

UPPER NILE/MABAN REFUGEE CAMPS

SOUTH SUDAN

Survey conducted: October/November 2015



IN COLLABORATION WITH

WFP, UNICEF, IMC, Samaritan Purse, MEDAIR, MSF-B, Relief International & Maban County Health Department

NUTRITION SURVEY FINAL REPORT



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ACRONYMS AND ABBREVIATIONS

ACTED	Agency for Technical Cooperation and Development
AWD	Acute Water Diarrhea
BSFP	Blanket Supplementary Feeding Programme
CI	Confidence Interval
CMR	Crude Mortality Rate
CHWs	Community Health Workers
CSB	Corn-Soya Blend
DEFF	Design effect
DPT 3	Diphtheria, Pertussis, Tetanus combined vaccine
ENA	Emergency Nutrition Assessment
ENN	Emergency Nutrition Network
EPI	Expanded Programme on Immunization
Epi Info	CDC software for epidemiological investigations
GAM	Global Acute Malnutrition
GFD	General Food Distribution
HAZ	Height-for-Age z-score
Hb	Haemoglobin
HIS	Health Information System
IMC	International Medical Corps
IOM	International Office of Migration
LLIN	Long lasting insecticide treated mosquito bed nets
IYCF	Infant and Young Child Feeding
LRTI	Low Respiratory Tract Infection
MAM	Moderate Acute Malnutrition
MSF-B	Médecins sans Frontières-Belgium
MUAC	Mid-Upper Arm circumference
NCHS	National Centre for Health Statistics
OTP	Out-patient Therapeutic Programme
PPS	Probability Proportion to Sample Size
PDM	Post Distribution Monitoring
PLW	Pregnant and Lactating Women
ProGress	UNHCR registration database for refugees
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SD	Standard Deviation
SENS	Standardized Expanded Nutrition Survey (Guidelines)
SFP	Supplementary Feeding Programme
SMART	Standardized Monitoring & Assessment of Relief & Transitions
SP	Samaritan's Purse
TFP	Therapeutic Feeding Programme
TSFP	Therapeutic Supplementary Feeding Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
URTI	Upper Respiratory Tract Infection
WASH	Water, Sanitation and Hygiene promotion
WAZ	Weight-for-Age z-score
WHZ	Weight-for-Height z-score
WFP	World Food Programme
WHO	World Health Organization

EXECUTIVE SUMMARY

Maban County is located in Upper Nile State in the North East of the Republic of South Sudan (RSS). The refugee caseload is composed of Sudanese fleeing from the conflict in Blue Nile State, residing in four camps: Doro, Yusuf Batil, Gendrassa and Kaya (previously Jamam). The region is a semi-arid desert with sparse vegetation and no surface water. The climate is harsh with extreme temperatures during the dry season and flooding at the rainy season.

The survey was conducted during the beginning of the dry season from 21st October to November 5th 2015. United Nations High Commissioner for Refugees (UNHCR) coordinated the survey in collaboration with the World Food Programme (WFP), The United Nations Children's Fund (UNICEF), International Medical Corps (IMC), Samaritan's Purse (SP), MEDAIR, Relief International (RI), Medecin Sans Frontieres-Hollande (MSFH) and Medecin sans Frontiere – Belgium (MSFB) provided remote support in terms of materials.

Objectives:

Primary objectives: To:

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

Secondary objectives:

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

Methodology

The survey was conducted according to the UNHCR Standardised Expanded Nutrition Survey (SENS) version 2, December 2012 guidelines and the Standardised Monitoring and Assessments of Relief and Transitions (SMART) guidelines, (www.sens.unhcr.org). Two stage cluster sampling approach was used. 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 was used to calculate the sample size. To identify clusters, the Probability Proportion to Sample Size (PPS) method was used. For sample size calculation, the following parameters were used; percentage population under 5, estimated Global Acute Malnutrition (GAM) prevalence, desired precision, design effect. As a result, 498 households in Doro, 493 households in Batil, 537 households in Gendrassa and 512 households in Kaya were computed to be assessed.

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

Data was collected Mobile phones by ten teams with four members in each team; two camps were run concurrently by a group of five teams.

RESULTS

In Doro, the GAM prevalence was found to be **15.2%** (11.9 - 19.1 95% CI) and the SAM prevalence was **2.3%** (1.5 - 3.5 95% CI). In Yusuf Batil camp, the GAM prevalence was found to be **11.1 %** (8.7 - 14.0 95% CI) while the SAM prevalence was **2.1 %** (1.1 - 3.7 95% CI). In Gendrassa the GAM prevalence was found to be **9.1%** (7.0 - 11.8 95% CI) and the SAM prevalence was **2.1%** (1.2 - 3.5 95% CI). In Kaya the GAM prevalence was found to be **11.4%** (9.2 - 13.9 95% CI) and the SAM prevalence was **1.2%** (0.6 - 2.4 95% CI). The Nutrition situation has worsened in 2015 as compared to 2014.

The prevalence of stunting in Doro and Gendrassa were respectively **42.1%** (37.6 - 46.7 95% CI) and **47.8%** (43.4 - 52.2 95% CI); in Yusuf Batil, **55.0%** (50.2 - 59.7 95% CI) were found stunted while they were **57.7%** (53.1 - 62.1 95% CI) in Kaya. In Batil, Gendrassa and Kaya camps, the increase as compared to 2014 was significant ($p < 0.05$) while in Doro the increase was not significant ($P > 0.05$). The rates in all camps are of high public health significance ($\geq 40\%$).

Measles vaccination coverage among children from 9-59 months was 93.7% (90.8 -96.6 95% CI) in Doro, 94.8% (91.2-98.4 95% CI) In Batil, 92.0% (89.0-95.0 95% CI) in Gendrassa, and 95.0% (94.1-97.6 95% CI) in Kaya. The coverage of vitamin A was the lowest with 66.7% (53.2-80.2 95% CI) in Yusuf Batil while coverages in Doro, Kaya and Gendrassa were 91.0% (86.8-95.2 95% CI), 87.9% (80.8-95.0 95% CI) and 85.9% (78.0-93.0 95% CI) respectively; Doro met the target while the latter two are closer to the target of 90 %.

The anaemia situation among children further deteriorated as half of the children 6-59 months were found to be anaemic. The highest child anaemia prevalence was in Gendrassa with **55.8%** (50.3-61.3 95% CI), followed by Batil with **55.7%** (51.9-59.6 95% CI). In Doro, the anemia prevalence was **54.1 %** (49.2-59.0 95% CI) and in Kaya, it was **52.9%** (48.0-57.9 95% CI). One-

third of the women of reproductive age were also found anaemic as the anaemia prevalences among the 51-49 months women was **31.4%** (24.5-38.3) in Doro , **27.4 %** (20.9-33.9) in Yusuf Batil, **26.5%** (19.0-33.9) in Gendrassa and **25.9%** (20.8-30.9) in Kaya.

Exclusive Breastfeeding (EBF) rates in Doro, Batil, Gendrassa and Kaya were respectively **90.1%** (84.0-96.2 95% CI), **67.6%** (41.8-93.5 95% CI), **73.4%** (60.0-86.8 95% CI), and **77.6%** (65.2-90.0 95% CI). Early initiation to breast feeding within first one hour rates scored **87.8 %** (84.0-91.7 95% CI) in Doro, **91.8%** (88.6-95.0 95% CI) in Batil, **92.2 %** (89.0-95.4 95% CI) in Gendrassa and **83.8 %** (77.7-89.9 95% CI) in Kaya. EBF trends were on the rise in Doro and Batil and decreased in Kaya and Gendrassa as compared to 2014.

The average water usage in Doro in Litre per person per day (lpppd) was **16.9%** (37.9-50.9 95 % CI), **27.9 %** (23.6-32.3 95%CI) in Batil, **16.0%** (14.6-17.5 95%CI) in Gendrassa and **15.2%** (14.0-16.4 95% CI) in Kaya. In Doro, **36.9%** (28.7-45.0 95%CI) of the surveyed households are using an improved toilet facility while there are **46.3%** (37.0-55.6 95%CI) in Batil, **21.8%**(15.5-28.0 95% CI) in Gendrassa and **23.9%** (17.2-30.6 95% CI) in Kaya.

The percentage of households owning at least one LLIN mosquito net in Doro was **77.2%** (69.0-85.4 95% CI), **88.3 %** (81.4-95.2 95% CI) in Batil, **85.5%** (77.8-93.3 95% CI) in Gendrassa and **93.0%** (89.8-96.2 95% CI) in Kaya. The average number of person per LLIN was 4 in Doro, 2.9 each in Batil and in Gendrassa, and 2.6 in Kaya.

Table 2: Summary of Key Findings

SURVEYED CAMPS	DORO	YUSUF BATIL	GENDRASSA	KAYA	Classification of public health significance or target (where applicable)
CHILDREN 6-59 months % (95% CI)					
Acute Malnutrition (WHO 2006 Growth Standards)					
Global Acute Malnutrition (GAM)	15.2 (11.9 - 19.1)	11.1 (8.7 - 14.0)	9.1 (7.0 - 11.8)	11.4 (9.2 - 13.9)	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	12.9 (10.0 - 16.4)	9.0 (6.7 - 11.9)	7.1 (5.3 - 9.3)	10.2 (8.0 - 12.8)	
Severe Acute Malnutrition (SAM)	2.3 (1.5 - 3.5)	2.1 (1.1 - 3.7)	2.1 (1.2 - 3.5)	1.2 (0.6 - 2.4)	
Oedema	0.0	0.1	0.0	0.3	
Mid Upper Arm Circumference (MUAC)					
MUAC <125mm and/or oedema	5.6 (3.7 - 8.2)	4.8 (3.3 - 7.0)	2.3 (1.4 - 3.8)	3.2 (2.2 - 4.8)	
MUAC 115-124 mm	5.1 (3.3 - 7.7)	4.1 (2.7 - 6.1)	1.9 (1.0 - 3.4)	2.8 (1.8 - 4.4)	
MUAC <115 mm and/or oedema	0.5 (0.2 - 1.4)	0.9 (0.3 - 2.7)	0.4 (0.1 - 1.4)	0.4 (0.1 - 1.3)	
Stunting (WHO 2006 Growth Standards)					
Total Stunting	42.1 (37.6 - 46.7)	55.0 (50.2 - 59.7)	47.8 (43.4 - 52.2)	57.7 (53.1 - 62.1)	Critical if ≥ 40%
Severe Stunting	15.6 (13.0 - 18.6)	22.4 (18.9 - 26.4)	17.1 (13.5 - 21.3)	26.8 (22.7 - 31.3)	
Programme coverage					
Measles vaccination with card or recall (9-59 months)	93.7 (90.8 -96.6)	94.8 (91.2-98.4)	92.0 (89.0-95.0)	95.0 (94.1-97.6)	Target of ≥ 95%
Vitamin A supplementation within past 6 months with card or recall	91.0 (86.8-95.2)	66.7 (53.2-80.2)	85.9 (78.0-93.0)	87.9 (80.8-95.0)	Target of ≥ 90%
Diarrhoea					
Diarrhoea in last 2 weeks	19.0 (13.6-24.3)	17.8 (11.7-33.8)	7.4 (4.5-10.5)	10.8 (6.0-15.5)	
Anaemia Children 6-59 months					
Total Anaemia (Hb <11 g/dl)	54.1 (49.2-59.0)	55.7 (51.9-59.6)	55.8 (50.3 -61.3)	52.9 (48.0-57.9)	High if ≥ 40%
Mild (Hb 10-10.9 g/dl)	28.8 (24.8 -32.9)	29.9 (25.7-34.0)	30.2 (26.2-34.2)	29.6 (25.7-33.5)	
Moderate (Hb 7-9.9 g/dl)	23.8 (20.0-27.6)	25.4 (20.9-30.0)	14.7 (20.6-28.8)	22.3 (19.0-25.6)	
Severe (Hb<7 g/dl)	1.4 (0.4-2.5)	0.4 (0.0-0.9)	0.9 (1.2-1.5)	1.0 (0.2-2.0)	

CHILDREN 0-23 months					
IYCF indicators					
Timely Initiation of Breastfeeding	87.8 (84.0-91.7)	91.8 (88.6-95.0)	92.2 (89.0-95.4)	83.8 (77.7-89.9)	
SURVEYED CAMPS	DORO	YUSUF BATIL	GENDRASSA	KAYA	
Exclusive Breastfeeding under 6 months	90.1 (84.0-96.2)	67.6 (41.8-93.5)	73.4 (60.0-86.8)	77.6 (65.2-90.0)	
Consumption of iron- rich or iron -fortified foods	19.6 (11.5-27.6)	10.6 (4.5-16.9)	57.9 (47.6-67.1)	35.6 (23.5-47.9)	
Bottle feeding	2.2 (0-5.9)	0.6 (-0.3-1.6)	3.7 (1.3-6.2)	0.5 (0.0-1.4)	
WOMEN 15-49 years					
Anaemia (non-pregnant)					
Total Anaemia (Hb <12 g/dl)	31.4 (24.5-38.3)	27.4 (20.9-33.9)	26.5 (19.0-33.9)	25.9 (20.8-30.9)	High if ≥ 40%
Mild (Hb 11-11.9)	20.4 (15.2-25.5)	18.1 (13.0-23.3)	16.2 (11.5-20.9)	15.0 (10.0-20.1)	
Moderate (Hb 8-10.9)	11.0 (7.4-14.7)	8.8 (5.6-12.1)	10.3 (5.6-15.0)	10.4 (7.4-13.5)	
Severe (Hb <8)	0.0 (0.0-0.0)	0.4 (0.5-1.3)	0 (0-0)	0.4 (-0.4-1.1)	
WASH					
Water quality					
Proportion of households using improved drinking water source	100 (100-100)	100 (100-100)	100 (100-100)	100 (100-100)	
Water quantity					
Proportion of households that use:					
≥ 20 lpppd	35.8 (28.9-42.6)	64.8 (57.4-72.1)	29.3 (21.5-37.1)	23.6 (17.6-29.6)	Average quantity of water available per person / day ≥ 20 litres
15 - <20 lpppd	18.6 (14.3-21.8)	14.3 (10.8-17.7)	22.4 (17.1-27.8)	22.0 (17.4-26.6)	
<15 lpppd	45.7 (39.0-52.2)	21.0 (15.5-26.4)	48.2 (39.0-57.4)	54.4 (46.3-62.5)	
Average water usage in litres/person/day	16.9 (15.7-18.2)	27.9 (23.6-32.3)	16.0 (14.6-17.5)	15.2 (14.0-16.4)	
Safe excreta disposal					
Proportion of households that use:					
An improved excreta disposal facility (improved toilet facility, 1 household)	16.8 (9.3-24.3)	31.4 (24.8-38.0)	65.4 (55.5-75.2)	39.8 (29.6-50.0)	
A shared family toilet (improved toilet facility, 2 households)	15.2 (9.6-20.8)	38.5 (34.1-42.8)	17.6 (12.5-22.7)	22.8 (15.8-29.9)	
A communal toilet (improved toilet facility, 3	39.0 (29.0-49.2)	27.7 (21.3-34.0)	11.9 (5.7-18.1)	18.8 (13.6-23.9)	

households or more)					
An unimproved toilet (unimproved toilet facility or public toilet)	28.7 (18.0-40.0)	2.4 (0.9-4.0)	5.1 (-1.7-11.9)	18.6 (7.4-29.8)	
MOSQUITO NET COVERAGE					
Mosquito net ownership					
Proportion of households owning at least one LLIN	77.2 (69.0-85.4)	88.3 (81.4-95.2)	85.5 (77.8-93.3)	93.0 (89.8-96.2)	Target of >80%
Average number of persons per LLIN (Mean)	4.0	2.9	2.9	2.6	2 persons per LLIN
SURVEYED CAMPS	DORO	YUSUF BATIL	GENDRASSA	KAYA	
Mosquito Net Utilisation					
Proportion of household members (all ages) who slept under an LLIN	68.5	79.2	69.7	79.2	
Proportion of children 0-59 months who slept under an LLIN	78.3	92.2	87.2	86.2	
Proportion of pregnant women who slept under an LLIN	68.5	79.5	80.0	85.0	
Indoor Residual Spraying (IRS)					
Proportion of Household covered by IRS	97.1 (95.6-101.6)	99.2(98.1-100.3)	97.7(95.2-100.0)	57.4 (41.2-73.5)	

Interpretation / conclusions:

- The GAM prevalences have increased in all Maban camps in 2015 as compared to 2014. Doro camp has the highest malnutrition prevalence and is in critical situation as the GAM rate have crossed the emergency threshold (GAM $\geq 15\%$). Yusuf Batil and Gendrassa are in a serious situation (GAM between 10%-14%). Gendrassa is the only camp within UNHCR standards (GAM < 10%) with a GAM in a medium range (GAM between 5% -9%). The increase was statistically significant in Doro and Yusuf Batil camps while it was not in Kaya and Gendrassa.
- The stunting rates are above threshold, of high public health significance ($\geq 40\%$) in all camps. Challenges in age determination might have also influenced the scope of the stunting prevalence.
- The anaemia rates in children 6-59 months old are above 40% level, which is also of public health significance in all camps as more than 50% of the children 6-59 months were diagnosed anaemic. Children aged 6-23 months are most affected.
- Among women of reproductive age the anaemia prevalence is of medium to high public health significance; one-third of them are anaemic
- Feeding programme coverage of SC/OTP and TSFP is low. However, the small sample size requests caution to be taken while interpreting. Proper coverage assessment is recommended.
- Measles and vitamin A coverage are at acceptable to satisfactory levels depending on the camps. Some camps are closer to /reached the acceptable standard targets of 95 % and 90% respectively.
- Infant and Young Child Feeding indicators such as Exclusive Breastfeeding and Timely initiation to breastmilk are in an acceptable range; showed an improvement in Doro and Batil as opposed to a stagnation/slight decrease in Kaya and Gendrassa.
- Refugees have sufficient potable drinkable water for their needs, the average water usage is above the sphere standard of 15 lpppd and depending on the camps, 23.6% to 64.8% of the households met UNHCR standards of 20 lpppd.
- Sanitation facilities still require major effort to improve.
- Mosquito nets coverage is within standards in all camps except in Doro where it is slightly below the acceptable 80%. More than 60 % of total population and vulnerable groups (6-59 months and PLW) sleep under the nets. IRS coverage is excellent except in Kaya.

RECOMMENDATIONS AND PRIORITIES

IMMEDIATE TERM

- UNHCR and Nutrition Partners Develop and implement anaemia reduction strategy;
- WFP to restore the GFD ration to 100%, and re-instate the milling vouchers. UNHCR to support WFP on lobbying and funding search;

- Conduct qualitative assessment on contributing factors to anaemia/micronutrient deficiency and malnutrition among on Pregnant and Lactating Women;
- UNHCR and Nutrition partners to reinforce the link between anaemia reduction and IYCF by putting more emphasis on iron and micronutrient –related issues during the MSGs sessions and food demonstration;
- UNHCR, WFP and Nutrition partners to maintain the current curative nutrition activities (TSFP, OTP, SC);
- UNICEF to continue supporting the camps with SAM nutrition supplies (RUTF, RUSF) and anthropometric material and medicines delivery as well as trainings;
- WFP and UNHCR to introduce Fortified Blend Food (FBF) to the GFD ration to cater for minimal micronutrient blended food for the population;
- UNHCR and WFP to implement BSFP for children 6-59 months with CSB++ all year around;
- UNHCR and WFP to implement BSFP for children 6-23 months with CSB++; and
- WFP to expedite the prepositioning on ground of all required nutrition and GFD items before the rainy season.

MEDIUM TERM

- UNHCR, FAO and WFP to coordinate on immediate implementation of livelihood strategies such as: early seed distribution planning with beneficiaries profiling;
- UNHCR, UNICEF and Nutrition partners to review the Infant and Young Child Feeding Interventions, especially the monitoring and follow up as well as aspect to improve the IYCF indicators;
- WFP, UNHCR and partners to resume the Post Distribution Monitoring (PDM);
- WFP to carry out a food security assessment in collaboration with FAO;
- UNHCR and partner to conduct the SENS nutrition survey by end of year 2016
- UNHCR, Nutrition and Livelihood partners to expand the intervention consisting on providing gardening seeds to Mother Support Groups.

LONG TERM

- UNHCR and Nutrition partners to strengthen the integration of health, nutrition , WASH and Food Security; and
- UNHCR, CRA , government and livelihood partners to expedite all prerequisites on the use of available land for cropping;

1. INTRODUCTION

1.1. Background

Maban County is located in Upper Nile State in the North East of the Republic of South Sudan (RSS). The refugee caseload is composed of Sudanese fleeing from the conflict in Blue Nile State, residing in four camps: Doro, Yusuf Batil, Gendrassa and Kaya (previously Jamam). The region is a semi-arid desert with sparse vegetation and no surface water. The climate is harsh with extreme temperatures during the dry season and flooding at the rainy season.

The survey was conducted during the beginning of the dry season from end October to November 2015.

The total registered refugee population in the four camps as of August 2015 was 132,912. The refugees have limited access to additional sources of income, the environment is not suitable for agricultural activities, and very few manage to keep livestock. The majority of the refugees is largely dependent on the general food ration from World Food Programme (WFP).

The land surface in Maban is composed of clay soil which is impassable with rain, however significant work has been done between and within camps to upgrade the quality of roads using murrum. This ensures that humanitarian work is not hampered. Each camp has a market area which is accessible to all refugees as well as the main Bunj market run by the local host community and business people from Ethiopia.

UNHCR and WFP continue to work together, in partnership, to ensure that food security and related needs of the refugees are adequately addressed. WFP is responsible for the provision of the general food ration while UNHCR and its Partners provide protection, health services, water and sanitation, shelter, and basic non-food items.

Description of the population

The key ethnic groups in the area are Ingassana but also Uduk, magaja do exist. The main religions practiced are Islam and Christianity.

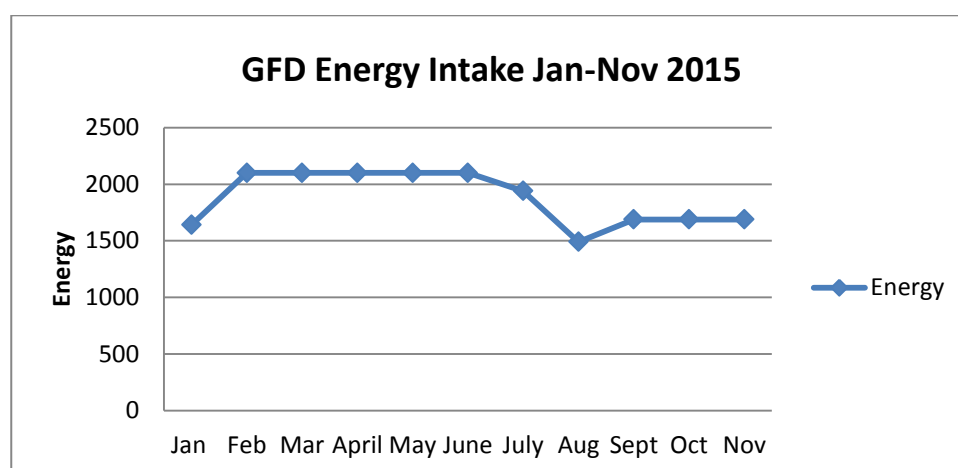
At the time of the survey, Doro had a population of 51404, followed by Yusuf Batil with 40648, Kaya with 22538 and Gendrassa with 18312. The refugees are mainly agriculturalists (70 %) but also nomadic pastoralist. Ingassana were also involved in gold mining. The surrounding communities grow mainly sorghum, maize, cassava, sweet potatoes and Sim sim seeds.

Food security situation

All the registered refugees in Maban camps are getting the WFP General Food Distribution (GFD). Samaritan's Purse (SP) is the WFP GFD partner in Doro and Yusuf Batil camps while ACTED is in charge of GFD in Kaya and Gendrassa camps. Since August 2015, due to funding constraints, the GFD ration has been cut by 30%; a reduction from 585 grams/person/day to 409.5g/p/day; this is a reduction of from the acceptable daily energy intake of 2100 kcal/p/day to 1478.4 Kcal (Figure 1)

Table 1: General Food distribution Rations (factoring the 30 % reduction)

Food Item	Grammes/person/day	Kilo Calories	% Energy
Sorghum	350	1172.5	79.3%
Pulses	35	119.7	8.0
Vegetable oil	21	186.2	12.6
Salt	3.5	0	0
Total	409.5	1478.4	

Figure 1: Monthly Average of Daily Energy needs (Kcal/p/day) in Maban Camps (Jan –Nov 2015)

There has not been a proper food security assessment targeting particularly the Maban refugee camps. Post Distribution Monitoring (PDM) was conducted once in 2015 in Maban. However, outcome of the monitoring report from WFP on overall refugees in south Sudan suggested that food assistance comprises 41 % of the source and refugees use a large portion of their food in exchange of milling services. Refugees were benefiting from milling voucher from December 2013 covering the milling of 70 % of the cereal. However, it was reduced to 50 % in January 2015 before it finally stopped in March 2015. At the time of the survey, refugees who managed to plant some vegetables /crops in their plot had begun to harvest.

The food and non-food items (NFI) brought to Upper Nile State is mainly sourced from Juba and transported by road during the dry season. In 2015, the food delivery was affected by pipeline breaks which, coupled with the funding constrains could not allow to bring on site the total of the required quantities of items to insure at least the ration cut affected quantities (1478.4 Kcal/p/day). As a consequence, apart from the ration cut, Maban camps experienced delays on GFD timing and lack of products from the food basket such as salt (almost all year). Cereals and pulses were sometimes used to top up.

Each camp owns its market with Yusuf Batil camp having the biggest one. Main items found are NFIs and some cereals, pulses and seeds coming partly from the GFD and partly brought by dealers from Ethiopia and Blue Nile State in Sudan. Besides all the fame associated with the market, the main products are mainly non-food items and dried food items. Rarely does the market have fresh foods. Both refugees and host communities rely also on Bunj Market which is the biggest in Maban County.

Health situation

Health care services partners vary according to the camps. In Doro camp, IMC and MSFB are the health service providers. MSFB downsized its services to the Doro Primary health care centre (PHCC), while IMC took over two PHCUs in the camps and handles the large part of the community health. In Yusuf Batil, health services are offered by MEDAIR while in Kaya and Gendrassa, they are managed by IMC. MSFH Gentil clinic used to provide maternal and child health services and services as referral point for patients from Kaya, Gendrassa and Batil. This is the only health facility remaining from MSFH after the withdrawals of their PHCCs from Batil and later on from Kaya. At the period of the survey, Gentil clinic was in a transition period as MSFH was in a process to pull out. The health services in the camps are at primary level. One main achievement is the Bunj Level 2 Hospital run by SP and upgraded fully and supported by UNHCR funding. This hospital is the biggest in the whole of Upper Nile State. It is the referral hospital serving both host communities and refugees. Apart from very specific services, this hospital is able to manage all required interventions. As a result, the referral to Juba has significantly dropped down by more than 98 %.

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

In all camps, mortality trends monitoring show that mortality rates were below the emergency thresholds of 2/1000/month for under five and <1/1000/month for crude Mortality Rate (CMR) except for Batil (January, May and November) and Kaya (April) where the U5MR was above the threshold respectively. The peaks happened in different periods. The mortality trends are illustrated in Figures 2, 3, 4, and 5 below.

