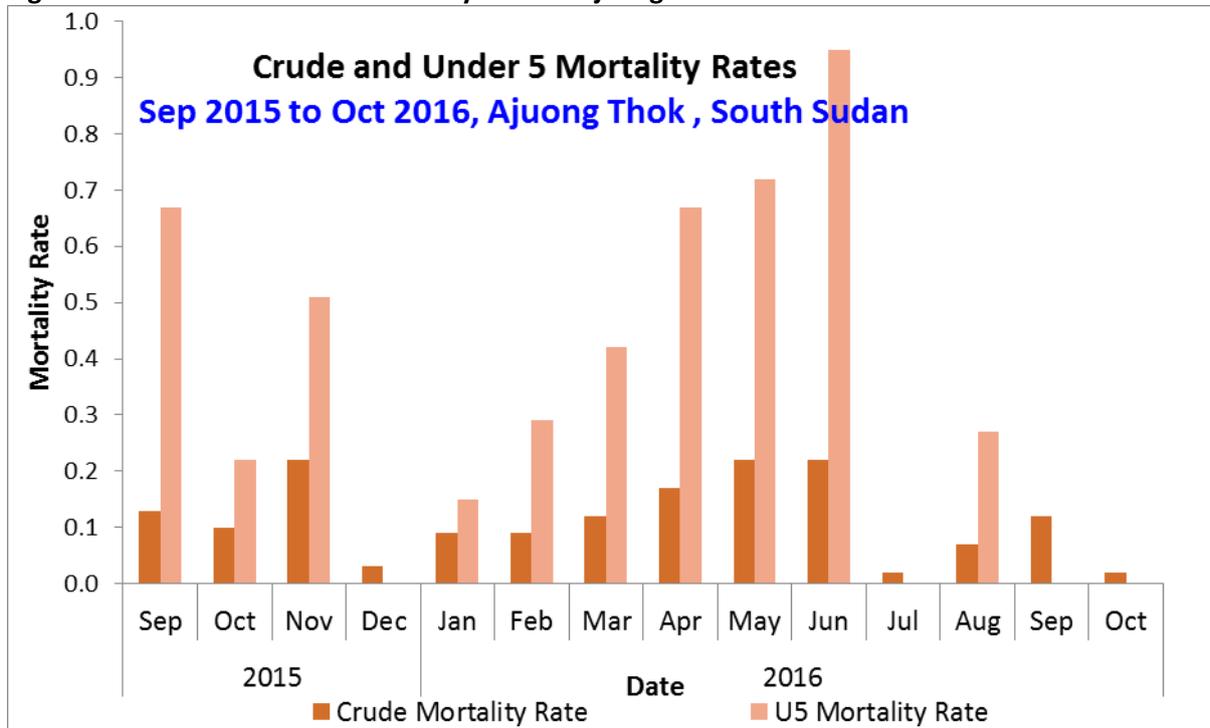
Upper Respiratory Tract Infections (URTI) is the main causes of morbidity among children under 5 in both Yida and Ajuong Thok refugee locations. Other leading morbidities include Lower Respiratory Tract Infections (LRTI), acute watery diarrhoea and malaria. The morbidity patterns help explain the acute malnutrition prevalence. Although respiratory tract infections have an impact on acute malnutrition, the impact is not as high as if acute watery diarrhoea and malaria were the leading morbidities.

Figures 4 and 5 illustrate the common causes of morbidity among children under 5 years in Yida and Ajuong Thok.

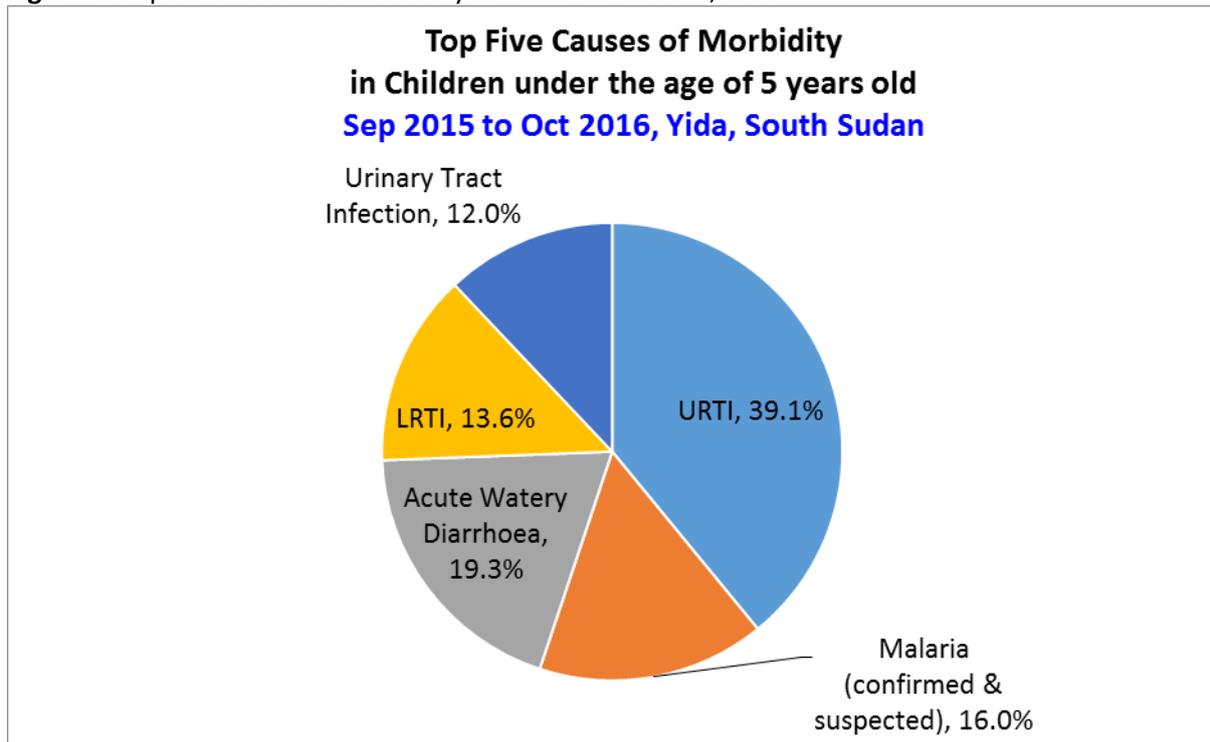
**Figure 2: Crude and Under-5 Mortality Rates – Yida**



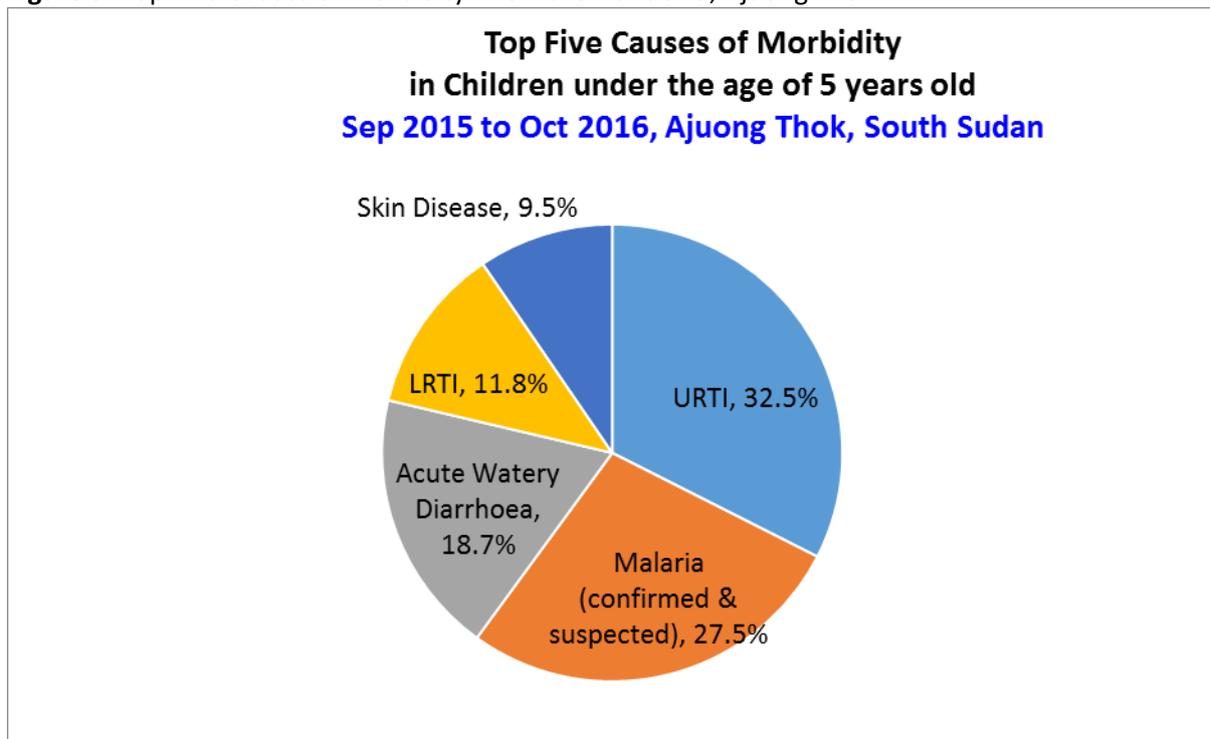
**Figure 3: Crude and Under-5 Mortality Rates – Ajuong Thok**



**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 services are provided in the two refugee locations. The provision of these services has significantly contributed to the current malnutrition levels which are acceptable for Ajuong Thok and poor for Yida. The curative services include comprehensive Community based 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. SAM cases with medical complications admitted in the SC receive F75 and F100 while those in the OTP receive Plumpy'Nut. The dosage or daily ration depends on the beneficiary weight. In the TSFP, beneficiaries receive Plumpy'Sup, one 92g sachet per person per day. The South Sudan interim guidelines for management of acute malnutrition together with World Health Organisation (WHO) guidelines are used in the treatment of acute malnutrition. In Ajuong Thok all the curative components of the nutrition programme are managed 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 preventive BSFP targeting children 6 to 23 months and Pregnant and Lactating Women (PLW) beginning May 2016, the BSFP should continue until end of 2016. Beginning September 2016 the target age group for children expanded to 59 months. Prior to commencing of BSFP, there was TSFP for both children and PLW. TSFP for children is continuing despite the BSFP. In the BSFP, children receive 200g/person/day of super cereal plus, common referred as Corn Soya Blend Plus Plus (CSB++) while PLW receive super cereal, commonly referred to as Corn Soya Blend Plus (CSB+) The commodities used for the BSFP PLW are 250g/person/day CSB+ and 20g/person/day oil.

IYCF programming continues to be implemented in both refugee locations. The main conduit for this intervention are the mother to mother support groups and community health workers. Together with the health partners, IYCF counselling is integrated in the Ante Natal Care (ANC) and Post-Natal Care (PNC) services. There is also integration of IYCF, CMAM, the Out Patient Department (OPD) and the Expanded Programme for Immunisation (EPI).

The anaemia strategy is being mainstreamed in all the Nutrition interventions and in Livelihoods activities as well. Deworming of intestinal parasites and vitamin A supplementation are the main activities. In addition, Livelihoods partners in Ajuong Thok assisted refugees to establish backyard gardens. The gardens however flourished during the rainy season and deteriorated in the dry season due to limited irrigation water supply. Livelihoods activities cannot be offered in Yida as per the government's directive to only provide lifesaving support in that location.

### Current Nutrition Trends

Admission trends in the MAM and SAM programmes in Yida and Ajuong Thok show peak admission trends in October 2015 and June 2016, The peak in October 2015 could be due to the high malaria prevalence recorded at that time while the June 2016 peak could be explained by the high respiratory tract infection prevalence as a result of the beginning of the rainy season.

Comparison of the 2015 and the 2016 results show a decrease in the GAM prevalence in Ajuong Thok while the GAM prevalence is constant in Yida. The current GAM prevalence in Yida is 7.9 % (4.9-12.5 95% CI) which is almost the same as in 2015 when GAM was 7.9 % (6.1-10.1 95% CI). The Yida SAM prevalence results from the current survey is 2.0 % (0.9-4.3 95% CI) which is a little higher

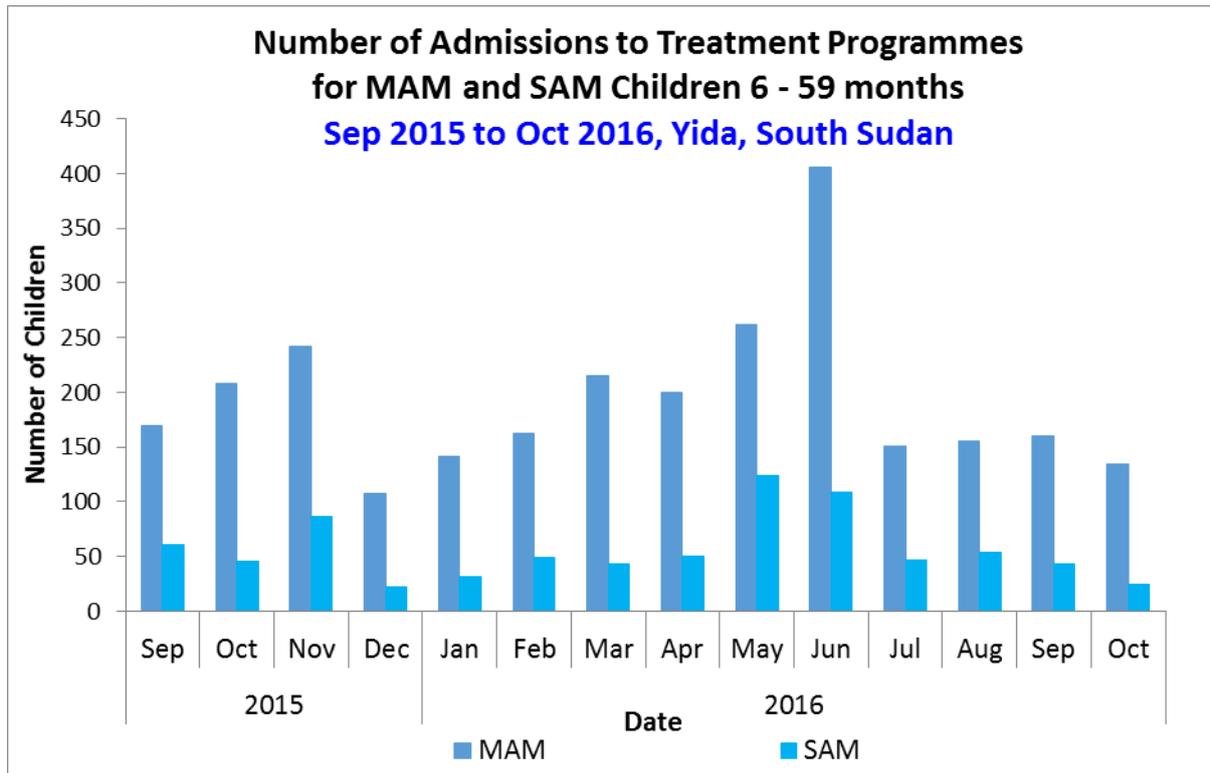
but not statistically significant than the 2015 finding when SAM was 1.6 % ( 0.9-1.8 95% CI). The confidence intervals from the 2016 findings are much wider than in 2015, this could be due to the smaller sample size in the 2016 survey. Also the upper confidence interval for the Yida GAM is over the 10% serious GAM threshold meaning that the GAM could actually be serious and not poor, therefore requires attention. In Ajuong Thok, there is reduction in both GAM and SAM between 2015 and 2016, this could be due to the stability of the Ajuong Thok population prior to the survey. The last significant number of new arrivals was received in June 2016 with the survey conducted in October in the location. Also there were no high prevalence of malaria and acute watery diarrhoea as was in 2015. In 2016, the Ajuong Thok GAM and SAM prevalence are 4.3 % ( 2.5-7.4 95%CI) and 0.8 % ( 0.3-2.4 95%CI) respectively, this is lower than in 2015 when GAM was 8.4 % ( 5.9-12.0 95%CI) and SAM was 1.5 % ( 0.7-3.2 95%CI). The implementation of the BSFP in both locations contributed to the findings. The mobility of the Yida population between Yida and the Nuba Mountains makes it difficult to reduce the malnutrition prevalence as some children often miss both the curative and preventive interventions.

Nutrition trends' monitoring using Mid Upper Arm Circumference (MUAC) monthly screening was conducted in both Yida and Ajuong Thok locations throughout 2016. The findings show acute malnutrition proportion less than 5% in Ajuong Thok which is the same as the survey findings. In Yida MUAC trend monitoring shows proportion of acute malnutrition based on MUAC data to be between 8% and 9% which is way higher than the survey findings of 3.6%. The possible explanation to this difference could be that in Yida the Community Nutrition Volunteers (CNV) had bias of screening mainly children who were already admitted in the Programme thus giving an impression of high proportion of acute malnutrition based on MUAC data. Also it could be that the CNV got demotivated from the time it was communicated that Yida will be closed which eventually led to CNVs not getting incentives.

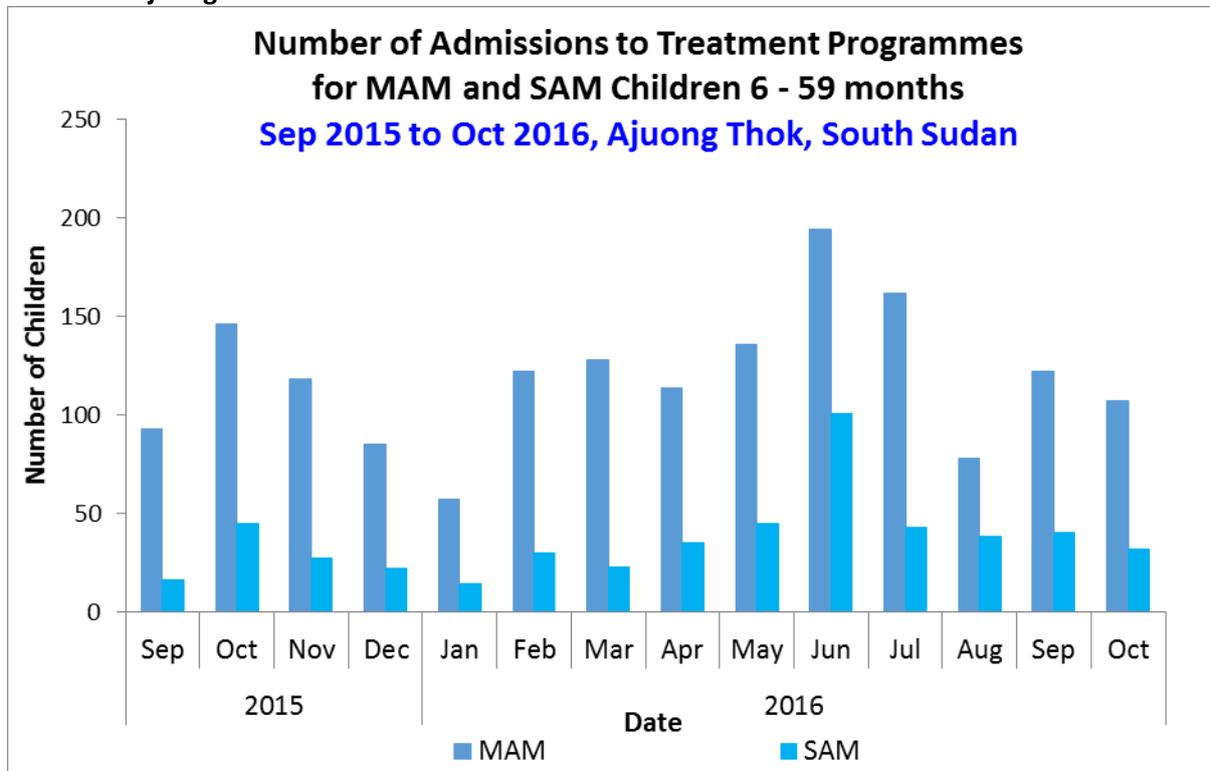
Stunting prevalence is of medium public health concern in Yida with total stunting of 33.3%(27.3-39.9 95%CI) and severe stunting of 11.4(8.0-16.0), while in Ajuong Thok, the survey results showed total stunting of 40.9%(36.3-45.6 95% CI) above the public health significance and severe stunting of 15.5%(11.9-20.1 95% CI). The 2016 results are the same as in 2015 when total stunting was 33.7 % ( 29.7-37.9 95% CI) in Yida and 40.4 % ( 36.0-45.0 95% CI) 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 59 months and over 70% among children 6 to 23 months. Just like in the case of stunting, the 2016 findings are the same as the 2015 results.

**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:**

1. To measure the prevalence of acute malnutrition in children aged 6-59.
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 received during 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 determine the population's access to, and use of, improved water, sanitation and hygiene facilities.
9. To determine the ownership of mosquito nets (all types and LLINs) in households.
10. 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:**

1. To determine the coverage of therapeutic feeding and targeted supplementary feeding programmes for children 6-59 months.
2. 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 1 below. The ENA for SMART software version July 9, 2015 was used to calculate the sample size. According to the SMART guidelines, the household was used as the sampling unit in the survey.

**Table 4: Anthropometry and Health Sample Size Calculation**

	Yida	Ajuong Thok
% Population Under 5 years	25.9%	22.7%
Estimated GAM Prevalence	7.9%	8.4%
Desired Precision	3	3
Design Effect	1.3	1.3
Non Response Rate	5%	5%
Average Household Size	6.9	6.1
Number of Children (ENA)	440	362
Number of Households	288	393

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 average household size estimate and the proportion of children under the age of 5 years used in the survey were obtained from the findings of the 2015 SENS results. The refugee total population was obtained from the UNHCR ProGres database as of September 30<sup>th</sup> 2016. The estimated GAM prevalence was obtained from the 2015 SENS results.

Two stage cluster sampling was used in this 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; sample size 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 14 households per cluster in Ajuong Thok and 10 households in Yida.

### **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, 2016. To assign clusters, the probability proportional to size (PPS) was employed using the ENA software. Each cluster comprised of 14 households in Ajuong Thok and 10 households in Yida.

### **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  $\geq 87$ 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.

### 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.

The table below 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 5: Nutritional Status and Anaemia indicators and cut-offs used**

Indicator		Children 6-59 months	Women 15-49 years Non-Pregnant
Acute Malnutrition <sup>1</sup>	Global acute malnutrition	WHZ <-2 and/or oedema	--
	Moderate acute malnutrition	WHZ <-2 and ≥-3	--
	Severe acute malnutrition	WHZ <-3 and/or oedema	--
Stunting <sup>1</sup>	Total stunting	HAZ <-2	--
	Moderate stunting	HAZ <-2 and ≥-3	--
	Severe stunting	HAZ <-3	--
Underweight <sup>1</sup>	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

<sup>1</sup> 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 (%) =

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

## Therapeutic feeding programme

Coverage of OTP programme (%) =

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

## 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 6: WASH Indicators Definition and Classification**

<b>Drinking Water</b>	<b>Improved source</b>	<b>Unimproved source</b>
	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.
<b>Sanitation facility definition</b>		
	<b>Improved category</b>	<b>Unimproved category</b>
	Pit latrine with slab	Pit latrine without slab (slab with holes) /open pit
		No facilities or bush or

	field/open defecation
<b>Sanitation facility classification based on definition and sharing</b>	
<b>Improved excreta disposal facility</b>	A toilet in the above “improved” category <b>AND</b> one that is <b>not shared</b> with other families*.**
<b>Shared family toilet</b>	A toilet in the above “improved” category <b>AND</b> one used by 2 families / households only (for a maximum of 12 people)**
<b>Communal toilet</b>	A toilet in the above “improved” category <b>AND</b> one used by 3 families / households or more
<b>Unimproved toilet</b>	A toilet in the above “unimproved” category <b>OR</b> a <b>public toilet</b> which any member of the public can use e.g. in hospitals or markets
*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an “ <b>improved excreta disposal facility</b> ” as a toilet in the above “improved” category <b>AND</b> one that is <b>not shared</b> with other families / households.	
**According to UNHCR WASH monitoring system, an “ <b>improved excreta disposal facility</b> ” is defined differently than in other survey instruments and is defined as a toilet in the above “improved” category <b>AND</b> 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”.	

**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%.

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

**Table 7: Classification of public health significance for children under 5 years of age (WHO 1995, 2000)**

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

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

**Table 8: 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
<b>SFP</b>	>75%	<3%	<15%	>50%	>70%	>90%
<b>SC/OTP</b>	>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 9: Recommended targets for measles vaccination and vitamin A supplementation in last 6 months (UNHCR SENS Guidelines)**

Indicator	Target Coverage
<b>Measles vaccination coverage (9-59m)</b>	95% (also SPHERE)
<b>Vitamin A supplementation in last 6 months coverage</b>	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 10: Classification of public health significance (WHO, 2000)**

Prevalence %	High	Medium	Low
<b>Anaemia</b>	≥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 11: 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 12: 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**

A total of 24 enumerators was trained and all participated in data collection. In each location there were six teams of four members conducting data collection. Two team members were responsible for entering data in the two phones, one entering individual questionnaires (child and anaemia questionnaires) and the second member entering household questionnaires (WASH and mosquito net questionnaires). The third team member was taking haemoglobin measurements. The fourth team member was responsible for taking anthropometric measurements and was assisted by the person with the phone for entering individual questionnaires. A team leader was assigned for each team from among the team members and had the responsibility of ensuring questionnaire completeness and completing the cluster control sheet. 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 Ruweng State.

#### **3.7.2 Training**

The training was conducted in Ajuong Thok from October 24<sup>th</sup> to the 28<sup>th</sup> inclusive. The first three days were dedicated to theoretical and practical aspects of the training which included making the participants familiar with the questionnaire and getting familiar with the mobile phone Open Data Kit (ODK) technology. 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 WFP Nutrition Programme Assistant who travelled from Juba for taking part in the training. 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 Ajuong Thok blocks 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 started in Ajuong Thok immediately after the training from October 29<sup>th</sup> 2016 to November the 2<sup>nd</sup> 2016. One day was given in-between data collection in Ajuong Thok and Yida to allow travelling from Ajuong Thok to Yida and for the teams to recuperate. Thereafter data collection resumed in Yida from November 4<sup>th</sup> to 8<sup>th</sup> 2016.

ODK compatible questionnaires from 2015 were used in the 2016 survey. Data was collected using the ODK for Android platform using eight Phantom Techno phones and four HTC One phones. Each team had two phones.

### **3.9 Data analysis**

At the end of each day's data collection, the Survey Coordinator checked each and every questionnaire for completeness and then finalised the questionnaires. Once the questionnaires were finalised, they were sent 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 on the following day of the survey.

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 ( $\pm 3$  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. 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 the below. The demographic characteristics of the population figures are obtained from the mosquito net module of the survey. It will be noticed that the number of under 5 survey is lower than the anticipated by about 18%, this was mainly due to absentees as the survey was conducted during the harvesting period when most people were out in the fields when the enumerators visited the households. Also the relocation from Yida to Pamir is likely to have affected reaching the targeted sample size.

**Table 13:** Demographic Characteristics of the Yida Survey Population

<b>Total households surveyed</b>	152
<b>Total population surveyed</b>	1086
<b>Total U5 surveyed</b>	232
<b>Average household size</b>	7.1
<b>% of U5</b>	21.4

The survey population demographic characteristics was drawn from the mosquito net questionnaire

#### 4.1.1 Anthropometry and Health; Children 6-59 months

##### 4.1.1.1 Sample size and clusters

**Table 14:** Target and Actual Number Captured

	<b>Target (No.)</b>	<b>Total surveyed (No.)</b>	<b>% of the target</b>
Children 6-59 months	440	363	82.5%
Clusters (where applicable)	30	30	100%

**Table 15:** Children 6-59 Months - Distribution of Age and Sex of Sample

<b>AGE (mo)</b>	<b>Boys</b>		<b>Girls</b>		<b>Total</b>		<b>Ratio</b>
	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>Boy: girl</b>
<b>6-17</b>	52	48.1	56	51.9	108	29.8	0.9
<b>18-29</b>	46	50.5	45	49.5	91	25.1	1.0
<b>30-41</b>	45	43.7	58	56.3	103	28.4	0.8
<b>42-53</b>	21	50.0	21	50.0	42	11.6	1.0
<b>54-59</b>	10	52.6	9	47.4	19	5.2	1.1
<b>Total</b>	174	47.9	189	52.1	363	100.0	0.9

*Percentage of children with no exact birthday: 34 %*

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.

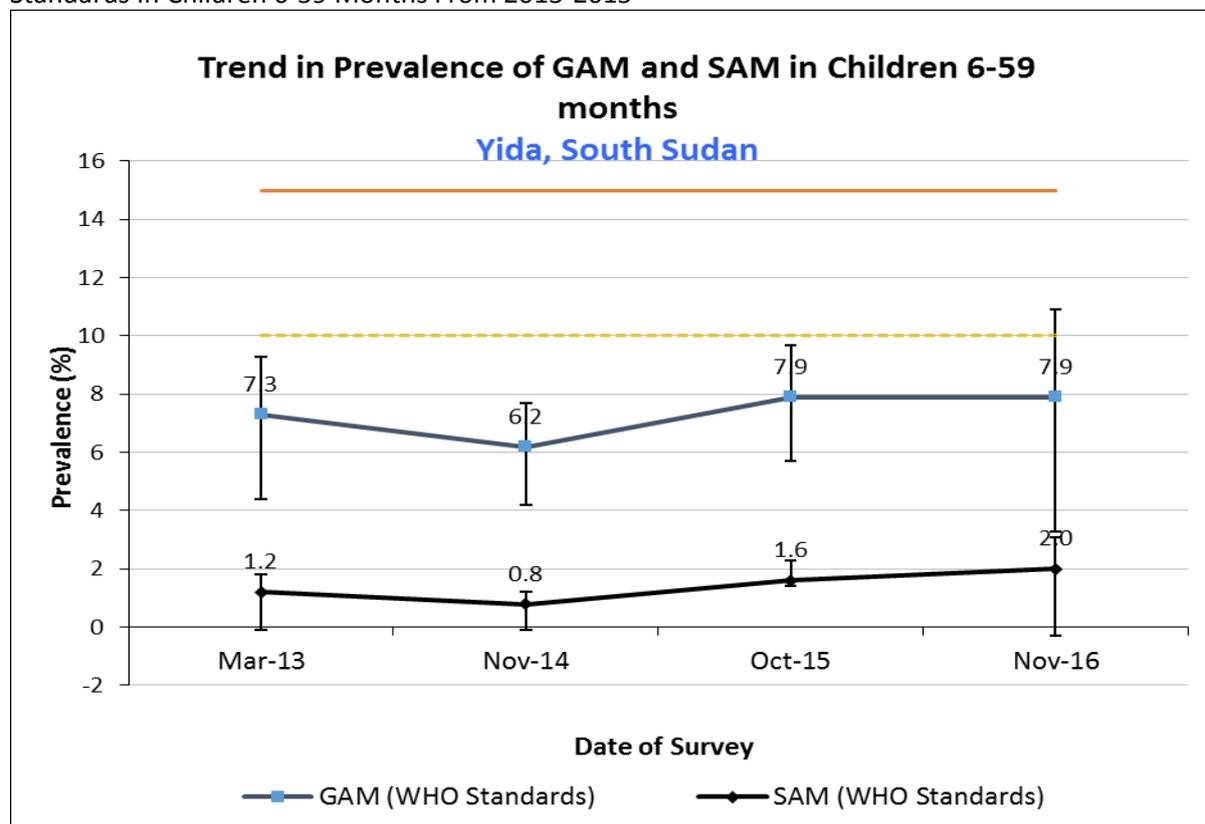
#### 4.1.1.2 Anthropometric results (based on WHO Growth Standards 2006)

**Table 16:** Prevalence of Acute Malnutrition Based On Weight-For-Height Z-Scores (And/or Oedema) and By Sex

	All n = 356	Boys n = 169	Girls n = 187
<b>Prevalence of global malnutrition (&lt;-2 z-score and/or oedema)</b>	(28) 7.9 % (4.9 - 12.5 95% C.I.)	(7) 4.1 % (2.1 - 7.9 95% C.I.)	(21) 11.2 % (6.3 - 19.2 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt;-2 z-score and &gt;=-3 z-score, no oedema)</b>	(21) 5.9 % (3.3 - 10.3 95% C.I.)	(7) 4.1 % (2.1 - 7.9 95% C.I.)	(14) 7.5 % (3.6 - 15.0 95% C.I.)
<b>Prevalence of severe malnutrition (&lt;-3 z-score and/or oedema)</b>	(7) 2.0 % (0.9 - 4.3 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(7) 3.7 % (1.7 - 8.2 95% C.I.)

The prevalence of oedema is 0.0 %

**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

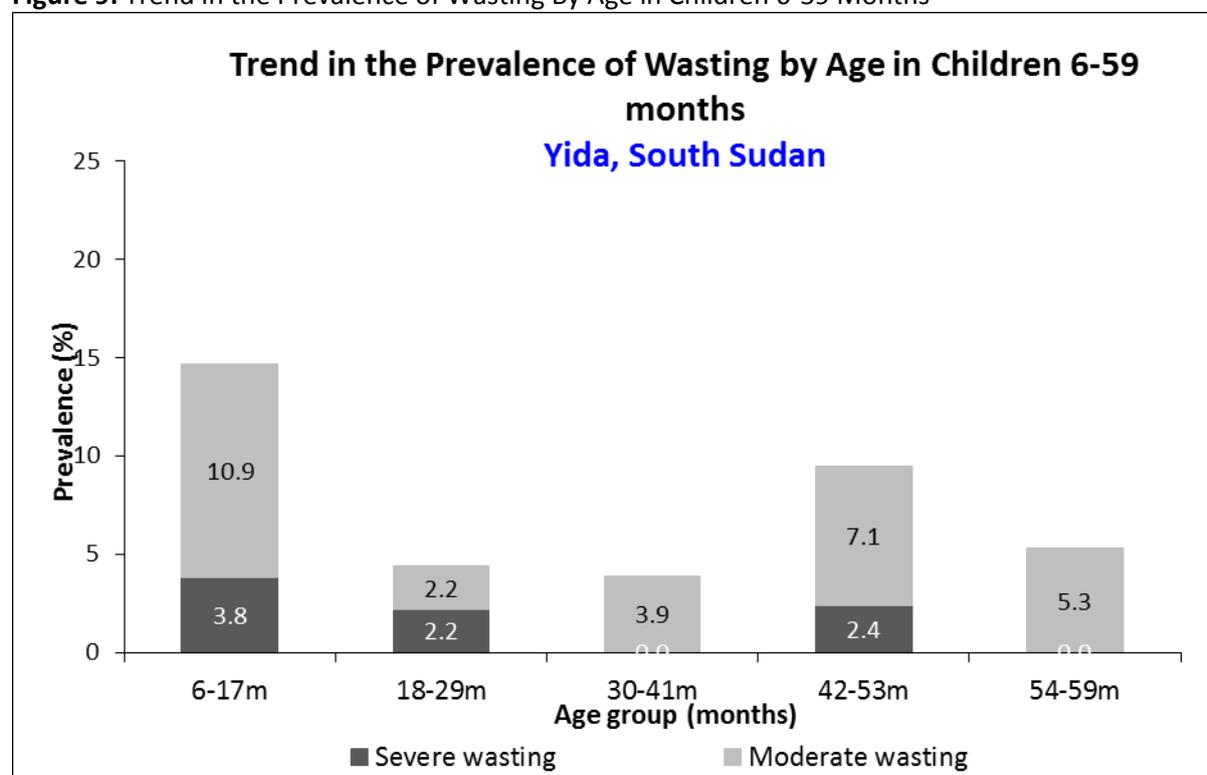


The GAM and SAM trends graph above shows an increase in the acute malnutrition prevalence in 2015 compared to the other years. Possible reasons are elaborated in the discussion section of this report. The GAM is classified as poor according to the WHO classification.

**Table 17:** 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	104	4	3.8	11	10.6	89	85.6	0	0.0
18-29	89	2	2.2	2	2.2	85	95.5	0	0.0
30-41	102	0	0.0	4	3.9	98	96.1	0	0.0
42-53	42	1	2.4	3	7.1	38	90.5	0	0.0
54-59	19	0	0.0	1	5.3	18	94.7	0	0.0
<b>Total</b>	<b>356</b>	<b>7</b>	<b>2.0</b>	<b>21</b>	<b>5.9</b>	<b>328</b>	<b>92.1</b>	<b>0</b>	<b>0.0</b>

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



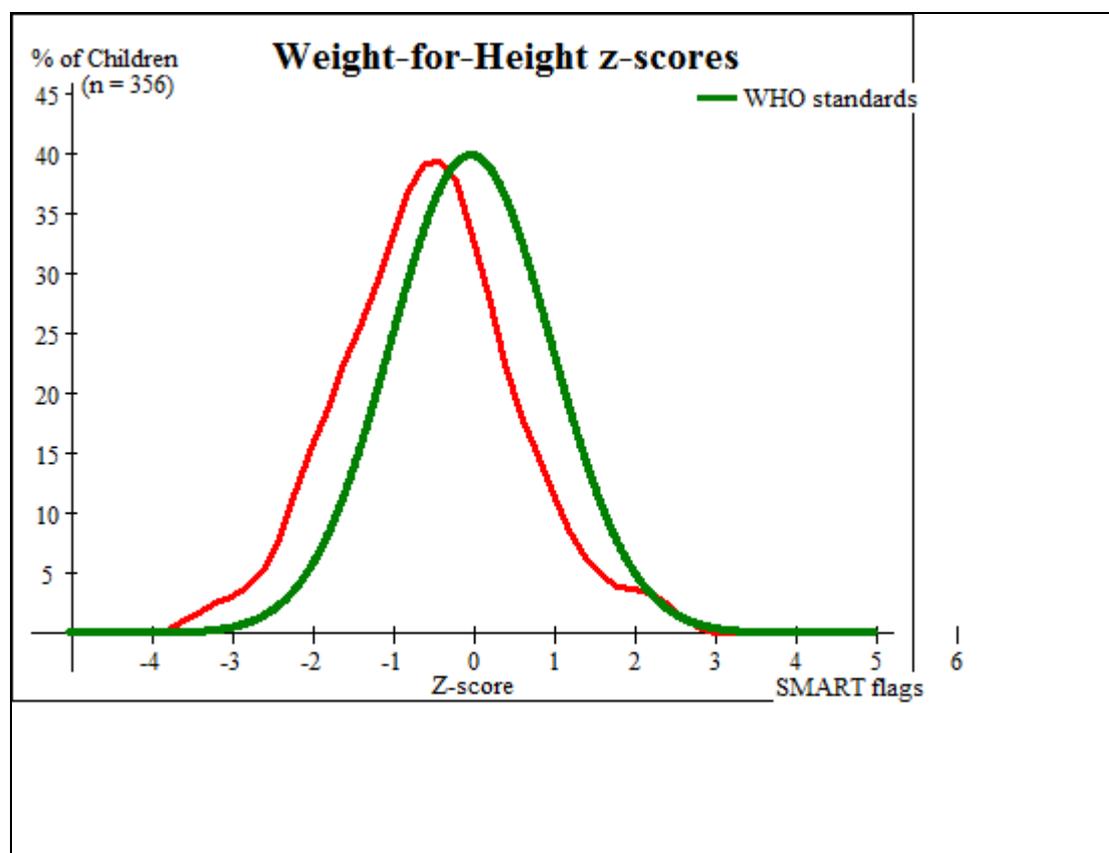
**Table 18:** Distribution of Severe Acute Malnutrition and Oedema Based On Weight-For-Height Z-Scores

	<-3 z-score	>=-3 z-score
<b>Oedema present</b>	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
<b>Oedema absent</b>	Marasmic No. 10 (2.8 %)	Not severely malnourished No. 352 (97.2 %)

Figure 10 below 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 19:** Prevalence of MUAC Malnutrition

	All n = 362	Boys n = 173	Girls n = 189
<b>Prevalence of global malnutrition (&lt; 125 mm and/or oedema)</b>	(13) 3.6 % (2.0 - 6.5 95% C.I.)	(4) 2.3 % (0.9 - 6.0 95% C.I.)	(9) 4.8 % (2.4 - 9.3 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt; 125 mm and &gt;= 115 mm, no oedema)</b>	(12) 3.3 % (1.7 - 6.2 95% C.I.)	(4) 2.3 % (0.9 - 6.0 95% C.I.)	(8) 4.2 % (2.0 - 8.7 95% C.I.)
<b>Prevalence of severe malnutrition (&lt; 115 mm and/or oedema)</b>	(1) 0.3 % (0.0 - 2.2 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.5 % (0.1 - 4.1 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 20:** 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	107	1	0.9	9	8.4	97	90.7	0	0.0
18-29	91	0	0.0	3	3.3	88	96.7	0	0.0
30-41	103	0	0.0	0	0.0	103	100.0	0	0.0
42-53	42	0	0.0	0	0.0	42	100.0	0	0.0
54-59	19	0	0.0	0	0.0	19	100.0	0	0.0
<b>Total</b>	<b>362</b>	<b>1</b>	<b>0.3</b>	<b>12</b>	<b>3.3</b>	<b>349</b>	<b>96.4</b>	<b>0</b>	<b>0.0</b>

**Table 21:** Prevalence of Underweight Based On Weight-For-Age Z-Scores by Sex

	All n = 362	Boys n = 173	Girls n = 189
Prevalence of underweight (<-2 z-score)	(73) 20.2 % (16.6 - 24.3 95% C.I.)	(41) 23.7 % (18.3 - 30.2 95% C.I.)	(32) 16.9 % (11.5 - 24.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(62) 17.1 % (14.1 - 20.6 95% C.I.)	(34) 19.7 % (14.4 - 26.2 95% C.I.)	(28) 14.8 % (10.1 - 21.3 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(11) 3.0 % (1.8 - 5.2 95% C.I.)	(7) 4.0 % (2.1 - 7.8 95% C.I.)	(4) 2.1 % (0.6 - 6.9 95% C.I.)

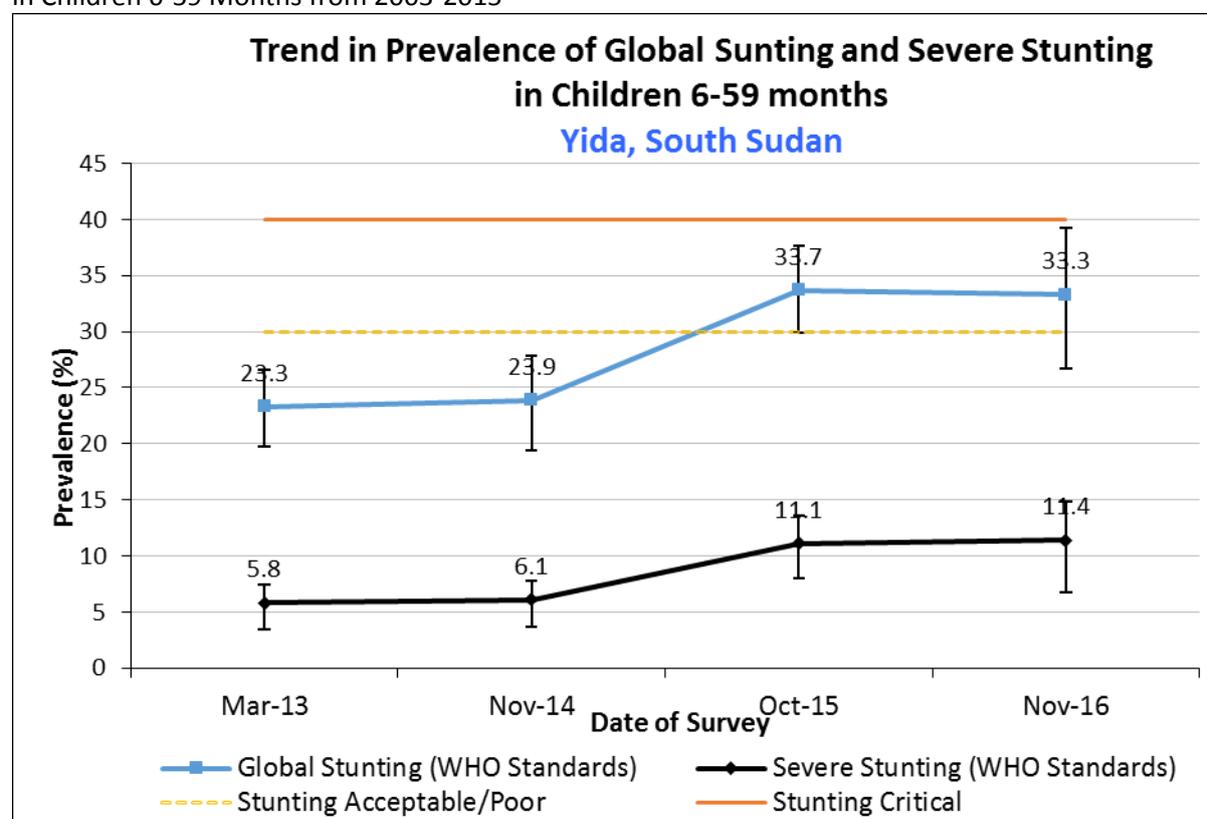
**Table 22:** Prevalence of Underweight by Age, Based On Weight-For-Age Z-Scores and/or Oedema

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	108	5	4.6	20	18.5	83	76.9	0	0.0
18-29	90	3	3.3	17	18.9	70	77.8	0	0.0
30-41	103	2	1.9	12	11.7	89	86.4	0	0.0
42-53	42	0	0.0	9	21.4	33	78.6	0	0.0
54-59	19	1	5.3	4	21.1	14	73.7	0	0.0
<b>Total</b>	<b>362</b>	<b>11</b>	<b>3.0</b>	<b>62</b>	<b>17.1</b>	<b>289</b>	<b>79.8</b>	<b>0</b>	<b>0.0</b>

**Table 23:** Prevalence of Stunting Based On Height-For-Age Z-Scores and By Sex

	All n = 351	Boys n = 168	Girls n = 183
<b>Prevalence of stunting (&lt;-2 z-score)</b>	(117) 33.3 % (27.3 - 39.9 95% C.I.)	(54) 32.1 % (24.7 - 40.7 95% C.I.)	(63) 34.4 % (26.9 - 42.8 95% C.I.)
<b>Prevalence of moderate stunting (&lt;-2 z-score and &gt;=-3 z-score)</b>	(77) 21.9 % (17.5 - 27.1 95% C.I.)	(34) 20.2 % (14.9 - 26.8 95% C.I.)	(43) 23.5 % (17.2 - 31.2 95% C.I.)
<b>Prevalence of severe stunting (&lt;-3 z-score)</b>	(40) 11.4 % (8.0 - 16.0 95% C.I.)	(20) 11.9 % (7.2 - 19.0 95% C.I.)	(20) 10.9 % (6.4 - 18.1 95% C.I.)

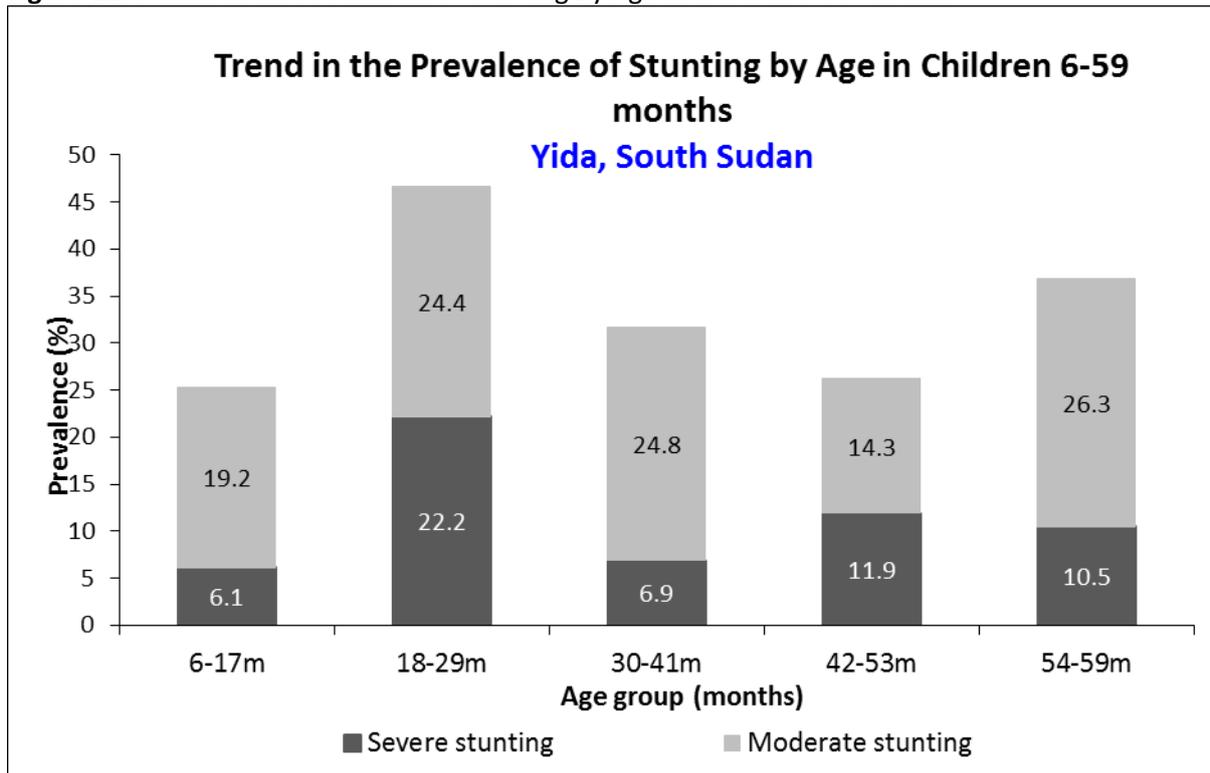
**Figure 11:** Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards in Children 6-59 Months from 2003-2015



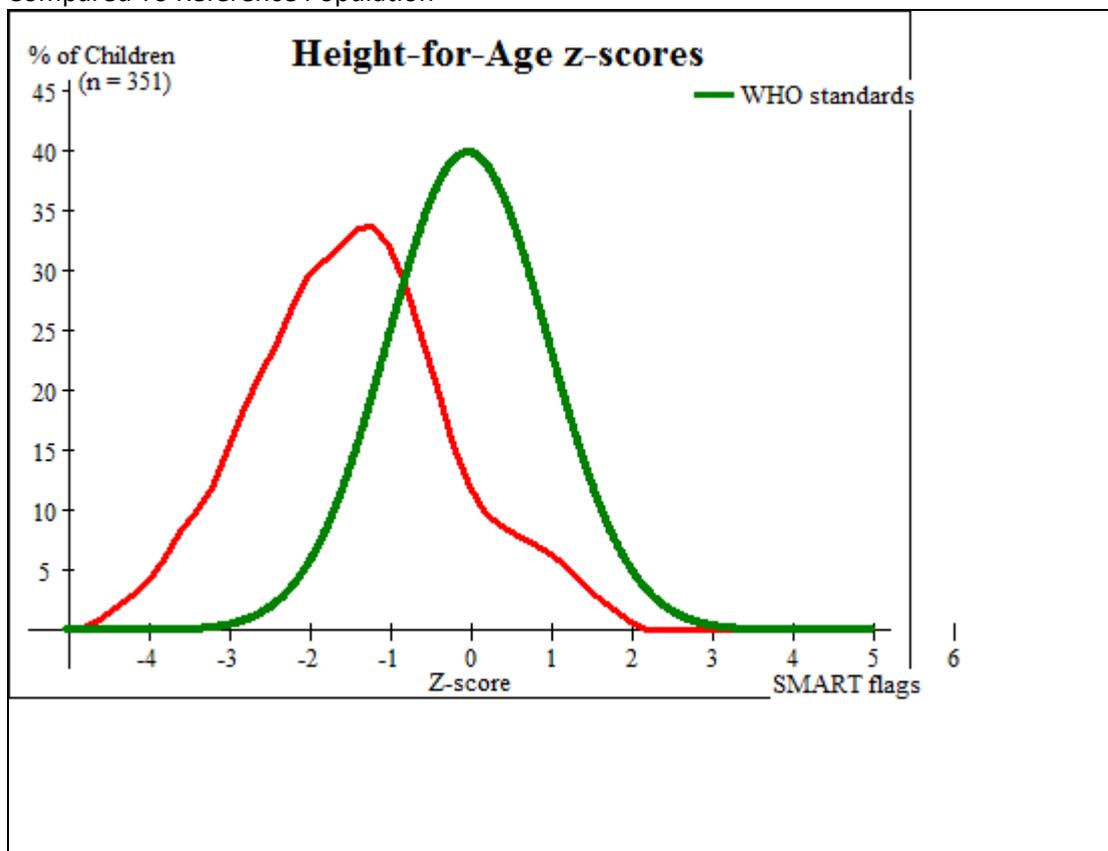
**Table 24:** Prevalence of Stunting By Age Based On Height-For-Age Z-Scores

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	99	6	6.1	19	19.2	74	74.7
18-29	90	20	22.2	22	24.4	48	53.3
30-41	101	7	6.9	25	24.8	69	68.3
42-53	42	5	11.9	6	14.3	31	73.8
54-59	19	2	10.5	5	26.3	12	63.2
<b>Total</b>	<b>351</b>	<b>40</b>	<b>11.4</b>	<b>77</b>	<b>21.9</b>	<b>234</b>	<b>66.7</b>

**Figure 12:** Trends in the Prevalence of Stunting By Age in Children 6-59 Months



**Figure 13:** 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 25:** Prevalence of Overweight Based On Weight for Height Cut Off's and By Sex (No Oedema)

	<b>All</b> n = 356	<b>Boys</b> n = 169	<b>Girls</b> n = 187
<b>Prevalence of overweight (WHZ &gt; 2)</b>	(8) 2.2 % (0.9 - 5.4 95% C.I.)	(5) 3.0 % (1.2 - 6.9 95% C.I.)	(3) 1.6 % (0.2 - 11.4 95% C.I.)
<b>Prevalence of severe overweight (WHZ &gt; 3)</b>	(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 26:** 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	104	0	0.0	0	0.0
18-29	89	3	3.4	0	0.0
30-41	102	4	3.9	0	0.0
42-53	42	1	2.4	0	0.0
54-59	19	0	0.0	0	0.0
<b>Total</b>	<b>356</b>	<b>8</b>	<b>2.2</b>	<b>0</b>	<b>0.0</b>

**Table 27:** 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	356	-0.54±1.07	1.61	1	6
Weight-for-Age	362	-1.13±1.02	1.00	0	1
Height-for-Age	351	-1.46±1.20	1.50	1	11

\* contains for WHZ and WAZ the children with oedema.