Morbidity patterns are similar in all four camps. Respiratory Tract Infections (RTI) are the most common morbidities accounting for 47.9% (Doro), 63.8 % (Batil), and 62.5 % (Gendrassa) and 67.6 % (Kaya); this is followed by diarrhoea and malaria. The top five morbidities are illustrated in figures 6, 7, 8 and 9 below.

figure2: crude and under-5 mortality rates – Doro Camp

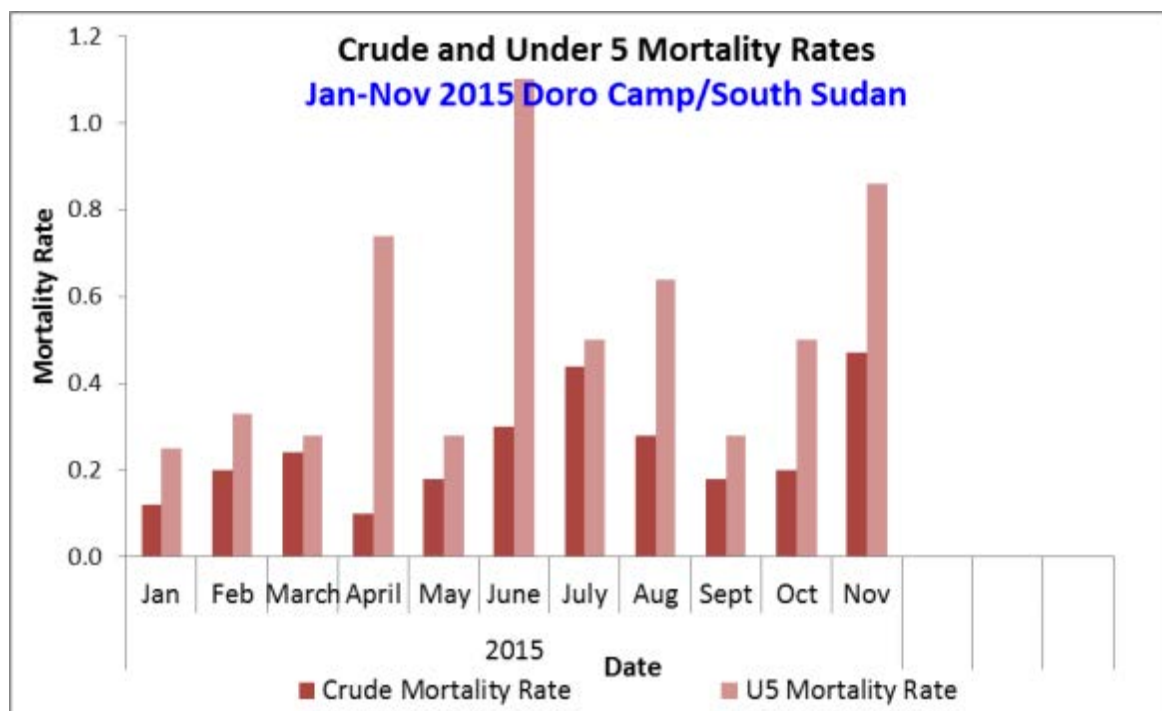


Figure 3: crude and under-5 mortality rates – Batil

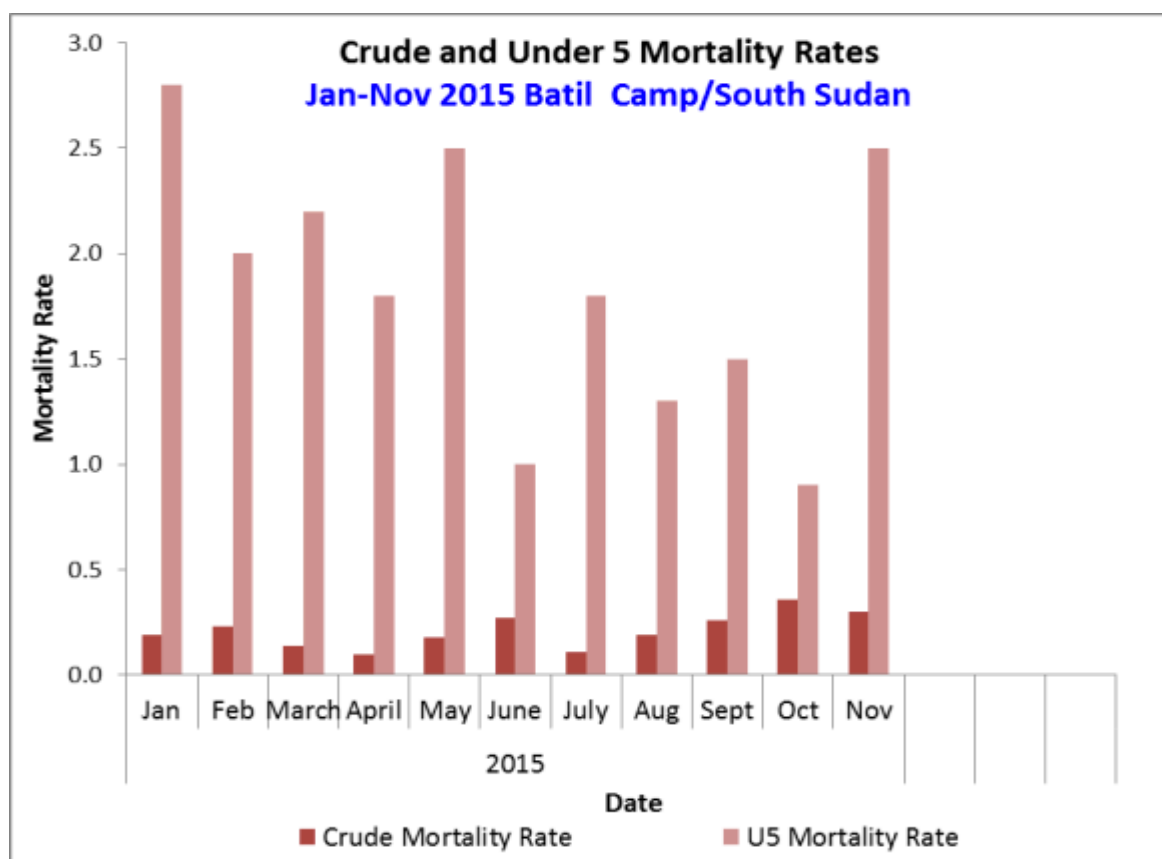


Figure 4: crude and under-5 mortality rates – Gendrassa

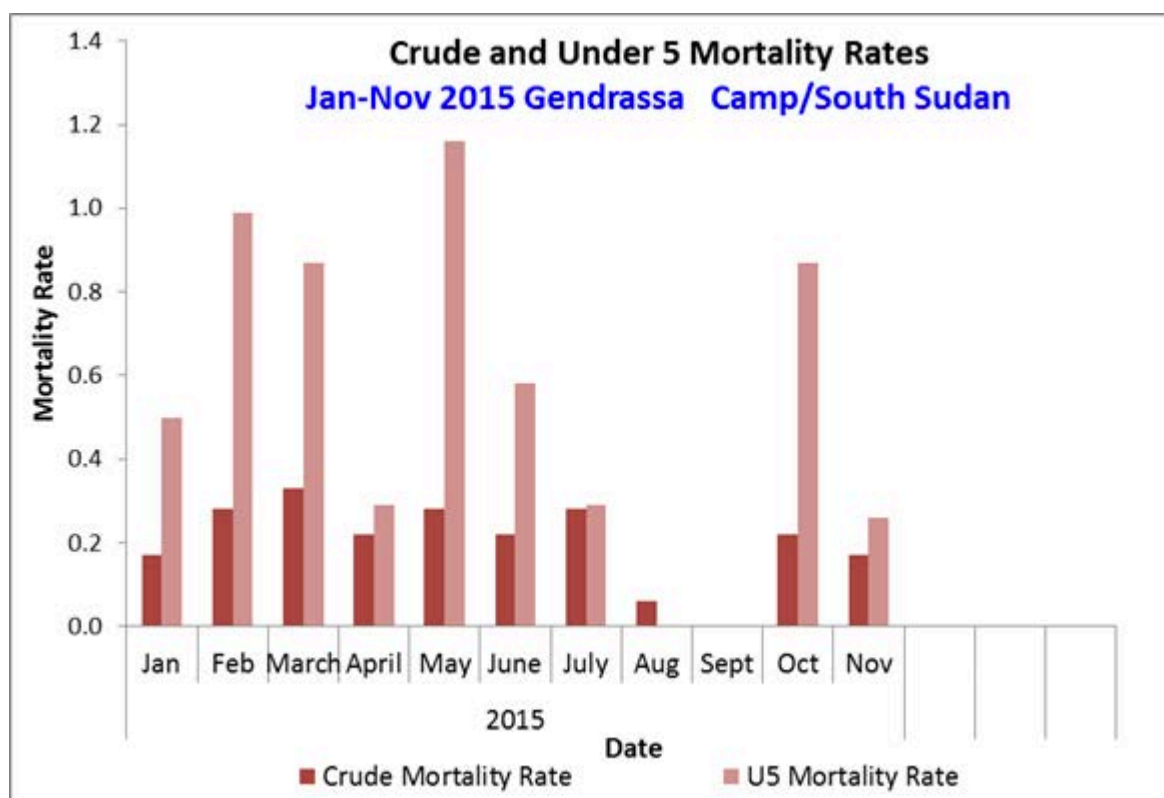


Figure 5: crude and under-5 mortality rates – Kaya

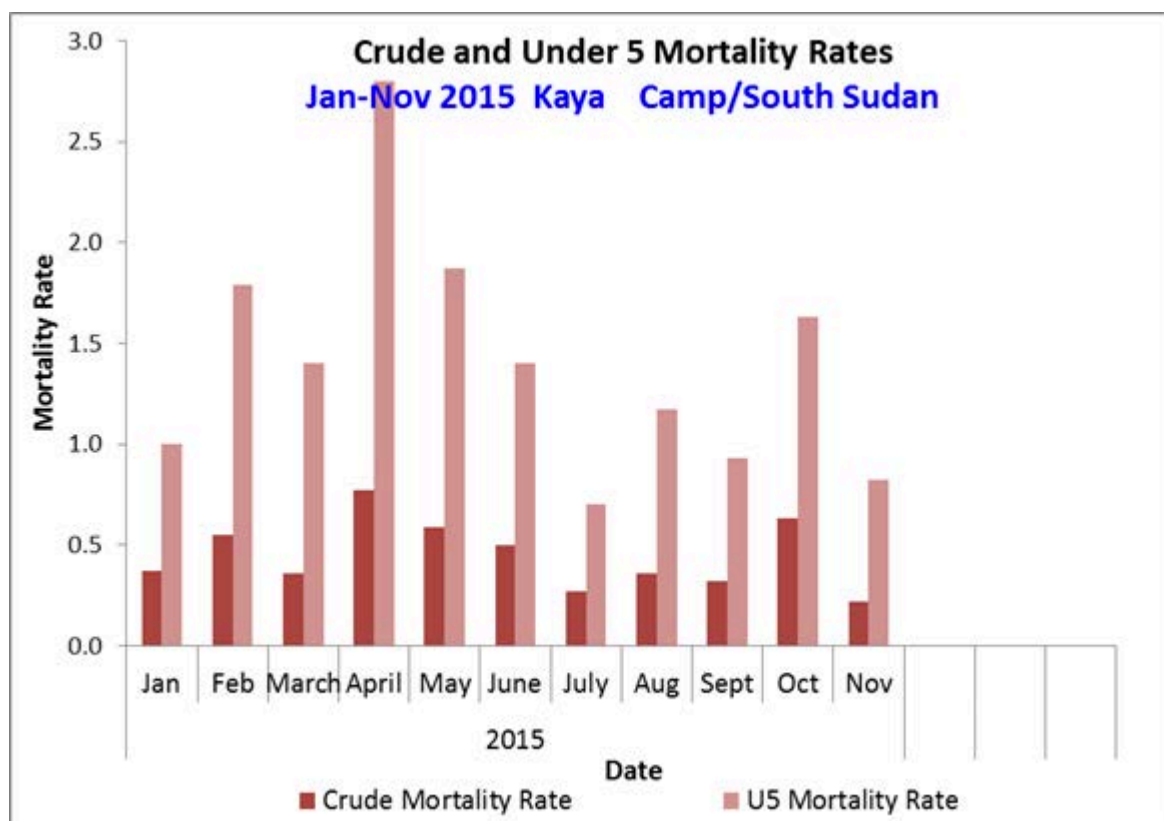


Figure 6: top five causes of morbidity in children under-5; Doro

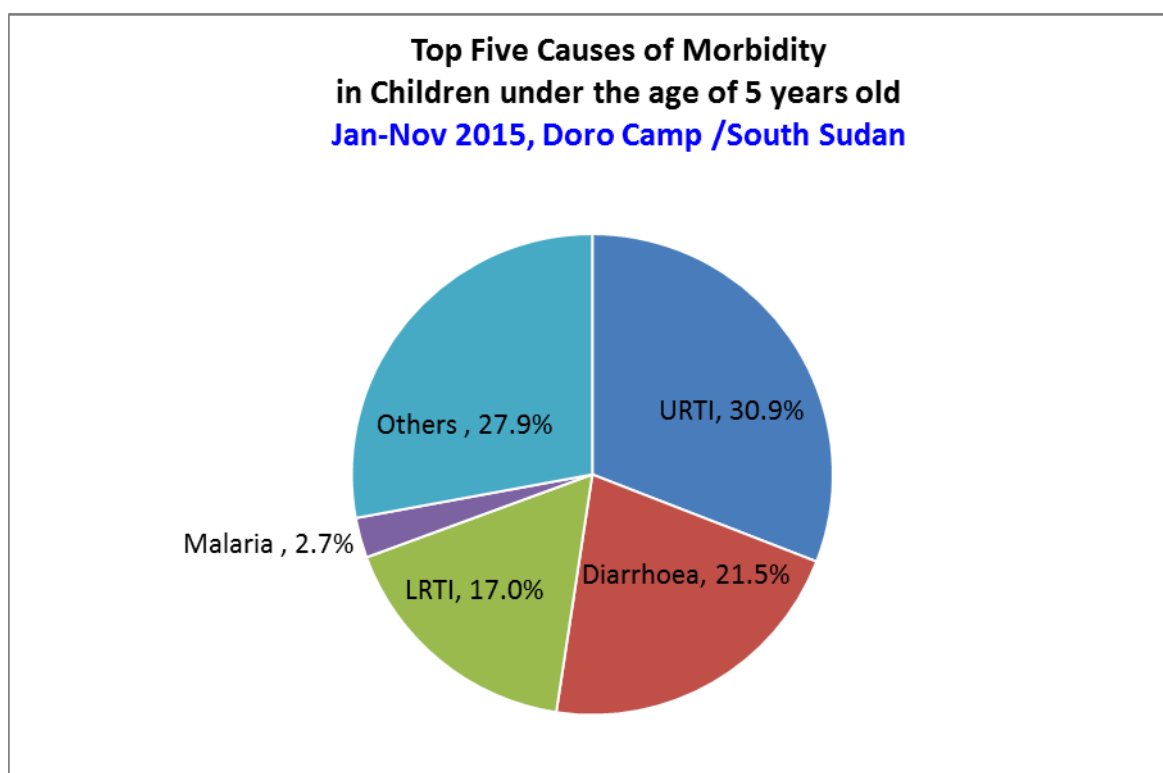


Figure 7: top five causes of morbidity in children under-5; Yusuf Batil

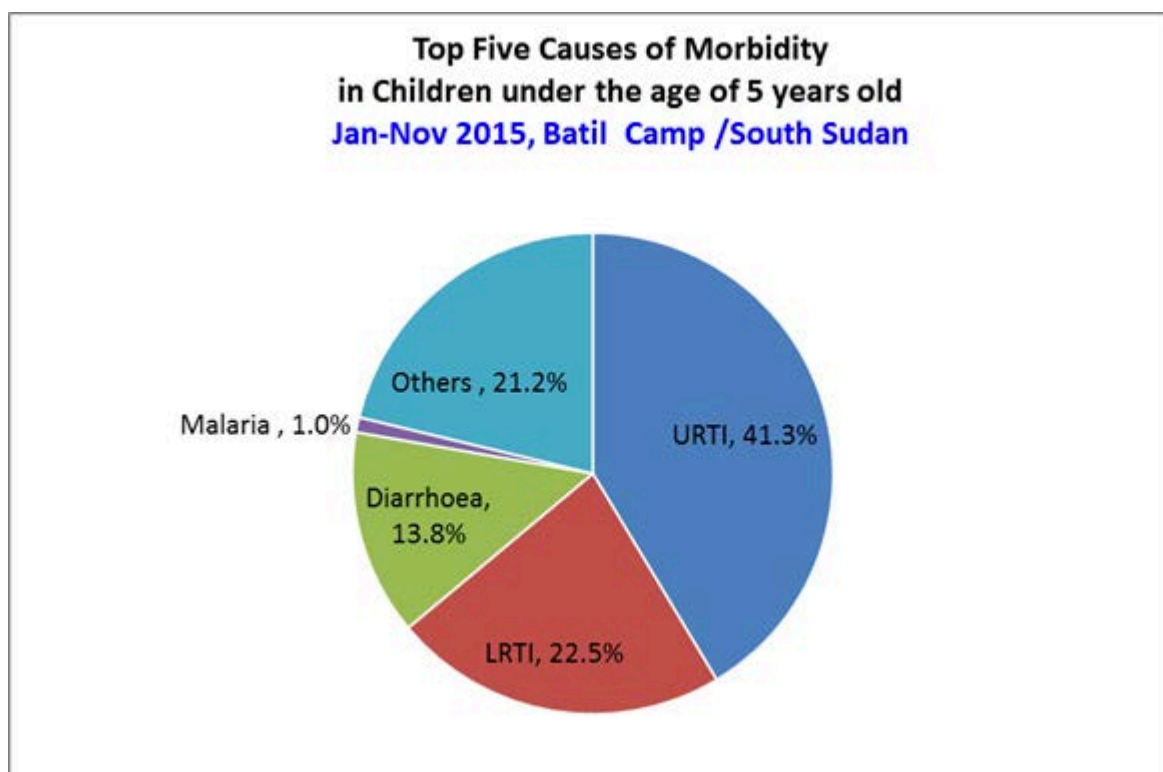


Figure 8: Top five causes of morbidity in children under-5; Gendrassa

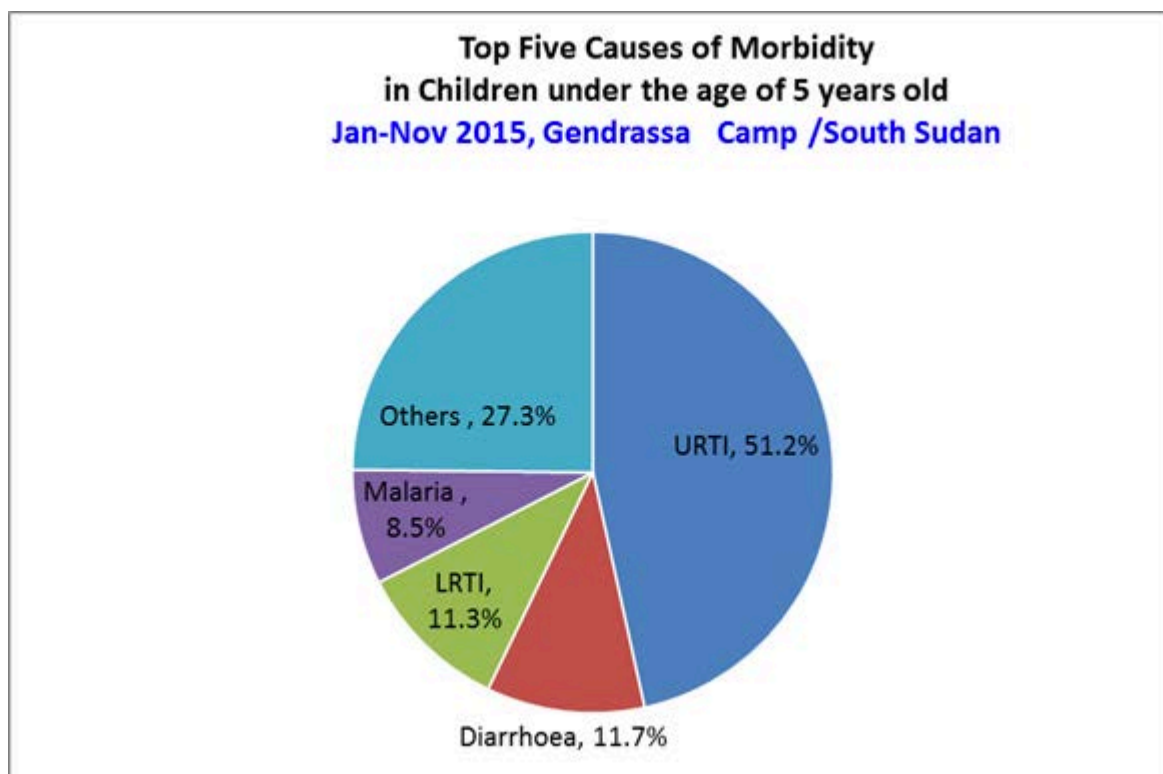
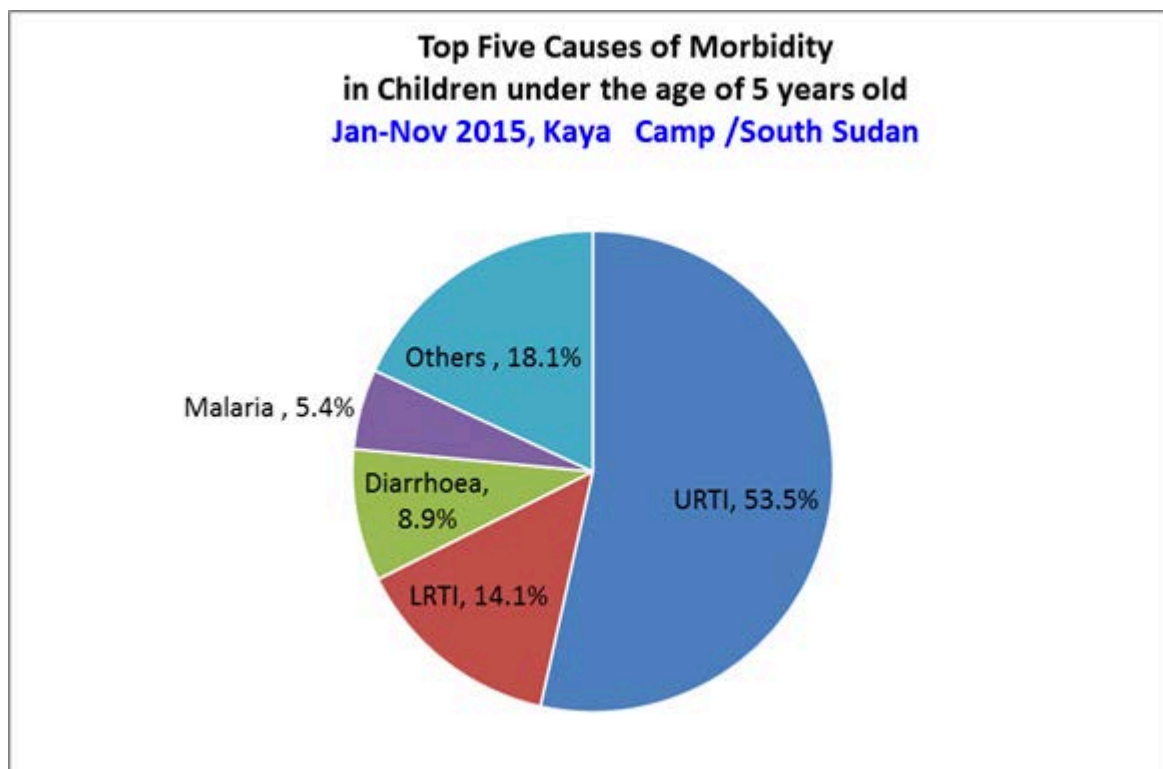


Figure 9: top five causes of morbidity in children under-5; kaya



Nutrition situation

Curative Services

Preventive and curative nutrition intervention activities are being offered in all refugee locations. This has resulted (according to the monthly nutrition surveillance system) in acceptable malnutrition levels among the refugee population by the end of 2014 and beginning of 2015. The curative services include comprehensive Community Management of Acute Malnutrition (CMAM) services. The CMAM services comprises the stabilisation centre (SC)¹ for managing SAM cases with medical complications, the Outpatient Therapeutic Programme (OTP)² for managing SAM cases without medical complications and the Targeted Supplementary Feeding Programme (TSFP) for managing Moderate Acute Malnutrition (MAM) cases. Patients admitted in the SC receive F75 and F100 while those in the OTP receive plumpy nut. The daily ration depends on the patient weight. In the TSFP, patients receive plumpy sup, one 92g sachet per person per day. The South Sudan interim guidelines for management of acute malnutrition together with international guidelines are used in the treatment of acute malnutrition. In Doro camp, in 2015, there were some structural changes in the nutrition programming: Medecins sans Frontieres –Belgium (MSFB) downsized their SAM services (OTP and SC) to only Stabilization Centres situated at the Doro hospital. Also, IMC took over respectively from MSF-B and SP the management of OTP and TSFP services as the new main health and nutrition partner. SP would strengthen its focus on the host community nutrition interventions and Bunj Hospital. In Yusuf Batil camp, MEDAIR is the main health and Nutrition partner supporting two OTP and TSFP sites in two PHCC (Central and West clinics). The Stabilization Center (in Gentil hospital) was handed over to RI by MSF-H. The management of TSFP and OTP in Kaya and Gendrassa camps belongs to IMC. Cases are then referred from Kaya (15 km away) and Gendrassa to Gentil. TSFP for Pregnant and Lactating Women (PLW) has been going on.

Preventive Services

In Maban, besides curative interventions, , it was jointly planned with WFP and nutrition partners to implement Blanket Supplementary Feeding Programme (BSFP) targeting children 6 to 59 months for 6 months and BSFP for Pregnant and Lactating Women for the same period. Unfortunately, because of pipeline issues, the interventions could not happen in Maban; however, did happen in Unity camps where BSFP under 2 and BSFP PLW occurred from May 2015 to end of the year.

It has also been agreed with WFP to re-shift to BSFP PLW alongside the BSFP for under 2 but the same uncertainty remains because of product availability issues. The commodity used was 200g/person/day CSB++ but at times 250g/person/day CSB+, 30g person/day sugar and 20g/person/day oil was used.

IYCF programming was implemented in all refugee locations. The main conduit for this intervention was the use of mother to mother support groups (MSG) and community health workers. Together with the health partners, IYCF counselling was integrated in the ante natal care (ANC) and post-natal care (PNC) clinics. So far, around 400 Mother Support Groups were created in all camps

Current Nutrition Trends (period between 2014 and 2015 surveys)

The last nutrition survey 2014 results showed GAM rates within UNHCR standards (<10 %) in all camps and significant decreases as compared with 2013. SAM rates were also within standards (<2 %). However nearly half of the children were found anaemic in all Maban camps and one-

¹ Also called Inpatient Therapeutic Feeding Center (ITFC)

² Also called Ambulatory Therapeutic Feeding Center (ATFC)

third of children 6 to 59 months in the camps were stunted in Doro and Gendrassa and half of them were short for their age in Kaya and Yusuf Batil.

In between the completion of the 2014 and 2015 surveys, the situation has changed according to the Maban monthly nutrition surveillance system relying on the monthly Mid Upper Arm Circumference(MUAC) screening exercise to provide an estimation of the nutrition situation both children under 5 and PLWs. The peaks in malnutrition levels vary according to the camps. Right after the 30% ration cut, In Kaya, the 2015 MUAC screening results showed there was a marked increase followed by a sharp decrease while in other camps, the increase also occurred but was followed by a stabilisation until the current survey 2015 period. It is worth noting also delays experienced in GFD delivery as well as missing items such as salt and sometimes oil or pulses which were being replaced by topping up of cereal mostly. Children under 5 five trends of malnutrition levels are displayed on figure 10 and admission trends are spotted in figures 11, 12, 13 and 14.

The PLWs' nutrition situation is still worrying as it remains high. A specific assessment is planned to particularly focus on digging the underlying causes. Factors such as anaemia and Reproductive Health (RH) are suspected.

According to 2014 nutrition survey and in terms of public health significance classification (WHO, 2000), Stunting prevalence was from of medium to high from **33.5%** (28.7-38.6 95% CI) to 50.9% (47.4-54.4 95% CI) in all camps. Anaemia prevalence in children 6 to 59 months was of High health significance (>40%) in all Maban camps.