#### 4.1.1.3 Feeding programme coverage results

**Table 28:** Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema & WHZ

	Number/total	% (95% CI)
<b>Supplementary feeding programme coverage</b>	4/26	15.4(0-32.0)
<b>Therapeutic feeding programme coverage</b>	0/0	0(0-0)

**Table 29:** Programme coverage for acutely malnourished children based on MUAC and oedema

	Number/total	% (95% CI)
<b>Supplementary feeding programme coverage</b>	3/12	25(0-58.0)
<b>Therapeutic feeding programme coverage</b>	2/8	25(0-67.1)

#### 4.1.1.4 Measles vaccination coverage results

**Table 30:** Measles Vaccination Coverage for Children Aged 9-59 Months (N=332)

	<b>Measles (with card) n=167</b>	<b>Measles (with card <u>or</u> confirmation from mother) n=292</b>
<b>YES</b>	50.3% (40.9-59.7 95% CI)	88.0 % (83.6-92.3 95% CI)

**4.1.1.5 Vitamin A supplementation coverage results**

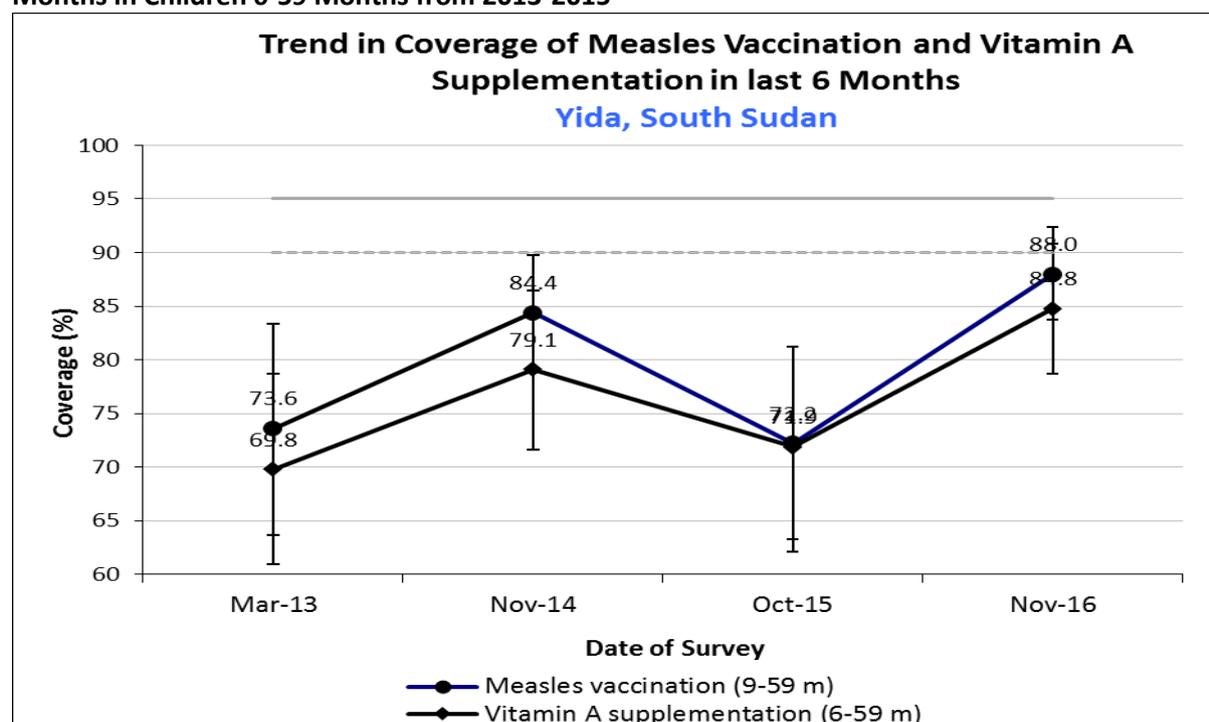
**Table 31:** Vitamin A Supplementation for Children Aged 6-59 Months in Past 6 Months (N=363)

	<b>Vitamin A capsule (with card) n=142</b>	<b>Vitamin A capsule (with card <u>or</u> confirmation from mother) n=308</b>
<b>YES</b>	39.1% (27.3-50.9 95% CI)	84.8 % (78.8-90.9 95% CI)

**Table 32:** DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=704)

	<b>DPT3/PENTA3 (with card) n=154</b>	<b>DPT3/PENTA3 (with card <u>or</u> confirmation from mother) n=302</b>
<b>YES</b>	42.5% (33.8-51.3 95% CI)	83.4 % (76.8-90.1 95% CI)

**Figure 14:** 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 33:** Period Prevalence of Diarrhoea

	Number/total	% (95% CI)
<b>Diarrhoea in the last two weeks</b>	78/362	21.5 (12.3-30.8)

#### 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).

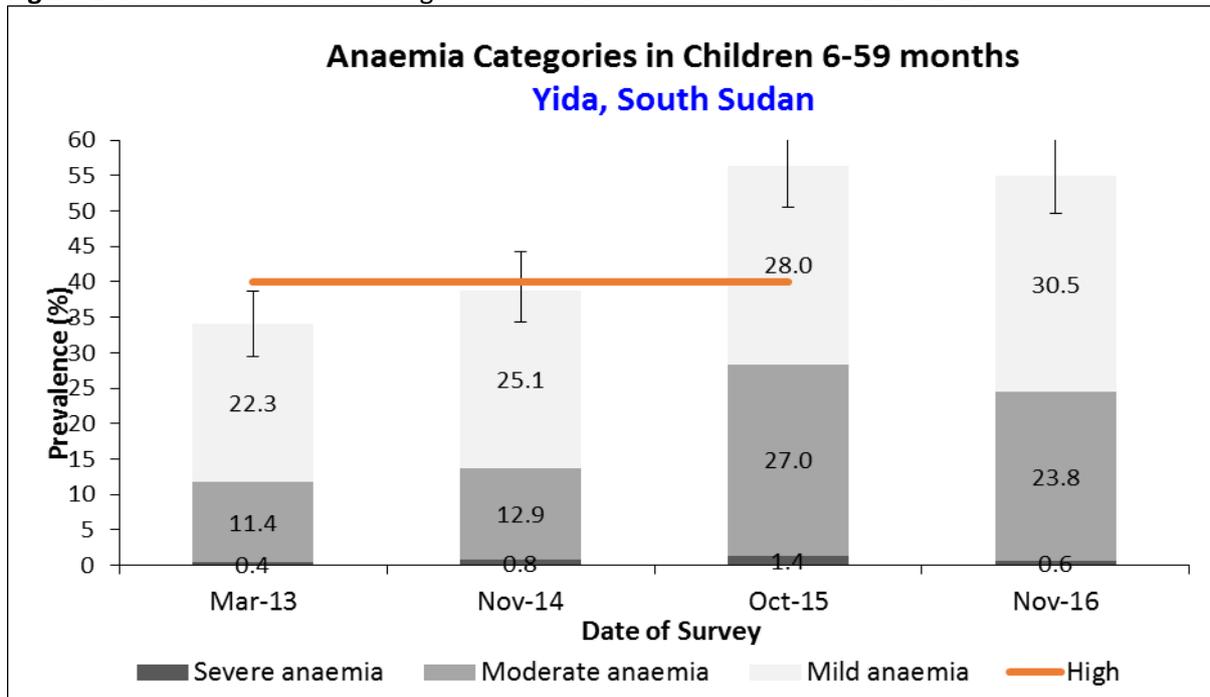
**Table 34:** Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group

	<b>6-59 months</b> n = 361	<b>6-23 months</b> n=147	<b>24-59 months</b> n=214
<b>Total Anaemia (Hb&lt;11.0 g/dL)</b>	(198) 54.8% (49.6-60.1 95% CI)	(106) 72.1 (65.4-78.9 95% CI)	(92) 43.0 (36.4-49.6 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(110) 30.5% (25.4-35.6 95% CI )	(53) 36.1 (27.1-45.0 95% CI )	(57) 26.6 (21.7-31.6 95% CI )
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(86) 23.8% (19.9-27.8 95% CI )	(52) 35.4 (27.7-43.1 95% CI)	(34) 15.9 (10.9-20.9 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(2) 0.6% (0-1.4 95% CI )	(1) 0.7% (0-2.1 95% CI )	(1) 0.5 (0-1.4 95% CI)
<b>Mean Hb, g/dL (95% CI) [range]</b>	10.8 g/dL (10.6-11.0 95% CI ) [6.2-19.7]	10.3 g/dL (10.1-10.5 95% CI ) [6.8-14.6]	11.2 g/dL (11.0-11.4 95% CI ) [6.2-19.7]

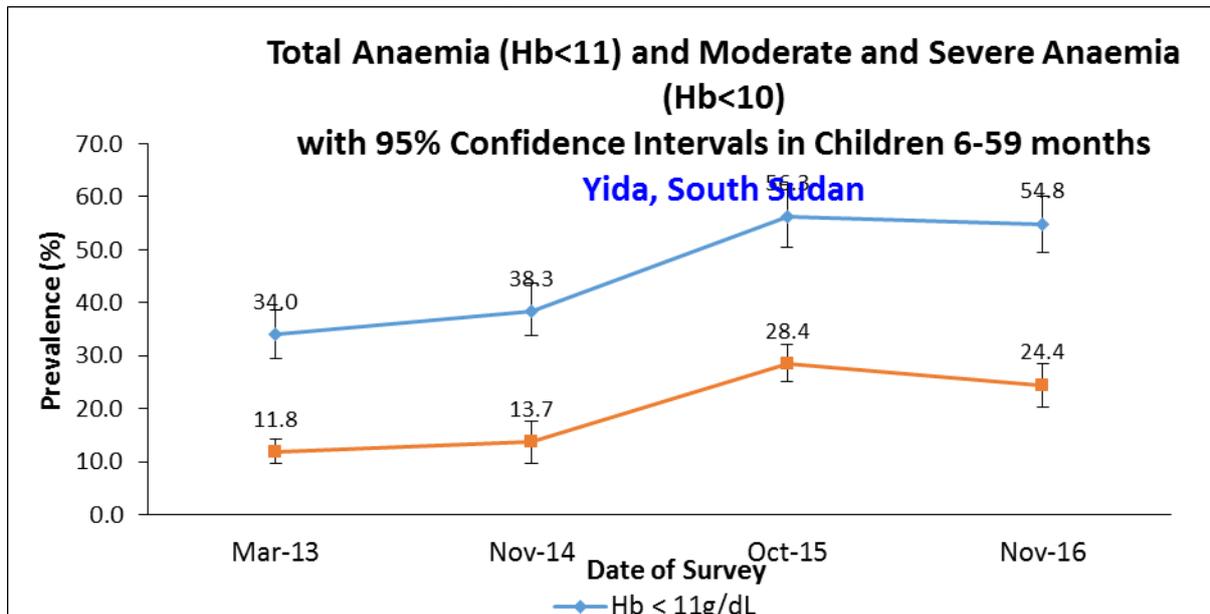
**Table 35:** Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group

	<b>6-59 months</b> n = 361	<b>6-23 months</b> n=147	<b>24-59 months</b> n=393
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(88) 24.4 % (20.3-28.4 95% CI)	(53) 36.1% (28.2-43.9 95% CI)	(35) 16.4 % (11.4-21.4 95% CI)

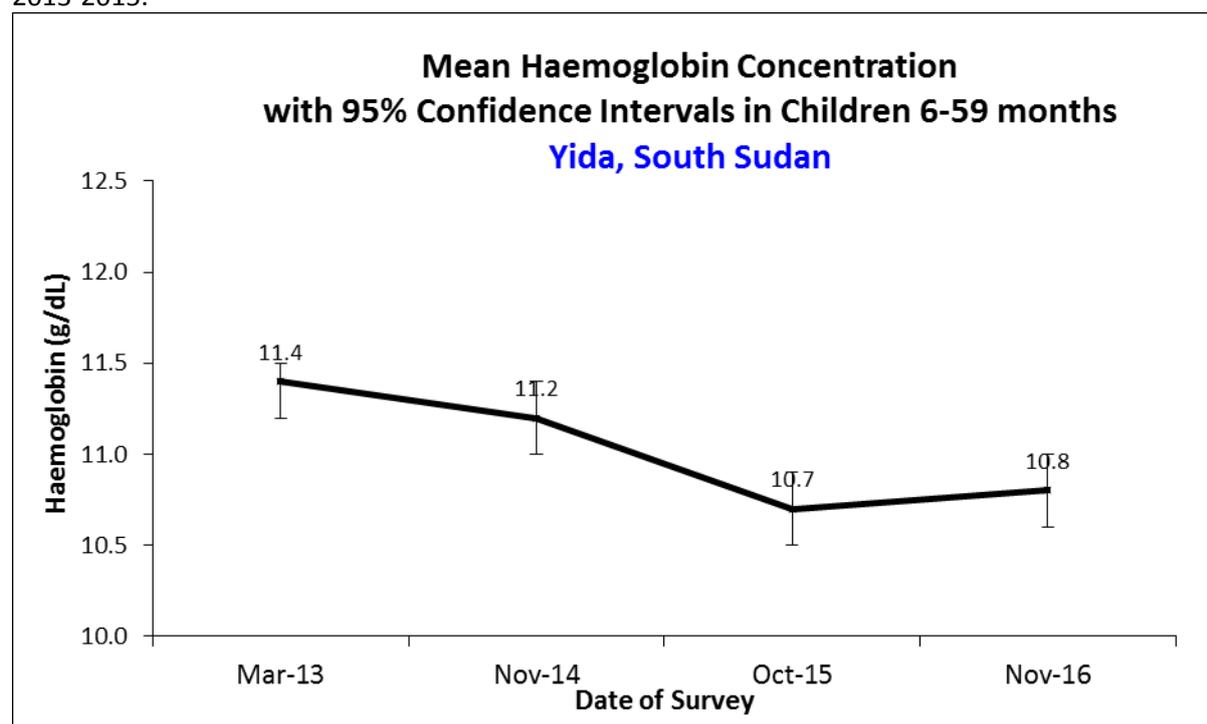
**Figure 15:** Trends In Anaemia Categories in Children 6-59 Months from 2013-2015



**Figure 16:** 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 17:** Trend In Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2013-2015.

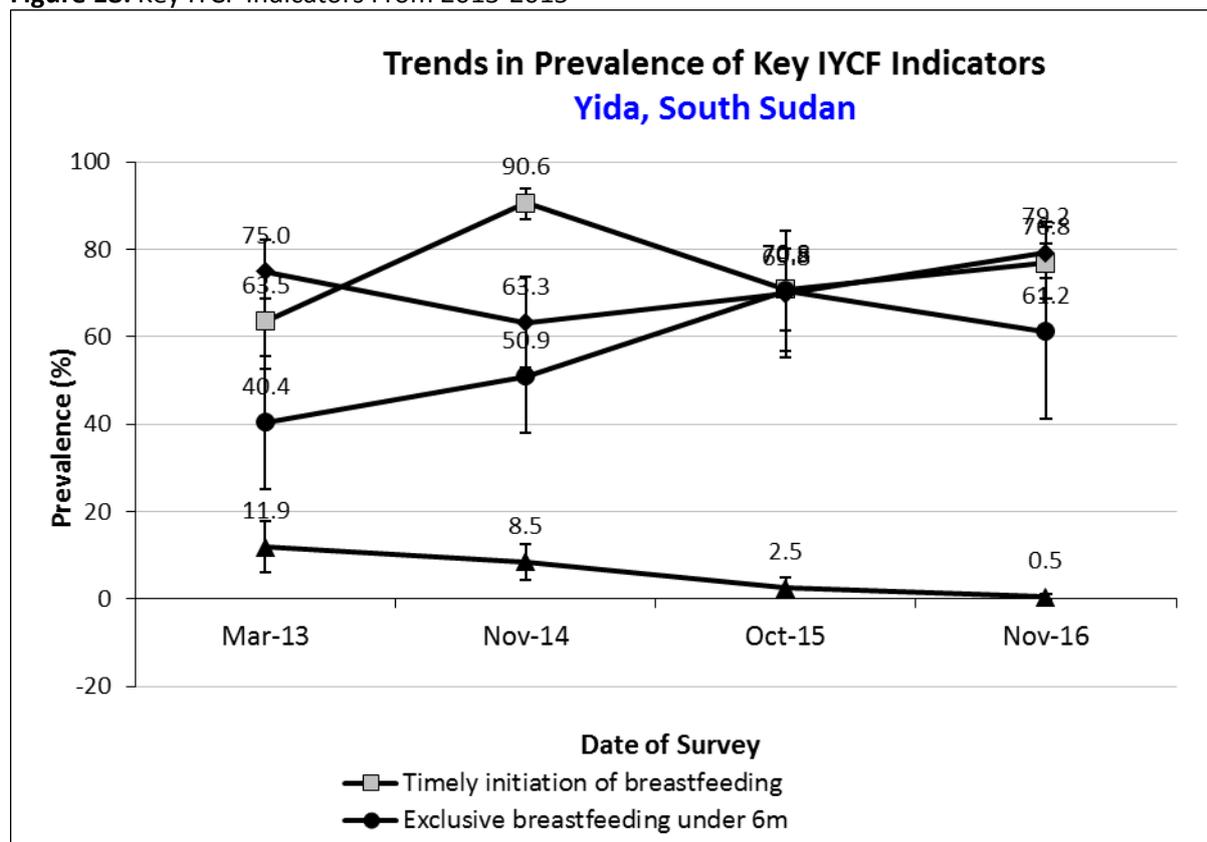


#### 4.1.3 IYCF; Children 0-23 months

**Table 36:** Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	152/198	76.8	68.5-85.0
Exclusive breastfeeding under 6 months	0-5 months	30/49	61.2	41.2-81.3
Continued breastfeeding at 1 year	12-15 months	31/34	91.2	80.8-100
Continued breastfeeding at 2 years	20-23 months	9/21	42.9	22.5-63.2
Introduction of solid, semi-solid or soft foods	6-8 months	16/33	48.5	25.3-71.7
Consumption of iron-rich or iron-fortified foods	6-23 months	118/149	79.2	72.0-84.9
Bottle feeding	0-23 months	1/198	0.5	0-1.5

**Figure 18:** Key IYCF Indicators From 2013-2015



**Prevalence of intake**

**Infant formula**

**Table 37:** 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)	0/198	0 (0-0)

**Fortified blended foods**

**Table 38:** CSB+ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB	1/149	0.7 (0-3.7)

**Table 39:** CSB++ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	118/149	79.2 (74.0-84.9)

#### 4.1.4 Anaemia Women 15-49 years

**Table 40:** Women Physiological Status and Age

Physiological status	Number/total	% of sample
Non-pregnant	146	89.0
Pregnant	18	11.0
Mean age (range)	25.6(15-47)	

**Table 41:** 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 = 146
Total Anaemia (<12.0 g/dL)	(40) 27.4% (21.5-33.3 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(22) 15.1% (10.4-19.8 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(17) 11.6% (7.2-16.0 95% CI)
Severe Anaemia (<8.0 g/dL)	(1) 0.7 (0-2.0 95% CI)
Mean Hb, g/dL (SD) [range]	12.6 g/dL 0.1 [7.0-16.1]

**Figure 19:** Trends In Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2013-2015.

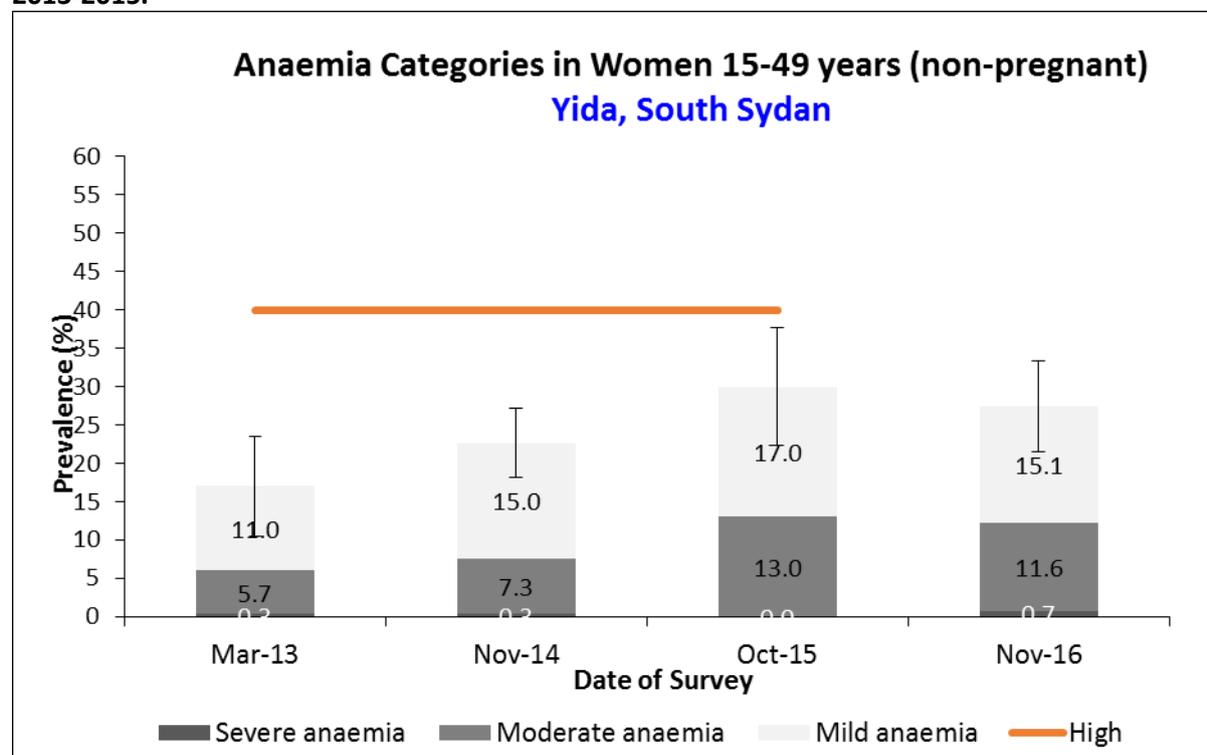


Figure 20: Trend In Mean Haemoglobin Concentration With 95% CI in Women of Reproductive Age (Non-Pregnant) From 2013-2015.

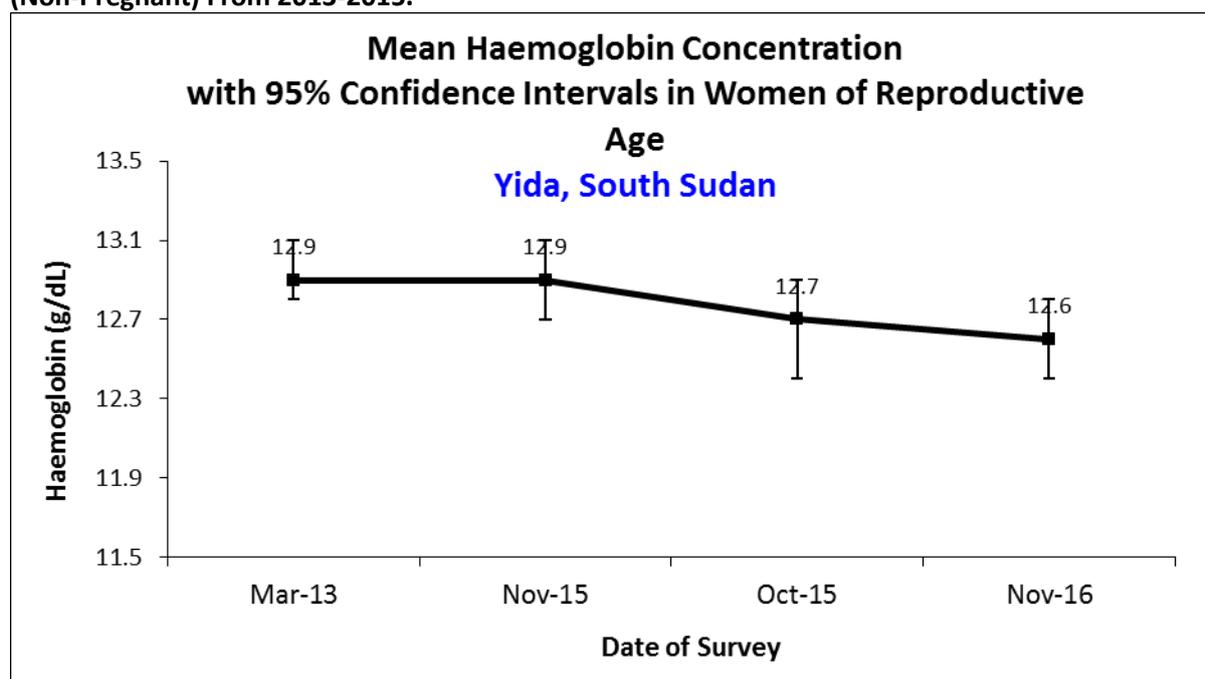


Table 42: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	14/18	77.8 (58.6-97.0)
Currently receiving iron-folic acid pills	14/18	77.8 (58.6-97.0)

#### 4.1.5 WASH

Table 43: WASH Sampling Information

Household data	Planned	Actual	% of target
Total households surveyed for WASH	288	281	97.6

Table 44: Water Quality

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	281/281	100.0 (100.0-100.0)
Proportion of households that use a covered or narrow necked container for storing their drinking water	147/280	52.5 (38.5-66.5)

**Table 45:** Water Quantity: Amount of Litres of Water Used Per Person per Day

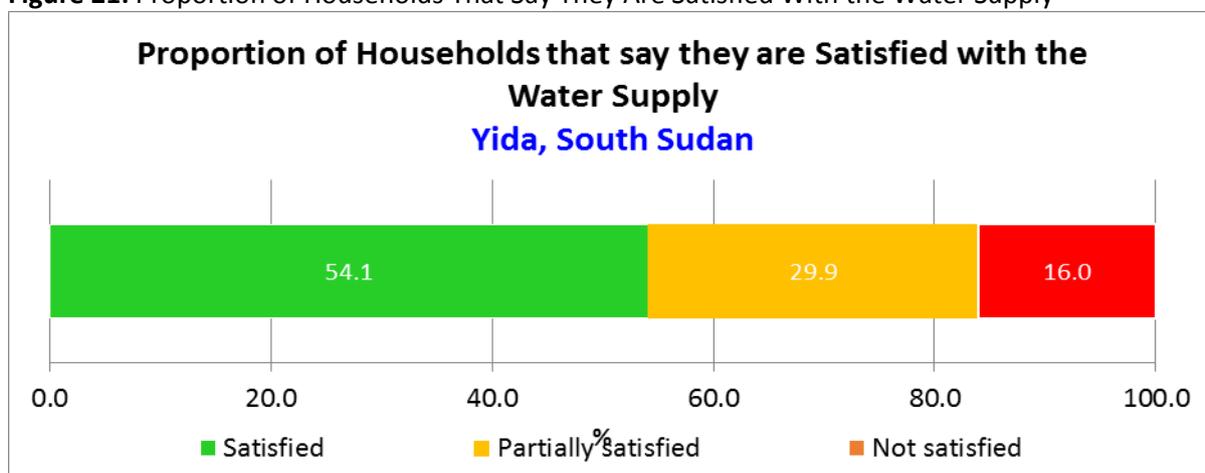
Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	137/281	48.8 (41.7-55.8)
15 – <20 lpppd	77/281	27.4 (21.3-33.4)
<15 lpppd	67/281	23.8 (16.6-31.1)

Add the average water usage in lpppd: \_\_\_\_\_ 20.0 lpppd \_\_\_\_\_

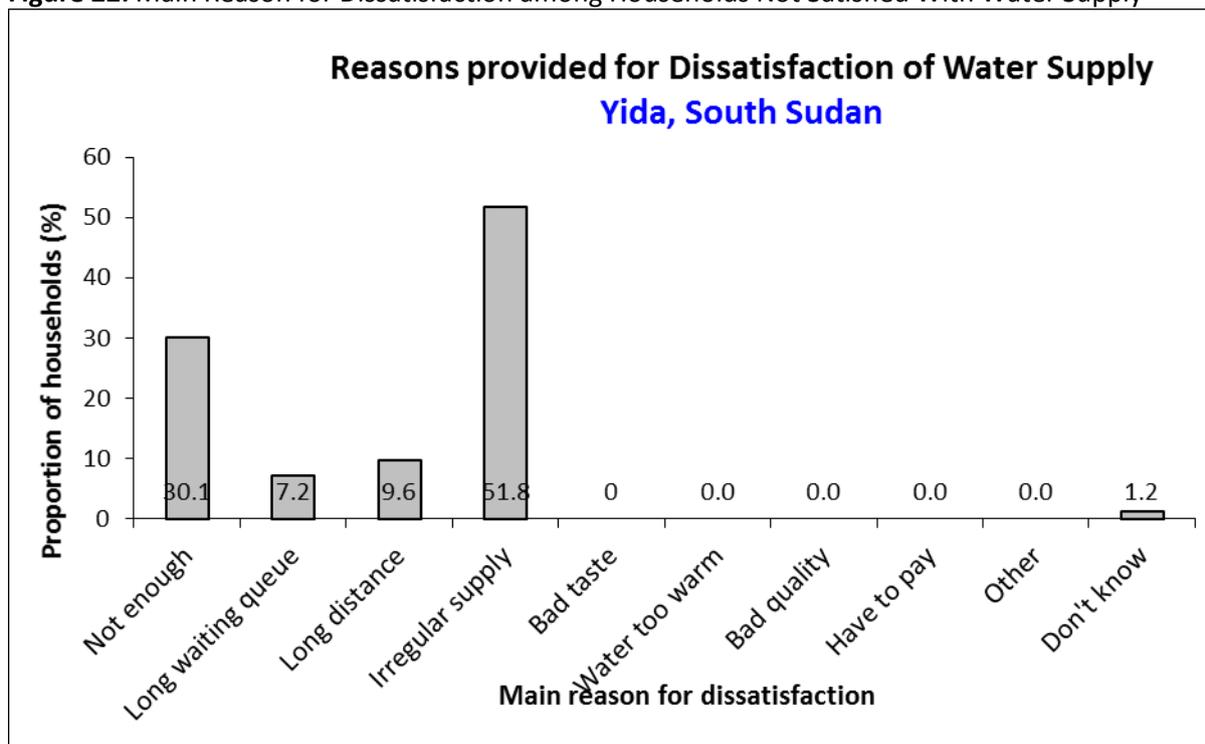
**Table 46:** Satisfaction with Water Supply

Proportion of households that say they are satisfied with the drinking water supply	Number/total	% (95% CI)
	152/281	54.1 (41.1-67.1)

**Figure 21:** Proportion of Households That Say They Are Satisfied With the Water Supply



**Figure 22:** Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply



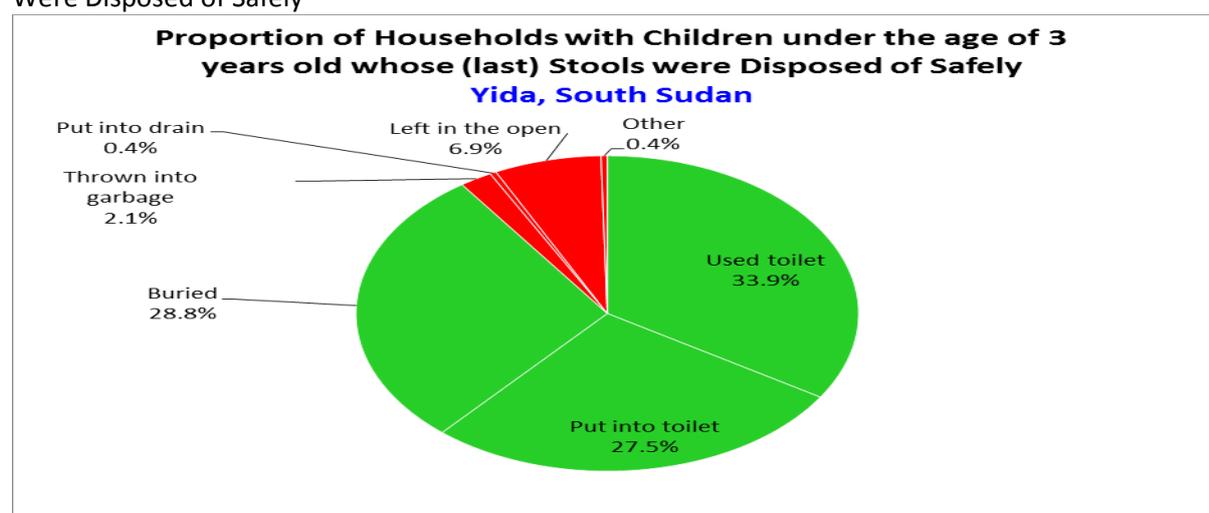
**Table 47:** Safe Excreta Disposal

	Number/total	% (95% CI)
<b>Proportion of households that use:</b>		
<b>An improved excreta disposal facility (improved toilet facility, 1 household)</b>	47/265	17.7 (8.6-26.8)
<b>A shared family toilet (improved toilet facility, 2 households)</b>	60/265	22.6 (12.6-32.7)
<b>A communal toilet (improved toilet facility, 3 households or more)</b>	40/265	15.1 (7.2-23.0)
<b>An unimproved toilet (unimproved toilet facility or public toilet)</b>	118/265	44.5 (29.4-59.7)
<b>Proportion of households with children under three years old that dispose of faeces safely</b>	210/233	90.1 (82.0-98.3)

\*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 23:** Proportion of Households with Children under the Age of 3 Years whose (Last) Stools Were Disposed of Safely



#### 4.1.6 Mosquito Net Coverage

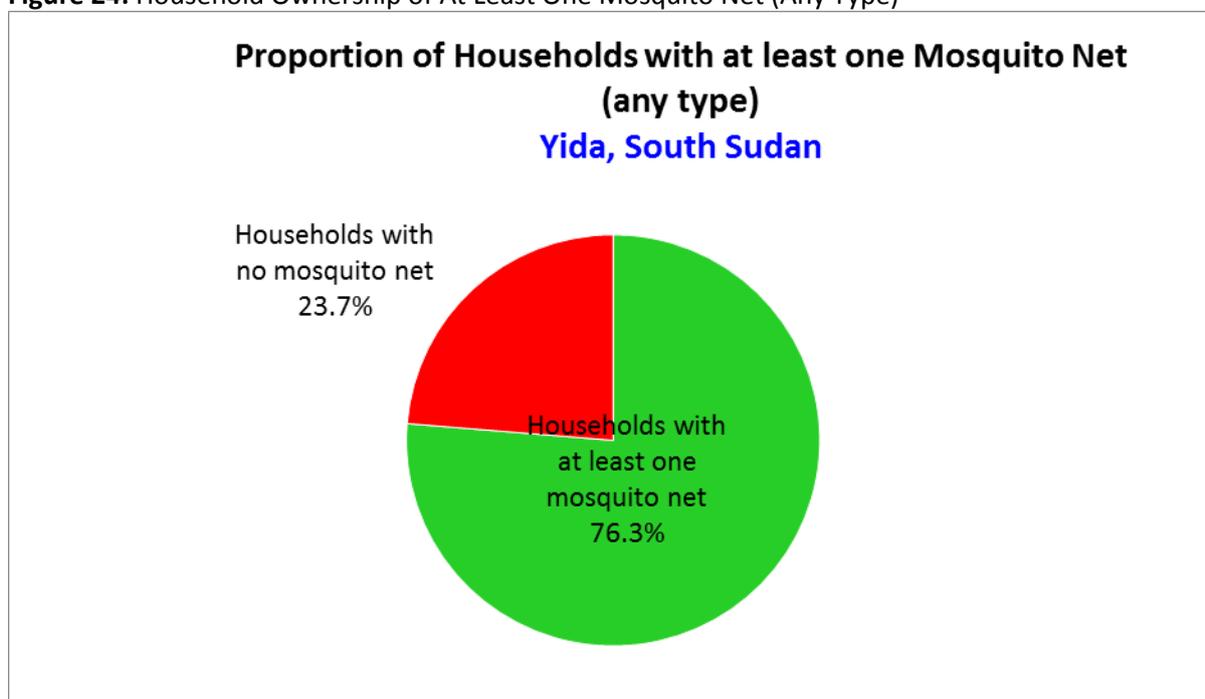
**Table 48:** Mosquito Net Coverage Sampling Information

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	152	144	105.6

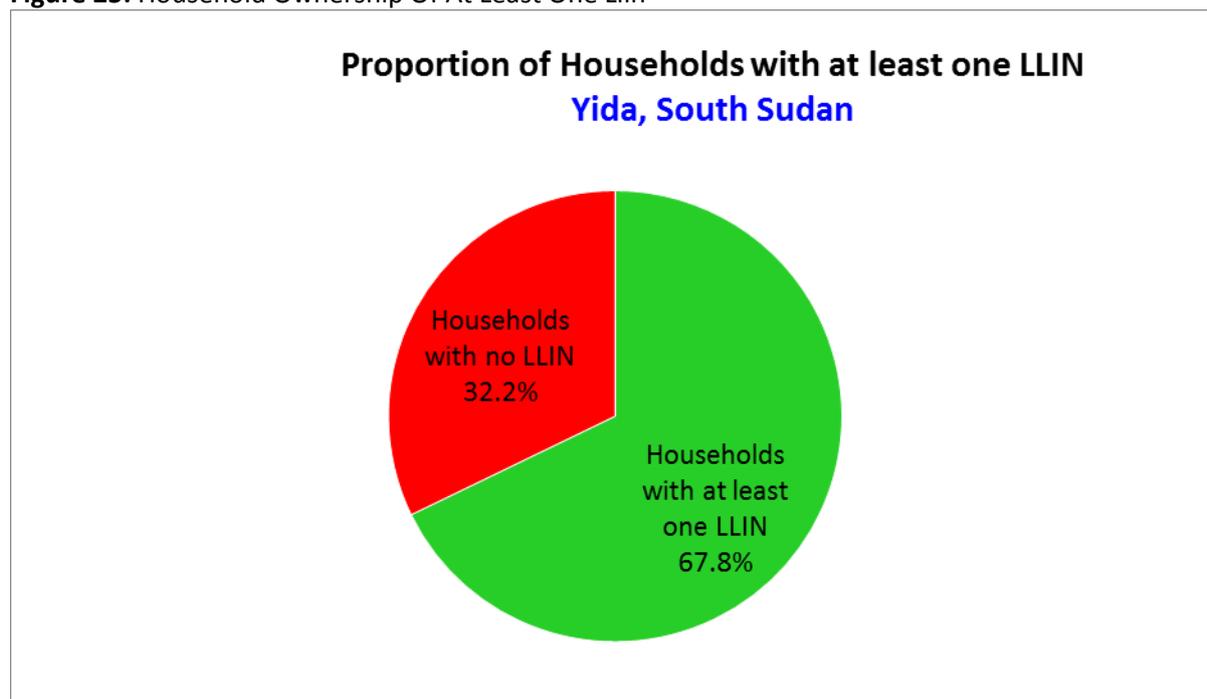
**Table 49:** Household Mosquito Net Ownership

	Number/total	% (95% CI)
Proportion of households owning at least one mosquito net of any type	116/152	76.3 (66.6-86.1)
Proportion of households owning at least one LLIN	103/152	67.8 (56.6-78.9)

**Figure 24:** Household Ownership of At Least One Mosquito Net (Any Type)



**Figure 25:** Household Ownership Of At Least One Llin



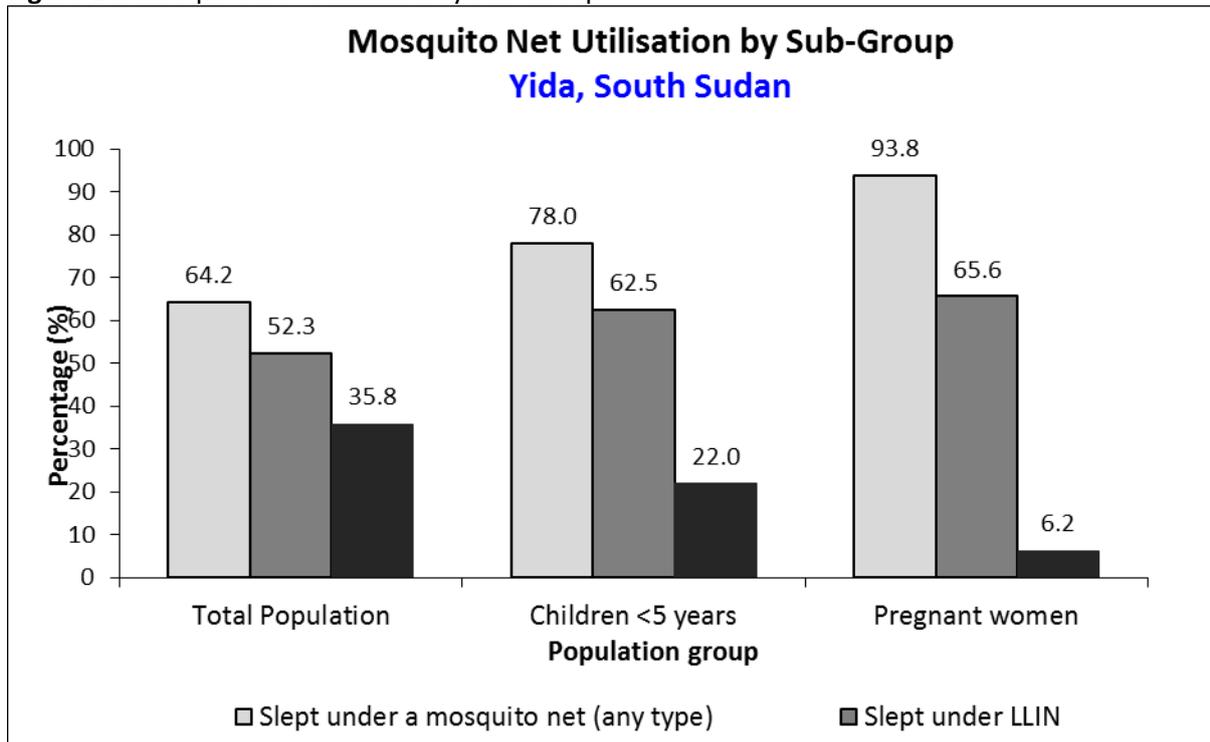
**Table 50:** Number Of Nets

Average number of LLINs per household	Average number of persons per LLIN
2.1	4.4

**Table 51:** Mosquito Net Utilisation

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1086	%	Total No= 232	%	Total No= 32	%
<b>Slept under net of any type</b>	697	64.2	181	78.0	30	93.8
<b>Slept under LLIN</b>	568	52.3	145	62.5	21	65.6

Figure 26: Mosquito Net Utilisation by Sub-Group



## 4.2 Results-Ajuong Thok

**Table 52: Demographic Characteristics of the Study Population**

<b>Total households surveyed</b>	234
<b>Total population surveyed</b>	1324
<b>Total U5 surveyed</b>	294
<b>Average household size</b>	5.7
<b>% of U5</b>	22.2

\*Demographic characteristics of the surveyed population derived from the Mosquito net module

### 4.2.1 Anthropometry and Health; Children 6-59 months

#### 4.2.1.1 Sample size and clusters

The required sample size was reached in Ajuong Thok. The population of Ajuong is less mobile as compared to the Yida population.

**Table 53: Target and Actual Number Captured**

	<b>Target (No.)</b>	<b>Total surveyed (No.)</b>	<b>% of the target</b>
Children 6-59 months	362	384	106.1%
Clusters (where applicable)	30	30	100%

**Table 54: Children 6-59 Months - Distribution of Age and Sex of Sample**

<b>AGE (mo)</b>	<b>Boys</b>		<b>Girls</b>		<b>Total</b>		<b>Ratio</b>
	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>Boy: girl</b>
<b>6-17</b>	53	50.5	52	49.5	105	27.3	1.0
<b>18-29</b>	44	48.4	47	51.6	91	23.7	0.9
<b>30-41</b>	48	53.3	42	46.7	90	23.4	1.1
<b>42-53</b>	42	54.5	35	45.5	77	20.1	1.2
<b>54-59</b>	10	47.6	11	52.4	21	5.5	0.9
<b>Total</b>	197	51.3	187	48.7	384	100.0	1.1

**Percentage of children with no exact birthday: 54 %**

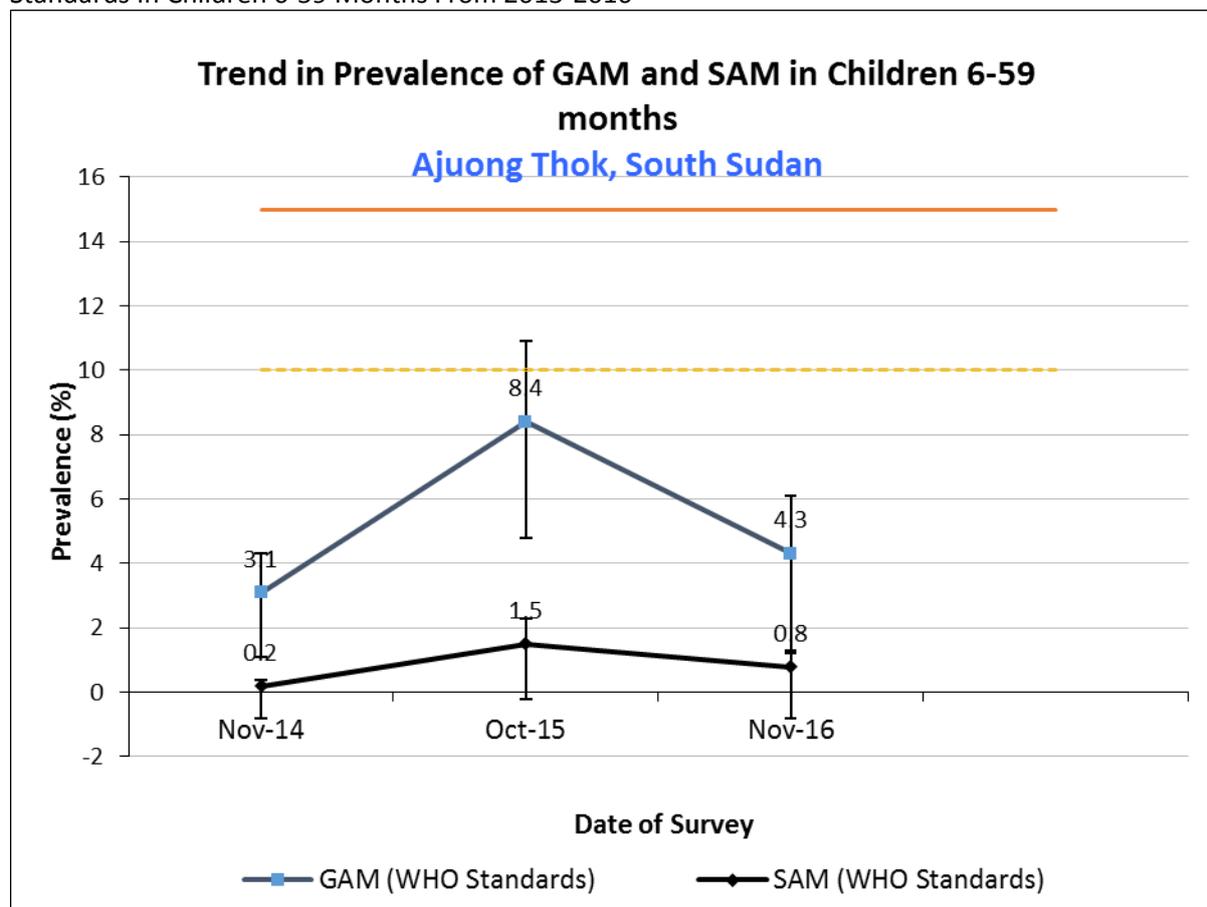
All the children who participated in the survey were considered using the actual age from an official document or using an events calendar to estimate the age of the child.

#### 4.2.1.2 Anthropometric results (based on WHO Growth Standards 2006)

**Table 55:** Prevalence of Acute Malnutrition Based On Weight-For-Height Z-Scores (and/or Oedema) and By Sex

	All n = 372	Boys n = 192	Girls n = 180
<b>Prevalence of global malnutrition (&lt;-2 z-score and/or oedema)</b>	(16) 4.3 % (2.5 - 7.4 95% C.I.)	(12) 6.3 % (3.2 - 11.9 95% C.I.)	(4) 2.2 % (0.8 - 5.7 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt;-2 z-score and &gt;=-3 z-score, no oedema)</b>	(13) 3.5 % (1.9 - 6.4 95% C.I.)	(10) 5.2 % (2.3 - 11.2 95% C.I.)	(3) 1.7 % (0.5 - 5.0 95% C.I.)
<b>Prevalence of severe malnutrition (&lt;-3 z-score and/or oedema)</b>	(3) 0.8 % (0.3 - 2.4 95% C.I.)	(2) 1.0 % (0.3 - 4.1 95% C.I.)	(1) 0.6 % (0.1 - 4.3 95% C.I.)

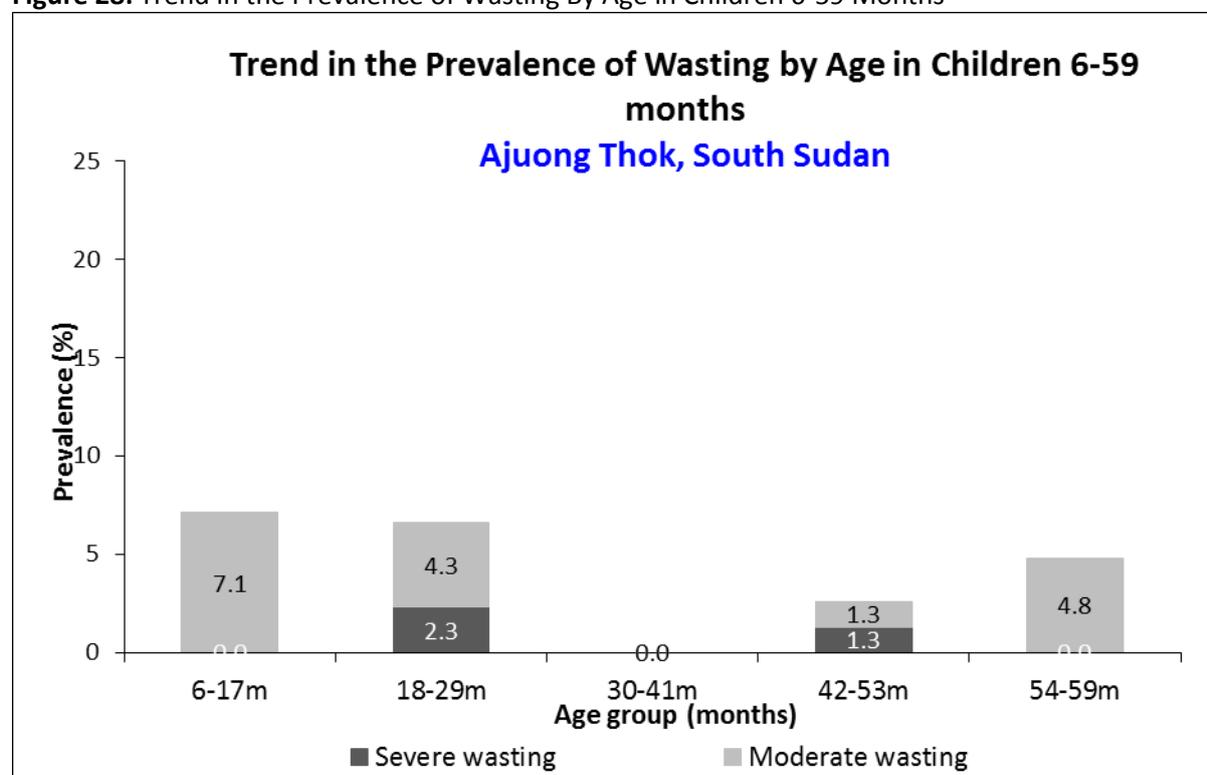
**Figure 27:** Trends In The Prevalence Of Global And Severe Acute Malnutrition Based On Who Growth Standards In Children 6-59 Months From 2013-2016



**Table 56:** 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	99	0	0.0	7	7.1	92	92.9	0	0.0
18-29	87	2	2.3	4	4.6	81	93.1	0	0.0
30-41	88	0	0.0	0	0.0	88	100.0	0	0.0
42-53	77	1	1.3	1	1.3	75	97.4	0	0.0
54-59	21	0	0.0	1	4.8	20	95.2	0	0.0
<b>Total</b>	<b>372</b>	<b>3</b>	<b>0.8</b>	<b>13</b>	<b>3.5</b>	<b>356</b>	<b>95.7</b>	<b>0</b>	<b>0.0</b>

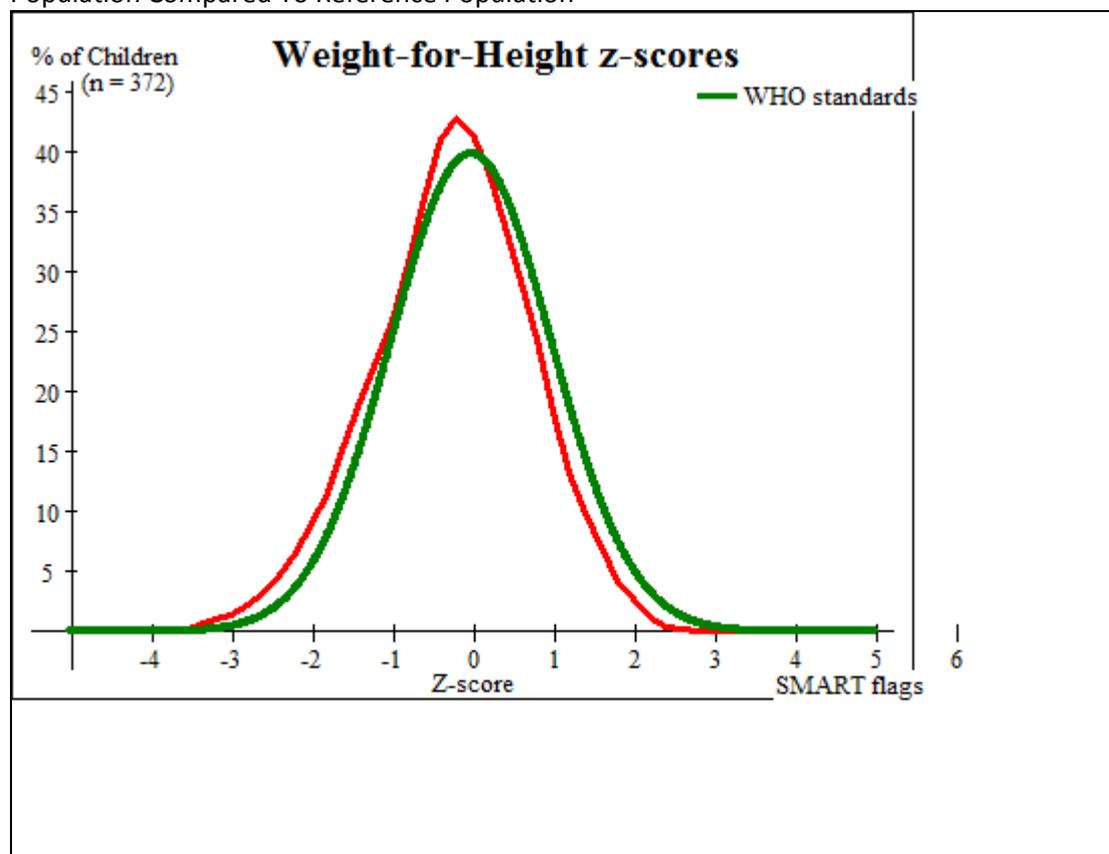
**Figure 28:** Trend in the Prevalence of Wasting By Age in Children 6-59 Months



**Table 57:** Distribution of Severe Acute Malnutrition and Oedema Based On Weight-For-Height Z-Scores

	<-3 z-score	>=-3 z-score
<b>Oedema present</b>	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
<b>Oedema absent</b>	Marasmic No. 6 (1.6 %)	Not severely malnourished No. 372 (98.4 %)

**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 58:** Prevalence of MUAC Malnutrition

	<b>All</b> n = 379	<b>Boys</b> n = 194	<b>Girls</b> n = 185
<b>Prevalence of global malnutrition (&lt; 125 mm and/or oedema)</b>	(11) 2.9 % (1.4 - 5.8 95% C.I.)	(3) 1.5 % (0.5 - 4.6 95% C.I.)	(8) 4.3 % (1.6 - 10.9 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt; 125 mm and &gt;= 115 mm, no oedema)</b>	(9) 2.4 % (1.1 - 5.2 95% C.I.)	(2) 1.0 % (0.2 - 4.2 95% C.I.)	(7) 3.8 % (1.4 - 9.8 95% C.I.)
<b>Prevalence of severe malnutrition (&lt; 115 mm and/or oedema)</b>	(2) 0.5 % (0.1 - 2.1 95% C.I.)	(1) 0.5 % (0.1 - 3.8 95% C.I.)	(1) 0.5 % (0.1 - 4.2 95% C.I.)

**Table 59:** 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	102	1	1.0	6	5.9	95	93.1	0	0.0
18-29	91	0	0.0	3	3.3	88	96.7	0	0.0
30-41	89	0	0.0	0	0.0	89	100.0	0	0.0
42-53	76	1	1.3	0	0.0	75	98.7	0	0.0
54-59	21	0	0.0	0	0.0	21	100.0	0	0.0
<b>Total</b>	<b>379</b>	<b>2</b>	<b>0.5</b>	<b>9</b>	<b>2.4</b>	<b>368</b>	<b>97.1</b>	<b>0</b>	<b>0.0</b>

**Table 60:** Prevalence of Underweight Based On Weight-For-Age Z-Scores by Sex

	All n = 381	Boys n = 196	Girls n = 185
Prevalence of underweight (<-2 z-score)	(70) 18.4 % (14.3 - 23.4 95% C.I.)	(39) 19.9 % (15.4 - 25.3 95% C.I.)	(31) 16.8 % (11.0 - 24.7 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(57) 15.0 % (11.3 - 19.5 95% C.I.)	(32) 16.3 % (12.4 - 21.2 95% C.I.)	(25) 13.5 % (8.4 - 21.0 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(13) 3.4 % (1.9 - 6.1 95% C.I.)	(7) 3.6 % (1.6 - 7.6 95% C.I.)	(6) 3.2 % (1.3 - 7.8 95% C.I.)

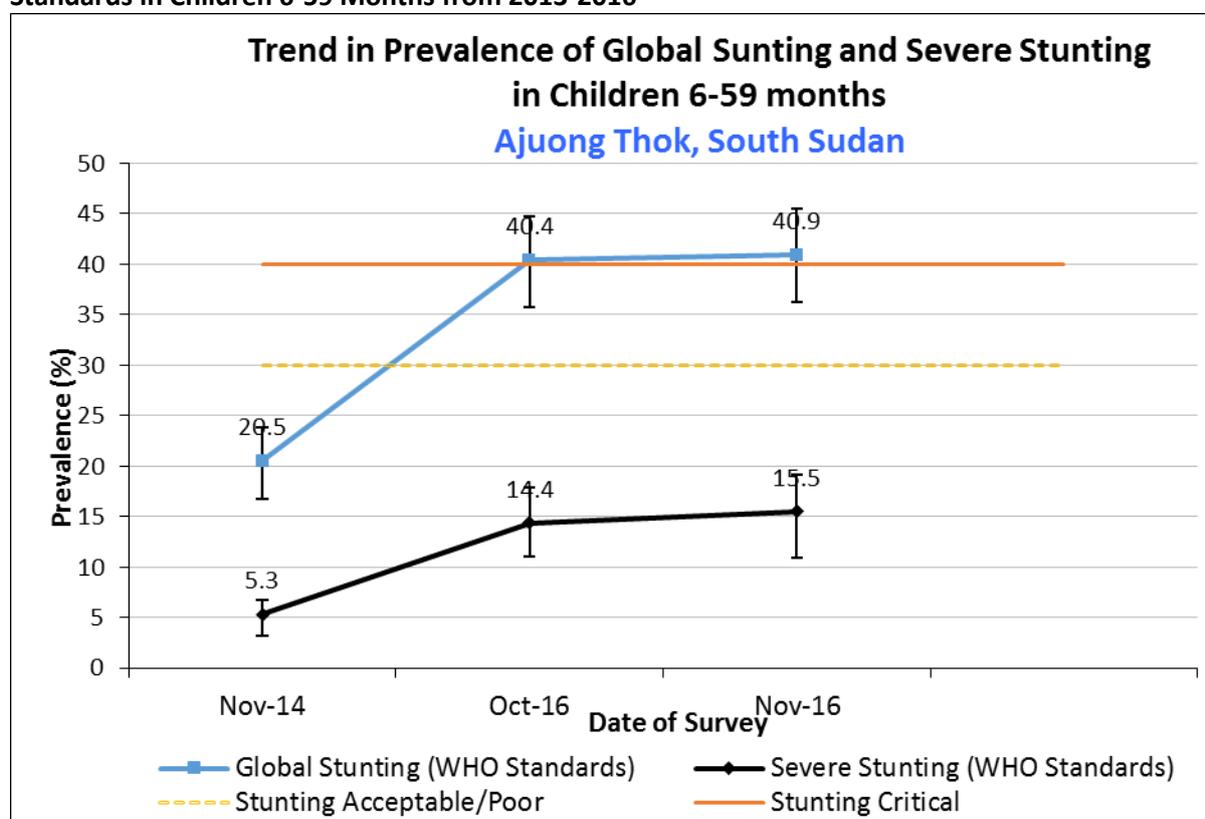
**Table 61:** Prevalence of Underweight by Age, Based On Weight-For-Age Z-Scores and/or Oedema

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	102	1	1.0	14	13.7	87	85.3	0	0.0
18-29	91	7	7.7	18	19.8	66	72.5	0	0.0
30-41	90	3	3.3	10	11.1	77	85.6	0	0.0
42-53	77	1	1.3	13	16.9	63	81.8	0	0.0
54-59	21	1	4.8	2	9.5	18	85.7	0	0.0
<b>Total</b>	<b>381</b>	<b>13</b>	<b>3.4</b>	<b>57</b>	<b>15.0</b>	<b>311</b>	<b>81.6</b>	<b>0</b>	<b>0.0</b>

**Table 62:** Prevalence of Stunting Based On Height-For-Age Z-Scores and By Sex

	All n = 367	Boys n = 188	Girls n = 179
<b>Prevalence of stunting (&lt;-2 z-score)</b>	(150) 40.9 % (36.3 - 45.6 95% C.I.)	(76) 40.4 % (34.0 - 47.2 95% C.I.)	(74) 41.3 % (34.6 - 48.5 95% C.I.)
<b>Prevalence of moderate stunting (&lt;-2 z-score and &gt;=-3 z-score)</b>	(93) 25.3 % (21.9 - 29.1 95% C.I.)	(46) 24.5 % (19.5 - 30.2 95% C.I.)	(47) 26.3 % (21.4 - 31.8 95% C.I.)
<b>Prevalence of severe stunting (&lt;-3 z-score)</b>	(57) 15.5 % (11.9 - 20.1 95% C.I.)	(30) 16.0 % (11.6 - 21.6 95% C.I.)	(27) 15.1 % (9.6 - 22.8 95% C.I.)