Figure 10: MUAC screening Trends Maban: Jan-Nov 2015

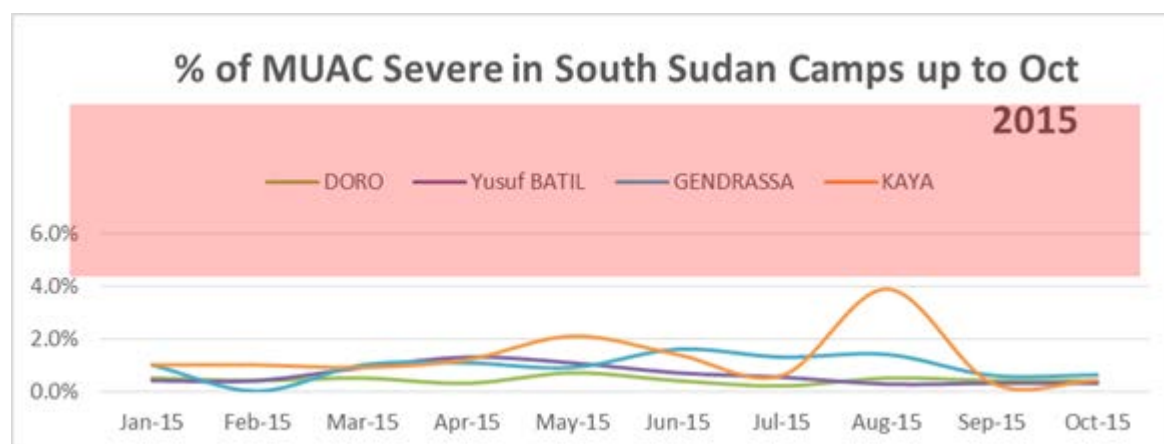


Figure 11: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months - Doro

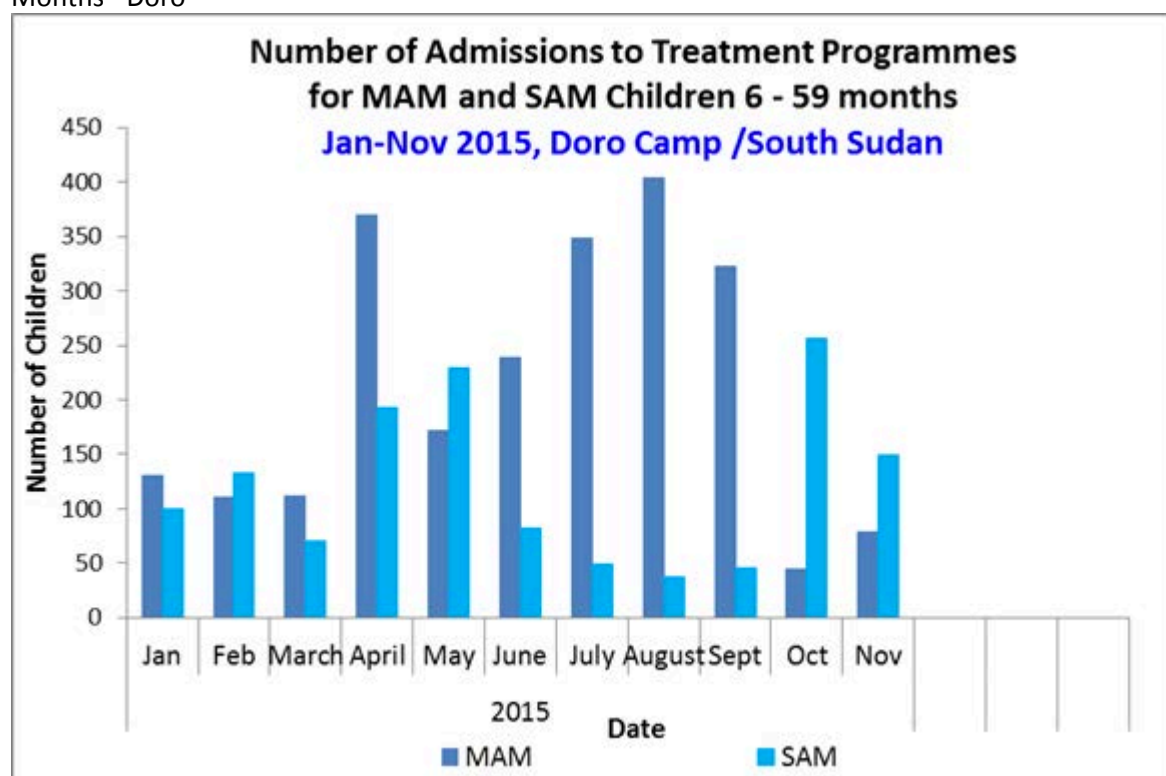


Figure 12: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months – Batil

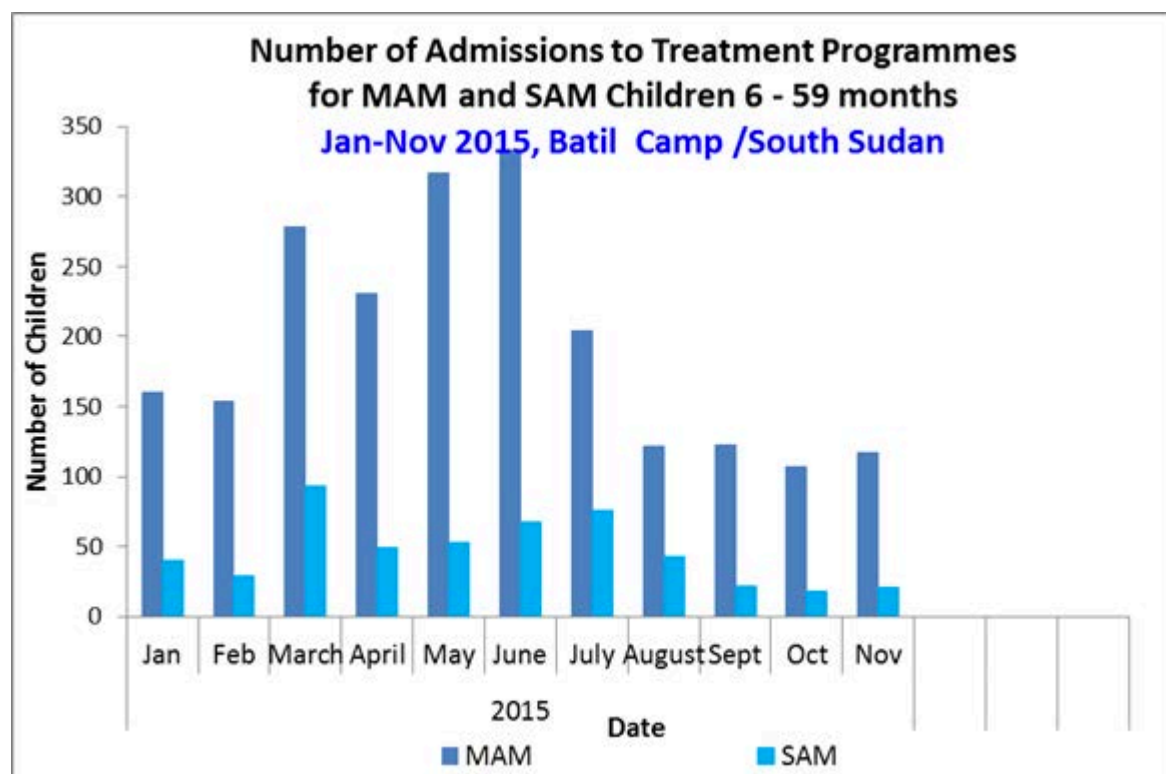


Figure 13: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59

Months – Gendrassa

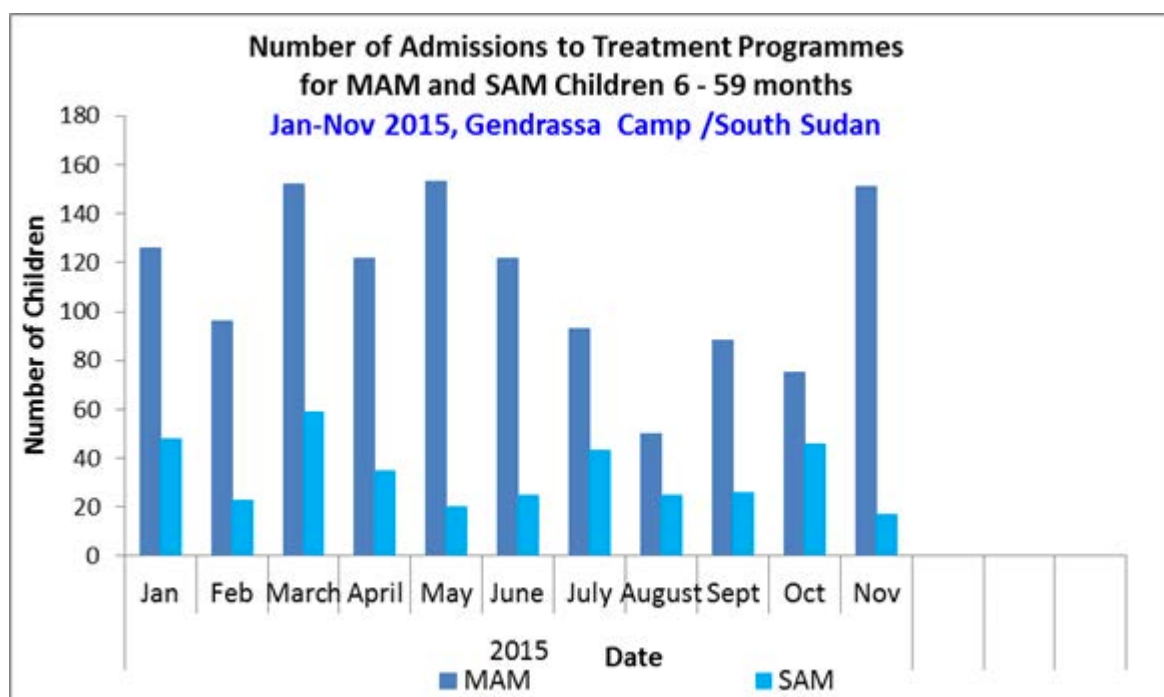
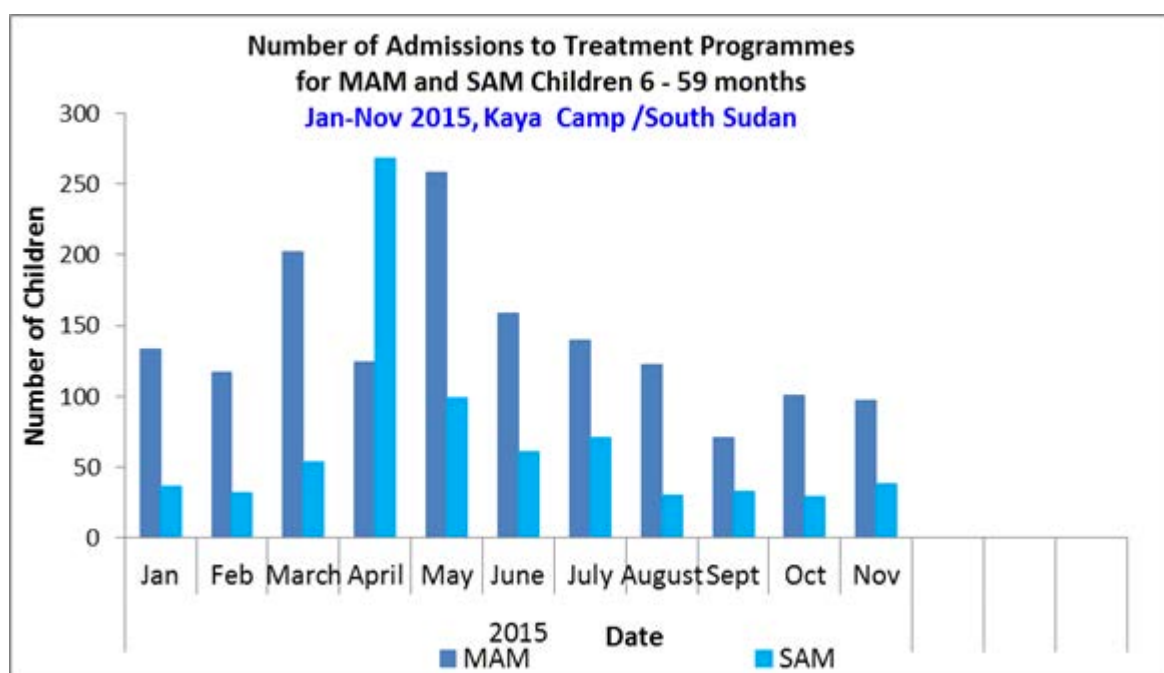


Figure 14: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months – Kaya



1.2. Survey Objectives

Primary objectives:

- To measure the prevalence of acute malnutrition in children aged 6-59.
- To measure the prevalence of stunting in children aged 6-59 months.
- To determine the coverage of measles vaccination among children aged 9-59 months (or context-specific target group e.g. 9-23 months).
- To determine the coverage of vitamin A supplementation received during the last 6 months among children aged 6-59 months.
- To assess the two-week period prevalence of diarrhoea among children aged 6- 59 months.
- To measure the prevalence of anaemia in children aged 6-59 months and in women of reproductive age between 15-49 years (non-pregnant).
- To investigate IYCF practices among children aged 0-23 months.
- To determine the population's access to, and use of, improved water, sanitation and hygiene facilities.
- To determine the ownership of mosquito nets (all types and LLINs) in households.
- To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women.
- To determine the crude and under 5 mortality rates.
- To establish recommendations on actions to be taken to address the situation in Ajuong Thok and Yida refugee locations.

Secondary objectives:

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

2. METHODOLOGY

2.1. Sample size

The sample size for anthropometry and health was calculated using the parameters illustrated in table 2 below. The ENA for SMART software was used to calculate the sample size (**Table 2**).

Table 2: Anthropometry and Health Sample Size Calculation

Location	% population under 5	Estimated GAM prevalence	Desired Precision	Design Effect	Non response rate	Average household size	Number of Children (ENA)	Number of Households
CLUSTER SURVEYS								
Kaya	19.7 %	7.6 %	3.3	1.3	8%	4.2	351	512
Doro	22 %	8.1 %	3.3	1.3	8%	4.1	372	498
Gendrassa	20.1 %	8.4%	3.3	1.3	8%	4.3	384	537
Yusuf Batil	19.5 %	7.6 %	3.3	1.4	8%	4.4	351	493

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

Cluster sampling was used in the survey. This was due to the unavailability of complete household lists and also the unorganised nature of the camps especially in Doro, Batil and Gendrassa. To determine the number of clusters to be included in the survey, consideration on the number of teams, time taken per household as well the available time was put into consideration. With all these factors put into consideration, there were 32 clusters of 16 households per cluster in all Maban camps.

2.2. Sampling Procedure

Sampling procedure: selecting clusters

The UNHCR ProGres database was used to obtain camp population statistics. The data used was as of September 31st 2015. To assign clusters, the probability proportion to sample size (PPS) was employed using the ENA software Version November 10th, 2014. Each cluster comprised 16 households.

Sampling procedure: selecting households and individuals

Once clusters were identified, the next stage was selection of households to participate in the survey. In each camp, community health workers were assigned to identify 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.

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 were included in the survey as appropriate. 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 of the other indicators.

2.3. Questionnaire and measurement methods

Questionnaire

Mobile phone technology and questionnaires were used. The English language was set for the questionnaires. The questionnaires 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.

Measurement methods

Household level indicators

- **WASH and Mosquito net:** The questionnaire was based on the standard SENS questionnaires.

Individual-level indicators

- **Sex of children:** Gender was recorded as male or female.
- **Birth date or age in months for children 0-59 months:** The exact date of birth (day, month and year) was recorded from either a child health card or birth notification if available. If no reliable proof of age was available, as was with most children age was estimated in months using a local event calendar or by comparing the selected child with a sibling whose age was known, and was recorded in months on the questionnaire. If the child's age could absolutely not be determined by using a local events calendar or by probing, the child's length/height was measured and a cut off between 65.0 and 110.0 cm was used for inclusion. The UNHCR Manifest was not used for recording age.
- **Age of women 15-49 years:** Reported age was recorded in years.
- **Weight of children 6-59 months:** Measurements were taken to the nearest 100 grams using an electronic scale (SECA scale). The scale was placed on firm flat ground before measurements were taken. The double-weighing technique was used to weigh young children unable to stand on their own or unable to understand instructions not to move while on the scale. Clothes were removed during weighing although where necessary, light undergarments were allowed.
- **Height/Length of children 6-59 months:** Children's height or length was taken to the closest millimetre using a wooden height board. Height was used to decide on whether a child should be measured lying down (length) or standing up (height). Children less than 87cm were measured lying down, while children ≥ 87 cm were measured standing up.
- **Oedema in children 6-59 months:** The presence of bilateral oedema was assessed by applying gentle thumb pressure on to the tops of both feet of the child for three seconds. If a shallow indent remained in both feet, oedema was recorded as present. The survey coordinators verified all oedema cases reported by the survey teams. There was no oedema cases recorded in the survey.

- **MUAC of children 6-59 months:** MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder and taken to the closest millimetre using standard tapes.
- **Child enrolment in selective feeding programme for children 6-59 months:** This was assessed for the outpatient therapeutic programme and for the supplementary feeding programme using card or recall. The programme products were shown when recall was used, plumpy nut for the OTP and plumpy sup for the TSFP.
- **Measles vaccination in children 9-59 months:** Measles vaccination was assessed by checking for the measles vaccine on the Expanded Programme on Immunisation (EPI) card or by carers recall if no EPI card was available. For ease of data collection, all children aged 6-59 months were assessed for measles but analysis was only done on children aged 9-59 months.
- **Vitamin A supplementation in last 6 months in children 6-59 months:** Whether the child received a vitamin A capsule over the past six months was recorded from an EPI card or health card if available, or by asking the caregiver to recall if no card was available. A vitamin A capsule was shown to the caregiver when asked to recall.
- **DPT3/PENTA3 vaccination:** DPT3 or PENTA 3 vaccination was assessed by checking for the DPT3/PENTA3 vaccine on the EPI card or by caregiver's recall if no EPI card was available. All children 0 to 59 months were assessed for DPT3/PENTA3 vaccine.
- **Haemoglobin (Hb) concentration in children 6-59 months and women 15-49 years (non-pregnant):** Hb concentration was taken from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser. The third drop was collected after wiping the first two drops.
- **Diarrhoea in last 2 weeks in children 6-59 months:** an episode of diarrhoea was defined as three loose stools or more in 24 hours. Caregivers were asked if their child had suffered episodes of diarrhoea in the past two weeks.
- **ANC enrolment and iron and folic acid pills coverage in pregnant women:** Whether the woman was enrolled in the ANC programme and was receiving iron-folic acid pills was assessed by use of the ANC card or by recall. An iron-folic acid pill was shown to the pregnant woman when asked to recall.
- **Infant and young child feeding practices in children 0-23 months:** Infant and young child feeding practices were assessed based on standard WHO recommendations (WHO 2010). Infant formula feeding and bottle use was also assessed.
- **Referrals:** Children aged 6-59 months were referred to the health post for treatment when MUAC was <11.5cm, when oedema was present or when haemoglobin was <7.0g/dL. Women of reproductive age were referred to the hospital for treatment if haemoglobin was < 8.0 g/dL.
- **Mortality:** A recall period of 90 days from the interview date was used to recall if any household member died in the past 3 months.

2.4. Case definitions, inclusion criteria and calculations

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

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

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

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

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

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

Selective Feeding Programme Coverage (children 6-59 months)

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

Targeted supplementary feeding programme

Coverage of TSFP programme (%) =

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

Therapeutic feeding programme

Coverage of OTP programme (%) =

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

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

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

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

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

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

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

- **Continued breastfeeding at 1 year: WHO core indicator 3** - Proportion of children 12-15 months of age who are fed breast milk.

Children 12-15 months of age who received breast milk during the previous day
Children 12-15 months of age

- **Introduction of solid, semi-solid or soft foods: WHO core indicator 4** - Proportion of infants 6-8 months of age who receive solid, semi-solid or soft foods.

Infants 6-8 months of age who received solid, semi-solid or soft foods during the previous day
Infants 6-8 months of age

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

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

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

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

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

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

Children 0–23 months of age

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

Children 0-23 months of age consuming infant formula

Children 0-23 months of age

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

Children 6-59 months of age consuming CSB+

Children 6-59 months of age

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

Children 6-59 months of age consuming CSB++

Children 6 to 59 months

WASH

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

Table 5: WASH Indicators Definition and Classification

Drinking Water	Improved source	Unimproved source
	Public tap/tap stand	Small water vendor (cart with small tank or drum)
		Surface water (river, dam, lake, pond, stream, canal, irrigation channels). Rainwater collection from surface run off.
Sanitation facility definition		
	Improved category	Unimproved category
	Pit latrine with slab	Pit latrine without slab (slab with holes) /open pit
		No facilities or bush or field/open defecation
Sanitation facility classification based on definition and sharing		
Improved excreta disposal facility	A toilet in the above “improved” category AND one that is not shared with other families***	
Shared family toilet	A toilet in the above “improved” category AND one used by 2 families / households only (for a maximum of 12 people)**	
Communal toilet	A toilet in the above “improved” category AND one used by 3 families / households or more	
Unimproved toilet	A toilet in the above “unimproved” category OR a public toilet which any member of the public can use e.g. in hospitals or markets	
<p>*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an “improved excreta disposal facility” as a toilet in the above “improved” category AND one that is not shared with other families / households.</p> <p>**According to UNHCR WASH monitoring system, an “improved excreta disposal facility” is defined differently than in other survey instruments and is defined as a toilet in the above “improved” category AND one that is shared by a <i>maximum</i> of 2 families / households or with no more than <i>12 individuals</i>. Therefore, the following two categories from the above SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility” and “shared family toilet”.</p>		

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

2.5. 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 reach GAM<5%.

Table 6 below shows the classification of public health significance of the anthropometric results for children under-5 years of age.

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

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

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

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

				Coverage		
				Rural areas	Urban areas	Camps
SFP	>75%	<3%	<15%	>50%	>70%	>90%
SC/OTP	>75%	<10%	<15%	>50%	>70%	>90%

* Also meet SPHERE standards for performance

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

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

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

Anaemia data: The UNHCR Strategic Plan for Nutrition and Food Security (2008-2010) states that the targets for the prevalence of anaemia in children 6-59 months of age and in women 15-49 years of age should be low i.e. <20%. The severity of the public health situation for the prevalence of anaemia should be classified according to WHO criteria as shown in the Table below.

Table 8: Classification of public health significance (WHO, 2000)

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

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

Table 9: UNHCR WASH Programme Standard

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

Mosquito nets: WHO defines a Long-Lasting Insecticidal net as a factory-treated mosquito net made with netting material that has insecticide incorporated within or bound around the fibres. The net must retain its effective biological activity without re-treatment for at least 20 WHO standard washes under laboratory conditions and three years of recommended use.

Table 10: UNHCR Mosquito Net Programme Standards

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

2.6. Training, coordination and supervision

Survey teams and supervision

The surveys in Maban were conducted by 5 teams in each camp. Two camps were run concurrently. From the third day of the survey data collection, some survey coordinators joined alternatively full time 2 teams since 2 enumerators left and the reserve ones were not available. Each team had 4 to 5 members; 2 measurers, 1 responsible for anaemia measurements and the fourth member who was responsible for conducting the interview with the mobile phone and was also the team leader. A total of 52 enumerators (including replacement for drop out) participated in data collection. Originally it was planned to provide phones to two team members (individual interview and household interview) but it could not happen since, added to language skills, few enumerators could really master the use of the mobile phones.

Team leaders were national staff from SP, MEDAIR, IMC, and RI. The rest of the team members were a mix of partner staff. The minimum requirements to participate in the survey were the ability speak, read and write both English and Arabic. There were seven dedicated survey supervisors (including the survey coordinator) who shared two teams; the survey coordinator was daily roving between teams. The supervisors were the UNICEF Nutritionist from Malakal Office, the IMC Nutrition Programme Manager, the IMC deputy Nutrition Manager, the MEDAIR Deputy Nutrition Programme Manager and the SP Nutrition Programme Manager, the UNHCR

Senior Nutrition Associate and the UNHCR Senior Health Associate. The Survey Coordinator was the UNHCR Nutrition and Food Security Officer based in Juba.

Training

The training lasted for eight days from 12 to 19 October 2015. A total of 56 participants attended the training. Training topics were shared between the Survey Coordinator and the Survey Supervisors. The topics covered were general survey objectives, overview of survey design, household selection procedures, anthropometric measurements, signs and symptoms of malnutrition, data collection and interview skills, mortality interview, WASH interview, IYCF interview, mosquito net coverage interview and anaemia assessment skills. The training had to be given extra-day due to the challenges on language skills and mobile phone handling encountered.

To ensure high quality data was collected, Standardisation and field test were repeatedly done 2 consecutive days and twice because the first tests' ones were not satisfactory. Each team had 2 households for this exercise and all eligible women and children in those households were included in the standardisation. The standardisation was conducted in the camps areas 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.

2.7. Data collection

Data collection

Data collection was performed in a very tense context with time restriction as it was disturbed by tensions between refugees and host communities exacerbated by killings allegedly perpetrated by both communities. The collection started on 21st October, one day later than the planned starting day due to rumours related to tensions between refugees and host communities. Doro and Kaya were the first camps surveyed concurrently for seven days from 21st to 28 October 2014. Gendrassa and Batil camps were surveyed respectively for seven (29th October to 4th November) and 8 days (29 October to 5th November).

The survey team composition had to be modified during the data collection because of fears and drop out of enumerators and team leaders from Maban fearing to be attacked in the camps by refugees following alleged killing of refugees by host communities. . Two days (Sundays) were taken as break to allow enumerators to rest. The team leader introduced the team and the survey to the households for consent. The standard introduction and consent message was attached to every questionnaire, see Appendix 5.

2.8. Data analysis

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

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

3. RESULTS

DORO CAMP

The demographic characteristics are illustrated in table 12 below. It will be noticed that the number of under 5 survey is much higher than anticipated

Table 11 : Demographic Characteristics of the Doro Survey Population-Doro Camp

Total households surveyed	506
Total population surveyed	2592
Total U5 surveyed	780
Average household size	5.1
% of U5	30.0

Table 12: Target and Actual Number Captured-Doro Camp

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	498	780	156%
Clusters (where applicable)	32	32	100%

3.1. Anthropometric results (based on WHO standards 2006)

Table 13: Distribution of age and sex of sample-Doro Camp

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl
6-17	94	53.4	82	46.6	176	22.7	1.1
18-29	124	53.2	109	46.8	233	30.1	1.1
30-41	80	50.0	80	50.0	160	20.7	1.0
42-53	82	51.3	78	48.8	160	20.7	1.1
54-59	20	44.4	25	55.6	45	5.8	0.8
Total	400	51.7	374	48.3	774	100.0	1.1

Percentage of children with no exact birthday: 100 %

Table 14: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Doro Camp

	All n = 752	Boys n = 390	Girls n = 362
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(114) 15.2 % (11.9 - 19.1 95% C.I.)	(75) 19.2 % (15.0 - 24.3 95% C.I.)	(39) 10.8 % (7.5 - 15.3 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(97) 12.9 % (10.0 - 16.4 95% C.I.)	(62) 15.9 % (12.2 - 20.5 95% C.I.)	(35) 9.7 % (6.7 - 13.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(17) 2.3 % (1.5 - 3.5 95% C.I.)	(13) 3.3 % (2.0 - 5.6 95% C.I.)	(4) 1.1 % (0.4 - 2.9 95% C.I.)