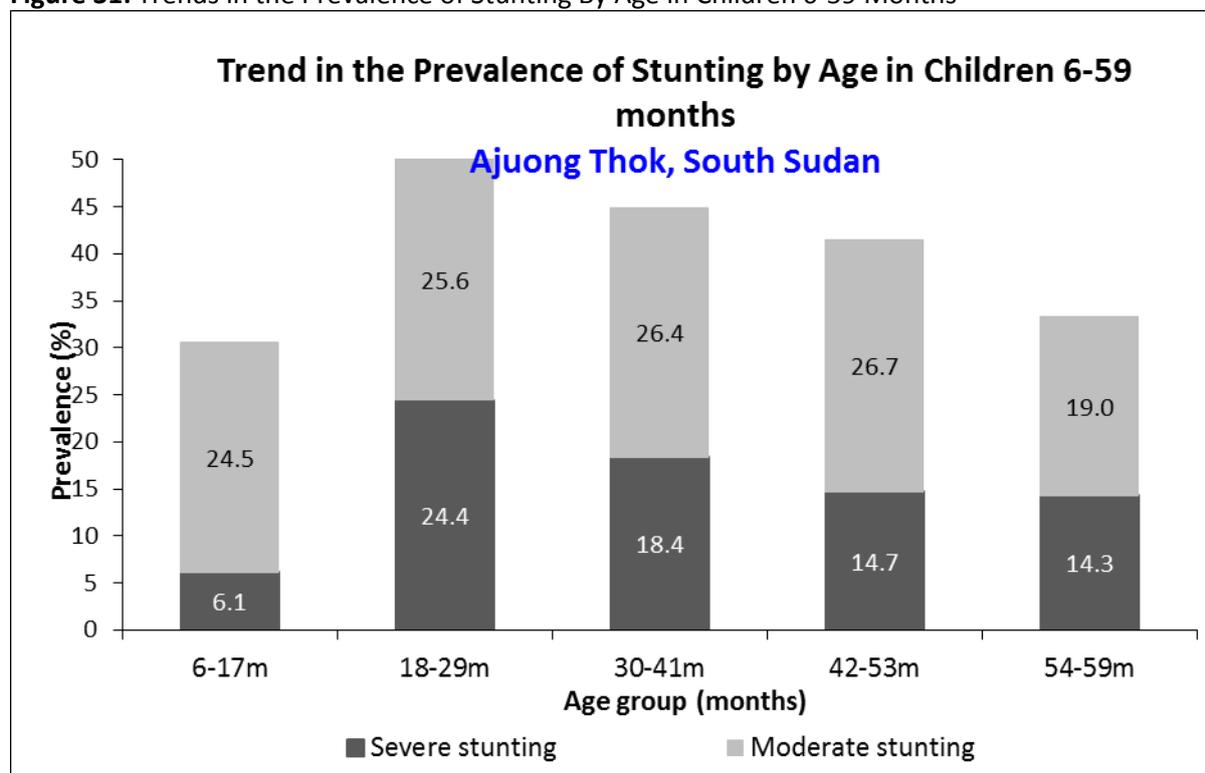
**Figure 30:** Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards in Children 6-59 Months from 2013-2016



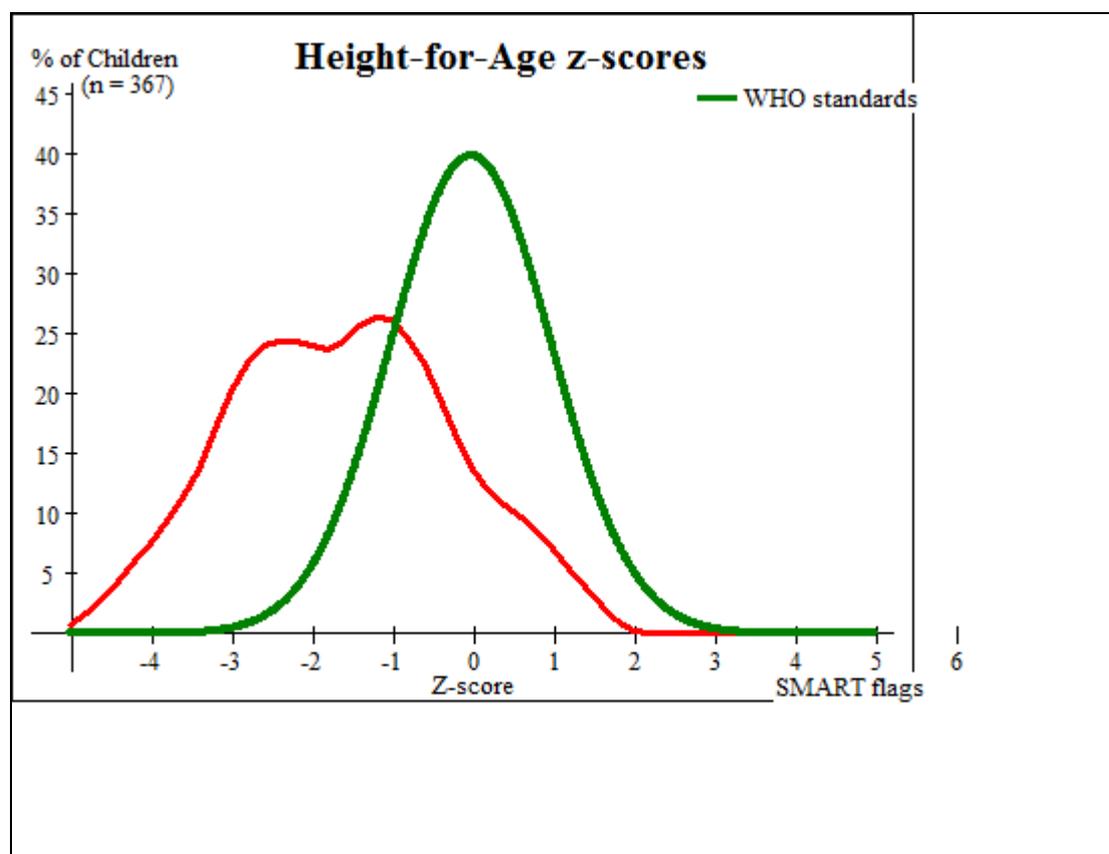
**Table 63:** Prevalence of Stunting By Age Based On Height-For-Age Z-Scores

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	98	6	6.1	24	24.5	68	69.4
18-29	86	21	24.4	22	25.6	43	50.0
30-41	87	16	18.4	23	26.4	48	55.2
42-53	75	11	14.7	20	26.7	44	58.7
54-59	21	3	14.3	4	19.0	14	66.7
<b>Total</b>	<b>367</b>	<b>57</b>	<b>15.5</b>	<b>93</b>	<b>25.3</b>	<b>217</b>	<b>59.1</b>

**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 64: Prevalence of Overweight Based on Weight for Height Cut off's and by Sex (No Oedema)**

	All n = 372	Boys n = 192	Girls n = 180
<b>Prevalence of overweight (WHZ &gt; 2)</b>	(1) 0.3 % (0.0 - 2.1 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.6 % (0.1 - 4.4 95% C.I.)
<b>Prevalence of severe overweight (WHZ &gt; 3)</b>	(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 65: 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	99	0	0.0	0	0.0
18-29	87	0	0.0	0	0.0
30-41	88	1	1.1	0	0.0
42-53	77	0	0.0	0	0.0
54-59	21	0	0.0	0	0.0
<b>Total</b>	<b>372</b>	<b>1</b>	<b>0.3</b>	<b>0</b>	<b>0.0</b>

**Table 66:** 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	372	-0.26 $\pm$ 0.96	1.19	6	6
Weight-for-Age	381	-1.05 $\pm$ 1.05	1.26	2	1
Height-for-Age	367	-1.61 $\pm$ 1.35	1.00	6	11

\* contains for WHZ and WAZ the children with oedema.

#### 4.2.1.3 Feeding programme coverage results

**Table 67:** Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ

	Number/total	% (95% CI)
Supplementary feeding programme coverage	4/18	22.2(0-46.1)
Therapeutic feeding programme coverage	4/9	44.4(4.5-84.4)

**Table 68:** Programme Coverage for Acutely Malnourished Children Based On MUAC and Oedema

	Number/total	% (95% CI)
Supplementary feeding programme coverage	1/6	16.7(0-59.5)
Therapeutic feeding programme coverage	0/2	0(0-0)

#### 4.2.1.4 Measles Vaccination Coverage Results

**Table 69:** Measles Vaccination Coverage for Children Aged 9-59 Months (N=354)

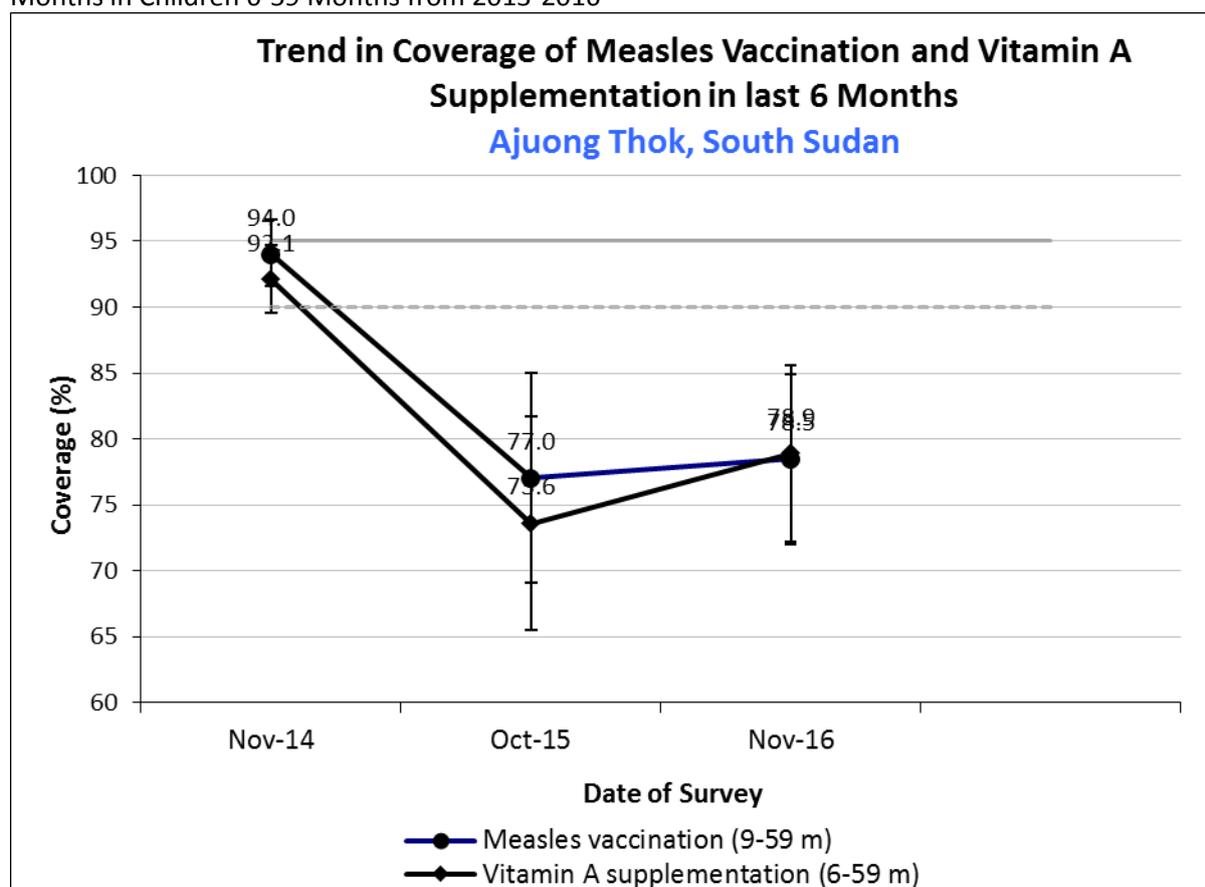
	Measles (with card) n=145	Measles (with card <u>or</u> confirmation from mother) n=278
YES	41.0% (34.1-47.8 95% CI)	78.5 % (72.1-85.0 95% CI)

#### 4.2.1.5 Vitamin A Supplementation Coverage Results

**Table 70:** Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 383)

	Vitamin A capsule (with card) n=146	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=302
YES	38.1% (29.3-47.0 95% CI)	78.9 % (72.2-85.6 95% CI)

**Figure 33:** Trends In the Coverage of Measles Vaccination and Vitamin A Supplementation in Last 6 Months in Children 6-59 Months from 2013-2016



#### 4.2.1.6 DPT3/PENTA3 Coverage Results

**Table 71:** DPT3/PENTA3 vaccination coverage for children aged 9-59 months (n=381)

	DPT3/Penta3 (with card) n=132	DPT3/Penta3 (with card <u>or</u> confirmation from mother) n= 278
<b>YES</b>	34.6% (26.6-42.7 95% CI)	73.0 % (62.9-83.0 95% CI)

#### 4.2.1.7 Diarrhoea Results

**Table 72:** Period Prevalence of Diarrhoea

	Number/total	% (95% CI)
<b>Diarrhoea in the last two weeks</b>	107/383	27.9 (21.0-34.9)

#### 4.2.2 Anaemia Results Children 6 – 59 Months

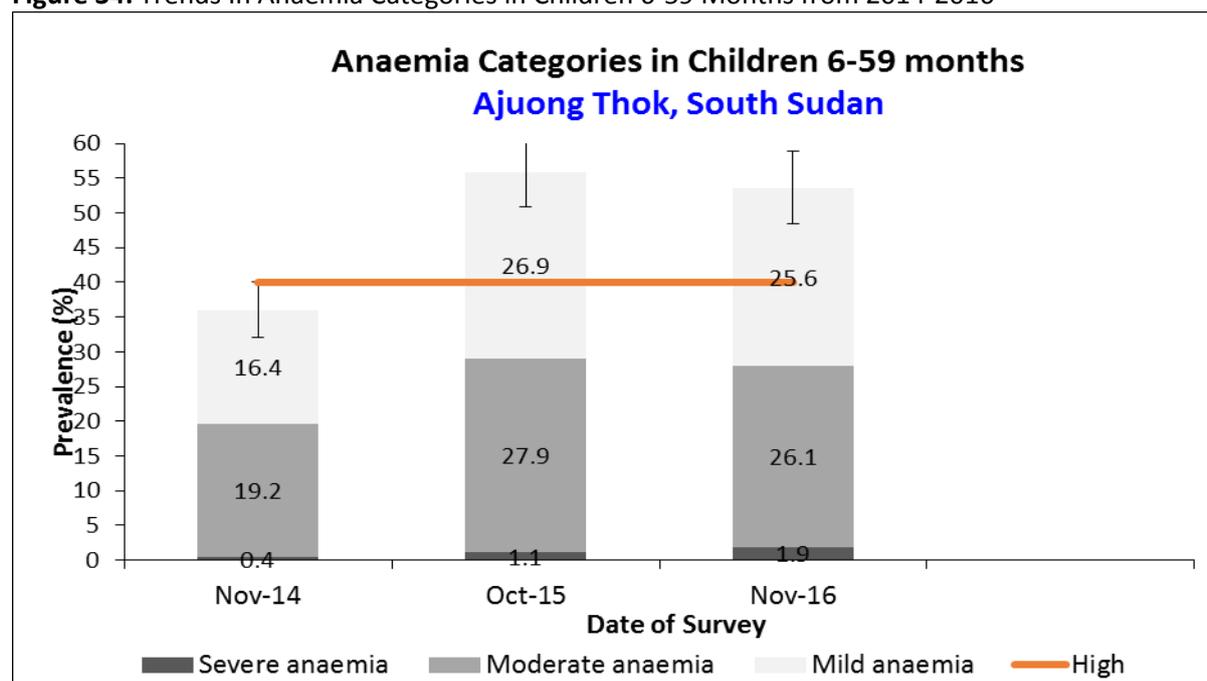
**Table 73:** Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group

	6-59 months n = 371	6-23 months n=139	24-59 months n=232
<b>Total Anaemia (Hb&lt;11.0 g/dL)</b>	(199) 53.6% (48.4-58.9 95% CI)	(104) 74.8 (69.3-80.4 95% CI)	(95) 40.9 (34.7-47.2 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(95) 25.6% (20.3-30.9 95% CI)	(43) 30.9 (22.9-39.0 95% CI)	(52) 22.4 (17.0-27.8 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(97) 26.1% (21.6-30.7 95% CI)	(57) 41.0 (33.0-49.0 95% CI)	(40) 17.2 (12.5-22.0 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(7) 1.9% (0.3-3.5 95% CI)	(4) 2.9 (0.3-5.5 95% CI)	(3) 1.3 (0-2.7 95% CI)
<b>Mean Hb (g/dL) ( 95% CI) [range]</b>	10.6 g/dL (10.4-10.8 95% CI) [5.1-14.0]	10.0 g/dL (9.7-10.3 95% CI) [5.5-13.3]	11.0 g/dL (10.8-11.1 95% CI) [5.1-14.0]

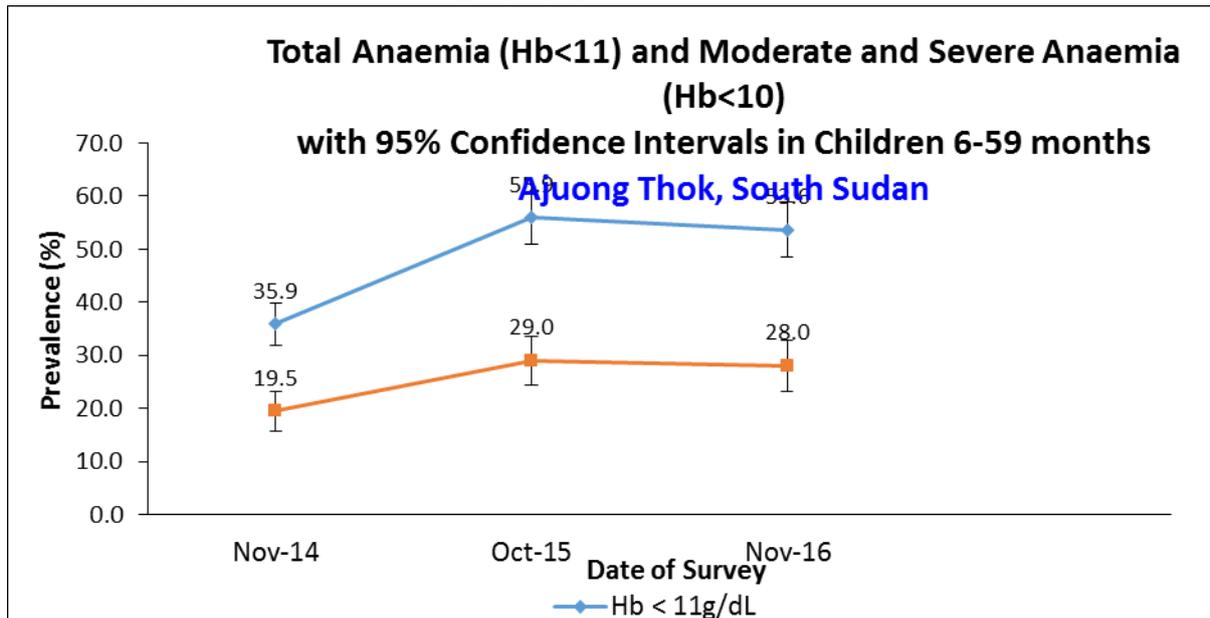
**Table 74:** Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group

	6-59 months n = 371	6-23 months n=139	24-59 months n=232
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(104) 28.0 % (23.2-32.9 95% CI)	(61) 43.9% (35.3-52.5 95% CI)	(43) 18.5 % (13.7-23.3 95% CI)

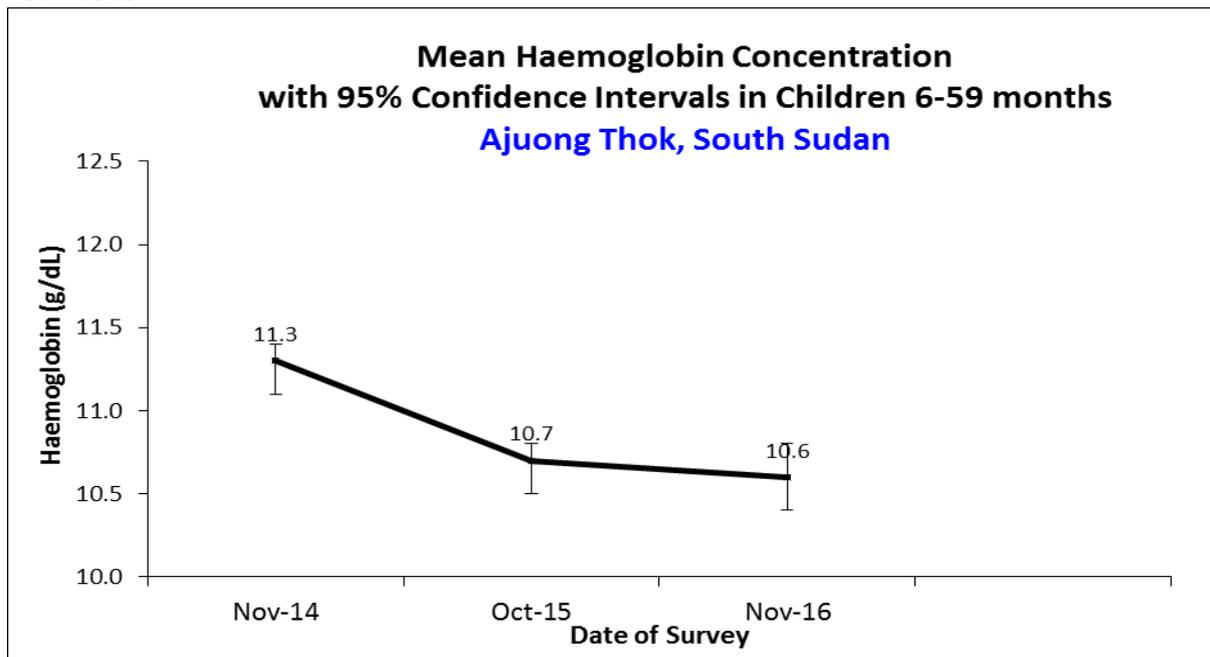
**Figure 34:** Trends In Anaemia Categories in Children 6-59 Months from 2014-2016



**Figure 35:** Trend in Total Anaemia (<11 G/Dl), and Moderate and Severe Anaemia (<10 G/Dl) With 95% CI in Children 6-59 Months from 20014-2016



**Figure 36:** Trend In Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2014-2016

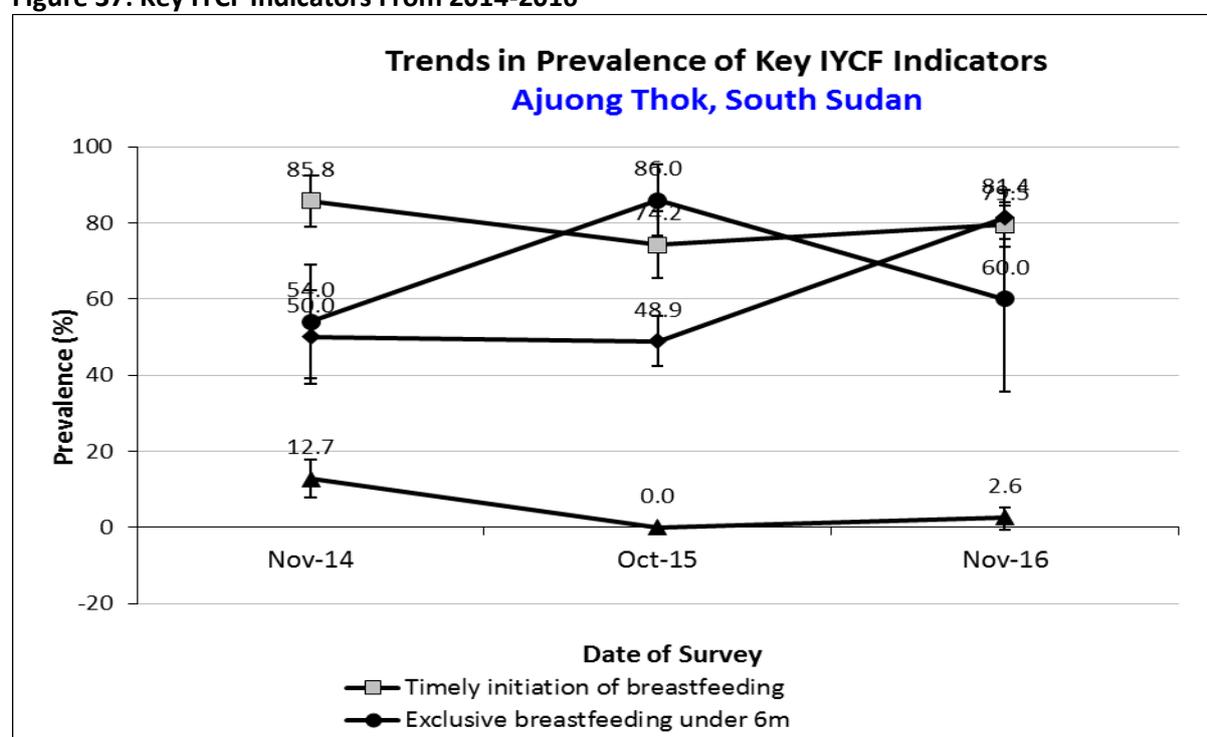


### 4.2.3 IYCF Children 0-23 Months

**Table 75:** Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range	Number/total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	151/190	79.5	73.6-85.3
Exclusive breastfeeding under 6 months	0-5 months	24/40	60.0	35.5-84.5
Continued breastfeeding at 1 year	12-15 months	23/29	79.3	63.9-94.7
Continued breastfeeding at 2 years	20-23 months	13/25	52.0	28.4-75.6
Introduction of solid, semi-solid or soft foods	6-8 months	16/30	53.3	31.0-75.7
Consumption of iron-rich or iron-fortified foods	6-23 months	114/150	81.4	74.2-87.0
Bottle feeding	0-23 months	5/191	2.6	0-5.9

**Figure 37:** Key IYCF Indicators From 2014-2016



### Prevalence of Intake

#### Infant Formula

**Table 76:** 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)	7/191	3.7 (0.7-6.6)

## Fortified Blended Foods

**Table 77:** CSB+ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB+	3/150	2.1 (0-6.1)

**Table 78:** CSB++ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	114/150	81.4 (74.2-87.0)

### 4.2.4 Anaemia; Women 15-49 Years

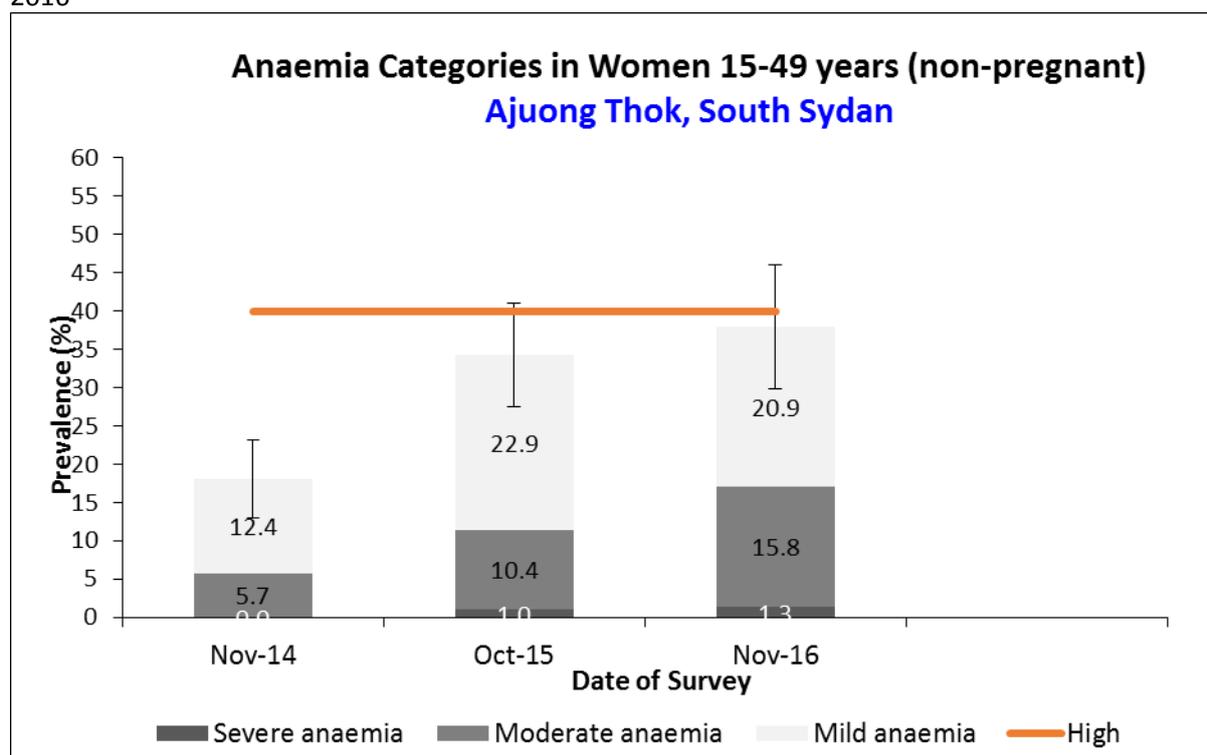
**Table 79:** Women Physiological Status and Age

Physiological status	Number/total	% of sample
Non-pregnant	158	83.2
Pregnant	32	16.8
Mean age (range)	27.6(15-48)	

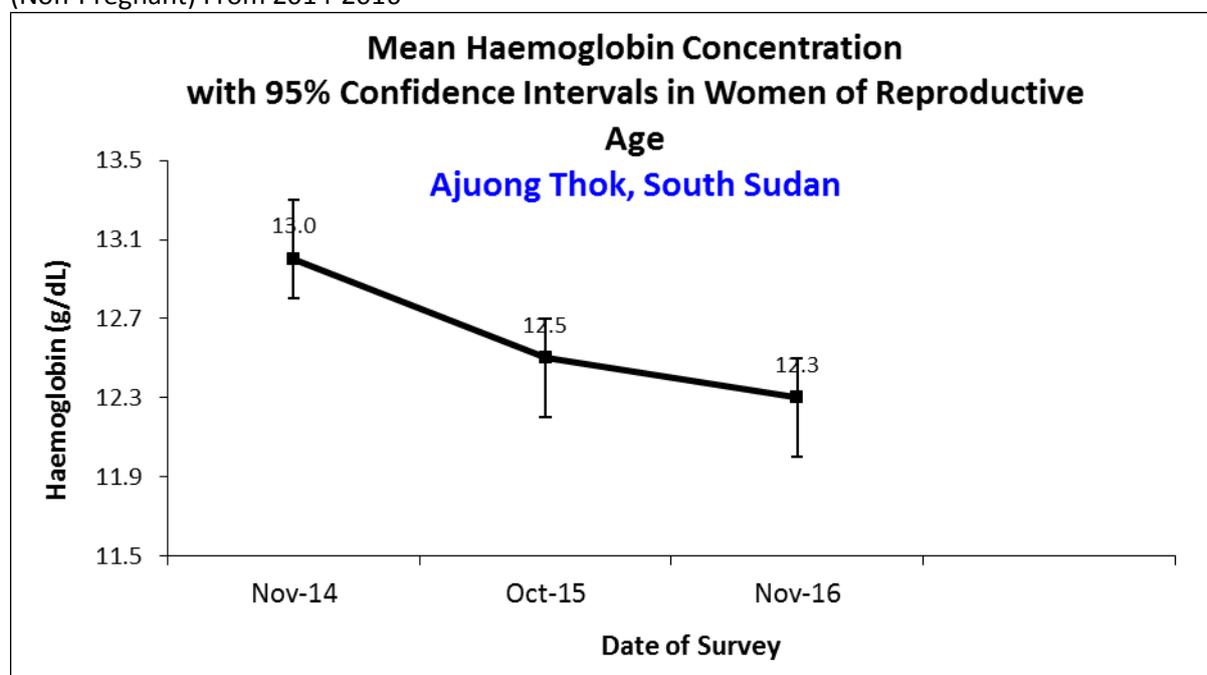
**Table 80:** Prevalence of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years)

Anaemia - Women of reproductive age 15-49 years	All n = 158
Total Anaemia (<12.0 g/dL)	(60) 38.0% (29.9-46.0 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(33) 20.9% (14.1-27.7 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(25) 15.8% (9.5-22.2 95% CI)
Severe Anaemia (<8.0 g/dL)	(2) 1.3% (0-3.0 95% CI)
Mean Hb, g/dL (SD) [range]	12.3 g/dL 0.5 [2.2-16.5]

**Figure 38:** Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2014-2016



**Figure 39:** Trends In Mean Haemoglobin Concentration With 95% CI in Women of Reproductive Age (Non-Pregnant) From 2014-2016



**Table 81:** ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	30/32	93.8 (84.4-100)
Currently receiving iron-folic acid pills	27/32	84.4 (69.7-99.0)

#### 4.2.5 WASH

**Table 82:** WASH Sampling Information

Household data	Planned	Actual	% of target
Total households surveyed for WASH	393	376	95.7

**Table 83:** Water Quality

Proportion of households using an improved drinking water source	376/376	100.0 (100.0-100.0)
Proportion of households that use a covered or narrow necked container for storing their drinking water	186/376	49.5 (36.0-63.0)

**Table 84:** Water Quantity: Amount of Litres of Water Used Per Person per Day

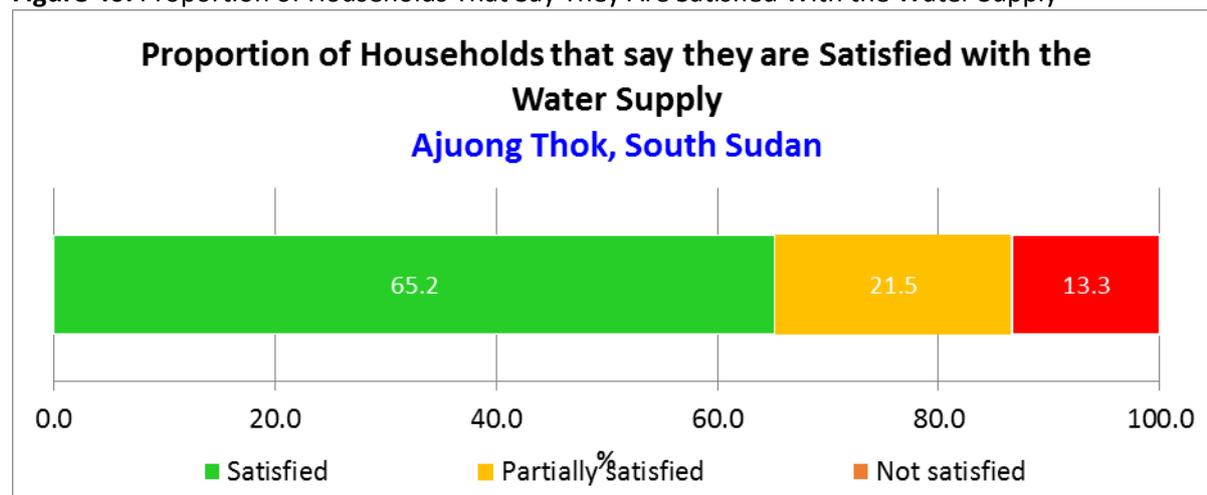
Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	222/376	59.0 (50.2-67.8)
15 – <20 lpppd	76/376	20.2 (14.5-25.8)
<15 lpppd	78/376	20.7 (13.1-28.4)

Add the average water usage in lpppd: \_\_\_\_\_ 22.3 lpppd \_\_\_\_\_

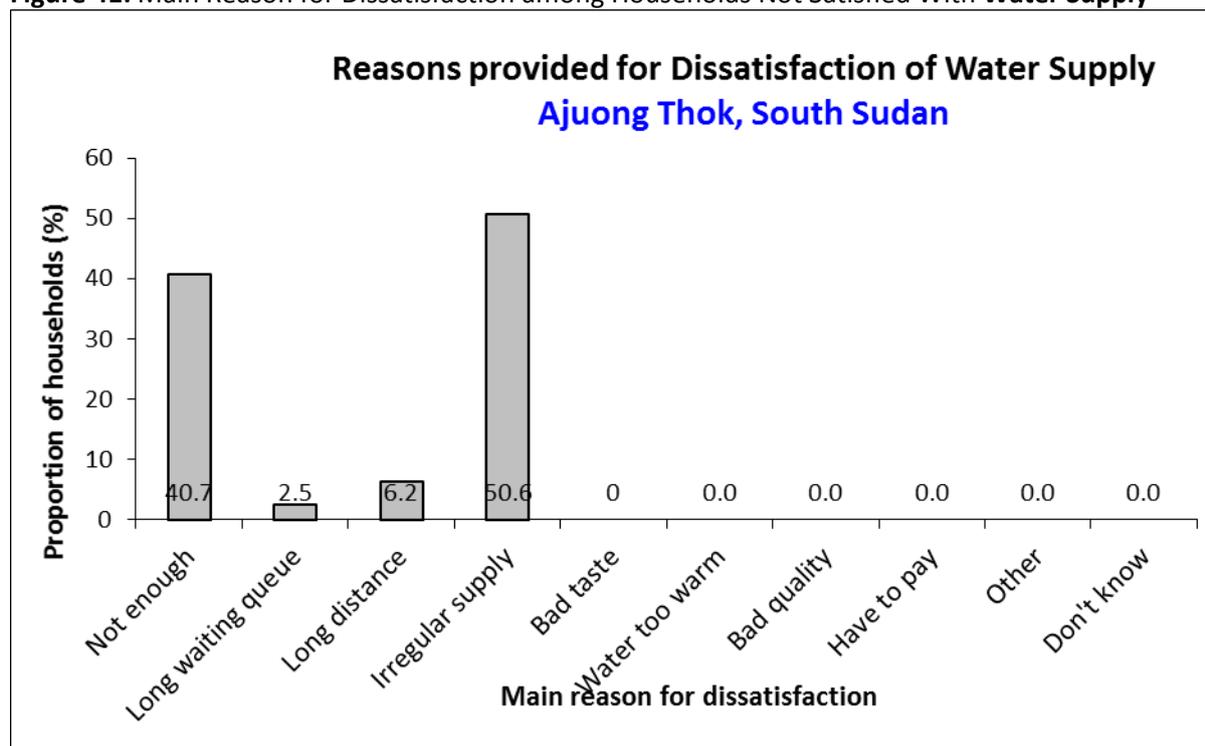
**Table 85:** Satisfaction with Water Supply

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	245/376	65.2 (54.5-75.8)

**Figure 40:** Proportion of Households That Say They Are Satisfied With the Water Supply



**Figure 41: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply**



**Table 86: Safe Excreta Disposal**

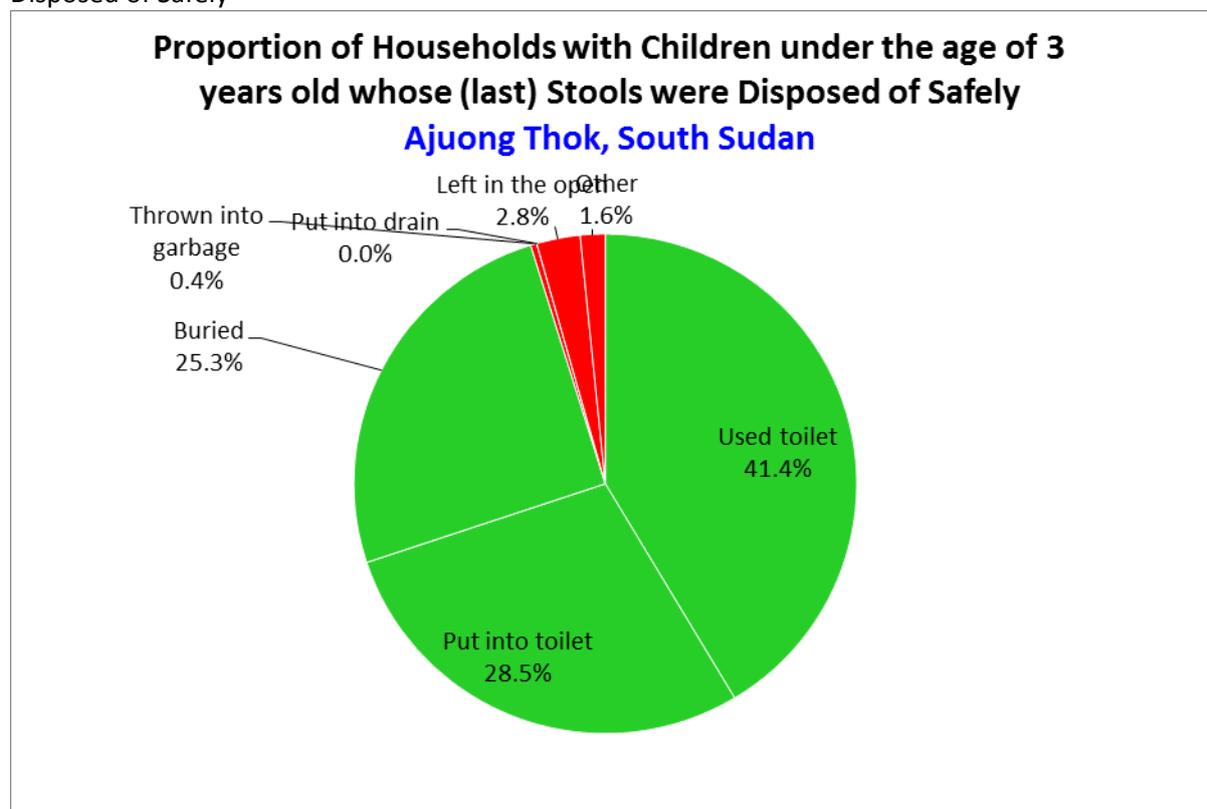
	Number/total	% (95% CI)
<b>Proportion of households that use:</b>		
<b>An improved excreta disposal facility (improved toilet facility, 1 household)</b>	123/369	33.3 (20.6-46.1)
<b>A shared family toilet (improved toilet facility, 2 households)</b>	61/369	16.5 (8.4-24.7)
<b>A communal toilet (improved toilet facility, 3 households or more)</b>	63/369	17.1 (7.5-26.9)
<b>An unimproved toilet (unimproved toilet facility or public toilet)</b>	122/369	33.1 (17.9-48.2)
<b>Proportion of households with children under three years old that dispose of faeces safely</b>	236/246	95.9 (92.1-99.8)

\*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 42:** Proportion of Households with Children under the Age of 3 Years whose (last) Stools Were Disposed of Safely



#### 4.2.6 Mosquito Net Coverage

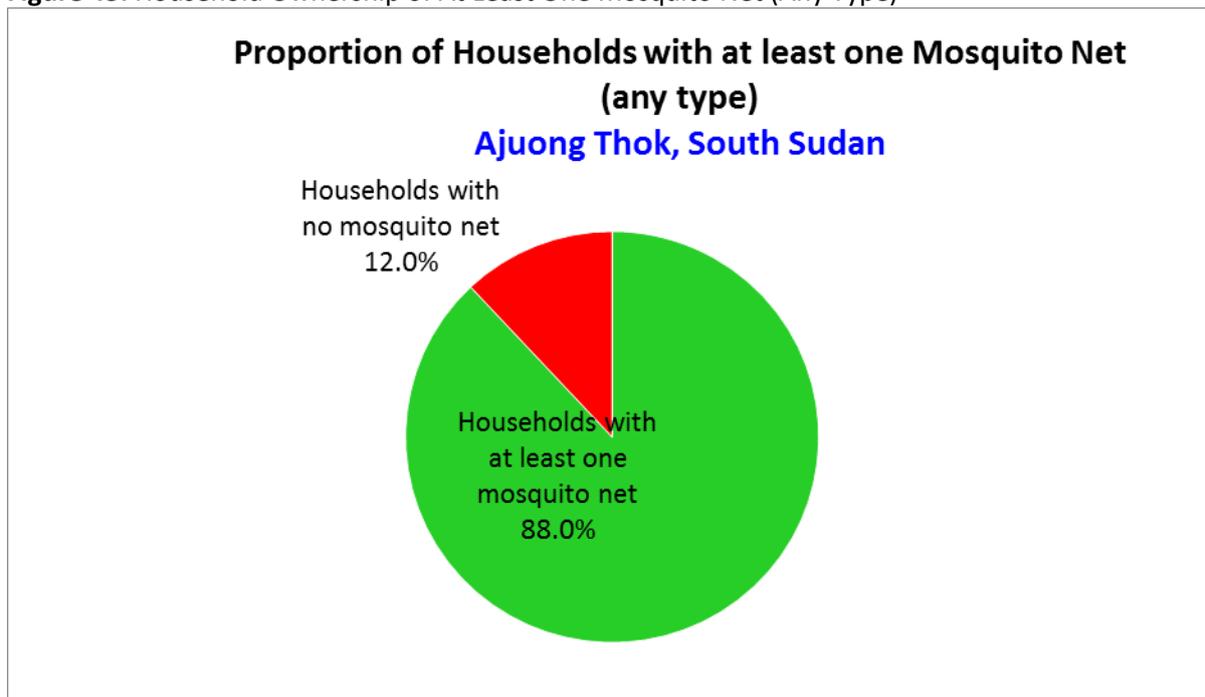
**Table 87:** Mosquito Net Coverage Sampling Information

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	197	234	118.8

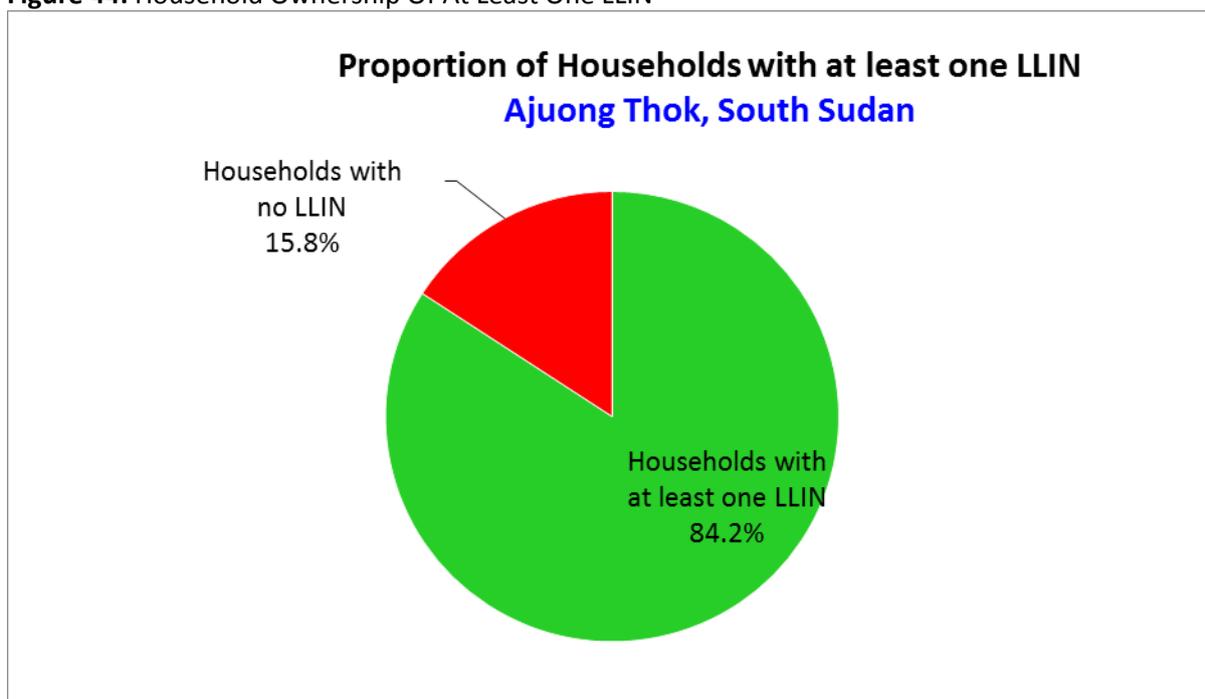
**Table 88:** Household Mosquito Net Ownership

	Number/total	% (95% CI)
Proportion of households owning at least one mosquito net of any type	206/234	88.0 (81.3-94.7)
Proportion of households owning at least one LLIN	197/234	84.2 (76.3-92.1)

**Figure 43:** Household Ownership of At Least One Mosquito Net (Any Type)



**Figure 44:** Household Ownership Of At Least One LLIN



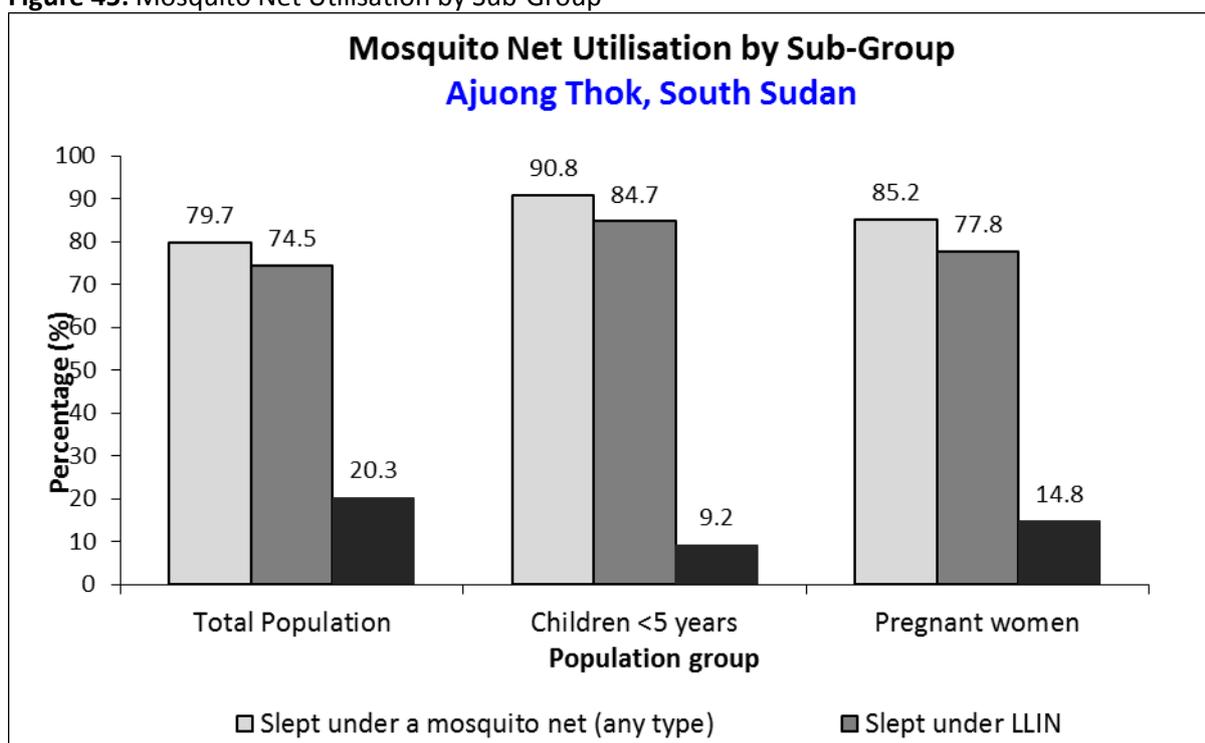
**Table 89:** Number Of Nets

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

**Table 90: Mosquito Net Utilisation**

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

**Figure 45: 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 9% in Ajuong Thok and 12% in Yida. Stunting and underweight results may need to be interpreted with caution as a third of the surveyed children did not have exact birth dates. Age estimation using an events calendar was employed instead.

### **Sampling**

Sampling was a challenge in Yida as there was an ongoing relocation exercise of refugees from Yida to Pamiir. The population figure that was used to generate the sample was not the same as the population in the settlement as some of the people had relocated. From October 2016 the time the population figure for Yida was generated to the time the survey was conducted, close to 2,000 children were relocated.

### **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. Also there was inter-camp movement within Yida with the host community taking some of the land that was previously occupied by refugees and refugees in turn having to look for other residential locations not necessarily with their tribesman.

### **Data Collection**

Data was collected for ten days in a row 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 Yida was finished.

### **SFP/TFP Coverage**

The data needs to be interpreted with extreme caution as the survey sample was very small. This indicator is rather interpreted as measuring enrolment coverage not programme coverage.

### **IYCF Indicators**

Due to the small survey sample size for some indicators such as the exclusive breastfeeding “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

From the results, there is equal overall sex representation between boys and girl in both Ajuong Thok and Yida. The results however show that according to SMART standards, there were more children 6 to 29 months as compared to children 30 to 59 months than expected.

The GAM prevalence in Yida remained the same in 2015 as compared to 2016. GAM prevalence in 2015 was 7.9% (6.1-10.1 95% CI) and in 2016 is 7.9% (4.9-12.5). The upper limit of the confidence interval is above the 10% threshold, which implies that there is need to take the situation among the Yida/Pamir populations seriously and strengthen nutrition interventions. For SAM in Yida, although there is an increase in the prevalence from 1.6% to 2.0%, from a glance, the increase is not statistically significant as indicated by the confidence intervals overlap which was set at 95% in both the 2015 and 2016 surveys. The 2016 SENS shows SAM of 2.0 % (0.9-4.3 95% CI) in Yida while in 2015 it was 1.6 % (0.9-1.8 95% CI). The wider confidence intervals in 2015 than in 2016 is primarily due to a smaller sample size in 2016 than in 2015. Besides the presence of curative and preventive interventions, there is high mobility among the Yida population which makes it difficult to reach all the children and for all the children to be treated effectively.

There is a decrease in the acute malnutrition indicators from 2015 to 2016 in Ajuong Thok. In 2015, GAM and SAM were 8.4% (5.9-12.0 95% CI) and 1.5% (0.7-3.2) respectively, while in 2016 the same indicators were 4.3 % (2.5-7.4 95% CI) and 0.8 % (0.3-2.4 95% CI). The GAM and SAM decrease in Ajuong Thok, is possibly attributed to the curative and prevention nutrition interventions coupled by strong synergies with sanitation and hygiene promotion. Also the population in Ajuong Thok has been static with no new arrivals since June 2016. Although by the time the 2015 survey was conducted the Ajuong Thok population was 31,000 and had increased to 39,000 at the time of the 2016 survey, the new arrivals got to Ajuong Thok during the first half of the year. By the time the survey was conducted, the population had settled and thus had a lower risk of malnutrition.

According to World Health Organisation (WHO) classification, the nutrition situation in Ajuong Thok is within acceptable levels while in Yida the situation is poor (WHO, 2005).

The positive acute malnutrition findings may also be due to the preventive Blanket Supplementary Feeding Programme (BSFP), which was instituted from April 2016 and is intended to continue into 2017. The BSFP targets Pregnant and Lactating Women (PLW) and children 6 to 23 months. From September 2016, the BSFP was revised to target children 6 to 59 months. The commodity used for children is 200g/person/day super cereal plus, a fortified blended food. The super cereal plus commonly referred to as CSB++ is fortified with minerals, vitamins and animal protein which makes it a preferred commodity for children below the age of two years as it provides the much needed animal protein which is essential for structural development among other advantages. PLW were receiving 250g/person/day super cereal (CSD+) and 30g/person/day vegetable oil.

Unlike in 2015, there were no reported upsurges of childhood diseases among children 6 to 59 months in the months prior to the survey. In 2015, there was a high malaria and respiratory infection before and during the survey especially in Ajuong Thok.

The stunting prevalence remained constant between 2015 and 2016. The Yida total and severe stunting prevalence in 2015 was 33.7% (29.7-37.9 95% CI) and 11.1% (8.6-14.2 95% CI) respectively, which is not very different from the 2016 findings where total stunting is 33.3 % ( 27.3-39.9 95% CI) and severe stunting is 11.4% (8.0-16.0 95% CI). In Ajuong Thok, the 2016 survey showed total stunting prevalence of 40.9 % (36.3-45.6 95%CI) and severe stunting of 15.5 % (11.9-20.1 95%CI).

The Ajuong Thok 2016 findings are the same as the 2015 findings when total stunting was 40.4(36.0-45.0 95% CI) and severe stunting was 14.4(10.9-17.8 95% CI). The stunting levels in Yida are regarded as serious while in Ajuong Thok stunting prevalence is at the critical threshold border line. 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. Nutrition trend monitoring using MUAC among Pregnant and Lactating Women showed proportion of acute malnutrition based on MUAC data above 10% among this group. Poor family planning practices might also be contributing to the high stunting. The use of family planning is poor around 16%, according to the UNHCR Health Information System (HIS). Family planning is not culturally acceptable among the Yida and Ajuong Thok refugee population. Other contributors to stunting include poor sanitation conditions leading to diarrhoeal diseases. Approximately 30% of the population practice open defecation. Literacy levels are low among the refugees especially women. Caregiver literacy levels have an inverse relationship with malnutrition including stunting. The lower the literacy level of the caregiver, the more likely they are to have a malnourished child (WHO, 2014). The GFD basket comprises sorghum, yellow split peas/lentils, vegetable oil and salt. This basket lacks 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. 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 as mothers will be pregnant or nursing another child. In most cases, the mother will be pregnant again or there will be a younger child in the family. The stunting levels remained the same in 2016 compared to 2015.

Efforts aiming to make refugees more food secure are being sort via the introduction of livelihood activities that promote food production that can supplement the GFD ration. Other activities under livelihood include various vocational training and adult literacy.

## **6.2 Programme Coverage**

Measles vaccination and vitamin A supplementation coverage in Yida and Ajuong Thok did not meet the acceptable standards of 95% and 90% respectively. The survey showed that the measles vaccination coverage in Yida is 88 % (83.6-92.3 95% CI) and in Ajuong Thok it is 78.5 % (72.1-85.0 95% CI). Vitamin A supplementation coverage in Yida is 84.8 % (78.8-90.9 95% CI) in Yida and 78.9 % (72.2-85.6 95% CI) in Ajuong Thok. Although these results are below the expected target, there is an improvement from 2015 when measles vaccination coverage in Yida was 72.2% (63.2-81.1 95% CI) and in Ajuong Thok it was 77.0% (69.0-84.9 95% CI) while vitamin A supplementation was 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 by recall. The improvement is as a result of continued routine EPI and supplementation activities.