The prevalence of oedema is 0.0 %

Figure 15: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards In Children 6-59 Months From 2013 to 2015-Doro Camp

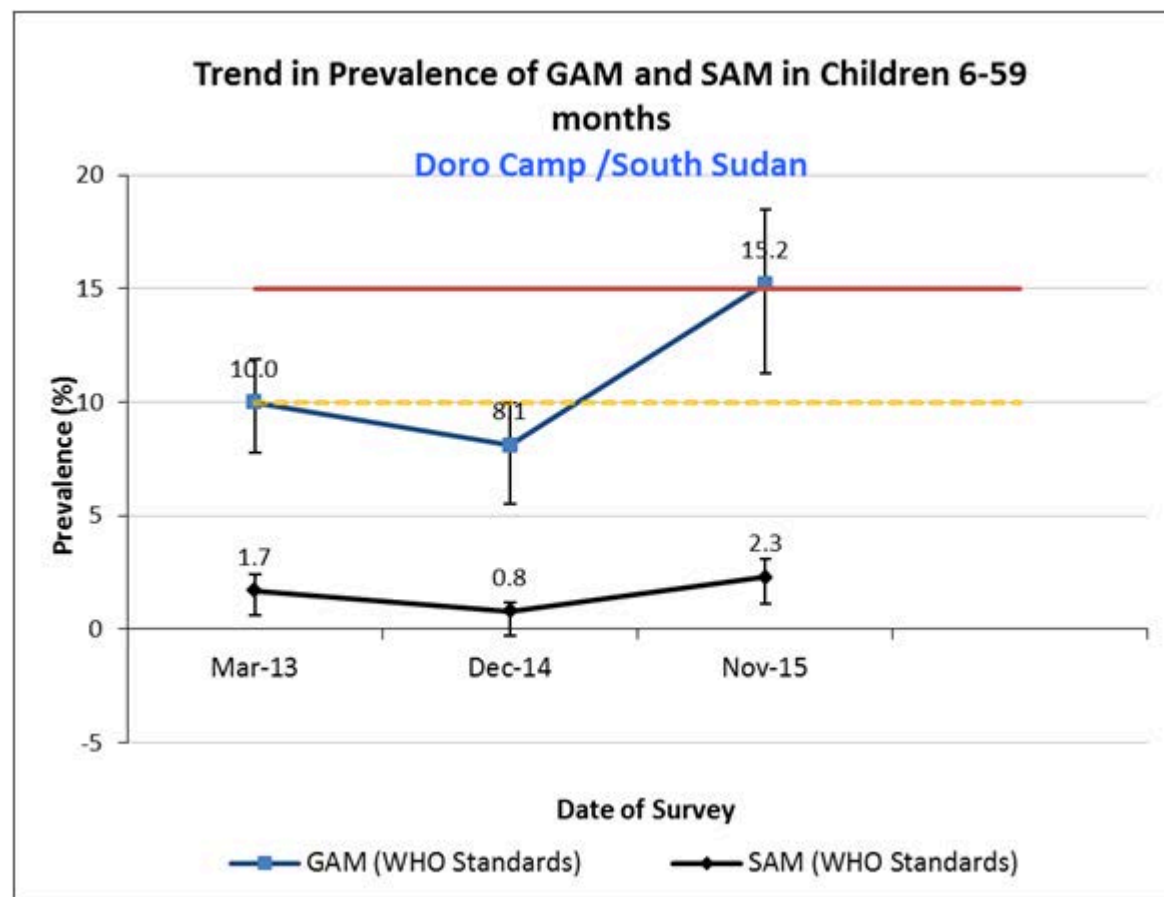


Table 15: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema-Doro Camp

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	171	5	2.9	30	17.5	136	79.5	0	0.0
18-29	224	4	1.8	34	15.2	186	83.0	0	0.0
30-41	155	2	1.3	11	7.1	142	91.6	0	0.0
42-53	157	4	2.5	20	12.7	133	84.7	0	0.0
54-59	45	2	4.4	2	4.4	41	91.1	0	0.0
Total	752	17	2.3	97	12.9	638	84.8	0	0.0

Figure 16: Trend in the Prevalence of Wasting By Age in Children 6-59 Months

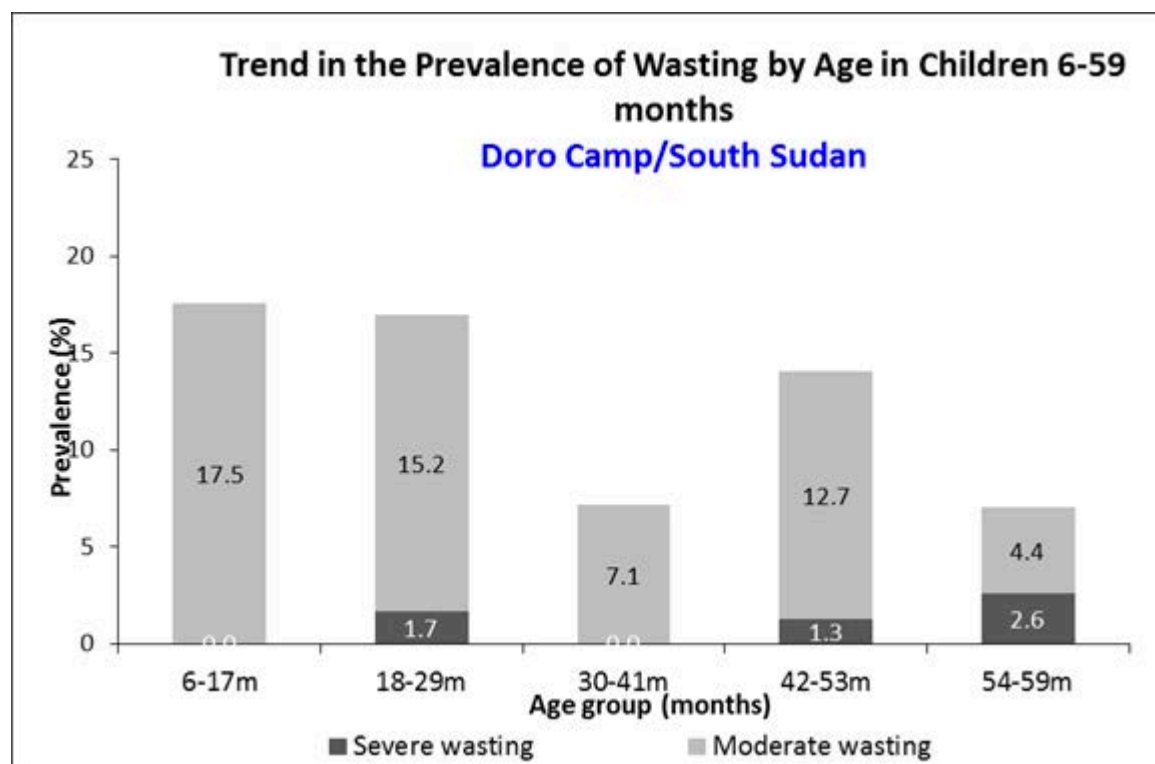


Table 16: Distribution of acute malnutrition and oedema based on weight-for-height z-scores-Doro camp

	<-3 z-score	≥ -3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 22 (2.9 %)	Not severely malnourished No. 742 (97.1 %)

Figure 16: 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

The Figure below shows that the distribution for weight-for-height z-scores for the survey sample is shifted to the left, illustrating a poorer status than the international WHO Standard population of children aged 6-59 months.

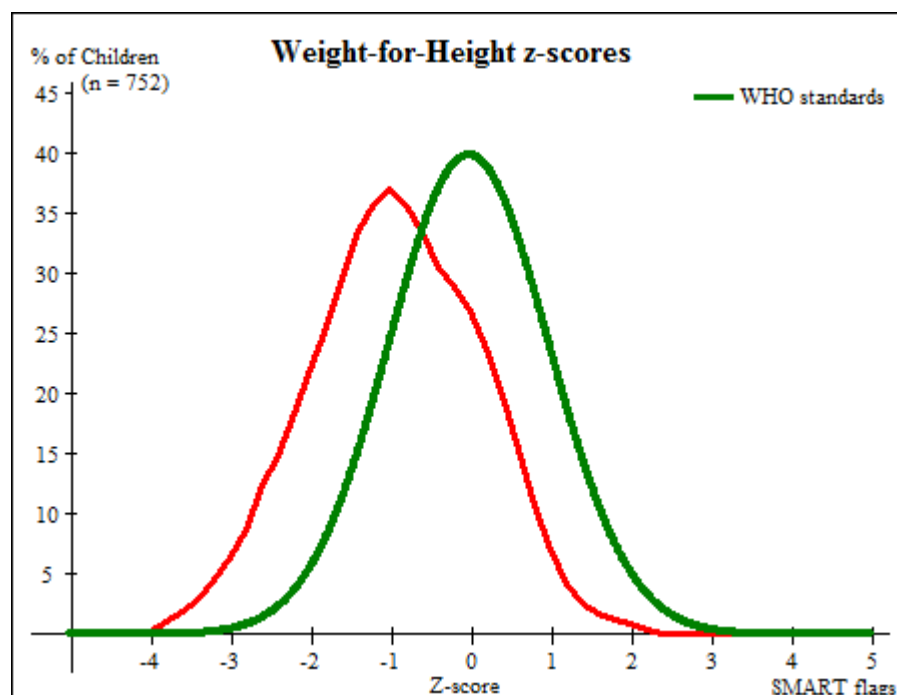


Table 17: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Doro Camp

	All n = 771	Boys n = 398	Girls n = 373
Prevalence of global malnutrition (< 125 mm and/or oedema)	(43) 5.6 % (3.7 - 8.2 95% C.I.)	(20) 5.0 % (3.2 - 7.9 95% C.I.)	(23) 6.2 % (3.7 - 10.2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and ≥ 115 mm, no oedema)	(39) 5.1 % (3.3 - 7.7 95% C.I.)	(19) 4.8 % (2.9 - 7.7 95% C.I.)	(20) 5.4 % (3.1 - 9.2 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(4) 0.5 % (0.2 - 1.4 95% C.I.)	(1) 0.3 % (0.0 - 1.9 95% C.I.)	(3) 0.8 % (0.3 - 2.5 95% C.I.)

Table 18: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema-Doro Camp

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	176	3	1.7	27	15.3	146	83.0	0	0.0
18-29	232	1	0.4	9	3.9	222	95.7	0	0.0
30-41	158	0	0.0	1	0.6	157	99.4	0	0.0
42-53	160	0	0.0	2	1.3	158	98.8	0	0.0
54-59	45	0	0.0	0	0.0	45	100.0	0	0.0
Total	771	4	0.5	39	5.1	728	94.4	0	0.0

Table 19: Prevalence of underweight based on weight-for-age z-scores by sex-Doro Camp

	All n = 764	Boys n = 392	Girls n = 372
Prevalence of underweight (<-2 z-score)	(256) 33.5 % (28.7 - 38.7 95% C.I.)	(151) 38.5 % (32.2 - 45.3 95% C.I.)	(105) 28.2 % (23.1 - 34.0 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(168) 22.0 % (18.5 - 25.9 95% C.I.)	(100) 25.5 % (20.6 - 31.1 95% C.I.)	(68) 18.3 % (14.8 - 22.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(88) 11.5 % (9.4 - 14.1 95% C.I.)	(51) 13.0 % (9.7 - 17.3 95% C.I.)	(37) 9.9 % (6.6 - 14.7 95% C.I.)

Table 20: Prevalence of underweight by age, based on weight-for-age z-scores-Doro Camp

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	173	15	8.7	39	22.5	119	68.8	0	0.0
18-29	230	39	17.0	60	26.1	131	57.0	0	0.0
30-41	158	22	13.9	21	13.3	115	72.8	0	0.0
42-53	158	11	7.0	37	23.4	110	69.6	0	0.0
54-59	45	1	2.2	11	24.4	33	73.3	0	0.0
Total	764	88	11.5	168	22.0	508	66.5	0	0.0

Table 21: Prevalence of stunting based on height-for-age z-scores and by sex-Doro Camp

	All n = 713	Boys n = 370	Girls n = 343
Prevalence of stunting (<-2 z-score)	(300) 42.1 % (37.6 - 46.7 95% C.I.)	(167) 45.1 % (39.3 - 51.1 95% C.I.)	(133) 38.8 % (32.3 - 45.7 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥ -3 z-score)	(189) 26.5 % (23.0 - 30.3 95% C.I.)	(103) 27.8 % (22.7 - 33.7 95% C.I.)	(86) 25.1 % (20.6 - 30.1 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(111) 15.6 % (13.0 - 18.6 95% C.I.)	(64) 17.3 % (14.0 - 21.2 95% C.I.)	(47) 13.7 % (10.2 - 18.2 95% C.I.)

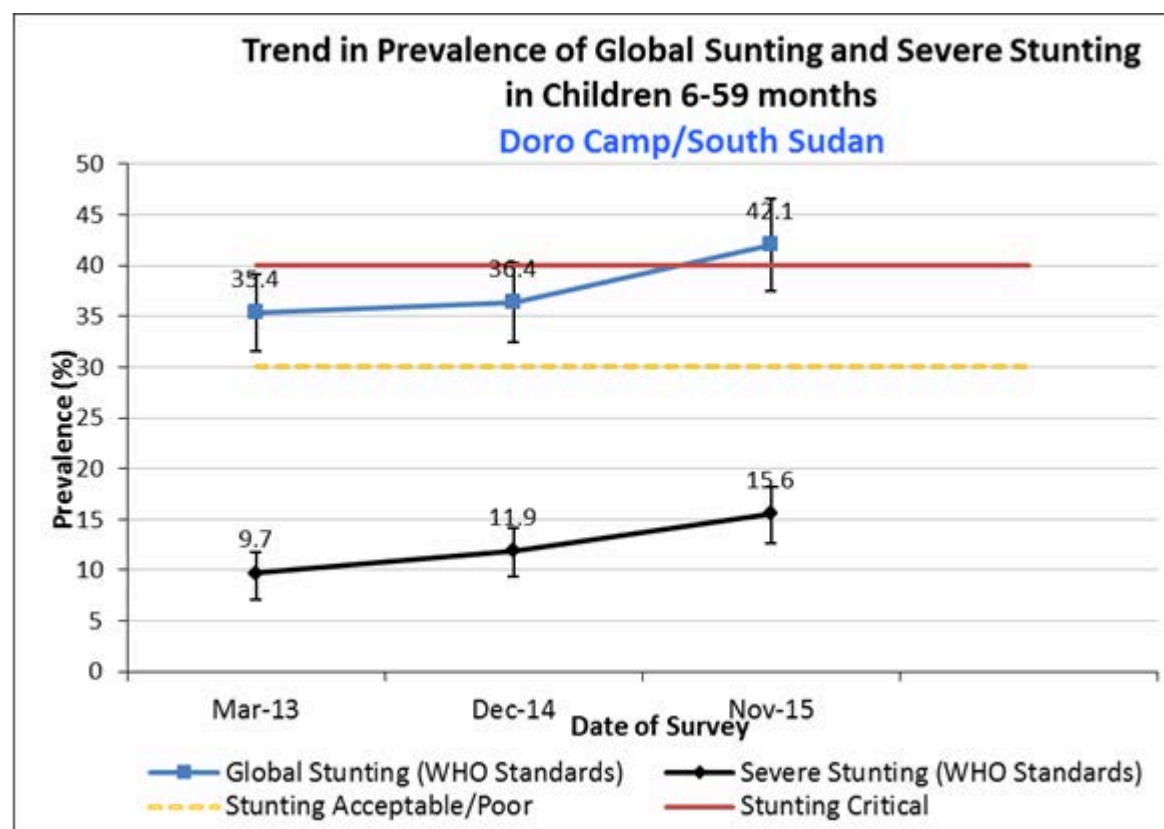
Figure 17: Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards In Children 6-59 Months From 2013 to 2015-Doro Camp


Table 22: Prevalence of stunting by age based on height-for-age z-scores-Doro Camp

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	155	10	6.5	35	22.6	110	71.0
18-29	215	50	23.3	57	26.5	108	50.2
30-41	148	24	16.2	39	26.4	85	57.4
42-53	151	21	13.9	48	31.8	82	54.3
54-59	44	6	13.6	10	22.7	28	63.6
Total	713	111	15.6	189	26.5	413	57.9

Figure 18: Trends in the Prevalence of Stunting By Age in Children 6-59 Months

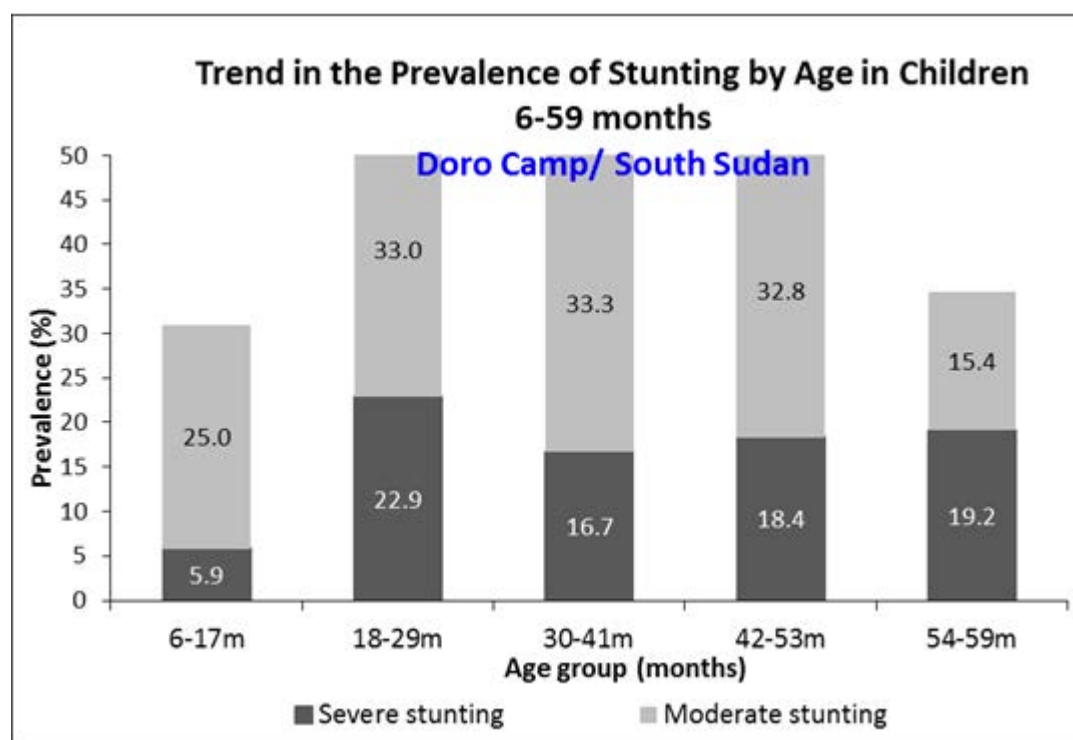


Figure 19: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; The Reference Population Is Shown in Green and the surveyed Population Is Shown in Red) Of Survey Population Compared to Reference Population

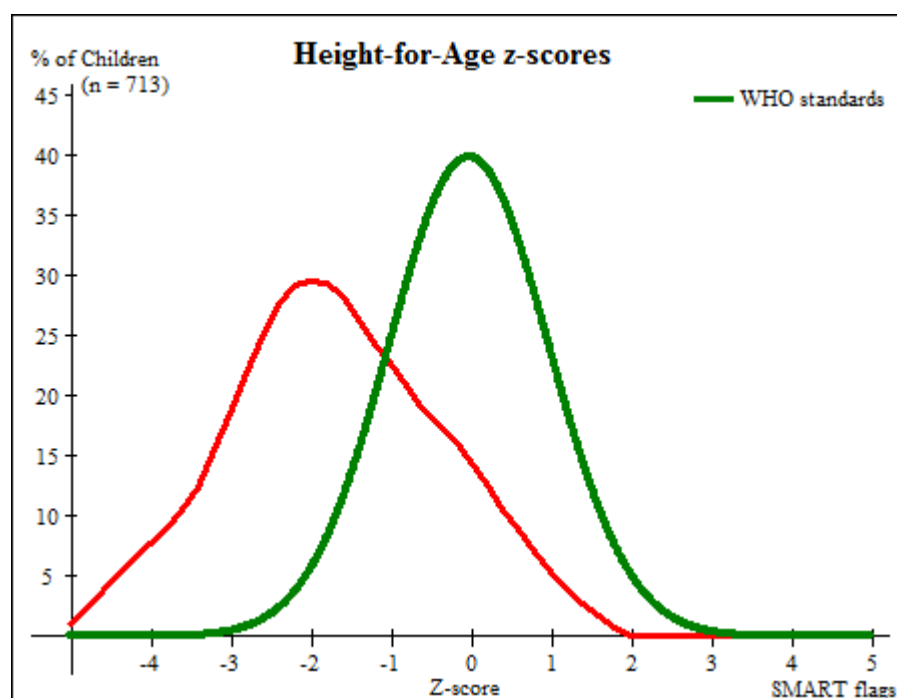


Table 23: Mean z-scores, Design Effects and excluded subjects-Doro Camp

Indicator	n	Mean z-scores \pm SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	752	-0.94 \pm 1.04	1.81	10	12
Weight-for-Age	764	-1.53 \pm 1.17	2.08	3	7
Height-for-Age	713	-1.68 \pm 1.32	1.49	9	52

* contains for WHZ and WAZ the children with edema.

3.2. Health/Feeding Programme Coverage

Feeding Programme Coverage Results

Table 24: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ-Doro Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	21/115	18.3(7.6-29.4)
Therapeutic feeding programme coverage	4/31	9.7(-1.420.8)

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

	Number/total	% (95% CI)
Supplementary feeding programme coverage	13/40	32.5 (15.9-49.1)
Therapeutic feeding programme coverage	3/6	50.0(-7.4-107.4)

Measles vaccination coverage results

Table 26: Measles Vaccination Coverage for Children Aged 9-59 Months (N=744)-Doro Camp

	Measles (with card) n= 292	Measles (with card <u>or</u> confirmation from mother) n= 697
YES	39.2% (27.1 -51.4 % CI)	93.7 % (90.8 -96.6 95 % CI)

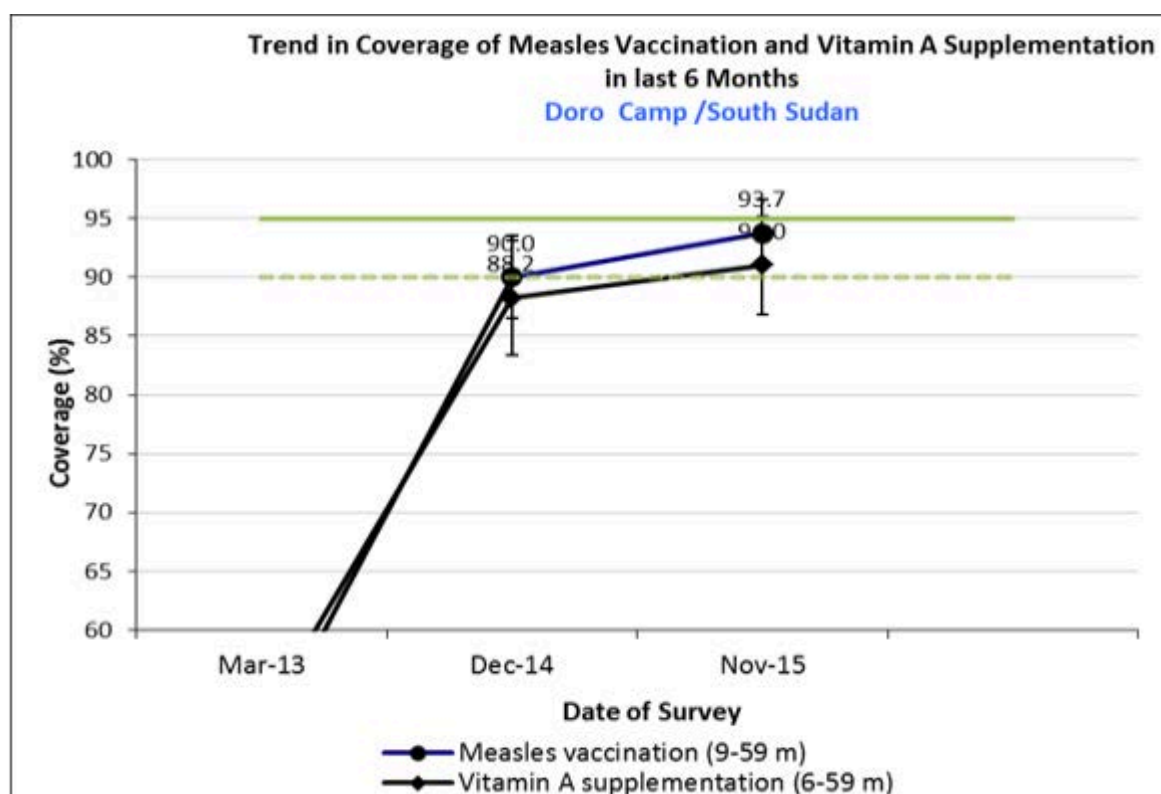
Vitamin A supplementation coverage results

Table 27: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 792)-Doro Camp

	Vitamin A capsule (with card) n=316	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=721
YES	39.9 % (27.9-51.8 95% CI)	91.0% (86.8-95.2 95% CI)

Table 28: PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N= 784)-Doro Camp

	DPT3/PENTA3 (with card) n= 315	DPT3/PENTA3 (with card <u>or</u> confirmation from mother) n= 723
YES	40.2% (29.3-51.1)	92.2% (88.9-95.6)

Figure 20: Trends In the Coverage of Measles Vaccination and Vitamin A Supplementation in Last 6 Months in Children 6-59 Months from 2013 to 2015-Doro Camp

Diarrhoea Results

Table 29: Period Prevalence of Diarrhoea-Doro Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	150/791	19.0 (13.6-24.3)

3.3. Anaemia Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is 54.1 % (49.2-59.0, 95% CI) and is of high public health significance. Prevalence of anaemia among children 6 to 23 months is of high public health significance at 70.5 % (64.3-76.6 , 95% CI).