Coverage analysis of DPT3 and/or PENTA3 across the two camps showed an improvement in 2016 compared to 2015. The coverage analysis for the two vaccines was combined as there are some children who were immunised using pentavalent vaccine while others were given the DPT vaccine. In 2016, DPT3/PENTA3 coverage in Yida is 83.4 % (76.8-90.1 95% CI) and 73.0 % (62.9-83.0 95% CI) in Ajuong Thok. From the 2015 survey, the indicator was 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.

The survey showed coverage of ANC of 77.8 % ( 58.6-97.0 95% CI) in Yida and 93.8% (84.4-100 95% CI) in Ajuong Thok while iron-folic acid coverage is 77.8 (58.6-97.0) and 84.4 % ( 69.7-99.0 95% CI) respectively. There is not much difference between the 2015 and the 2016 results in Yida and Ajuong Thok as the changes in 2016 were not significant.

The SFP and TFP programme coverage indicators which measure the enrolment efficacy of the programmes shows that most of acute malnourished children 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 exclusion. The TFP and SFP programme coverage indicator using WHZ, MUAC and oedema is between 0 and 44% in both locations. This is a cause for concern as most acute malnourished children are not being admitted in the appropriate nutrition treatment programmes. The coverage indicator results show indicate the need to improve active case finding

### **6.3 Anaemia in Young Children and Women**

The survey results show that total anaemia prevalence among children 6 to 59 months is above the 40% public health significance threshold in both Yida and Ajuong Thok. The results from the 2016 survey are similar to the findings in the 2015 survey. The 2015 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 was 73.3% (66.1-80.6 95% CI) and in Ajuong Thok it was 73.2% (65.5-80.8 95% CI). In the 2016 results, the total anaemia prevalence in Yida is 54.8% (49.6-60.1 95%CI) and in Ajuong Thok, total stunting prevalence is 53.6 % ( 48.4-58.9 95%CI). Total anaemia among children 6 to 23 months is 72.1% (65.4-78.9 95% CI) in Yida and 74.8% (69.3-80.4 95% CI) in Ajuong Thok. The World Health Organisation (WHO) classifies anaemia prevalence above 40% as critical and of high public health significance. 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 43.0 % (36.4-49.6 95% CI) in Yida and 40.9 % (34.7-47.2 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 24.4 % ( 20.3-28.4 95% CI) and in Ajuong Thok prevalence of moderate and severe anaemia is 28.0% (23.2-32.9 95% CI). The findings show that if only moderate and severe anaemia are to be considered, the anaemia prevalence is of medium public health concern and is classified as serious.

Total women anaemia prevalence in Yida is 27.4 % (21.5-33.3 95% CI) and in Ajuong Thok, it is 38.0 % (29.9-46.0 95% CI). According to the WHO classification the women anaemia prevalence is of medium public health significance.

The 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 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, anti-nutrients that inhibit iron absorption in the body. In addition to this the GFD only provides 2% of the recommended daily intake of vitamin C, a nutrient that plays a pivotal role in iron absorption. The refugee diet also lacks green leafy vegetables and animal protein, key good sources of bioavailable iron. Malaria and intestinal worms' infection are common morbidities among the refugee population that could also

be contributing to the high anaemia prevalence. Malaria and intestinal worm treatment and regular deworming should be continued as part of the anaemia reduction strategy.

#### **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).

The rate of early initiation of breast milk within the first hour of delivery is 76.8 % (68.5-85.0 95% CI) in Yida and 79.5 % (73.6-85.3 95% CI) in Ajuong Thok. This achievement can be attributed to the integration of nutrition and reproductive health, where IYCF messaging has been incorporated into the ANC visits' package.

The rate of exclusive breast feeding (EBF) for the first six months of life in Yida is 61.2%(41.2-81.3 95% CI) while in Ajuong Thok it is 60.0%(35.5-84.5 95% CI). The EBF levels although high can be improved by ensuring IYCF programming is strengthened through the use of mother support groups and integrating IYCF in CMAM, OPD, EPI and MCH. This indicator is among the most key IYCF indicators as research has shown that EBF has a significant impact on child survival.

In Yida, 48.5 % (25.3-71.7 95% CI) of children 6 to 8 months were introduced to solid and semi-solid foods on time. Among children 6 to 8 months in Ajuong Thok, 53.3 % (31.0-75.7 95% CI) were introduced to solid and semi-solid foods timely. There is need to ensure IYCF messaging addresses this important component of complementary feeding as this has a direct bearing on stunting outcomes of the children. 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 of the status of infant and young feeding practices among the surveyed population.

#### **6.5 WASH**

All the surveyed households reported 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 and the UNHCR standard of 20lpppd. Average water consumption in Yida at the time of the survey was 20lpppd and in Ajuong Thok, it was 22.3lpppd. This is a great improvement from 2015 when the water consumption was 18.6lpppd in Yida and 16.2lpppd in Ajuong Thok. In Yida, 23.8% and in Ajuong Thok 20.7 lpppd of people are accessing less than 15lpppd indicating the need for continued improvement.

Besides the availability of safe drinking water, there is need to improve the drinking water storage facilities in both locations. In Yida only 52.5 % (38.5-66.5 95% CI) and in Ajuong Thok 49.5 % (36.0-63.0 95% CI) of households are using covered or narrow necked containers. This can be improved through distributing bigger containers of 20 litre capacity or more instead of distributing small 10 litre containers that are easily sold.

In terms of water supply satisfaction, 54.1% (41.1-67.1 95% CI) of the population in Yida reported being satisfied with the drinking water supply and in Ajuong Thok, 65.2%(54.5-75.8 95% CI) reported being satisfied with the drinking water supply. Those reporting dissatisfaction cited irregular water supply as the main reason for the dissatisfaction. From the 2015 results, 74.0 % ( 61.7-86.2 95% CI) in

Yida were satisfied with the drinking water supply and only 51.0% (36.5-65.5 95% CI) were satisfied in Ajuong Thok. The satisfaction in Yida reduced between 2015 and 2016 while the level of satisfaction increased in Ajuong Thok. The satisfaction reduction in Yida is attributed to inter-camp movement when refugees were relocated to areas without services and in addition to the relocation policy where no additional investment is being made in this location. The satisfaction in Ajuong Thok improved partly due to the increased water distribution network.

In terms of sanitation facilities, 44.5 (29.4-59.7) in Yida and in Ajuong Thok are using unimproved water sanitary facilities and / or communal sanitary facilities. There is not much difference between the 2015 and the 2016 findings considering the overlap in confidence intervals. According to the 2015 findings Yida had 35.7 % (27.2-44.2 95% CI) and Ajuong Thok 33.7 % (23.7-43.7 95% CI) of the households using unimproved sanitary facilities. Direct observation during the survey noted open defecation was a common occurrence in some parts of the refugee camp locations. These areas should be targeted to avert the practice.

Although a good proportion of the population are using unimproved toilet facilities, there seems to be good knowledge of child stool disposal. 90.1 % (82.0-98.3 95% CI) in Yida and 95.9 % (92.1-99.8 95% CI) of the households are safely disposing child faecal matter through mainly burying or throwing into the toilet. This signifies good hygiene promotion and community health workers (CHW) message dissemination promoting positive behaviour change.

#### **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. The survey showed that these indicators are not being met in Yida as only 67.8 % (56.6-78.9 95% CI) owned at least one LLIN. In Ajuong Thok, 84.2% (76.3-92.1 95% CI) of the surveyed population own at least one LLIN. The survey showed that on average 4.4 people in Yida share a mosquito net and in Ajuong Thok 2.9 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 52.3% of the population of all ages sleep under a mosquito net, 62.5% of children 0 to 59 months sleep under the net and 65.6% of pregnant women sleep under the net. In Ajuong Thok, 74.5% of the population all ages sleeps under a mosquito net, 84.7% of children 0 to 59 months sleep under the net and 77.8% of pregnant women sleep under the net. There has not been distribution of nets in Yida in a long time except for the nets distributed to children under 5 who would have competed EPI vaccination and to pregnant women attending Ante Natal Care (ANC) clinics. Efforts to increase the proportion sleeping under a net and to decrease the ratio of persons per LLIN should be put in place.

## 7 Conclusions

There is not much difference in the acute malnutrition prevalence in 2016 compared to 2015. The GAM prevalence is below 10% in both locations, which can be classified as poor according to the WHO classification. The GAM in Yida however has the upper confidence interval above 10% indicating the need to strengthen interventions targeting this population. The nutrition program in Pamir should note this in light of the Yida to Pamir relocation. The Yida findings to be used as the baseline for Pamir.

Anaemia prevalence is critical as it's above 40%. There is thus need to ensure full operationalization of the anaemia strategy. Stunting is at the border line of being critical which calls for a more integrated approach between Nutrition, Health, WASH, Shelter, Education and all the sectors that affect stunting outcomes. 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).

There is a recognisable improvement in the water supply as on average the population is receiving at least 20lpppd while less than 30% of the population is using less than 15lpppd. There is still room to improve the sanitation situation by ensuring availability of family latrines. This can be achieved through providing digging tools and promoting the use of locally available materials to building the structures.

Mosquito net indicators are not meeting the expected standards especially in Yida, as much as majority of the population have access to LLIN. Although mosquito nets are available, there are problems with proper use of mosquito nets. An observation from the survey was some nets being used for non-intended purposes. As malaria is a major morbidity among the Yida and Ajuong Thok refugee population efforts to discourage this should be put in place.

## **8 Recommendations and Priorities**

### **8.1 Immediate Term**

1. UNHCR and nutrition partners should continue implementing and strengthening the preventive and curative nutrition interventions.
2. UNHCR to ensure the partner in Yida builds the capacity of the County Health Department (CHD) to provide Nutrition services to both the host community and the Yida residual caseload.
3. The BSFP targeting children 6 to 23 months and PLW should be an all year round activity and UNHCR in collaboration with WFP and Nutrition partners should ensure the integration of BSFP with maternal and child health (MCH) interventions.
4. There is need for UNHCR and partners working in nutrition to ensure the anaemia strategy is finalised and implemented to address the high anaemia levels in the camps. Emphasis should be put on screening and referral of severe and moderate anaemia cases.
5. There is need to pursue the provision of micronutrient rich nutrition supplements to young children such as Lipid based Nutrient Supplements (LNS) or Micro Nutrient Powders (MNP) as part of the anaemia strategy.
6. UNHCR and health partners should work to improve measles and vitamin A coverage through routine vitamin A supplementation and immunisation campaigns.
7. Nutrition partners; IRC, SP and AHA should strengthen the IYCF programmes in order to improve the exclusive breastfeeding rates and other key IYCF indicators. The UNHCR multi sectorial IYCF framework should be operationalised.
8. UNHCR and WASH partners to continue improving the water supply in Ajuong Thok especially walking distances and irregular water supply. Water storage in the camps should be worked on at household level in order to have households use narrow-necked or covered containers for storing drinking water.
9. Given the high prevalence of diarrhoea, it is recommended that UNHCR and WASH partners should work to improve hygiene promotion and latrine coverage targeting family latrines.
10. It is recommended that UNHCR continues to lobby the local authorities to avail more land for agricultural purposes by refugees in Ajuong Thok and Pamir. The land should be accompanied with strong agricultural extension work.
11. Nutrition partners should improve and strengthen the active case finding strategies so as to have all malnourished children admitted in the appropriate nutrition programmes early enough.
12. There is need to continue lobbying and advocating for refugees to be reinstated to 100% GFD basket.

## **8.2 Medium Term**

1. The MAM and SAM programme coverage is low. UNHCR and Nutrition partners to consider conducting a coverage assessment of the curative nutrition interventions which identifies nutrition services access barriers and boosters among the refugees.
2. UNHCR and partners to continue supporting and expand livelihoods programming 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.
3. 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 situation, food utilisation and available coping mechanisms. It is highly likely that some refugees can be assisted to have the coping mechanisms be livelihood sources.
4. It is recommended that UNHCR and health partners design ways of improving the ANC coverage, this can be achieved through integration with the BSFP for PLW among other approaches.
5. UNHCR should consider introducing indoor residual spray before the next rainy season as a malaria prevention measure.
6. Health and community services stakeholders should come up with messaging on the appropriate use of mosquito nets by refugees.
7. Targeted mosquito net distribution should be done following a proper assessment of the population groups in need.

## **8.3 Long Term**

1. 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.
2. 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.
3. 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 will be led by UNHCR.

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See list below with some names of key individuals involved in the survey.

### **Individuals involved in the survey**

#### **Survey Coordinator**

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#### **Drivers**

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## 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	<b>0</b> (1.7 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	<b>0</b> (p=0.431)
Age ratio (6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	<b>4</b> (p=0.001)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>0</b> (5)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>2</b> (12)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>4</b> (13)
Standard Dev WHZ . .	Excl Excl	SD SD	<1.1 >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	<b>0</b> (1.07)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	<b>0</b> (0.14)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	<b>1</b> (0.20)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	<b>1</b> (p=0.048)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	<b>12</b> %

The overall score of this survey is 12 %, this is good.

**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	<b>0</b> (1.6 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	<b>0</b> (p=0.610)
Age ratio (6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	<b>4</b> (p=0.045)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>0</b> (3)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>2</b> (10)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>2</b> (12)
Standard Dev WHZ . .	Excl Excl	SD SD	<1.1 >0.9 0	<1.15 >0.85 5	<1.20 >0.80 10	>=1.20 or <=0.80 20	<b>0</b> (0.96)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	<b>1</b> (-0.25)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	<b>0</b> (-0.01)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	<b>0</b> (p=0.159)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	<b>9</b> %

The overall score of this survey is 9 %, this is excellent.

## 11.2 Appendix 2: 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	0.00 OK	0.00 OK	0/0	0/0
Enumerator 2	0.01 POOR	0.00 OK	1/0	0/0
Enumerator 3	0.00 OK	0.00 OK	0/0	0/0
Enumerator 4	0.00 OK	0.00 OK	1/0	0/0
Enumerator 5	0.01 POOR	0.00 OK	1/0	0/0
Enumerator 6	0.00 OK	0.01 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	0.01 OK	0.05 OK	0/1	1/1
Enumerator 2	0.03 POOR	0.04 OK	1/1	1/1
Enumerator 3	0.03 POOR	0.07 POOR	2/1	3/2
Enumerator 4	0.02 OK	0.06 POOR	0/2	2/2
Enumerator 5	0.04 POOR	0.05 OK	3/1	1/1
Enumerator 6	0.02 OK	0.03 OK	0/1	1/1

### 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	2.00 OK	2.00 OK	1/0	1/1
Enumerator 2	1.00 OK	3.00 POOR	1/0	2/2
Enumerator 3	4.00 POOR	2.00 OK	2/2	1/0
Enumerator 4	3.00 POOR	3.00 POOR	2/1	2/2
Enumerator 5	2.00 OK	1.00 OK	1/0	1/0
Enumerator 6	1.00 OK	1.00 OK	1/0	1/0

### 11.3 Appendix 3 – Anthropometry Results NCHS Reference

#### 11.3.1 Result Tables for NCHS growth reference 1977 – Yida

**Table 91: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex**

	All n = 361	Boys n = 172	Girls n = 189
<b>Prevalence of global malnutrition (&lt;-2 z-score and/or oedema)</b>	(33) 9.1 % (6.0 - 13.7 95% C.I.)	(12) 7.0 % (4.1 - 11.5 95% C.I.)	(21) 11.1 % (6.2 - 19.2 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt;-2 z-score and &gt;=-3 z-score, no oedema)</b>	(27) 7.5 % (4.8 - 11.5 95% C.I.)	(9) 5.2 % (2.8 - 9.6 95% C.I.)	(18) 9.5 % (5.3 - 16.6 95% C.I.)
<b>Prevalence of severe malnutrition (&lt;-3 z-score and/or oedema)</b>	(6) 1.7 % (0.7 - 3.9 95% C.I.)	(3) 1.7 % (0.6 - 5.1 95% C.I.)	(3) 1.6 % (0.5 - 4.8 95% C.I.)

The prevalence of oedema is 0.0 %

**Table 92: 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	107	4	3.7	14	13.1	89	83.2	0	0.0
18-29	90	2	2.2	7	7.8	81	90.0	0	0.0
30-41	103	0	0.0	4	3.9	99	96.1	0	0.0
42-53	42	0	0.0	1	2.4	41	97.6	0	0.0
54-59	19	0	0.0	1	5.3	18	94.7	0	0.0
<b>Total</b>	<b>361</b>	<b>6</b>	<b>1.7</b>	<b>27</b>	<b>7.5</b>	<b>328</b>	<b>90.9</b>	<b>0</b>	<b>0.0</b>

**Table 93: Distribution of acute malnutrition and oedema based on weight-for-height z-scores**

	<-3 z-score	>=-3 z-score
<b>Oedema present</b>	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
<b>Oedema absent</b>	Marasmic No. 6 (1.7 %)	Not severely malnourished No. 356 (98.3 %)

**Table 94: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex**

	All n = 362	Boys n = 173	Girls n = 189
<b>Prevalence of global malnutrition (&lt; 125 mm and/or oedema)</b>	(13) 3.6 % (2.0 - 6.5 95% C.I.)	(4) 2.3 % (0.9 - 6.0 95% C.I.)	(9) 4.8 % (2.4 - 9.3 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt; 125 mm and &gt;= 115 mm, no oedema)</b>	(12) 3.3 % (1.7 - 6.2 95% C.I.)	(4) 2.3 % (0.9 - 6.0 95% C.I.)	(8) 4.2 % (2.0 - 8.7 95% C.I.)
<b>Prevalence of severe malnutrition (&lt; 115 mm and/or oedema)</b>	(1) 0.3 % (0.0 - 2.2 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.5 % (0.1 - 4.1 95% C.I.)

**Table 95: Prevalence of acute 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	107	1	0.9	9	8.4	97	90.7	0	0.0
18-29	91	0	0.0	3	3.3	88	96.7	0	0.0
30-41	103	0	0.0	0	0.0	103	100.0	0	0.0
42-53	42	0	0.0	0	0.0	42	100.0	0	0.0
54-59	19	0	0.0	0	0.0	19	100.0	0	0.0
<b>Total</b>	<b>362</b>	<b>1</b>	<b>0.3</b>	<b>12</b>	<b>3.3</b>	<b>349</b>	<b>96.4</b>	<b>0</b>	<b>0.0</b>

**Table 96: Prevalence of acute malnutrition based on the percentage of the median and/or oedema**

	n = 361
<b>Prevalence of global acute malnutrition (&lt;80% and/or oedema)</b>	(19) 5.3 % (3.0 - 9.0 95% C.I.)
<b>Prevalence of moderate acute malnutrition (&lt;80% and &gt;= 70%, no oedema)</b>	(19) 5.3 % (3.0 - 9.0 95% C.I.)
<b>Prevalence of severe acute malnutrition (&lt;70% and/or oedema)</b>	(0) 0.0 % (0.0 - 0.0 95% C.I.)

**Table 97: Prevalence of malnutrition by age, based on weight-for-height percentage of the media and oedema**

Age (mo)	Total no.	Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	107	0	0.0	13	12.1	94	87.9	0	0.0
18-29	90	0	0.0	3	3.3	87	96.7	0	0.0

<b>30-41</b>	103	0	0.0	2	1.9	101	98.1	0	0.0
<b>42-53</b>	42	0	0.0	1	2.4	41	97.6	0	0.0
<b>54-59</b>	19	0	0.0	0	0.0	19	100.0	0	0.0
<b>Total</b>	361	0	0.0	19	5.3	342	94.7	0	0.0

**Table 98: Prevalence of underweight based on weight-for-age z-scores by sex**

	<b>All</b> n = 362	<b>Boys</b> n = 173	<b>Girls</b> n = 189
<b>Prevalence of underweight (&lt;-2 z-score)</b>	(99) 27.3 % (23.0 - 32.2 95% C.I.)	(45) 26.0 % (20.0 - 33.1 95% C.I.)	(54) 28.6 % (21.7 - 36.6 95% C.I.)
<b>Prevalence of moderate underweight (&lt;-2 z-score and &gt;=-3 z-score)</b>	(88) 24.3 % (20.1 - 29.0 95% C.I.)	(39) 22.5 % (16.4 - 30.2 95% C.I.)	(49) 25.9 % (19.9 - 33.0 95% C.I.)
<b>Prevalence of severe underweight (&lt;-3 z-score)</b>	(11) 3.0 % (1.6 - 5.6 95% C.I.)	(6) 3.5 % (1.6 - 7.3 95% C.I.)	(5) 2.6 % (0.8 - 8.4 95% C.I.)

**Table 99: Prevalence of underweight by age, based on weight-for-age z-scores**

<b>Age (mo)</b>	<b>Total no.</b>	<b>Severe underweight (&lt;-3 z-score)</b>		<b>Moderate underweight (&gt;= -3 and &lt;-2 z-score)</b>		<b>Normal (&gt;= -2 z score)</b>		<b>Oedema</b>	
		<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>
<b>6-17</b>	108	4	3.7	30	27.8	74	68.5	0	0.0
<b>18-29</b>	90	4	4.4	28	31.1	58	64.4	0	0.0
<b>30-41</b>	103	2	1.9	15	14.6	86	83.5	0	0.0
<b>42-53</b>	42	0	0.0	10	23.8	32	76.2	0	0.0
<b>54-59</b>	19	1	5.3	5	26.3	13	68.4	0	0.0
<b>Total</b>	362	11	3.0	88	24.3	263	72.7	0	0.0

**Table 100: Prevalence of stunting based on height-for-age z-scores and by sex**

	<b>All</b> n = 356	<b>Boys</b> n = 172	<b>Girls</b> n = 184
<b>Prevalence of stunting (&lt;-2 z-score)</b>	(102) 28.7 % (23.3 - 34.7 95% C.I.)	(47) 27.3 % (20.5 - 35.4 95% C.I.)	(55) 29.9 % (23.3 - 37.5 95% C.I.)
<b>Prevalence of moderate stunting (&lt;-2 z-score and &gt;=-3 z-score)</b>	(76) 21.3 % (16.6 - 26.9 95% C.I.)	(37) 21.5 % (15.2 - 29.5 95% C.I.)	(39) 21.2 % (15.6 - 28.2 95% C.I.)
<b>Prevalence of severe stunting (&lt;-3 z-score)</b>	(26) 7.3 % (4.5 - 11.7 95% C.I.)	(10) 5.8 % (3.1 - 10.8 95% C.I.)	(16) 8.7 % (4.6 - 15.8 95% C.I.)

**Table 101: 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	102	3	2.9	18	17.6	81	79.4
18-29	91	13	14.3	25	27.5	53	58.2
30-41	102	5	4.9	21	20.6	76	74.5
42-53	42	3	7.1	8	19.0	31	73.8
54-59	19	2	10.5	4	21.1	13	68.4
<b>Total</b>	<b>356</b>	<b>26</b>	<b>7.3</b>	<b>76</b>	<b>21.3</b>	<b>254</b>	<b>71.3</b>

**Table 102: Prevalence of overweight based on weight for height cut off's and by sex (no oedema)**

	All n = 361	Boys n = 172	Girls n = 189
Prevalence of overweight (WHZ > 2)	(1) 0.3 % (0.0 - 2.1 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.5 % (0.1 - 3.9 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 103: 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	107	0	0.0	0	0.0
18-29	90	0	0.0	0	0.0
30-41	103	1	1.0	0	0.0
42-53	42	0	0.0	0	0.0
54-59	19	0	0.0	0	0.0
<b>Total</b>	<b>361</b>	<b>1</b>	<b>0.3</b>	<b>0</b>	<b>0.0</b>

**Table 104: 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	361	-0.79±0.97	1.50	1	1
Weight-for-Age	362	-1.37±0.98	1.00	0	1
Height-for-Age	356	-1.26±1.18	1.37	1	6

\* contains for WHZ and WAZ the children with oedema.

### 11.3.2 Result Tables for NCHS growth reference 1977 – Ajuong Thok

**Table 105: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex**

	All n = 377	Boys n = 193	Girls n = 184
Prevalence of global malnutrition	(17) 4.5 %	(9) 4.7 %	(8) 4.3 %

(<-2 z-score and/or oedema)	(2.7 - 7.5 95% C.I.)	(2.3 - 9.4 95% C.I.)	(2.1 - 8.7 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(12) 3.2 % (1.7 - 5.8 95% C.I.)	(7) 3.6 % (1.5 - 8.7 95% C.I.)	(5) 2.7 % (1.2 - 6.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(5) 1.3 % (0.6 - 3.0 95% C.I.)	(2) 1.0 % (0.3 - 4.1 95% C.I.)	(3) 1.6 % (0.5 - 5.0 95% C.I.)

The prevalence of oedema is 0.0 %

**Table 106: 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	101	2	2.0	5	5.0	94	93.1	0	0.0
18-29	89	3	3.4	5	5.6	81	91.0	0	0.0
30-41	89	0	0.0	0	0.0	89	100.0	0	0.0
42-53	77	0	0.0	1	1.3	76	98.7	0	0.0
54-59	21	0	0.0	1	4.8	20	95.2	0	0.0
<b>Total</b>	<b>377</b>	<b>5</b>	<b>1.3</b>	<b>12</b>	<b>3.2</b>	<b>360</b>	<b>95.5</b>	<b>0</b>	<b>0.0</b>

**Table 107: Distribution of acute malnutrition and oedema based on weight-for-height z-scores**

	<-3 z-score	>=-3 z-score
<b>Oedema present</b>	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
<b>Oedema absent</b>	Marasmic No. 5 (1.3 %)	Not severely malnourished No. 373 (98.7 %)

**Table 108: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex**

	All n = 379	Boys n = 194	Girls n = 185
Prevalence of global malnutrition (< 125 mm and/or oedema)	(11) 2.9 % (1.4 - 5.8 95% C.I.)	(3) 1.5 % (0.5 - 4.6 95% C.I.)	(8) 4.3 % (1.6 - 10.9 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(9) 2.4 % (1.1 - 5.2 95% C.I.)	(2) 1.0 % (0.2 - 4.2 95% C.I.)	(7) 3.8 % (1.4 - 9.8 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.5 % (0.1 - 2.1 95% C.I.)	(1) 0.5 % (0.1 - 3.8 95% C.I.)	(1) 0.5 % (0.1 - 4.2 95% C.I.)

**Table 109: Prevalence of acute 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	102	1	1.0	6	5.9	95	93.1	0	0.0
18-29	91	0	0.0	3	3.3	88	96.7	0	0.0
30-41	89	0	0.0	0	0.0	89	100.0	0	0.0
42-53	76	1	1.3	0	0.0	75	98.7	0	0.0
54-59	21	0	0.0	0	0.0	21	100.0	0	0.0
<b>Total</b>	<b>379</b>	<b>2</b>	<b>0.5</b>	<b>9</b>	<b>2.4</b>	<b>368</b>	<b>97.1</b>	<b>0</b>	<b>0.0</b>

**Table 110: Prevalence of acute malnutrition based on the percentage of the median and/or oedema**

	n = 377
Prevalence of global acute malnutrition (<80% and/or oedema)	(9) 2.4 % (1.2 - 4.9 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(8) 2.1 % (1.0 - 4.3 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(1) 0.3 % (0.0 - 2.0 95% C.I.)

**Table 111: Prevalence of malnutrition by age, based on weight-for-height percentage of the median and oedema**

Age (mo)	Total no.	Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	101	1	1.0	2	2.0	98	97.0	0	0.0
18-29	89	0	0.0	5	5.6	84	94.4	0	0.0
30-41	89	0	0.0	0	0.0	89	100.0	0	0.0
42-53	77	0	0.0	1	1.3	76	98.7	0	0.0
54-59	21	0	0.0	0	0.0	21	100.0	0	0.0
<b>Total</b>	<b>377</b>	<b>1</b>	<b>0.3</b>	<b>8</b>	<b>2.1</b>	<b>368</b>	<b>97.6</b>	<b>0</b>	<b>0.0</b>

**Table 112: Prevalence of underweight based on weight-for-age z-scores by sex**

	All n = 382	Boys n = 196	Girls n = 186
<b>Prevalence of underweight (&lt;-2 z-score)</b>	(100) 26.2 % (21.9 - 30.9 95% C.I.)	(51) 26.0 % (21.4 - 31.3 95% C.I.)	(49) 26.3 % (20.2 - 33.6 95% C.I.)
<b>Prevalence of moderate underweight (&lt;-2 z-score and &gt;=-3 z-score)</b>	(84) 22.0 % (18.0 - 26.6 95% C.I.)	(43) 21.9 % (17.2 - 27.6 95% C.I.)	(41) 22.0 % (16.3 - 29.0 95% C.I.)
<b>Prevalence of severe underweight (&lt;-3 z-score)</b>	(16) 4.2 % (2.3 - 7.5 95% C.I.)	(8) 4.1 % (1.7 - 9.6 95% C.I.)	(8) 4.3 % (2.1 - 8.6 95% C.I.)

**Table 113: 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	103	4	3.9	18	17.5	81	78.6	0	0.0
18-29	91	8	8.8	26	28.6	57	62.6	0	0.0
30-41	90	2	2.2	20	22.2	68	75.6	0	0.0
42-53	77	1	1.3	16	20.8	60	77.9	0	0.0
54-59	21	1	4.8	4	19.0	16	76.2	0	0.0
<b>Total</b>	<b>382</b>	<b>16</b>	<b>4.2</b>	<b>84</b>	<b>22.0</b>	<b>282</b>	<b>73.8</b>	<b>0</b>	<b>0.0</b>

**Table 114: Prevalence of stunting based on height-for-age z-scores and by sex**

	All n = 366	Boys n = 190	Girls n = 176
<b>Prevalence of stunting (&lt;-2 z-score)</b>	(133) 36.3 % (32.3 - 40.6 95% C.I.)	(66) 34.7 % (28.3 - 41.8 95% C.I.)	(67) 38.1 % (32.4 - 44.1 95% C.I.)
<b>Prevalence of moderate stunting (&lt;-2 z-score and &gt;=-3 z-score)</b>	(94) 25.7 % (22.0 - 29.7 95% C.I.)	(49) 25.8 % (19.7 - 33.0 95% C.I.)	(45) 25.6 % (21.7 - 29.9 95% C.I.)
<b>Prevalence of severe stunting (&lt;-3 z-score)</b>	(39) 10.7 % (7.4 - 15.0 95% C.I.)	(17) 8.9 % (5.5 - 14.3 95% C.I.)	(22) 12.5 % (8.1 - 18.8 95% C.I.)

**Table 115: 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	98	5	5.1	25	25.5	68	69.4
18-29	88	14	15.9	25	28.4	49	55.7
30-41	85	8	9.4	21	24.7	56	65.9
42-53	74	9	12.2	19	25.7	46	62.2
54-59	21	3	14.3	4	19.0	14	66.7
<b>Total</b>	<b>366</b>	<b>39</b>	<b>10.7</b>	<b>94</b>	<b>25.7</b>	<b>233</b>	<b>63.7</b>

**Table 116: Prevalence of overweight based on weight for height cut off's and by sex (no oedema)**

	All n = 377	Boys n = 193	Girls n = 184
Prevalence of overweight (WHZ > 2)	(1) 0.3 % (0.0 - 2.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.5 % (0.1 - 4.2 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 117: Prevalence of overweight by age, based on weight for height (no oedema)**

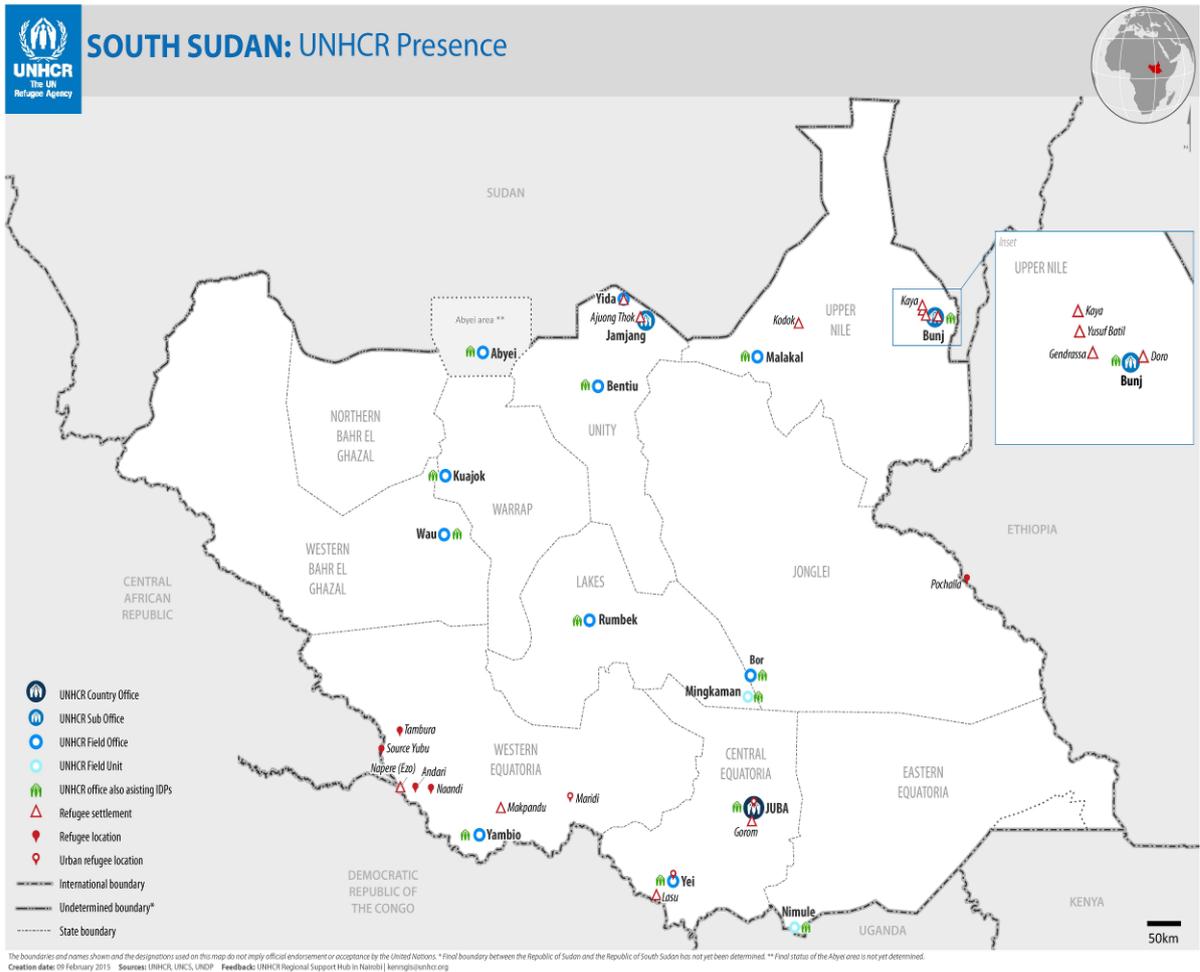
Age (mo)	Total no.	Overweight (WHZ > 2)		Severe Overweight (WHZ > 3)	
		No.	%	No.	%
6-17	101	0	0.0	0	0.0
18-29	89	0	0.0	0	0.0
30-41	89	1	1.1	0	0.0
42-53	77	0	0.0	0	0.0
54-59	21	0	0.0	0	0.0
<b>Total</b>	<b>377</b>	<b>1</b>	<b>0.3</b>	<b>0</b>	<b>0.0</b>

**Table 118: 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	377	-0.54±0.90	1.11	6	1
Weight-for-Age	382	-1.28±1.04	1.00	2	0
Height-for-Age	366	-1.42±1.29	1.00	6	12

\* contains for WHZ and WAZ the children with edema.

11.4 Appendix 4 – Map of Area



Yida settlement and Ajuong Thok refugee camp, Ruweng State, November 2016 SENS

## 11.5 Appendix 5 - Questionnaires

### UNHCR Standardised Expanded Nutrition Survey (SENS) Questionnaire

### (SENS) المفوضية الموحد مسح التغذية الموسعة استبيان

#### 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 تقرأ قبل المقابلة لرربة الاسرة أو إذا ما غاب أو عضو آخر البالغين من البيت. تعريف سكان لبيت مجموعة من الناس الذين يعيشون معا ويأكلون بشكل روتيني في قدر أو (هال) واحد تعريف مسؤول اوربة البيت فرد من أفراد الأسرة الذي يدير موارد الأسرة وهو صانع القرار النهائي في 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.

مرحباً، اسمي \_\_\_\_\_ وأنا أعمل مع [المفوضية]. نود أن ندعو أهل بيتك للمشاركة في الدراسة أن تبحث في الحالة الغذائية والصحية للناس الذين يعيشون في هذا المخيم.

- المفوضية في رعاية هذا المسح التغذوي.
- المشاركة في هذا المسح هو تماماً اختيارك. يمكنك أن تقرر عدم المشاركة، أو إذا كنت تفعل المشاركة يمكنك إيقاف المشاركة في هذا المسح في أي وقت ولأي سبب. إذا كنت تتوقف عن أن تكون في هذه الدراسة، فإنه لن يكون لها أي تأثير سلبي على كيفية التعامل معك أو أسرتك أو ما تلقي المساعدات لك.
- إذا كنت توافق على المشاركة، وسوف أسألك بعض الأسئلة عن عائلتك وسوف أيضاً قياس الوزن والطول للأطفال كل في الأسرة الذين هم أكبر سناً من 6 أشهر والذين تقل أعمارهم عن 5 سنوات بالإضافة إلى هذه التقييمات، I سيتم اختبار كمية صغيرة من الدم من الإصبع من الأطفال والنساء لمعرفة إذا كان لديهم فقر الدم.
- قبل أن نبدأ أن أطلب منكم أي أسئلة أو اتخاذ أي قياسات، سوف نطلب منك موافقتك على الدولة هذا النموذج. التأكد من أن أي وستبقى المعلومات التي سوف تقدم في سرية تامة.
- يمكنك أن تسأل أي سؤال لي أن لديك حول هذا المسح قبل أن تقرر المشاركة أم لا.
- إذا كنت لا تفهم المعلومات أو إذا لم تكن الإجابة على الأسئلة الخاصة بك للارتياح الخاص بك، لا تعلن موافقتك على هذا النموذج.

شكراً لك

## 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 المقابل يوم/شهر/سنة: <span style="float: right;">_____ / _____ / _____</span>					Cluster Number (in cluster survey only) رغم المجموع <span style="float: right;">_____</span>						Team number رغم الفريق <span style="float: right;">_____</span>				
CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11	CH12	CH13	CH14	CH15	CH16
ID البطاقة	HH رربة البيت	Consent الموافقة given  1=yes نعم 2=no لا 3=absent غاب	Sex نوع (m/f) ذكر/انثى	Birthdate* تاريخ الميلاد dd/mm/yyyy يوم/شهر/سنة	Age* سنة* (شهور)  (months)	Weight وزن(kg)  ±100g 100جرام- +	Height طول (سنتيمتر) (cm)  ±0.1cm	Oedema وزمة الامعاء (y/n)	MUAC مقياس يد الاعلى (mm)	Child enrolled الطفل المسجل  1=SFP الكل الاضافى 2=TFP الكل العلاج 3=None لاثيبى	Measles الحصبة  1=yes card نعم لى بطاقة 2=yes recall نعم ازكر 3=no or don't know لا عرف	Vit. A in past فيتامين ا فى 6 فتر شهور months (show capsule) نعم لى بطاقة 1=yes card نعم لى بطاقة 2=yes recall نعم ازكر 3=no or don't know لا عرف	Diarrhoea in past 2 weeks اسهلات خلال فترة 2 اسبوع الماضية 1=yes نعم 2=no لا 8=DK لا اعرف	DPT3/ Penta 3 1=yes card نعم لى بطاقة 2=yes recall 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. <b>Leave blank if no official age documentation is available.</b></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>الالواتائق فية التاريخ/شهر/سنة الميلاد اذا يوجد سجل الالواتائق الرسمية ولا تسجل حتى لو الام يتذكر التاريخ الميلاد اترك خالية اذا الالواتائق الرسمية غير موجود. وازا لا توجد وثائق الميلاد ضمن حسب حواذيث المحلى. وازا سجل موجود التاريخ ا سجل</p>															

## SENS IYCF Questionnaire

No	QUESTION الاستئئلة	ANSWER CODES الجابات
<b>SECTION IF1</b>		
IF1	Sex نوع	Male ذكر ..... 1 Female انثى ..... 2
IF2	Birthdate التاريخ الميلاد RECORD FROM AGE DOCUMENTATION. LEAVE BLANK IF NO VALID AGE DOCUMENTATION سجل من وثيق	Day/Month/Year ..... / / يوم/شهر/سنة
IF3	Child's age in months سنة الطفل في شهر	IF AGE DOCUMENTATION NOT AVAILABLE, ESTIMATE USING EVENT CALENDAR. IF AGE DOCUMENTATION AVAILABLE, RECORD THE AGE IN MONTHS FROM THE DATE OF BIRTH اذا لا توجد وثقتاريخ الميلاد ضمن التاريخ خلال حدث في المحلي
IF4	Has [NAME] ever been breastfed? هل (الاسم) دائما يرضى	Yes نعم ..... 1 No لا ..... 2 DK لا اعرف ..... 8
IF5	How long after birth did you first put [NAME] to the breast? بعد الميلاد مباشراً كم من زمن رضيع الطفل؟	Less than one hour ساعة من اقل ..... 1 Between 1 and 23 hours بين 1 و 23 ساعة ..... 2 More than 24 hours اكثر من 24 ساعة ..... 3 DK لا اعرف ..... 8
IF6	Was [NAME] breastfed yesterday during the day or at night? هل رضيع الطفل خلال نهار ام الليل؟	Yes نعم ..... 1 No لا ..... 2 DK لا اعرف ..... 8
<b>SECTION IF2</b>		
IF7	Now I would like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] receive any of the following? الان اريد اسال عن المسائل ممكن اخزت خلال النهار امس و في ليل لي رغبة لمعرفة اذا طفلك لة مواد حتلا لو مغلوط مع بعض من اكل خلال يوم او ليل امس(اسم) هل استلام بعض من مزكورة: ASK ABOUT EVERY LIQUID. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE. اسال عن المسائل اذا اخزوا ضع دائرة في (1) و اذا لم تاخز ضع دائرة في (2) و ام اذا لا اعرف ضع دائرة في (8)	Yes No DK
	7A. Plain water مياة السهل	7A.....1 2 8
	7B. Infant formula: for example (Libto Mama) ] غير قوى(ميتومامة, ليتونيل) طفل مرضى على سبيل المثال اضيف عيش المالحى من اكل قوى	7B.....1 2 8
	7C. Milk such as tinned, powdered, or fresh animal milk: for example (Nido, Formost) او لحم حيوان طازج على سبيل المثال اضيف بعض لبن علب لبن علبه المجفيف	7C.....1 2 8
	7D. Juice or juice drinks (Gungules-Aradeb, Kedem) عصير او مشروب عصير اضيف مشروبات المحلي (قنفوليس, ارديبب, قديم).	7D.....1 2 8
	7E. Clear broth or Soup مرق الصافى	7E.....1 2 8
	7F. Sour milk or yogurt for example: (Zabadi , Roob) لبن حامض (زبادي , روب)	7F.....1 2 8
	7G. Thin porridge for example: (Medida Khafif) نثة خفيف اذكر اسم المحلي (مديدة خفيف)	7G.....1 2 8
	7H. Tea or coffee with milk الشاي لبن او قهوة	7H.....1 2 8

	7I. Any other water-based liquids (kastar), Serilak): for example sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual fluids ازكر بعض من السوائل مثل مشروبات الحلو ومشروبات الحلو مشروبات عشبية غازية ومشروبات الشاي خالي من لبن ومشروبات الحلو مشروبات عشبية	7I.....1 2 8	
<b>IF8</b>	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? امس خلال اليوم او الليل هل (اسم) اكلت اكل صلب ام شبة صلب (لين عصبي)	Yes نعم.....1 No لا.....2 DK... لا اعرف.....8	<input type="checkbox"/>
<b>SECTION IF3</b>			
<b>IF9</b>	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night? هل (اسم) شرب اي شئ من زجاج لة حلمة امس خلال النهار او الليل	Yes نعم.....1 No لا.....2 DK لا اعرف.....8	<input type="checkbox"/>
<b>SECTION IF4</b>			
<b>IF10</b>	Is child aged 6-23 months? هل طفلك عمره 6-23 شهر  REFER TO IF2	Yes نعم.....1 No لا.....2	<input type="checkbox"/> <b>IF ANSWER IS 2 STOP NOW</b> اذا اللجابة 2 قف الان
<b>IF11</b>	Now I would like to ask you about some particular foods [NAME] may eat. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] consume any of the following? الان اريد عن اسال بعض غزاء ت (اسم) توكل طفلك لة هزي المواد حتى لو مخلوت مع اغذية اخرى امس خلال الليل او نهار (اسم) ياكل التالي:  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. اسال كل المواد اذا المواد قد ضع دائرة (1) اذا المواد اعطى دائرة (2) و اذا لم تعرف ضع دائرة (8) كل خطوط عن تكن لة رمز	Yes No DK	
<b>IF12</b>	11A. <b>Flesh foods</b> for example: beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart غزاء لحمي (سجل كل لحم العامة مثل سمك دجاج وكبد) على سبيل مثال لحم بقر ضان بط ارنب لحم خنزير كبد كلية 11B CSB+ Premix الغزاء المخلوتة وقوى وسجل الموجود في المنطقة 11C. <b>FBF++</b> : for example CSB++ صويا 11D. <b>RUTF</b> : for example Plumpy'Nut® (SHOW SACHET) الجاهزة سد تعامل في العلاج سجل هزي الغذاء المدلى الغزاء 11E. <b>RUSF</b> : for example Plumpy'Sup® (SHOW SACHET) كل مدلى دالا ضافى سجل هزة ال كل الاموجو ال الجاهزة 11G. Infant formula: for example Libto Mama امس اقزه نم ضعب ركزا يضرر ل ل فطلا تفصول يوقل ال الغذاء ال حديدى 11H. List any <b>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.</b> لجس غزي ب بعض الغذاء شبة صلب ل ين الم صنع ل لاط فال والاط فال يرضى الموجدون فى المنطقة ولبة فى رق من ال 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	



**WASH: 1 questionnaire per household** (THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO THE MAIN CARETAKER OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSEHOLD) *بحث عن الاسرة : او استفتاء لكل عائلة ( هذا الاستفتاء سيكون النظام الادارى للعائلة للبالغين من العائلة*

No	QUESTION السؤال	ANSWER CODES رمز الاجابة
<b>SECTION WS1 القسم</b>		
WS 1	How many people live in this household and slept here last night? كم عدد الافراد الذين قضاوا هذه الليلة هنا ؟	_____
WS 2	What is the <b>main</b> source of drinking water for members of your household?  ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. WHEN ADAPTING THE LIST, KEEP THE ORIGINAL ANSWER CODES AND DO NOT CHANGE. ما هي مصادر مياه الشرب لافراد لاسرنك ؟  DO NOT READ THE ANSWERS لا تقرأ الأجابة ؟ SELECT ONE ONLY أخترا	Piped water.....01 الماء المزمر Public tap/standpipe.....02 الحنفية العامة Tubewell/borehole (& pump).....03 Protected dug well.....04 الحلمة المحمية Protected spring .....05 الربيع المحمي Rain water collection .....06 مياه الامطار UNHCR Tanker .....07 ناقلة الماء Unprotected spring.....08 الحلمة الغير محمية Unprotected dug well .09 الربيعي غير المحمي Small water vendor.....10 ناقلة الماء الصغير Tanker truck.....11 ناقلة الماء الكبير Bottled water .....12 الماء المعبا Surface water (e.g. river, pond) 13 الماء السطحي Other.....96 اشياء اخرى Don't know .....98 لا اعلم
WS 3	Are you satisfied with the water supply? هل انت مستفيد من خدمات المياه ؟ THIS RELATES TO THE DRINKING WATER SUPPLY هذا طريقة لاستخدام تجهيز المياه الصالحة للشرب	Yes.....1 نعم No.....2 لا Partially .....3 جزئيا Don't know .....8 لا اعلم
WS 4	What is the <b>main</b> reason you are not satisfied with the water supply? ما هي الاسباب التي تجعلك لا تستفيد من خدمات المياه  ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. كيف يتم تحضير السكن قبل المسح الميداني DO NOT READ THE ANSWERS لا تقرأ الاجابة SELECT ONE ONLY اختر اجابة واحدة فقط	Not enough .....01 لا يكفي Long waiting queue.....02 انتظار طويل للصف Long distance .....03 المسافة بعيدة Irregular supply .....04 التجهيز شاذ Bad taste .....05 الطعم السيئ Water too warm .....06 الماء الساخن Bad quality .....07 النوعية سنية Have to pay .....08 يجب ان تدفع Other.....96 اشياء اخرى Don't know .....98 لا اعلم
WS	What kind of toilet facility does this	Flush to piped sewer system01 تدفق نظام البلاعة

5	<p>household use?  اي 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.  بين قائمة السكن قبل المسح الميداني و عندما يبين القائمة يبقى الاجابة الاصح و لا يتغير  DO NOT READ THE ANSWERS  لا تقرأ الاجابة  SELECT ONE ONLY  اختر اجابة واحدة فقط</p>	<p>الزمر  - تدفق نظام النتك02..... Flush to septic system  - صب الاحمرار التحريض03 Pour-flush to pit..  الحفرة 04VIP/simple pit latrine with floor/slab في الارض  التسميد05..... Composting/dry latrine  تدفق اة صب06 Flush or pour-flush elsewhere في مكان اخر  حفرة مرحاض 07Pit latrine without floor/slab بدون ارضية  صيانة سريعة 08..... Service or bucket latrine للمرحاض  المرحاض معلق09..... Hanging toilet/latrine  لا وسيلة , 10No facility, field, bush, plastic bag حقل , كيس بلاستيكي</p>	<p> _ _   IF ANSWER IS 10  GO TO WS7</p>
WS 6	<p>How many <b>households</b> share this toilet?  كم عدد الاسر الذين يشاركون في مرحاض واحد ؟  THIS INCLUDES THE SURVEYED HOUSEHOLD  هذا من ضمن العائلة الممسوحة</p>	<p>RECORD NUMBER OF HOUSEHOLDS IF KNOWN (RECORD 96 IF PUBLIC TOILET OR 98 IF UNKNOWN) عدد قياسي من العوائل المعروفة ( يتم تسجيل 96 للمراحيض العامة و 98 للمجهولين )  SUPERVISOR SELECT ONE ONLY  يختار المشرف واحد فقط  لا اشترك 1 Not shared (1 HH)  مشاركة العائلة 2 Shared family (2 HH)  المرحاض العام3 Communal toilet (3 HH or more)  المرحاض4 Public toilet (in market or clinic etc.)  العمومي  لا اعلم 8 Don't know</p>	<p> _ _   Households   _ </p>
WS 7	<p>Do you have children under three years old?  هل لديك اطفال تحت الاعمار 3 سنة ؟</p>	<p>1 نعم ..... Yes  2 لا ..... No</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>01 Child used toilet/latrine  02 Put/rinsed into toilet or latrine  03 Buried  04 Thrown into garbage  05 Put/rinsed into drain or ditch  06 Left in the open  96 Other  98 Don't know</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				
<p><b>WS9</b></p>	<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>	<p>Capacity in litres</p>	<p>Number of journeys made with each container</p>	<p>Total litres</p> <p><b>SUPERVISOR TO COMPLETE HAND CALCULATION</b></p>	
		1				
		2				
		3				
		4				
		5				
		6				
		7				
		8				
		9				
		10				
		<b>Total litres used by household</b>				
<p><b>WS10</b></p>	<p>Please show me where you store your drinking water.</p> <p>ARE THE DRINKING WATER CONTAINERS COVERED OR NARROW NECKED?</p>	<p>All are..... 1</p> <p>Some are..... 2</p> <p>None are..... 3</p>	<p> __ </p>			

## MOSQUITO NET QUESTIONNAIRE

No	QUESTION السؤال	ANSWER CODES الاجابات السرية			
<b>SECTION TN1</b>					
TN 1	How many people live in this household and slept here last night? كم عدد الافراد فى هذه العائلة و الذين نامون هنا الليلة ؟ INSERT NUMBER العدد الملحق				_ _ _
TN 2	How many children 0-59 months live in this household and slept here last night? كم عدد الاطفال الاحياء من 0-59 شهر فى هذه العائلة و الذين ناموا هذه الليلة ؟ INSERT NUMBER العدد الملحق				_ _ _
TN 3	How many pregnant women live in this household and slept here last night? كم عدد النساء الحبلى فى هذه العائلة و نمن هذه الليلة ؟ INSERT NUMBER العدد الملحق				_ _ _
TN 4	Did you have your house sprayed with insecticide in an indoor residual spray campaign in the past  ___  months? (OPTIONAL) هل تم رش منزلك بمبيد حشرات فى الحملة الماضية للرش ؟	Yes ..... 1 نعم No ..... 2 لا			_
TN 5	Do you have mosquito nets in this household that can be used while sleeping? هل لديك ناموسيات تستعملها فى الليل مع العائلة ؟	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 الناموسيات التى يمكن ان تستعملها العائلة اثناء النوم فى الليل ؟ INSERT NUMBER العدد الملحق	IF MORE THAN 4 NETS, ENTER THE NUMBER AND USE ADDITIONAL NET QUESTIONNAIRE SHEETS ENTERING THE NUMBER OF THE NETS SEQUENTIALLY AT THE TOP. اذا اكثر من 4 شبكات التى تدخل فيها الشبكات عدد فى القمة			_ _  Nets
TN 7	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD. IF NETS ARE NOT OBSERVED → CORRECT TN6 ANSWER اسال المستجيب لتشريفك صحيح TN للشبكة فى العائلة اذا شبكات 6 جواب	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 شبكة وسجل العلامة التجارية من شبكة على البطاقة , اذا تجد اى بطاقة او غير صالح للقراءة , لا يعرف				
TN 9	<b>For surveyor/supervisor only (not to be done during interview):</b> للمساح و المشرف فقط , اثناء المعاينة	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. اى نوع هذه الشبكة؟ و ما نوع المستند للبطاقة و الشبكة او DK				
TN 10	<b>For surveyor/supervisor only (not to be done during interview):</b> للمساح و المشرف فقط اثناء المعاينة RECORD THE TOTAL NUMBER OF LLINs IN HOUSEHOLD BY COUNTING THE NUMBER OF '1' IN TN9. سجل العددي الكلي ل في العائلة بحساب 1 في 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.	<b>For surveyor/supervisor only:</b>  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
<b>Mosquito net summary (for surveyor / supervisor only, not to be done during interview)</b>							
	<b>Total household members</b>		<b>Total &lt;5</b>			<b>Total Pregnant</b>	
<b>Slept under a net of any type</b>	Count the number of '1' in COL5	<b>TN11</b>  __ __	For children < 5 (COL3 is '<5'), count the number of '1' in COL5	<b>TN13</b>  __ __	For pregnant women (COL4 is '1'), count the number of '1' in COL5	<b>TN15</b>  __ __	
<b>Slept under an LLIN</b>	Count the number of '1' in COL7	<b>TN12</b>  __ __	For children <5 (COL3 is '<5'), count the number of '1' in COL7	<b>TN14</b>  __ __	For pregnant women (COL4 is '1'), count the number of '1' in COL7	<b>TN16</b>  __ __	

### 11.6 Appendix 6 – Events Calendar

MONTHS	2011	2012	2013	2014	2015	2016
<b>JANUARY</b>		<b>57</b> New year celebrations	<b>45</b> New year celebrations	<b>33</b> New year celebrations	<b>21</b> New year celebrations	<b>09</b> New year celebrations
<b>FEBRUARY</b>		<b>56</b> Start of land preparation	<b>44</b> Start of land preparation	<b>32</b> Start of land preparation	<b>20</b> Start of land preparation	<b>08</b> Start of land preparation
<b>MARCH</b>		<b>55</b> Celebration of Yusuf Kuwa	43 Celebration of Yusuf Kuwa	<b>31</b> Celebration of Yusuf Kuwa; Ajuong Thok opens	<b>19</b> Celebration of Yusuf Kuwa	<b>07</b> Celebration of Yusuf Kuwa
<b>APRIL</b>		<b>54</b> House rehabilitations	42 House rehabilitations	<b>30</b> House rehabilitations	<b>18</b> House rehabilitations	<b>06</b> House rehabilitations
<b>MAY</b>		<b>53</b> Rains begin; SPLA Day	41 Rains begin; SPLA Day	<b>29</b> Rains begin; SPLA Day	<b>17</b> Rains begin; SPLA Day	<b>05</b> Rains begin; SPLA Day
<b>JUNE</b>		<b>52</b> Primary schools close;	40 Primary schools close	<b>28</b> Primary schools close	<b>16</b> Primary schools close	<b>04</b> Primary schools close
<b>JULY</b>		<b>51</b> Start of weeding South Sudan Independence	<b>39</b> Start of weeding South Sudan Independence	<b>27</b> Start of weeding South Sudan Independence	<b>15</b> Start of weeding South Sudan Independence	<b>03</b> Start of weeding South Sudan Independence
<b>AUGUST</b>		<b>50</b> First maize harvest	<b>38</b> First maize harvest	<b>26</b> First maize harvest	<b>14</b> First maize harvest	<b>02</b> First maize harvest
<b>SEPTEMBER</b>		<b>49</b> Groundnuts harvesting; Bible Course	<b>37</b> Groundnuts harvesting; Bible Course	<b>25</b> Groundnuts harvesting; Bible Course	<b>13</b> Groundnuts harvesting; Bible Course	<b>01</b> Groundnuts harvesting; Bible Course
<b>OCTOBER</b>		<b>48</b> Primary schools open	<b>36</b> Primary schools open	<b>24</b> Primary schools open	<b>12</b> Primary schools open	<b>00</b> Primary schools open
<b>NOVEMBER</b>	<b>59</b> Wrestling month Antenov Bombed Yida	<b>47</b> Wrestling month	<b>35</b> Wrestling month	<b>23</b> Wrestling month	<b>11</b> Wrestling month	
<b>DECEMBER</b>	<b>58</b> Christmas celebrations	<b>46</b> Christmas celebrations	<b>34</b> Christmas celebrations	<b>22</b> Christmas celebrations	<b>10</b> Christmas celebrations	