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

	6-59 months n = 780	6-23 months n=281	24-59 months n=499
Total Anaemia (Hb<11.0 g/dL)	(422) 54.1 % (49.2-59.0 , 95% CI)	(198) 70.5% (64.3-76.6 , 95% CI)	(224) 44.9% (39.0-50.7 , 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(225) 28.8 % (24.8 -32.9, 95% CI)	(103) 36.7% (30.3-43.0 , 95% CI)	(122) 24.4% (19.6-29.63, 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(186) 23.8% (20.0-27.6, 95% CI)	(90) 32.0% (25.5-38.5 , 95% CI)	(96) 19.2% (14.9-23.5 , 95% CI)
Severe Anaemia (<7.0 g/dL)	(11) 1.4% (0.4-2.5, 95% CI)	(5) 1.8% (-0.5-3.6 , 95% CI)	(6) 1.2 (-0.2-2.6 , 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	10.7 g/dL (10.6-10.9 , 95% CI) [4.4-15.6]	10.3 g/dL (10.0-10.4 , 95% CI) [5.7-13.6]	11.0 g/dL (10.8-11.2 , 95% CI) [4.4-15.6]

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

	6-59 months n = 780	6-23 months n= 281	24-59 months n= 499
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(197) 25.3% (21.5-29.0 , 95% CI)	(95) 33.8% (27.1-40.5 , 95% CI)	(275) 55.1% (49.3-61.0 , 95% CI)

Figure 21: Trends in Anaemia Categories in Children 6-59 Months from 2013 to 2015-Doro Camp

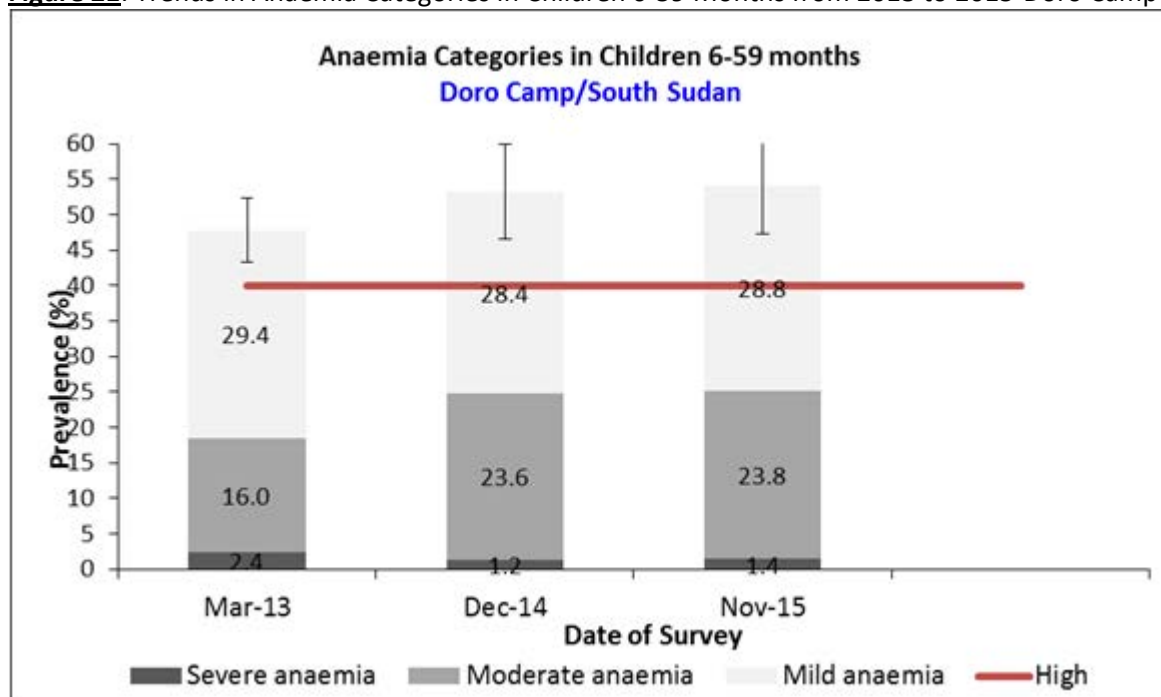


Figure 22: Trend in Total Anaemia (<11 G/Dl), and Moderate and Severe Anaemia (<10 G/Dl) With 95% CI in Children 6-59 Months from 2013 to 2015-Doro Camp

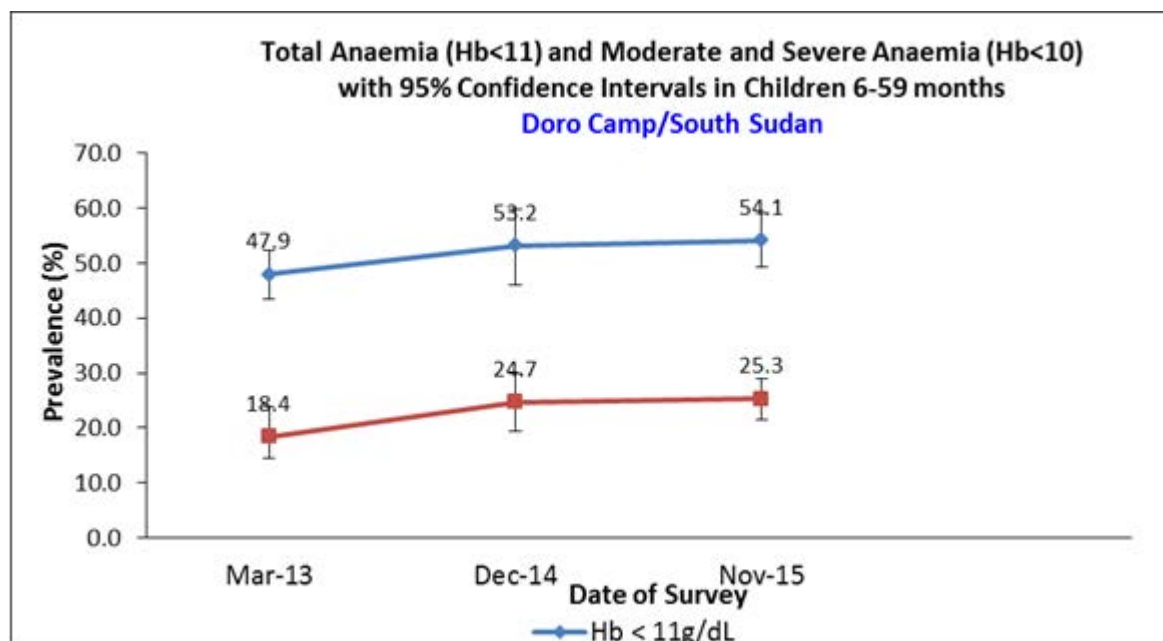
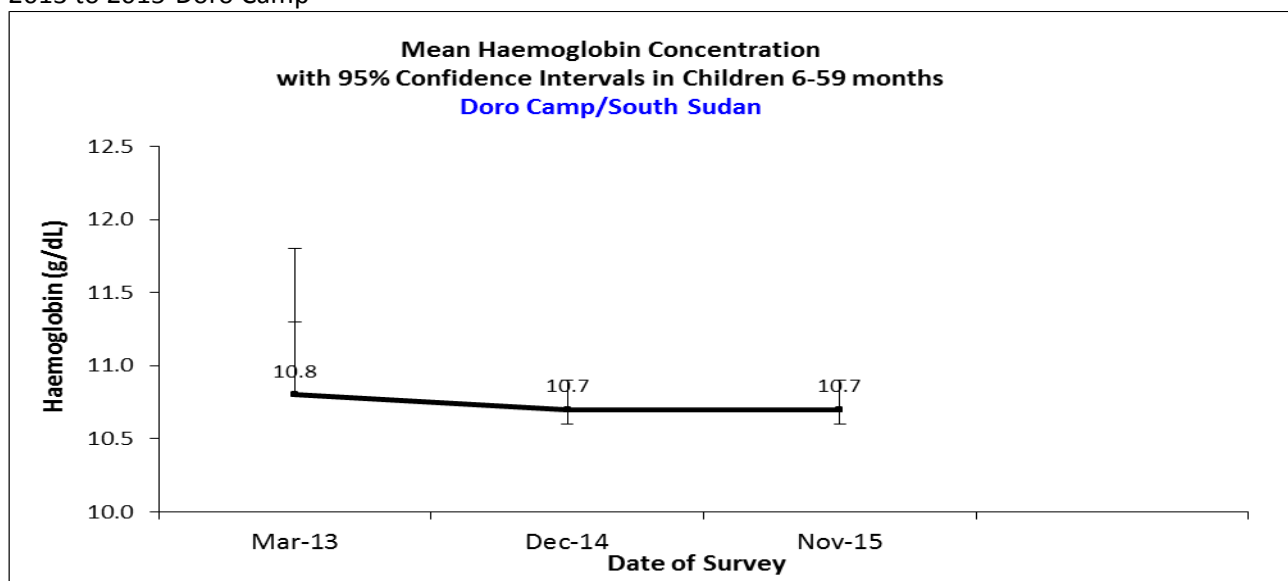


Figure 23: Trend in Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2013 to 2015-Doro Camp

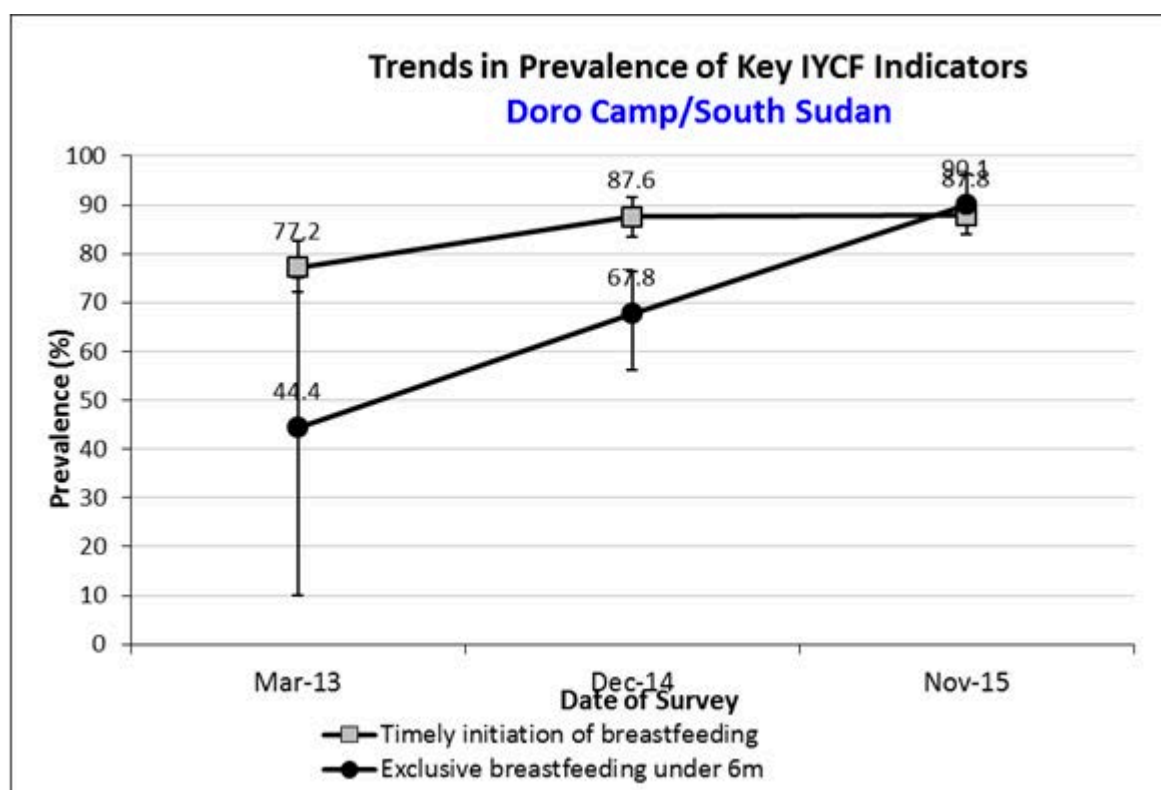


3.4. IYCF Children 0-23 Months

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

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	324/369	87.8	84.0-91.7
Exclusive breastfeeding under 6 months	0-5 months	46/54	90.1	84.0-96.2
Continued breastfeeding at 1 year	12-15 months	46/54	85.2	74.4-95.2
Continued breastfeeding at 2 years	20-23 months	35/57	61.4	48.4-74.4
Introduction of solid, semi-solid or soft foods	6-8 months	14/48	29.2	15.6-42.7
Consumption of iron-rich or iron-fortified foods	6-23 months	54/276	19.6	11.5-27.6
Bottle feeding	0-23 months	8/365	2.2	0-5.9

Figure 24: Key IYCF Indicators from 2013 to 2015-Doro Camp



Prevalence of Intake

Infant Formula

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

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	14/364	3.8 (-0.9-8.5)

Fortified Blended Foods

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

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	13/280	4.6(1.5-7.7)

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

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	29/281	10.3 (5.6-15.0)

3.5. Anaemia Women 15-49 Years Results

Table 36: Women Physiological Status and Age-Doro Camp

Physiological status	Number/total	% of sample
Non-pregnant	268/326	82.2
Pregnant	56/326	17.1
Don't Know	2/326	0.7
Mean age (range)	26.3(15-49)	

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

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 226
Total Anaemia (<12.0 g/dL)	(71) 31.4% (24.5-38.3 , 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(46) 20.4% (15.2-25.5 , 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(25) 11.0 % (7.4-14.7 , 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0.0 (0.0-0.0, 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.5 g/dL (12.3-12.8, 95% CI) [8.7-18.0]

Figure 25: Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2013 to 015-Doro Camp

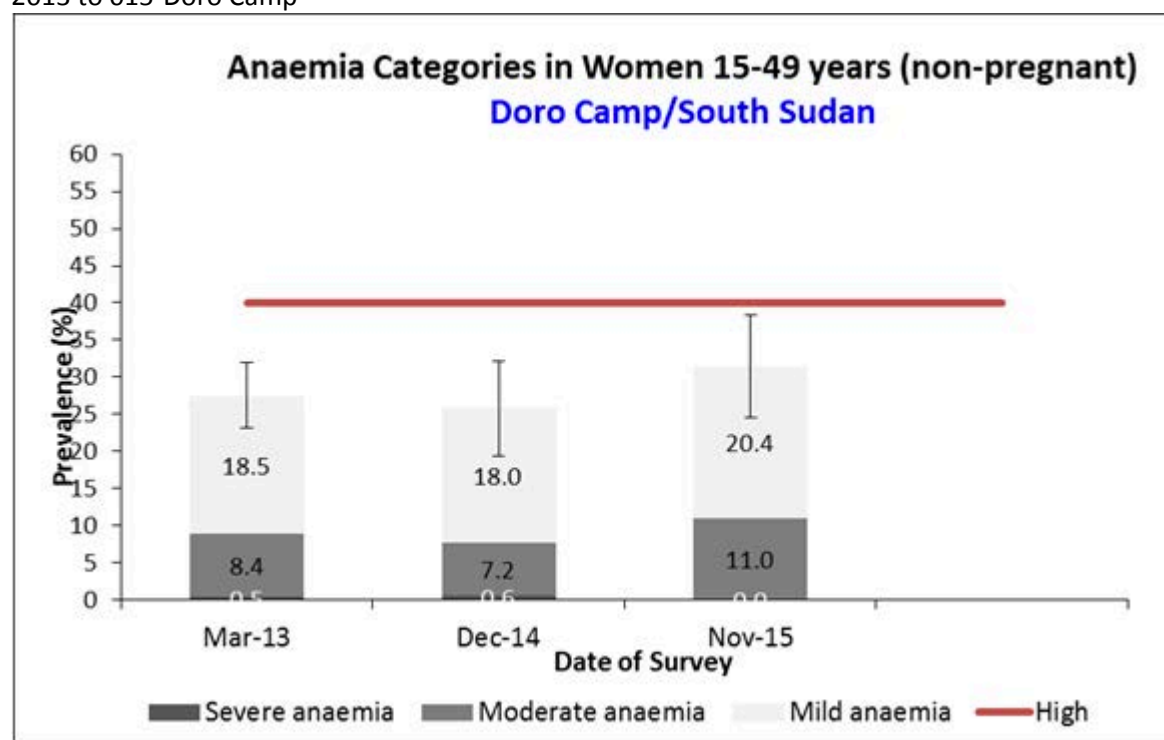


Table 38: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)-Doro Camp

	Number /total	% (95% CI)
Currently enrolled in ANC programme	41/56	73.2 (58.9-87.5)
Currently receiving iron-folic acid pills	41/55	74.5 (60.9-88.1)

3.6. Water Sanitation and Hygiene (WASH)

Table 39: WASH Sampling Information-Doro Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	537	506	94.2

Table 40: Water Quality-Doro Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	506/506	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	282/506	55.8 (46.8-64.9)

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

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	181/506	35.8 (28.9-42.6)
15 – <20 lpppd	94/506	18.6 (14.3-21.8)
<15 lpppd	231/506	45.7 (39.0-52.2)

Add the average water usage in lpppd: _____16.9 lpppd_____

Table 42: Satisfaction with Water Supply-Doro Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	190/506	37.5 (26.3-48.8)

Figure 26: Proportion of Households That Say They Are Satisfied With the Water Supply

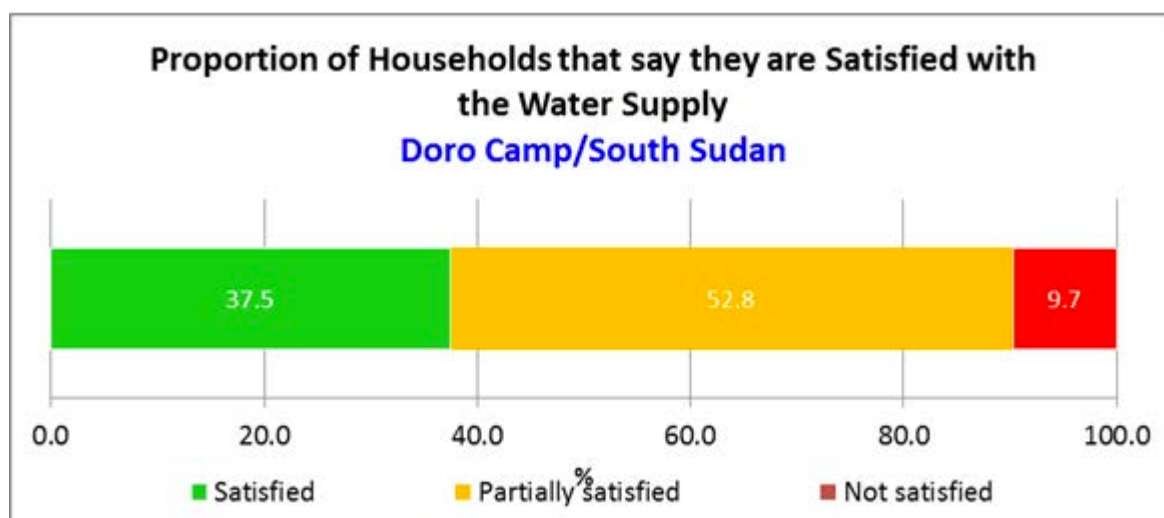


Figure 27: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

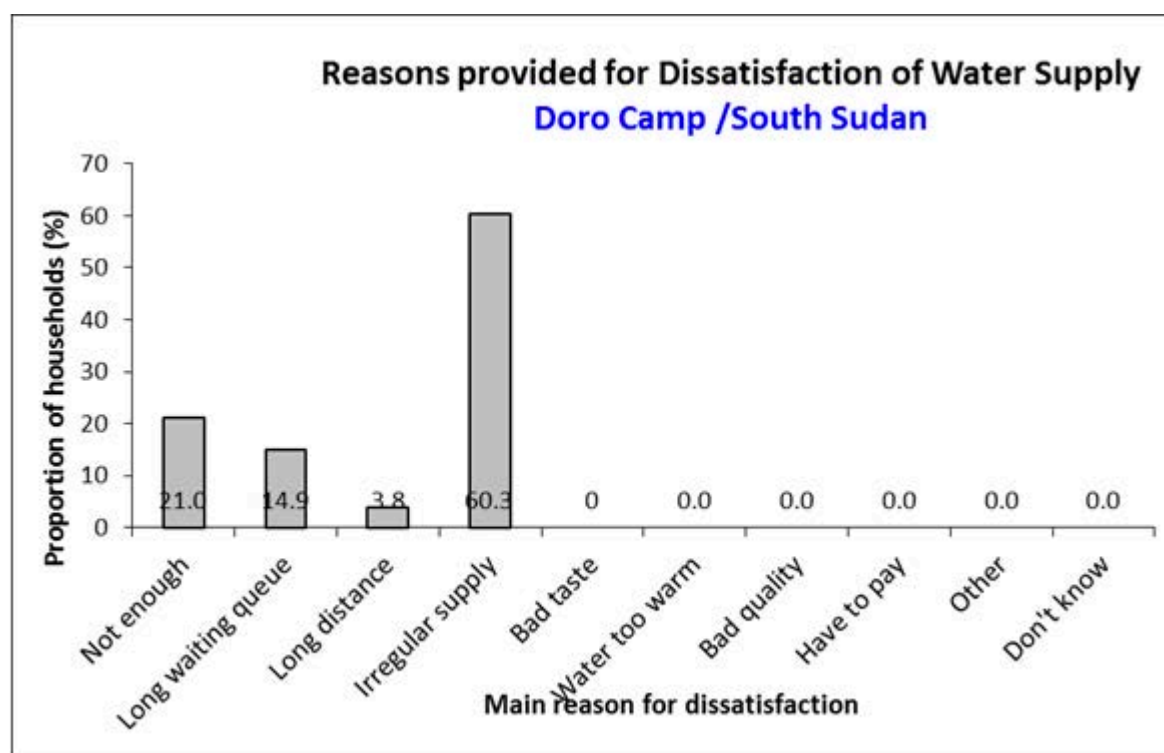


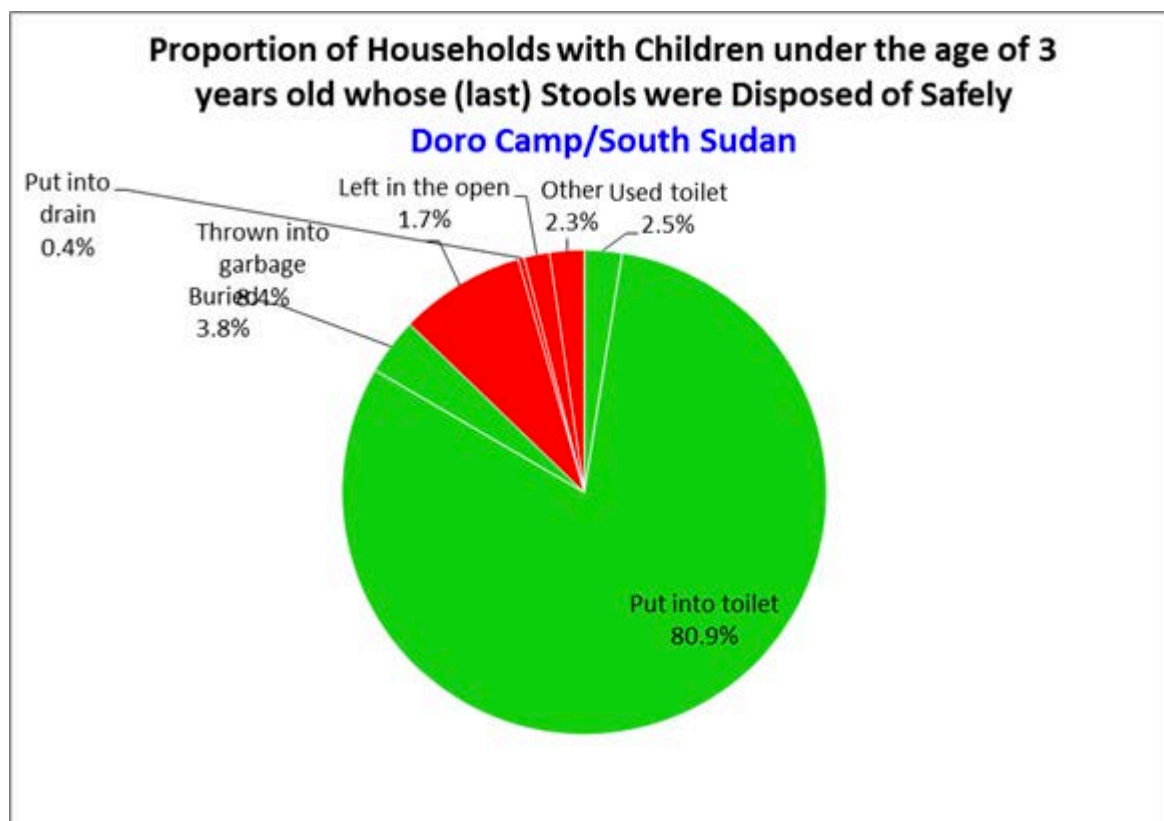
Table 43: Safe excreta disposal-Doro Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*, **	74/440	16.8 (9.3-24.3)
A shared family toilet (improved toilet facility, 2 households)**	67/440	15.2 (9.6-20.8)
A communal toilet (improved toilet facility, 3 households or more)	172/440	39.0 (29.0-49.2)
An unimproved toilet (unimproved toilet facility or public toilet)	127/440	28.7 (18.0-40.0)
Proportion of households with children under three years old that dispose of faeces safely	415/476	87.9 (81.8-92.6)

*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 28: Proportion of Households with Children Under The Age Of 3 Years Whose (Last) Stools Were Disposed Of Safely



3.7. Mosquito Net Coverage

Table 44: Mosquito Net Coverage Sampling Information-Doro Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	249	311	124.8

Table 45: Household Mosquito Net Ownership-Doro Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	246/311	79.1 (71.1-87.0)
Proportion of total households owning at least one LLIN	240/311	77.2 (69.0-85.4)

Figure 29: Household Ownership of At Least One Mosquito Net (Any Type)

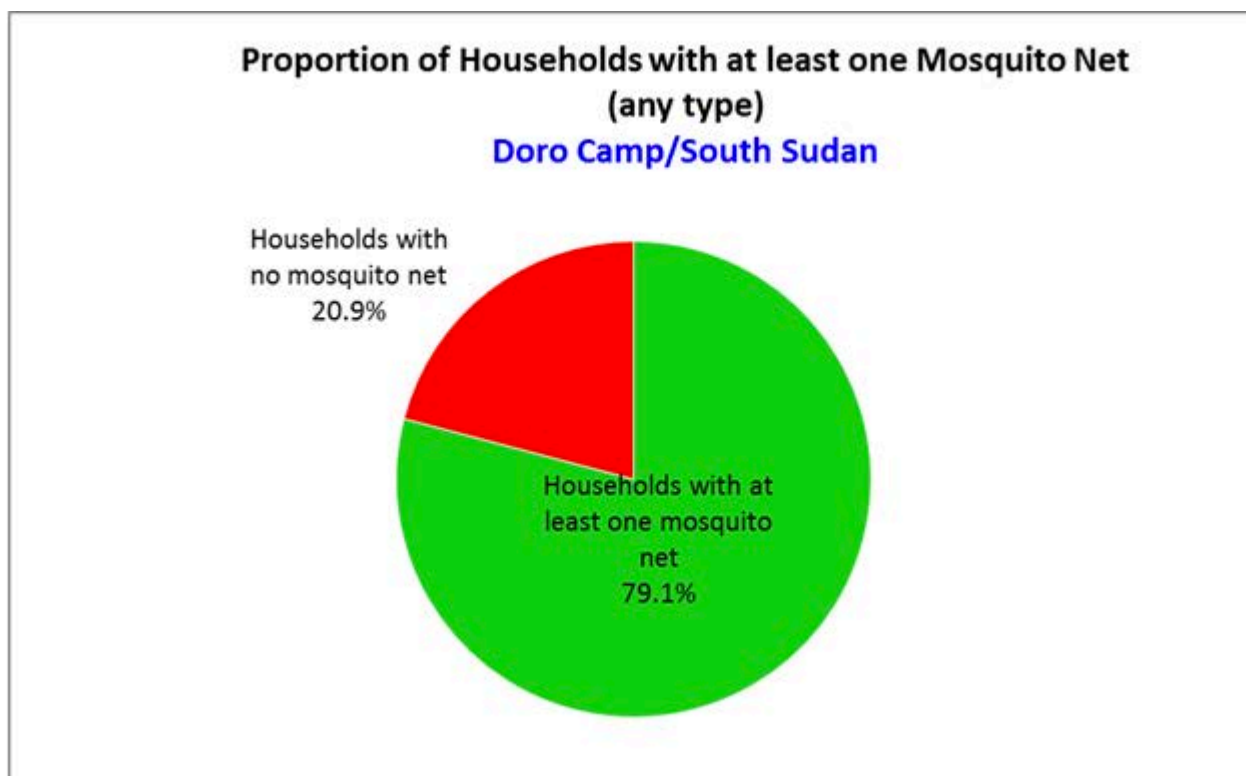


Figure 30: Household Ownership Of At Least One Llin

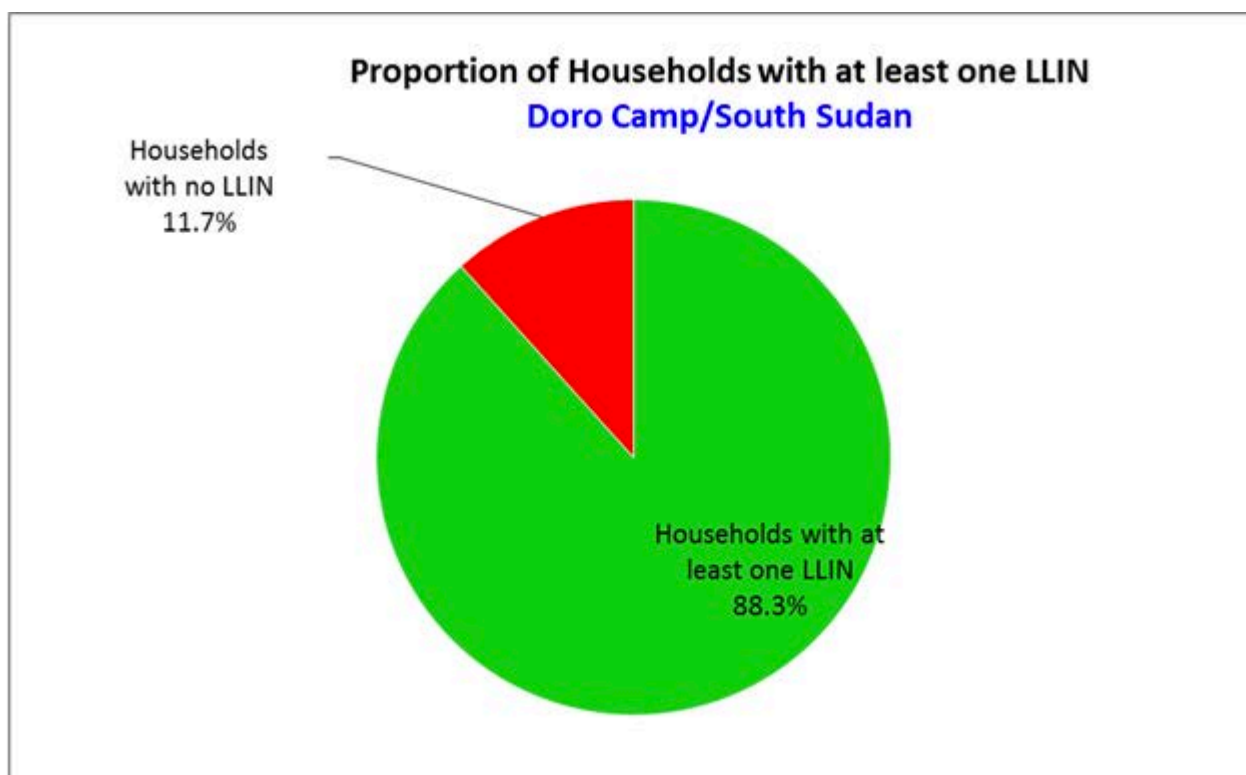


Table 46: Number Of Nets-Doro Camp

Average number of LLINs per household	Average number of persons per LLIN
1.6	4.0

Table 47: Mosquito Net Utilization-Doro Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1594	%	Total No= 544	%	Total No= 54	%
Slept under net of any type	1108	69.5	431	79.2	38	70.4
Slept under LLIN	1093	68.5	426	78.3	37	68.5

Figure 31: Mosquito Net Utilization by Sub-Group

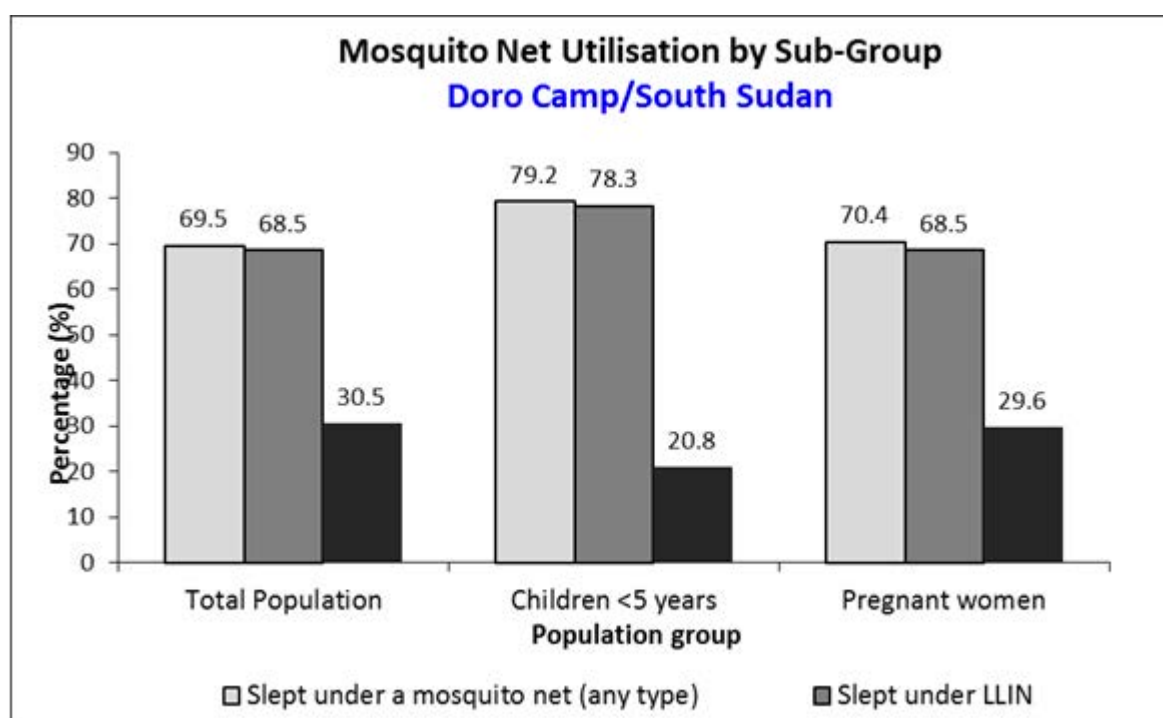


Table 48: Indoor Residual Spraying -Doro Camp.

	Number/total	% (95% CI)
Proportion of total households with Indoor Residual Spraying (IRS)	302/311	97.1 (95.6-101.6)

YUSUF BATIL CAMP

The demographic characteristics are illustrated in table 12 below. It will be noticed that the number of under 5 survey is much higher than anticipated and there was no non response observed

Table 49: Demographic Characteristics of the Batil Survey Population-Batil Camp

Total households surveyed	437
Total population surveyed	2683
Total U5 surveyed	693
Average household size	6.1
% of U5	25.8

Table 50: Target and Actual Number Captured-Batil Camp

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	493	678	137.5%
Clusters (where applicable)	32	32	100%

3.8. Anthropometric results (based on WHO standards 2006)**Table 51:** Distribution of age and sex of sample-Batil Camp

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl
6-17	94	55.0	77	45.0	171	24.9	1.2
18-29	94	51.9	87	48.1	181	26.3	1.1
30-41	51	47.7	56	52.3	107	15.6	0.9
42-53	81	46.3	94	53.7	175	25.5	0.9
54-59	25	47.2	28	52.8	53	7.7	0.9
Total	345	50.2	342	49.8	687	100.0	1.0

Table 52: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Batil Camp

	All n = 678	Boys n = 340	Girls n = 338
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(75) 11.1 % (8.7 - 14.0 95% C.I.)	(42) 12.4 % (9.0 - 16.8 95% C.I.)	(33) 9.8 % (7.0 - 13.4 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(61) 9.0 % (6.7 - 11.9 95% C.I.)	(36) 10.6 % (7.2 - 15.3 95% C.I.)	(25) 7.4 % (5.0 - 10.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(14) 2.1 % (1.1 - 3.7 95% C.I.)	(6) 1.8 % (0.8 - 3.8 95% C.I.)	(8) 2.4 % (1.1 - 4.9 95% C.I.)

The prevalence of oedema is 0.1 %

Figure 32: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards In Children 6-59 Months From 2013 to 2015 –Batil Camp

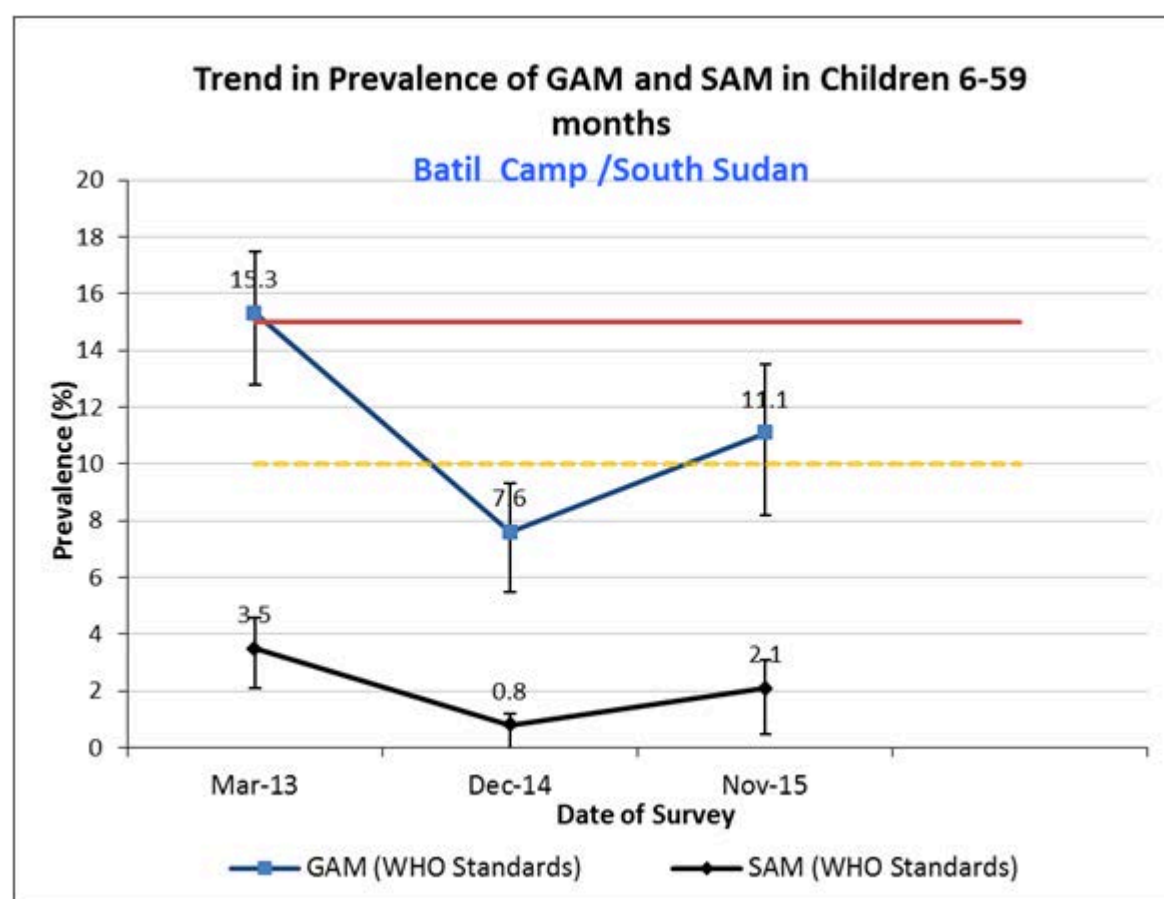


Table 53: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema-Batil Camp

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	169	1	0.6	20	11.8	148	87.6	0	0.0
18-29	176	5	2.8	16	9.1	154	87.5	1	0.6
30-41	106	4	3.8	12	11.3	90	84.9	0	0.0
42-53	174	3	1.7	8	4.6	163	93.7	0	0.0
54-59	53	0	0.0	5	9.4	48	90.6	0	0.0
Total	678	13	1.9	61	9.0	603	88.9	1	0.1

Figure 33: Trend in the Prevalence of Wasting By Age in Children 6-59 Months

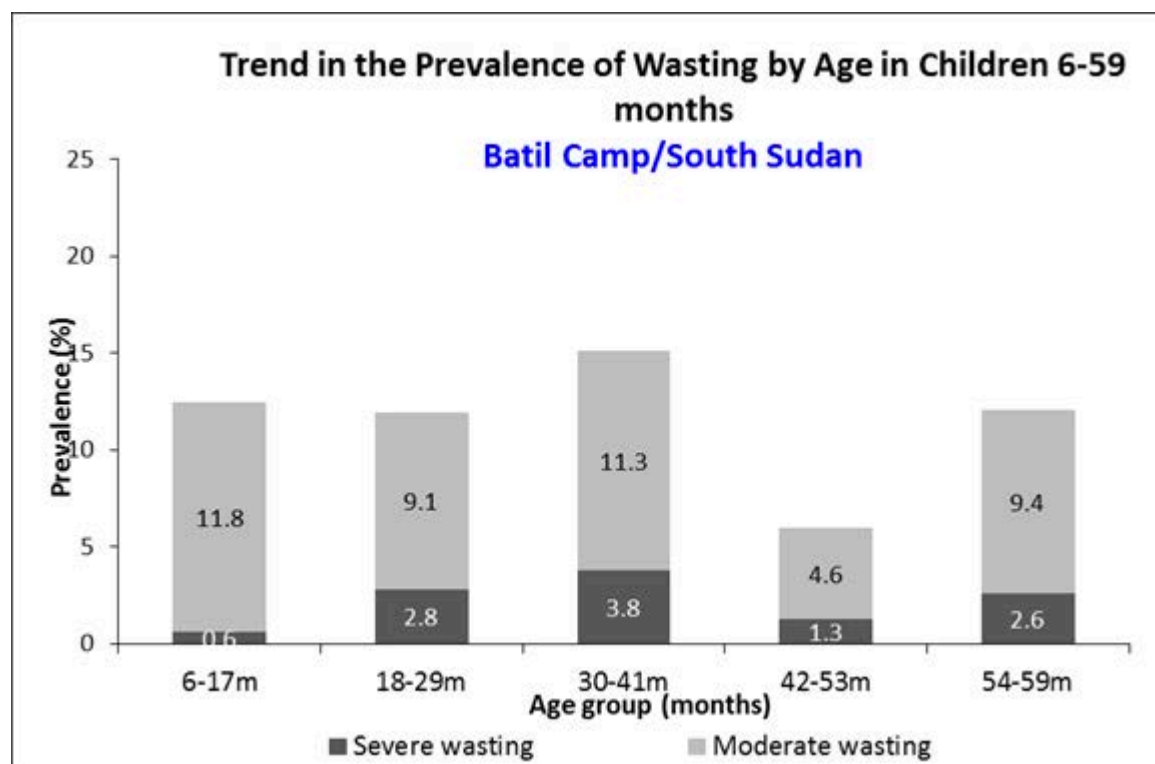


Table 54: Distribution of acute malnutrition and oedema based on weight-for-height z-scores-Batil Camp

	<-3 z-score	>= -3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 1 (0.1 %)
Oedema absent	Marasmic No. 17 (2.5 %)	Not severely malnourished No. 668 (97.4 %)

Figure 34: 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

The Figure below shows that the distribution for weight-for-height z-scores for the survey sample is shifted to the left, illustrating a poorer status than the international WHO Standard population of children aged 6-59 months.

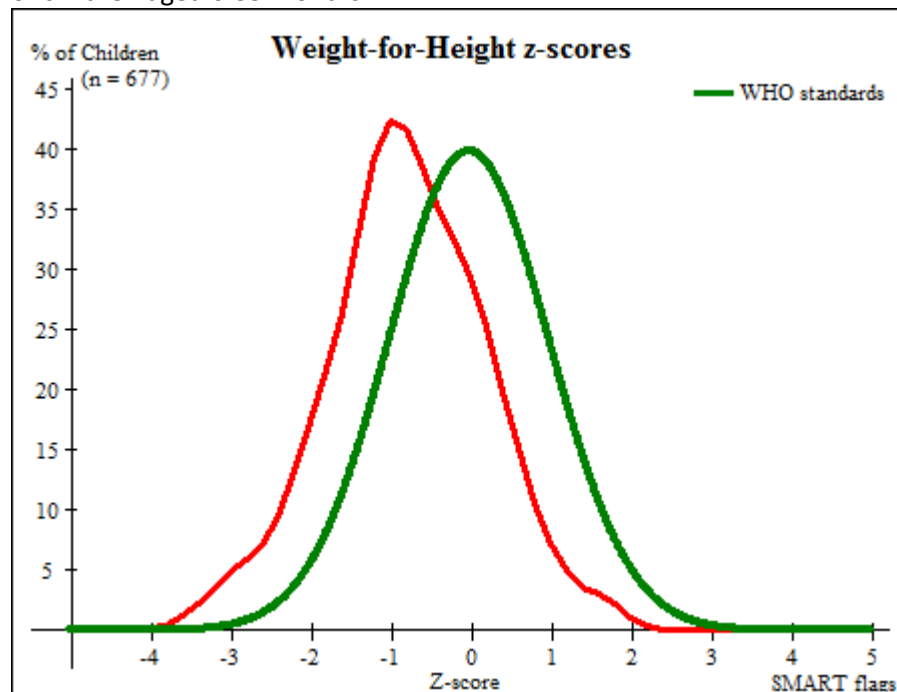


Table 55: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Batil Camp

	All n = 686	Boys n = 345	Girls n = 341
Prevalence of global malnutrition (< 125 mm and/or oedema)	(33) 4.8 % (3.3 - 7.0 95% C.I.)	(10) 2.9 % (1.7 - 5.0 95% C.I.)	(23) 6.7 % (4.0 - 11.2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and ≥ 115 mm, no oedema)	(28) 4.1 % (2.7 - 6.1 95% C.I.)	(7) 2.0 % (1.0 - 4.0 95% C.I.)	(21) 6.2 % (3.6 - 10.5 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(5) 0.7 % (0.3 - 1.7 95% C.I.)	(3) 0.9 % (0.3 - 2.7 95% C.I.)	(2) 0.6 % (0.1 - 2.4 95% C.I.)

Table 56: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema-Batil Camp

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	170	2	1.2	17	10.0	151	88.8	0	0.0
18-29	181	0	0.0	7	3.9	174	96.1	1	0.6
30-41	107	1	0.9	2	1.9	104	97.2	0	0.0
42-53	175	0	0.0	2	1.1	173	98.9	0	0.0
54-59	53	1	1.9	0	0.0	52	98.1	0	0.0
Total	686	4	0.6	28	4.1	654	95.3	1	0.1

Table 57: Prevalence of underweight based on weight-for-age z-scores by sex-Batil Camp

	All n = 680	Boys n = 343	Girls n = 337
Prevalence of underweight (<-2 z-score)	(273) 40.1 % (34.7 - 45.8 95% C.I.)	(136) 39.7 % (32.3 - 47.5 95% C.I.)	(137) 40.7 % (33.7 - 48.0 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(183) 26.9 % (22.6 - 31.7 95% C.I.)	(90) 26.2 % (20.7 - 32.7 95% C.I.)	(93) 27.6 % (21.7 - 34.5 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(90) 13.2 % (10.7 - 16.3 95% C.I.)	(46) 13.4 % (9.7 - 18.3 95% C.I.)	(44) 13.1 % (9.7 - 17.3 95% C.I.)

Table 58: Prevalence of underweight by age, based on weight-for-age z-scores-Batil Camp

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	168	12	7.1	36	21.4	120	71.4	0	0.0
18-29	179	20	11.2	56	31.3	103	57.5	1	0.6
30-41	105	22	21.0	23	21.9	60	57.1	0	0.0
42-53	175	27	15.4	51	29.1	97	55.4	0	0.0
54-59	53	9	17.0	17	32.1	27	50.9	0	0.0
Total	680	90	13.2	183	26.9	407	59.9	1	0.1

Table 59: Prevalence of stunting based on height-for-age z-scores and by sex-Batil Camp

	All n = 656	Boys n = 330	Girls n = 326
Prevalence of stunting (<-2 z-score)	(361) 55.0 % (50.2 - 59.7 95% C.I.)	(186) 56.4 % (50.0 - 62.6 95% C.I.)	(175) 53.7 % (48.5 - 58.8 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(214) 32.6 % (29.5 - 35.9 95% C.I.)	(103) 31.2 % (27.4 - 35.3 95% C.I.)	(111) 34.0 % (28.9 - 39.7 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(147) 22.4 % (18.9 - 26.4 95% C.I.)	(83) 25.2 % (19.5 - 31.8 95% C.I.)	(64) 19.6 % (15.2 - 24.9 95% C.I.)

Figure 35: Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards In Children 6-59 Months From 2013 to 2015-Batil Camp

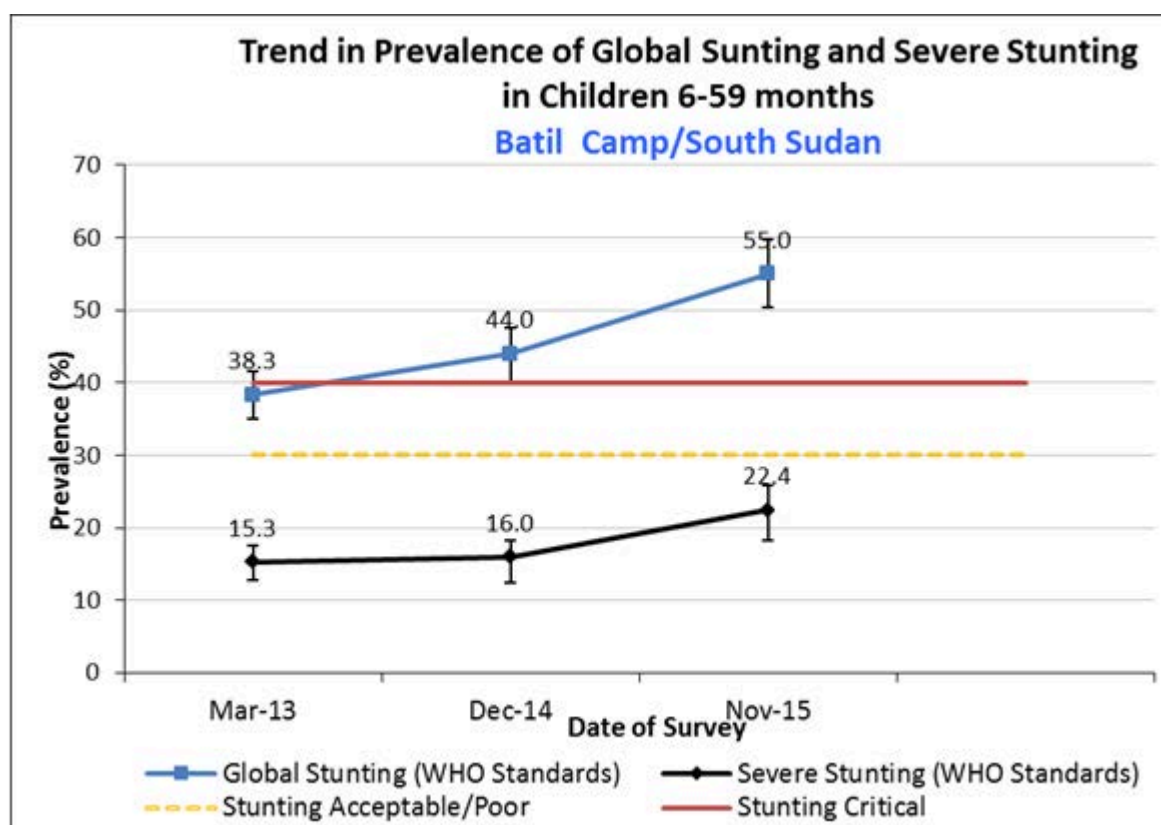


Table 60: Prevalence of stunting by age based on height-for-age z-scores-Batil Camp

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	160	20	12.5	42	26.3	98	61.3
18-29	176	37	21.0	60	34.1	79	44.9
30-41	99	29	29.3	39	39.4	31	31.3
42-53	168	49	29.2	51	30.4	68	40.5
54-59	53	12	22.6	22	41.5	19	35.8
Total	656	147	22.4	214	32.6	295	45.0

Figure 36: Trends in the Prevalence of Stunting By Age in Children 6-59 Months

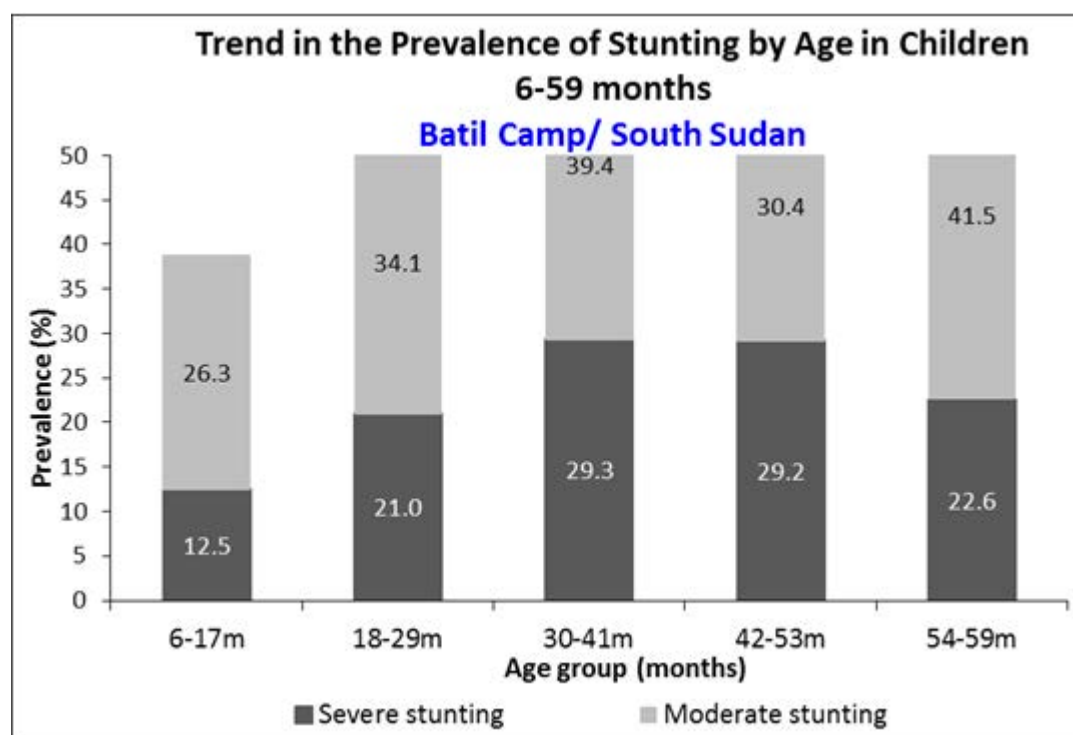


Figure 37: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; the Reference Population Is Shown In Green and the Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

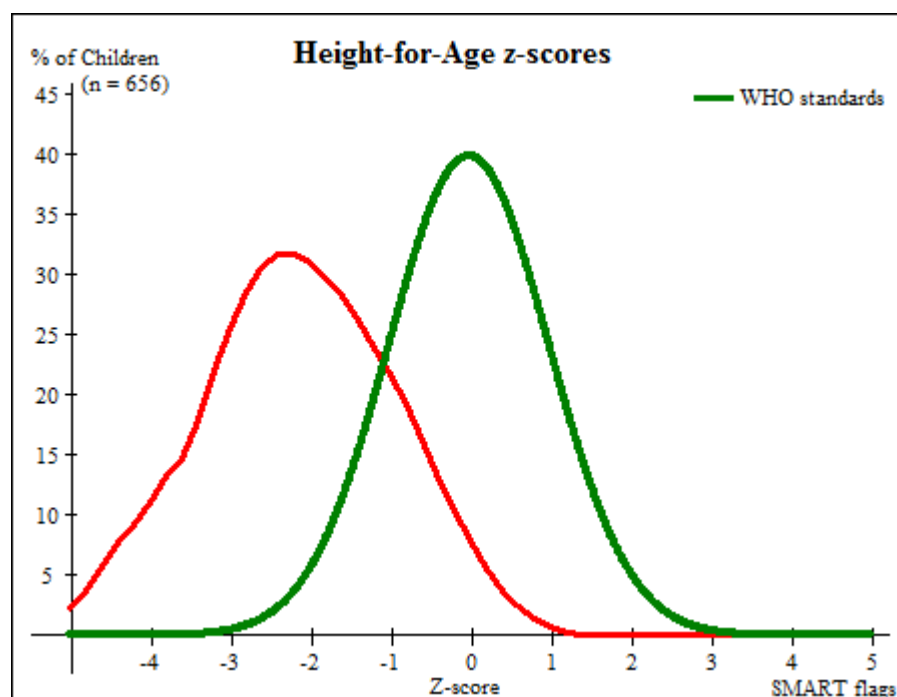


Table 61: Mean z-scores, Design Effects and excluded subjects-Batil Camp

Indicator	n	Mean z-scores \pm SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	677	-0.79 \pm 0.98	1.15	2	8
Weight-for-Age	680	-1.76 \pm 1.06	2.10	2	5
Height-for-Age	656	-2.15 \pm 1.18	1.44	1	30

* contains for WHZ and WAZ the children with edema.

3.9. Health/Feeding Programme Coverage

Feeding Programme Coverage Results

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

	Number/total	% (95% CI)
Supplementary feeding programme coverage	6/77	7.8(2.5-13.0)
Therapeutic feeding programme coverage	4/97	4.1(0.2-8.0)

Table 63: Programme coverage for acutely malnourished children based on MUAC and oedema-Batil Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	5/29	17.5(3.1-31.3)
Therapeutic feeding programme coverage	0/5	0.0(0-0)

Measles vaccination coverage results

Table 64: Measles Vaccination Coverage for Children Aged 9-59 Months (N=366)-Batil Camp

	Measles (with card) n= 131	Measles (with card <u>or</u> confirmation from mother) n= 347
YES	35.7% (19.5-52.0; 95% CI)	94.8 % (91.2-98.4; 95% CI)

Vitamin A supplementation coverage results

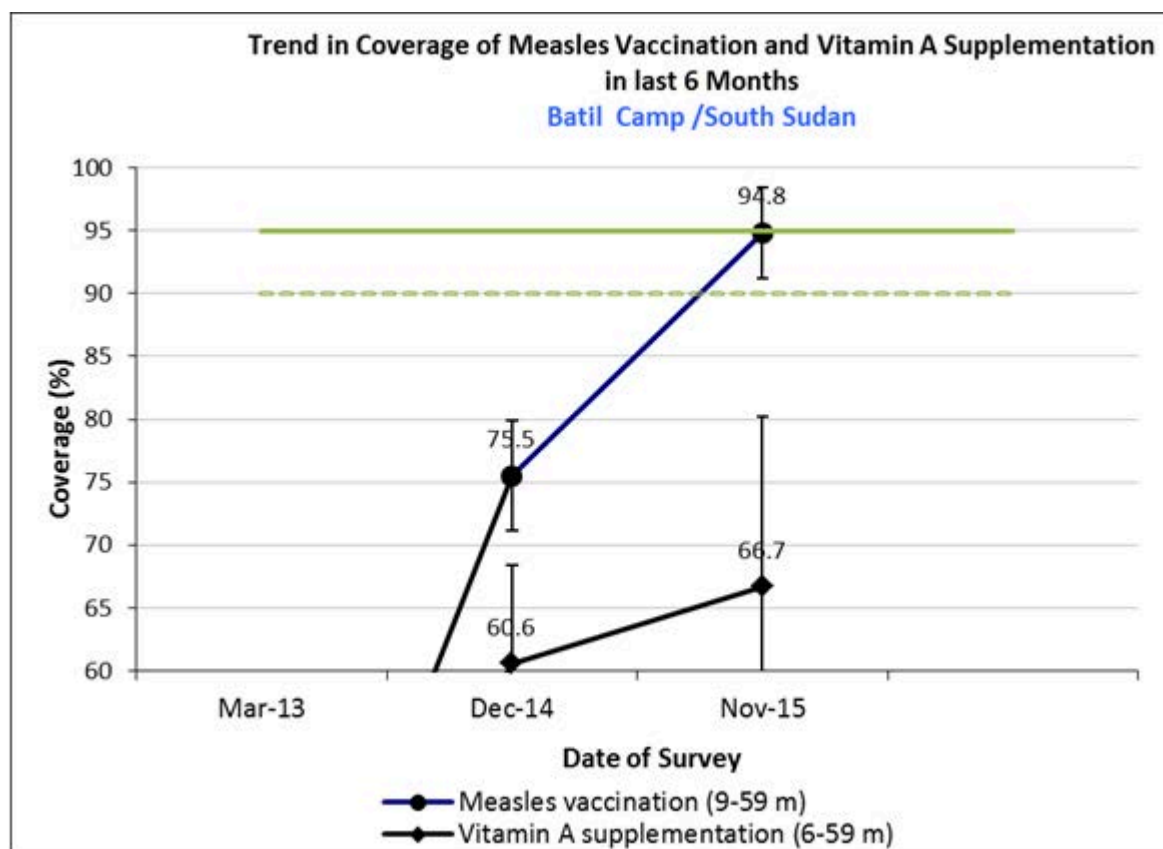
Table 65: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N=696)-Batil Camp

	Vitamin A capsule (with card) n=208	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=464
YES	29.9.0% (16.3-43.5; 95% CI)	66.7 % (53.2-80.2 95% CI)

Table 66: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=872-Batil Camp)-Batil Camp

	DPT3 / PENTA3 (with card) n=183	DPT3 / PENTA3 (with card <u>or</u> confirmation from mother) n=400
YES	41.9% (28.5-55.2; 95% CI)	91.5 % (86.6-96.4 95% CI)

Figure 38: Trends In the Coverage of Measles Vaccination and Vitamin A Supplementation in Last 6 Months in Children 6-59 Months from 2013 to 2015-Batil Camp



Diarrhoea Results

Table 67: Period Prevalence of Diarrhoea-Batil Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	124/697	17.8 (11.7-33.8)

3.10. Anaemia Results Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is of high health significance at 55.7% (51.9-59.6 95% CI). Prevalence of anaemia among children 6 to 23 months is also of high public health significance at 72.2 % (66.0-78.3 95% CI).

Table 68: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group-Batil Camp

	6-59 months n = 696	6-23 months n=259	24-59 months n=437
Total Anaemia (Hb<11.0 g/dL)	(388) 55.7% (51.9-59.6 ; 95% CI)	(187) 72.2 % (66.0-78.3 95% CI)	(201) 46.0% (41.0-51.0 ; 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(208) 29.9 % (25.7-34.0 ; 95% CI)	(85) 32.8% (25.5-40.1 ; 95% CI)	(123) 28.1 % (24.0-32.3 ; 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(177) 25.4 % (20.9-30.0 ; 95% CI)	(100) 38.6% (31.1-46.0 ; 95% CI)	(77) 17.6 % (13.6-21.6 ; 95% CI)
Severe Anaemia (<7.0 g/dL)	(3) 0.4 % (-0.0-0.9 ; 95% CI)	(2) 0.7% (-0.3-1.8 ; 95% CI)	(1) 0.2 (-0.2-0.7 ; 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	10.7 g/dL (10.6-10.8 ; 95% CI) [6.5-15.1]	10.2 g/dL (10.0-10.4 ; 95% CI) [6.5-13.3]	11.0 g/dL (10.9-11.2 ; 95% CI) [6.7-14.1]

Table 69: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Batil Camp

	6-59 months n = 696	6-23 months n= 259	24-59 months n= 437
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(180) 25.9 % (21.3-30.5 ; 95% CI)	(102) 39.4 % (31.8 -47.0; 95% CI)	(78) 17.8 % (13.9-21.8 ; 95% CI)

Figure 39: Trends In Anaemia Categories in Children 6-59 Months from 2013 to 2015-Batil Camp

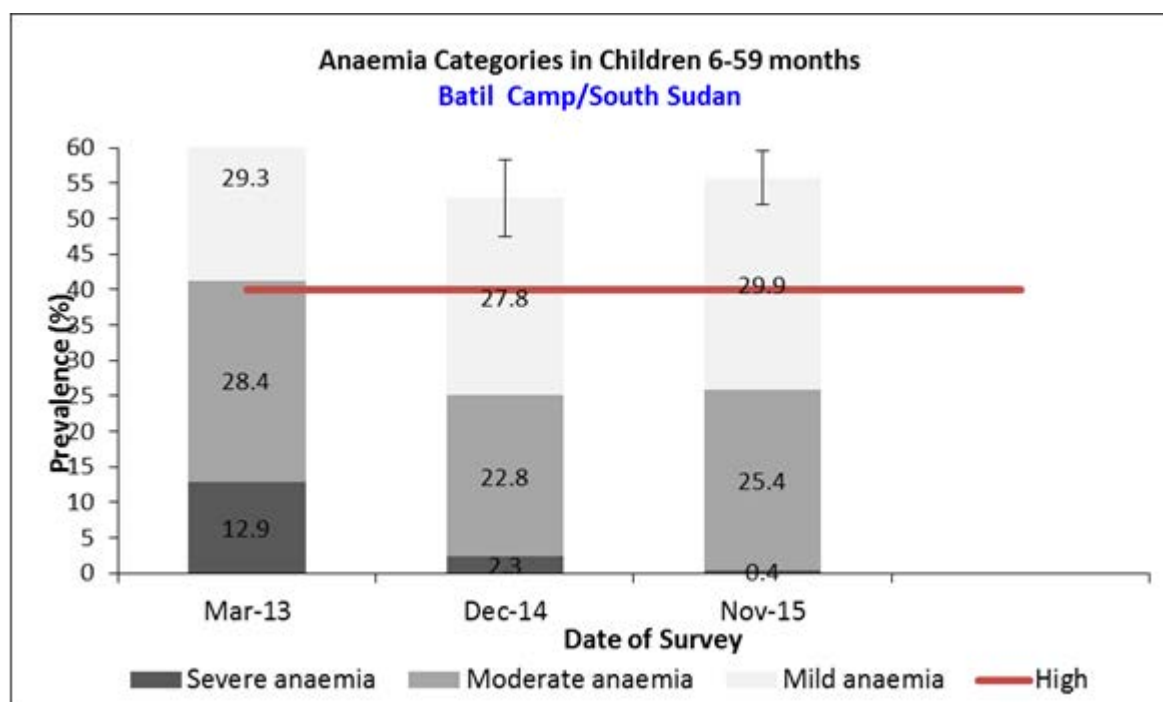


Figure 40: Trend in Total Anaemia (<11 G/Dl), and Moderate and Severe Anaemia (<10 G/Dl) With 95% CI in Children 6-59 Months from 2013 to 2015- Batil Camp

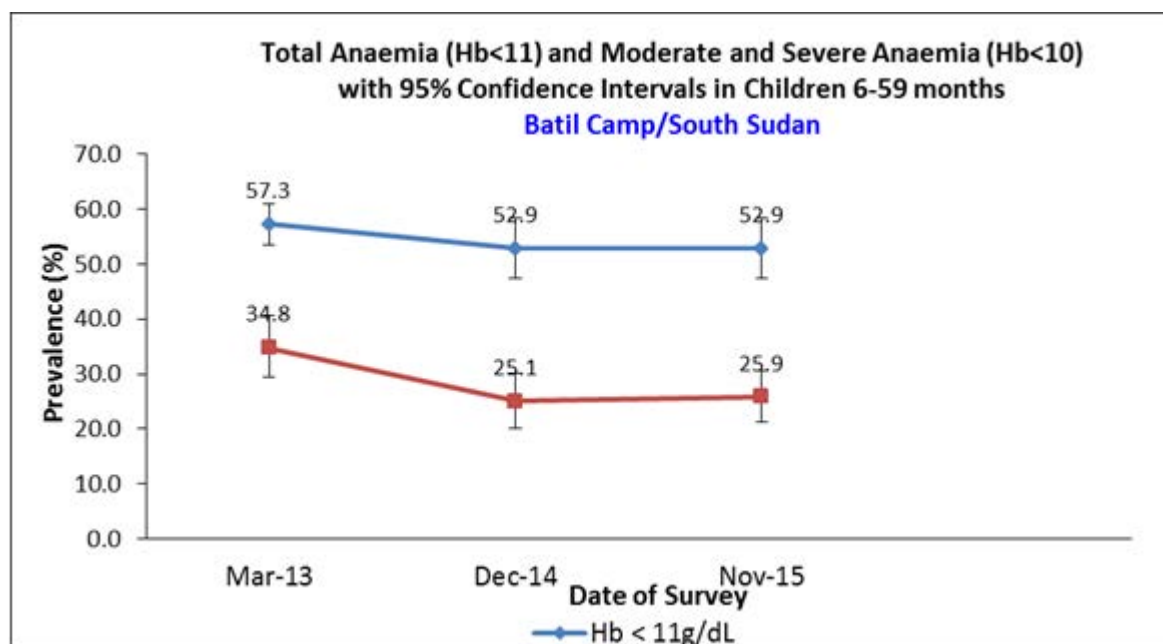
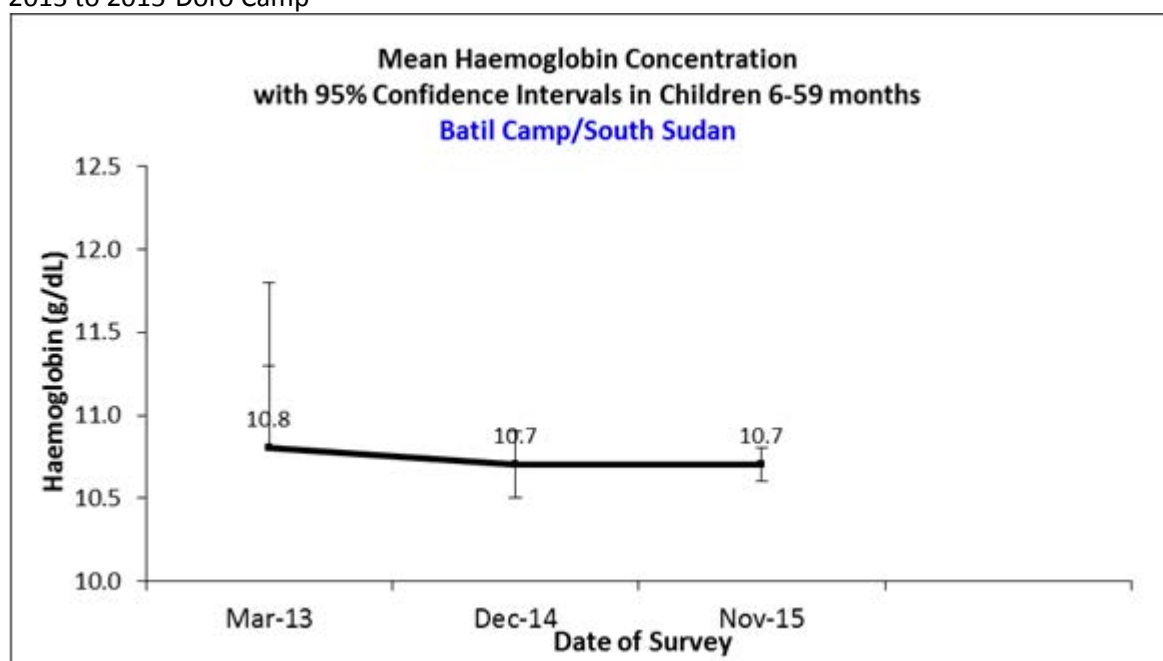


Figure 41: Trend in Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2013 to 2015-Doro Camp

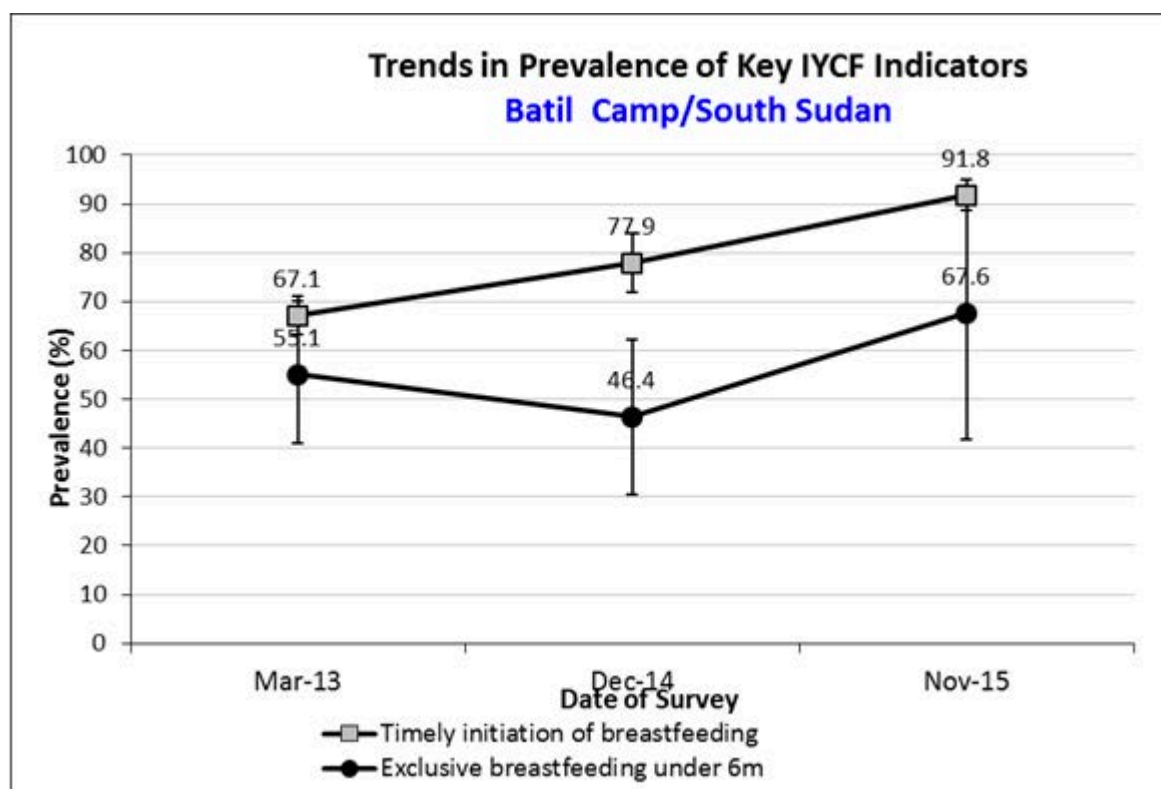


3.11. IYCF Children 0-23 months

Table 70: Prevalence of Infant and Young Child Feeding Practices Indicators-Batil Camp

Indicator	Age range	Number/total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	270/294	91.8	88.6-95.0
Exclusive breastfeeding under 6 months	0-5 months	23/34	67.6	41.8-93.5
Continued breastfeeding at 1 year	12-15 months	40/48	83.3	68.5-98.2
Continued breastfeeding at 2 years	20-23 months	32/45	71.1	56.9-85.3
Introduction of solid, semi-solid or soft foods	6-8 months	22/54	40.7	24.7-56.7
Consumption of iron-rich or iron-fortified foods	6-23 months	27/253	10.6	4.5-16.9
Bottle feeding	0-23 months	2/292	0.6	-0.3-1.6

Figure 42: Key IYCF Indicators from 2013 to 2015-Batil Camp



Prevalence of intake

Infant formula

Table 71: Infant Formula Intake in Children Aged 0-23 Months-Batil Camp

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	5/294	1.7(-0.0-3.4)

Fortified blended foods

Table 72: CSB+ Intake in Children Aged 6-23 Months-Batil Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	41/245	16.7 (10.1-23.4)

Table 73: FSB++ Intake in Children Aged 6-23 Months-Batil Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	31/245	12.6 (6.4-12.9)

3.12. Anaemia Women 15-49 years

Table 74: Women Physiological Status and Age-Batil Camp

Physiological status	Number/total	% of sample
Non-pregnant	283/322	87.8
Pregnant	39/322	12.2
Mean age (range)	27.8(15-49)	

Table 75: Prevalence of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years)-Batil Camp

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 226
Total Anaemia (<12.0 g/dL)	(62) 27.4% (20.9-33.9 ; 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(41) 18.1 % (13.0-23.3 ; 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(20) 8.8 % (5.6-12.1; 95% CI)
Severe Anaemia (<8.0 g/dL)	(1) 0.4 (-0.5-1.3 ; 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.7 g/dL (12.5-12.9 95% CI) [6.1-15.6]

Figure 43: Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2013 to 2015-Batil Camp

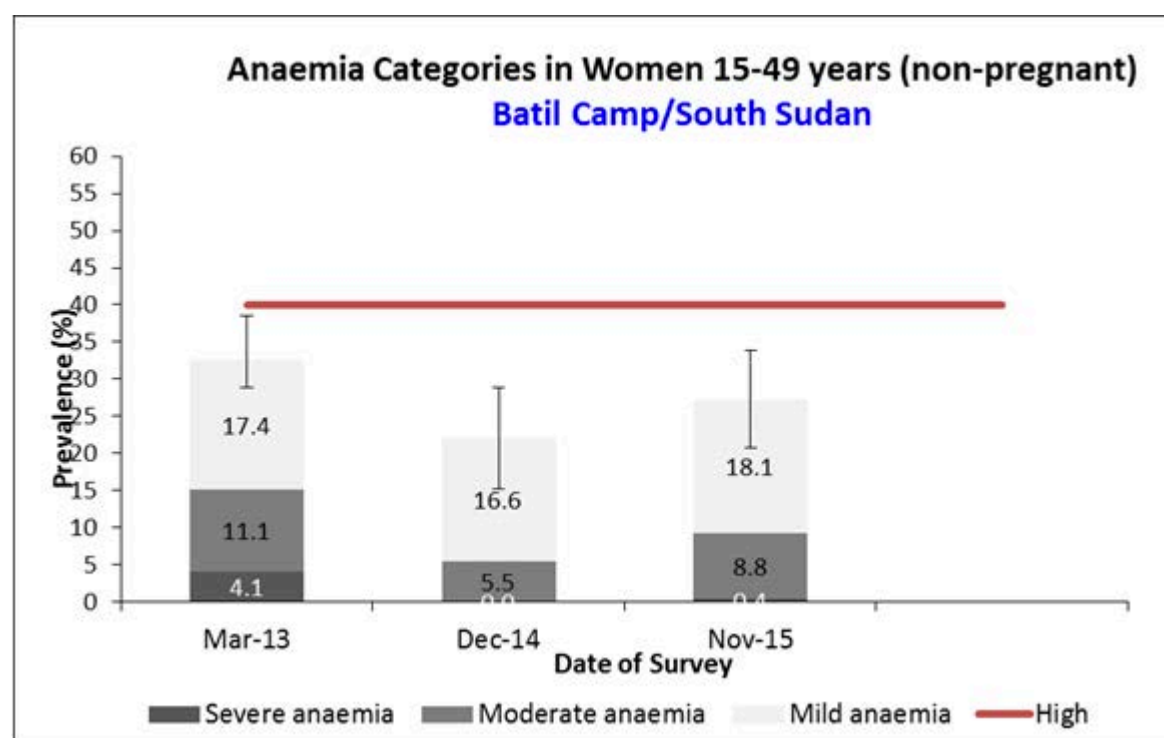


Table 76: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)-Batil Camp

	Number /total	% (95% CI)
Currently enrolled in ANC programme	36/38	85.0 (87.6-100)
Currently receiving iron-folic acid pills	36/38	100 (100-100)

3.13. Water Sanitation and Hygiene (WASH)

Table 77: WASH Sampling Information-Batil Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	493	493	100

Table 78: Water Quality-Batil Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	491/491	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	340/491	69.2 (58.9-79.6)

Table 79: Water Quantity: Amount of Litres of Water Used Per Person per Day-Batil Camp

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	318/510	64.8 (57.4-72.1)
15 – <20 lpppd	70/491	14.3 (10.8-17.7)
<15 lpppd	103/491	21.0 (15.5-26.4)

Add the average water usage in lpppd: _____ 27.9 lpppd _____

Table 80: Satisfaction with Water Supply-Batil Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	427/491	87.0 (79.4-94.5)

Figure 44: Proportion of Households That Say They Are Satisfied With the Water Supply

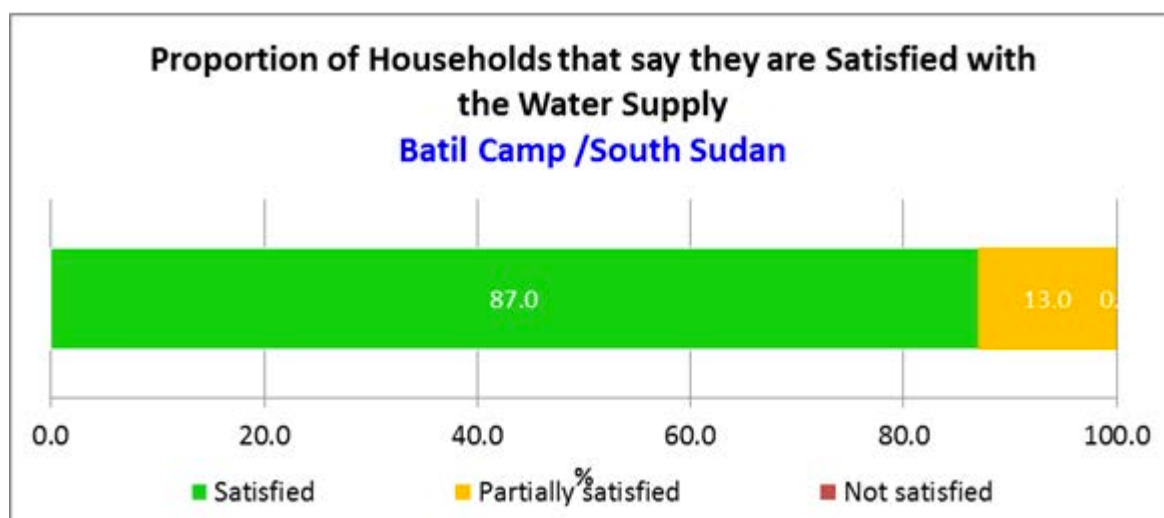


Figure 45: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

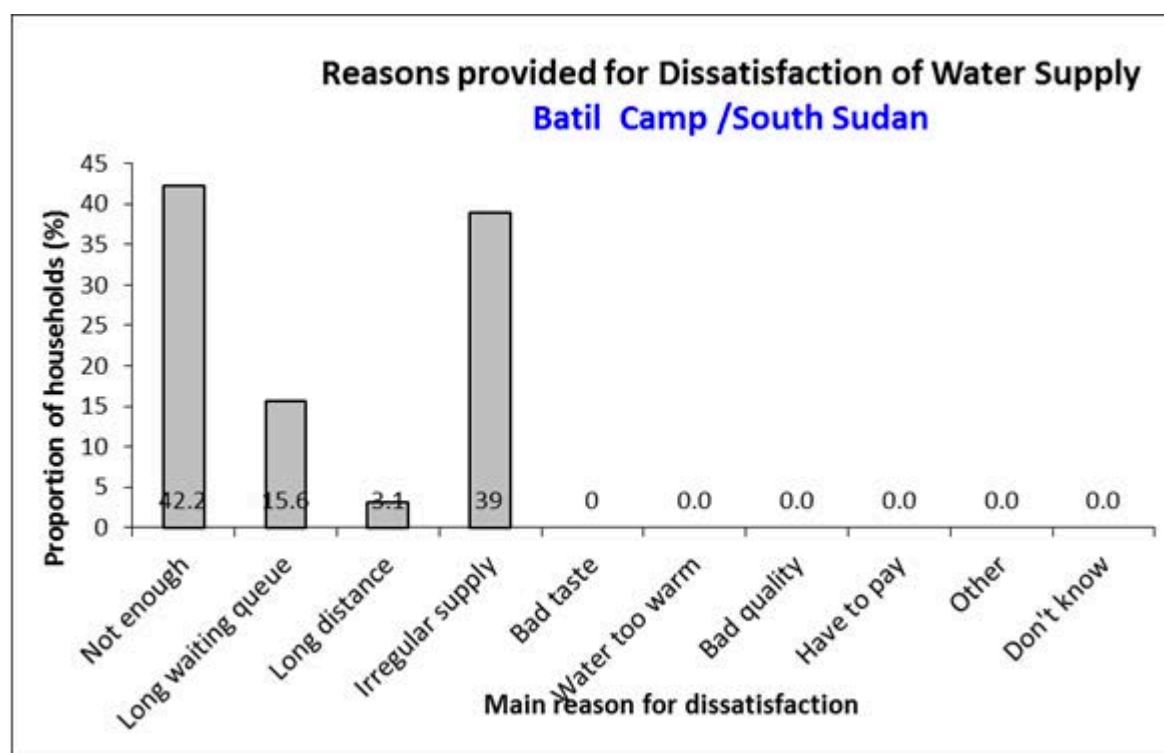


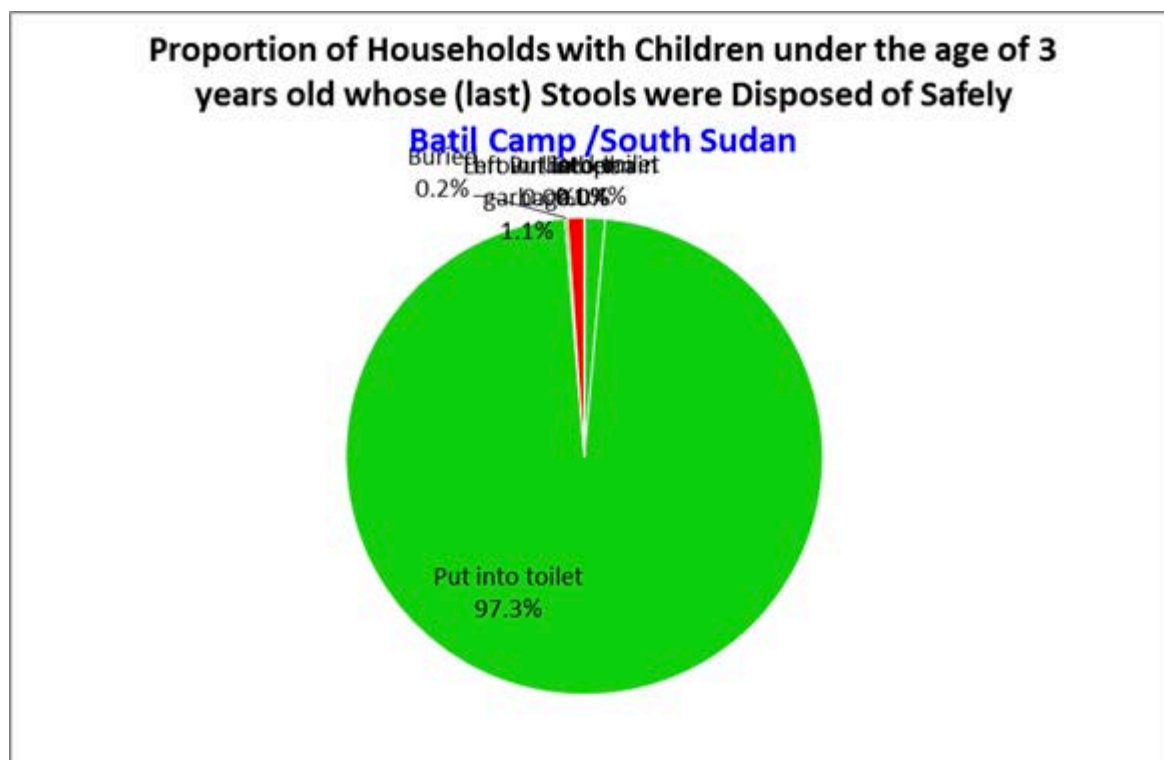
Table 81: safe excreta disposal-Batil Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*, **	154/491	31.4 (24.8-38.0)
A shared family toilet (improved toilet facility, 2 households)**	189/491	38.5 (34.1-42.8)
A communal toilet (improved toilet facility, 3 households or more)	136/491	27.7 (21.3-34.0)
An unimproved toilet (unimproved toilet facility or public toilet)	12/486	2.4 (0.9-4.0)
Proportion of households with children under three years old that dispose of faeces safely	432/437	98.9 (97.7-100.0)

*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 46: Proportion of households with children under the age of 3 Years Whose (Last) Stools Were Disposed Of Safely



3.14. Mosquito Net Coverage

Table 82: Mosquito Net Coverage Sampling Information- Batil Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	247	257	104

Table 83: Household Mosquito Net Ownership- Batil Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	246/257	95.7 (92.4-99.0)
Proportion of total households owning at least one LLIN	229/257	88.3 (81.4-95.2)

Figure 47: Household Ownership of At Least One Mosquito Net (Any Type)

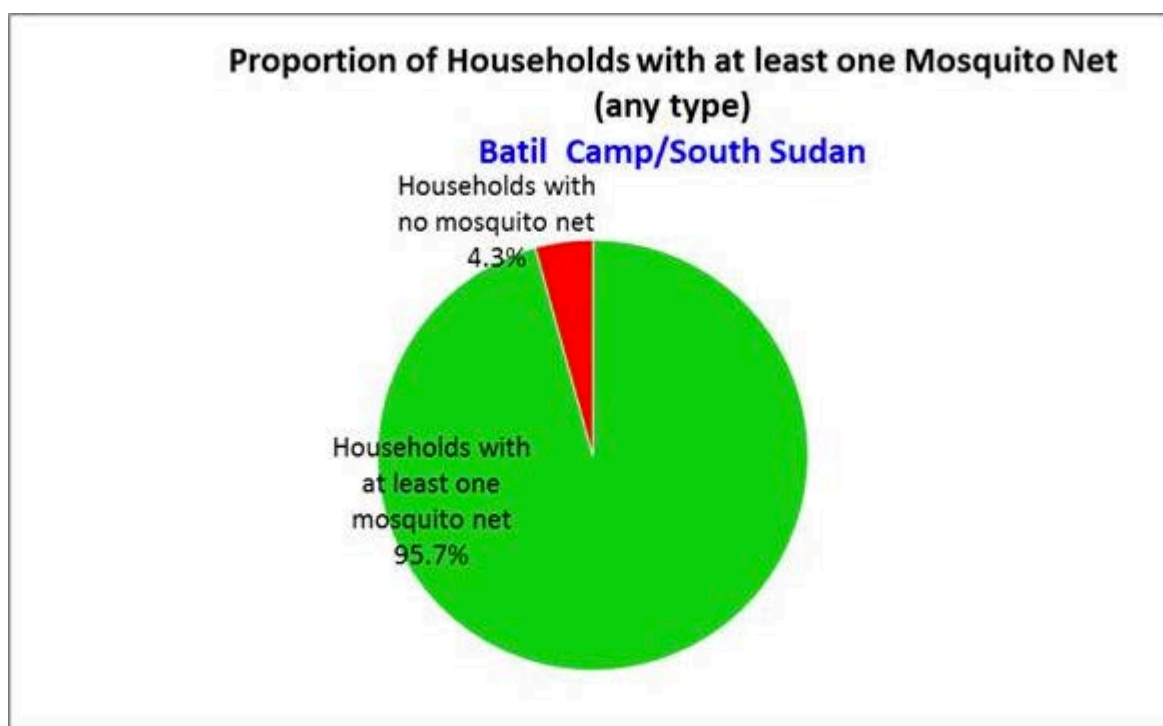


Figure 48: Household Ownership Of At Least One Llin

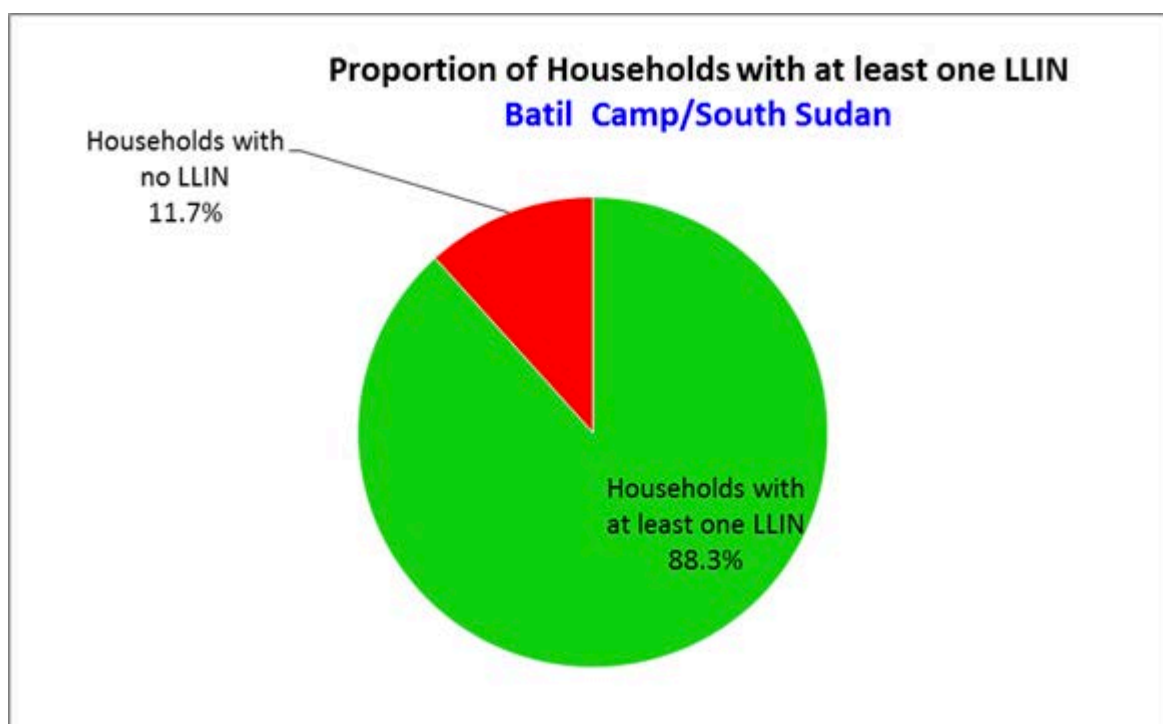


Table 84: Number of Nets-Batil Camp

Average number of LLINs per household	Average number of persons per LLIN
2.0	2.9

Table 85: Mosquito Net Utilization- Batil Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1454	%	Total No= 373	%	Total No= 39	%
Slept under net of any type	1267	87.1	365	97.8	33	84.6
Slept under LLIN	1152	79.2	344	92.2	31	79.5

Figure 49: Mosquito Net Utilization by Sub-Group

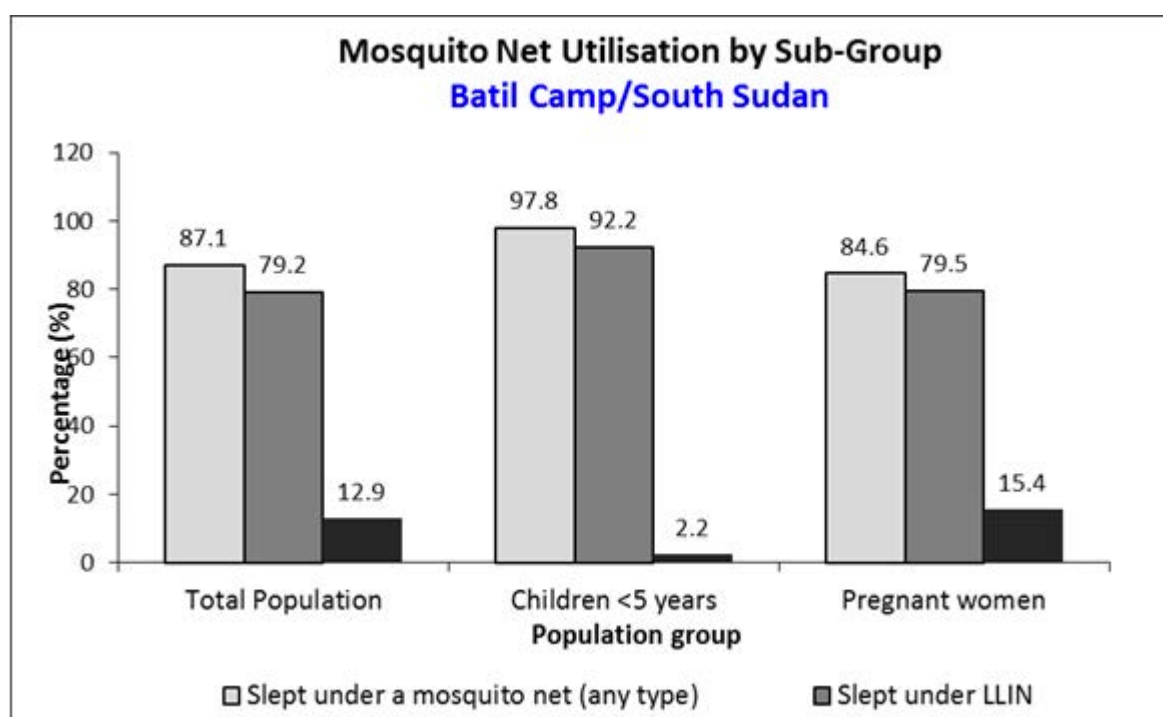


Table 86: Indoor Residual Spraying -Batil Camp.

	Number/total	% (95% CI)
Proportion of total households with Indoor Residual Spraying (IRS)	255/257	99.2 (98.1-100.3)

Gendrassa Camp

The demographic characteristics are illustrated in table 12 below. It will be noticed that the number of under 5 survey is much higher than anticipated and there was no non response observed.

Table 87: Demographic Characteristics of the Gendrassa Survey Population-Gendrassa Camp

Total households surveyed	508
Total population surveyed	2810
Total U5 surveyed	692
Average household size	5.5
% of U5	24.6

Table 88: Target and Actual Number Captured-Gendrassa Camp

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	384	692	180%
Clusters (where applicable)	32	32	100 %

3.15. Anthropometric results (based on WHO standards 2006)**Table 89:** Distribution of age and sex of sample- Gendrassa Camp

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl
6-17	79	54.5	66	45.5	145	21.0	1.2
18-29	125	55.8	99	44.2	224	32.4	1.3
30-41	60	50.8	58	49.2	118	17.1	1.0
42-53	93	52.5	84	47.5	177	25.6	1.1
54-59	11	40.7	16	59.3	27	3.9	0.7
Total	368	53.3	323	46.7	691	100.0	1.1

Table 90: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Gendrassa Camp

	All n = 679	Boys n = 360	Girls n = 319
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(62) 9.1 % (7.0 - 11.8 95% C.I.)	(39) 10.8 % (8.1 - 14.4 95% C.I.)	(23) 7.2 % (4.7 - 10.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(48) 7.1 % (5.3 - 9.3 95% C.I.)	(32) 8.9 % (6.2 - 12.5 95% C.I.)	(16) 5.0 % (3.1 - 8.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(14) 2.1 % (1.2 - 3.5 95% C.I.)	(7) 1.9 % (0.9 - 4.3 95% C.I.)	(7) 2.2 % (1.1 - 4.3 95% C.I.)

The prevalence of oedema is 0.0 %

Figure 50: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards in Children 6-59 Months from 2013 to 2015 – Gendrassa Camp

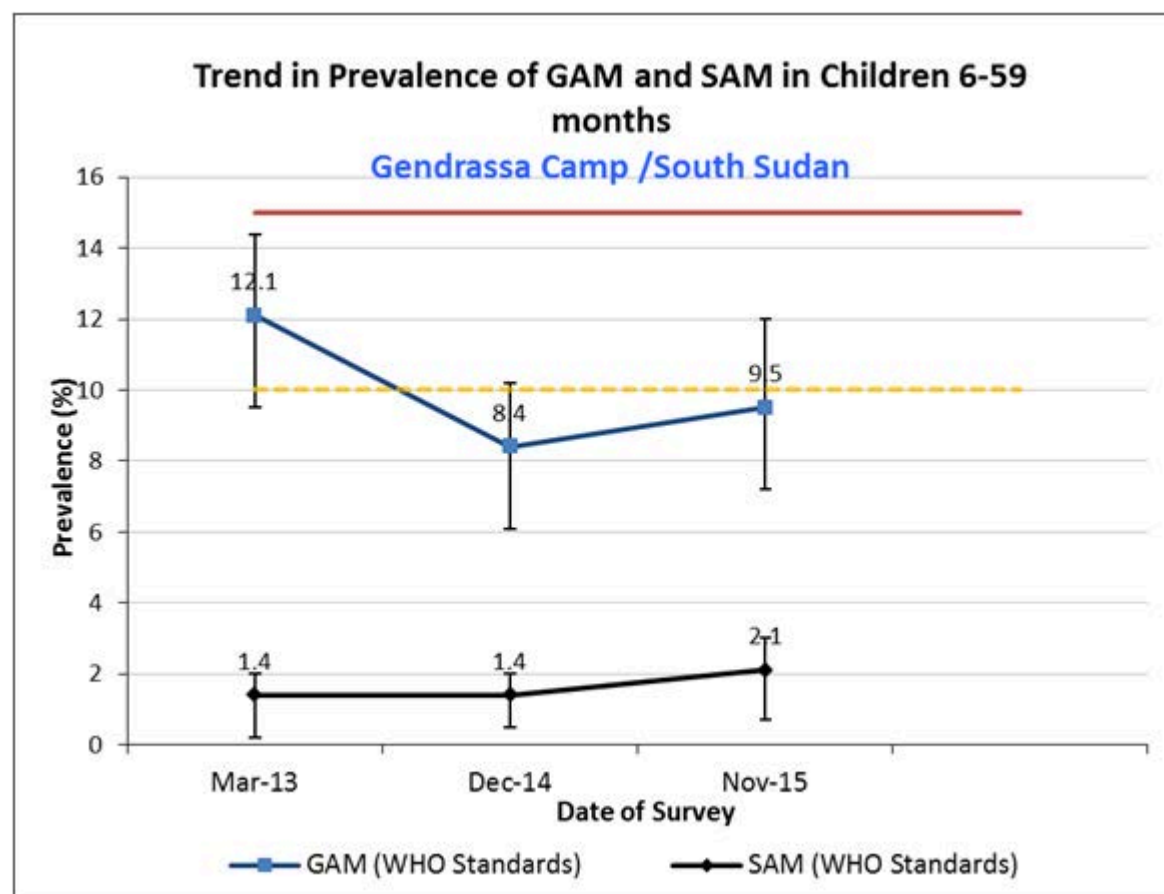


Table 91: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema-Gendrassa Camp

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	139	2	1.4	12	8.6	125	89.9	0	0.0
18-29	222	3	1.4	15	6.8	204	91.9	0	0.0
30-41	117	3	2.6	4	3.4	110	94.0	0	0.0
42-53	175	5	2.9	15	8.6	155	88.6	0	0.0
54-59	26	1	3.8	2	7.7	23	88.5	0	0.0
Total	679	14	2.1	48	7.1	617	90.9	0	0.0

Figure 51: Trend in the Prevalence of Wasting By Age in Children 6-59 Months

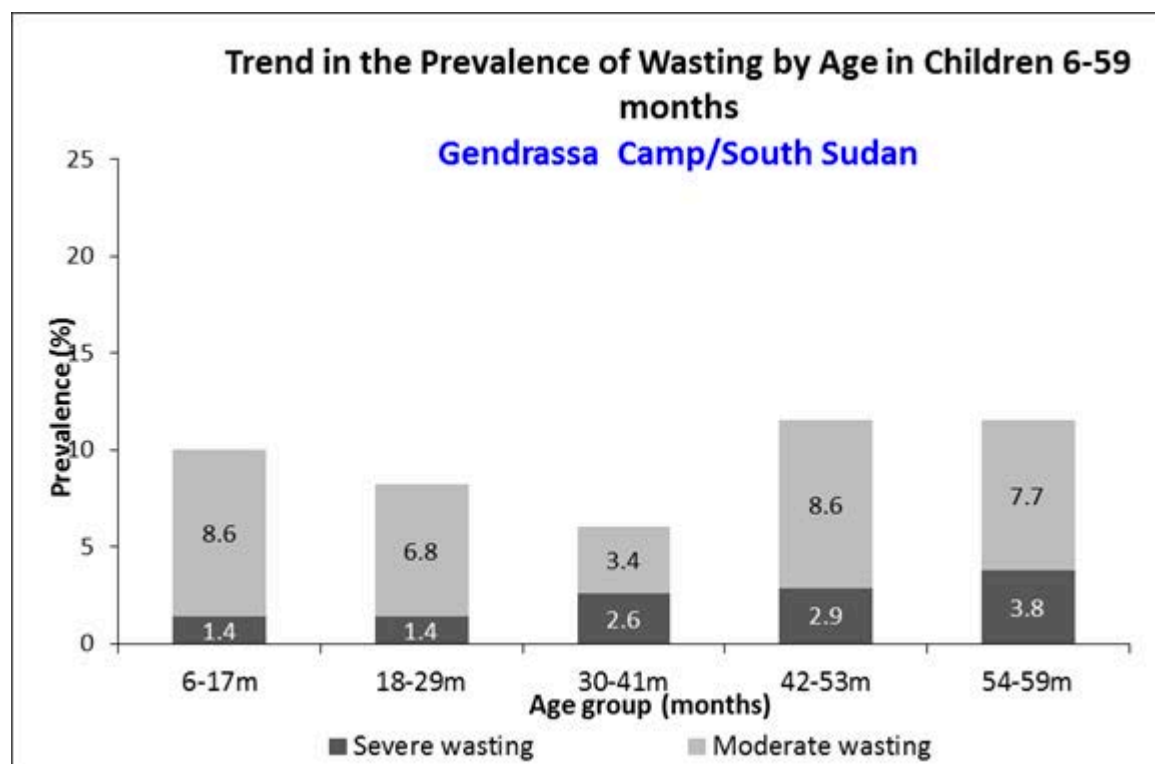


Table 92: Distribution of acute malnutrition and oedema based on weight-for-height z-scores-Gendrassa Camp

	<-3 z-score	>= -3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 14 (2.0 %)	Not severely malnourished No. 669 (98.0 %)

Figure 52: 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

The Figure below shows that the distribution for weight-for-height z-scores for the survey sample is shifted to the left, illustrating a poorer status than the international WHO Standard population of children aged 6-59 months.

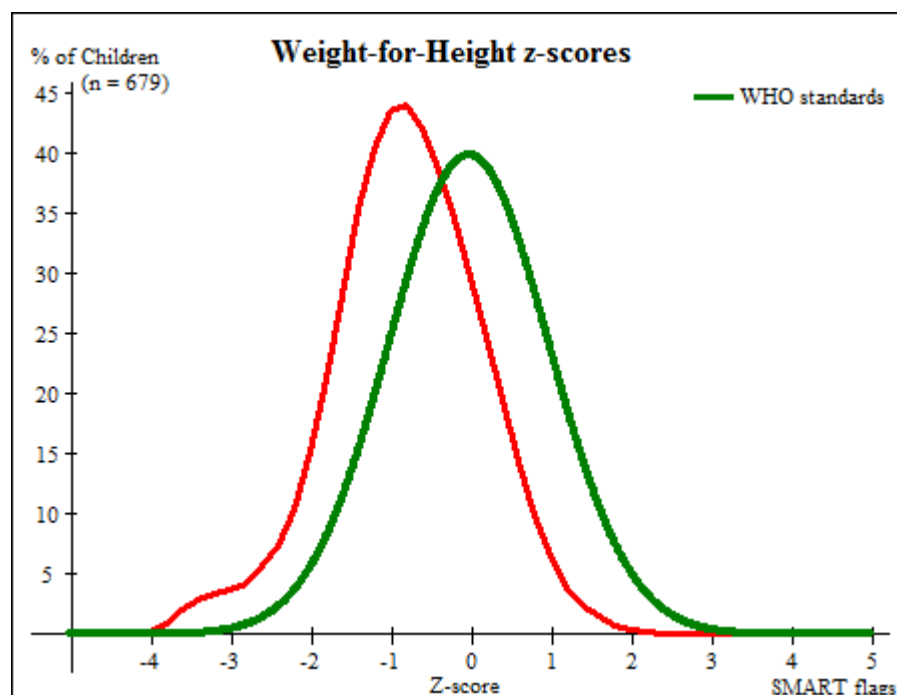


Table 93: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex- Gendrassa Camp

	All n = 688	Boys n = 367	Girls n = 321
Prevalence of global malnutrition (< 125 mm and/or oedema)	(16) 2.3 % (1.4 - 3.8 95% C.I.)	(7) 1.9 % (0.8 - 4.2 95% C.I.)	(9) 2.8 % (1.5 - 5.0 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and ≥ 115 mm, no oedema)	(13) 1.9 % (1.0 - 3.4 95% C.I.)	(5) 1.4 % (0.5 - 3.8 95% C.I.)	(8) 2.5 % (1.3 - 4.7 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(3) 0.4 % (0.1 - 1.4 95% C.I.)	(2) 0.5 % (0.1 - 2.2 95% C.I.)	(1) 0.3 % (0.0 - 2.4 95% C.I.)

Table 94: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema-Gendrassa Camp

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	143	2	1.4	6	4.2	135	94.4	0	0.0
18-29	224	0	0.0	4	1.8	220	98.2	0	0.0
30-41	118	0	0.0	1	0.8	117	99.2	0	0.0
42-53	177	0	0.0	2	1.1	175	98.9	0	0.0
54-59	26	1	3.8	0	0.0	25	96.2	0	0.0
Total	688	3	0.4	13	1.9	672	97.7	0	0.0

Table 95: Prevalence of underweight based on weight-for-age z-scores by sex-Gendrassa Camp

	All n = 683	Boys n = 365	Girls n = 318
Prevalence of underweight (<-2 z-score)	(235) 34.4 % (30.4 - 38.6 95% C.I.)	(135) 37.0 % (31.8 - 42.5 95% C.I.)	(100) 31.4 % (25.7 - 37.8 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(185) 27.1 % (24.2 - 30.2 95% C.I.)	(107) 29.3 % (25.2 - 33.8 95% C.I.)	(78) 24.5 % (19.7 - 30.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(50) 7.3 % (5.5 - 9.7 95% C.I.)	(28) 7.7 % (5.4 - 10.7 95% C.I.)	(22) 6.9 % (4.2 - 11.2 95% C.I.)

Table 96: Prevalence of underweight by age, based on weight-for-age z-scores-Gendrassa Camp

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	138	4	2.9	28	20.3	106	76.8	0	0.0
18-29	224	15	6.7	71	31.7	138	61.6	0	0.0
30-41	118	11	9.3	23	19.5	84	71.2	0	0.0
42-53	177	17	9.6	56	31.6	104	58.8	0	0.0
54-59	26	3	11.5	7	26.9	16	61.5	0	0.0
Total	683	50	7.3	185	27.1	448	65.6	0	0.0

Table 97: Prevalence of stunting based on height-for-age z-scores and by sex-Gendrassa Camp

	All n = 668	Boys n = 354	Girls n = 314
Prevalence of stunting (<-2 z-score)	(319) 47.8 % (43.4 - 52.2 95% C.I.)	(185) 52.3 % (47.4 - 57.1 95% C.I.)	(134) 42.7 % (36.2 - 49.5 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥ -3 z-score)	(205) 30.7 % (28.0 - 33.5 95% C.I.)	(112) 31.6 % (28.0 - 35.5 95% C.I.)	(93) 29.6 % (24.3 - 35.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(114) 17.1 % (13.5 - 21.3 95% C.I.)	(73) 20.6 % (16.5 - 25.4 95% C.I.)	(41) 13.1 % (8.8 - 18.9 95% C.I.)

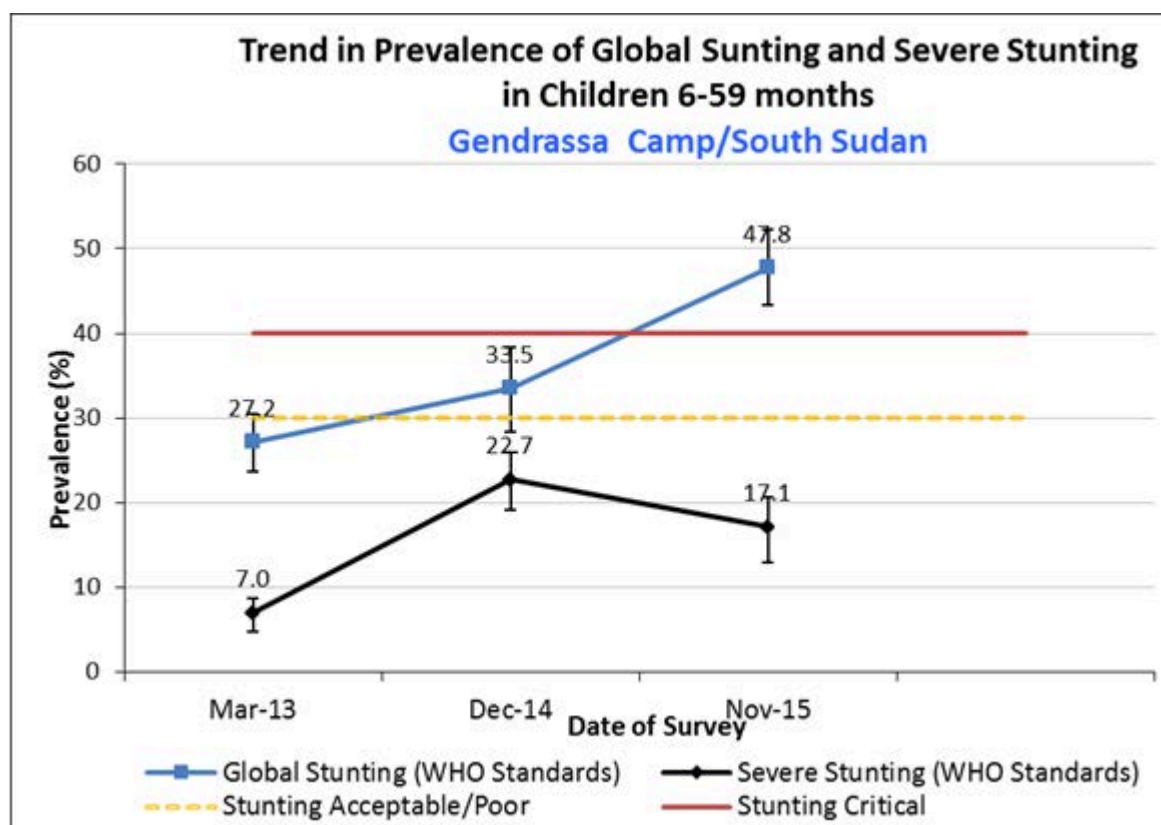
Figure 53: Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards in Children 6-59 Months from 2013 to 2015-Gendrassa Camp


Table 98: Prevalence of stunting by age based on height-for-age z-scores-Gendrassa Camp

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	136	8	5.9	34	25.0	94	69.1
18-29	218	50	22.9	72	33.0	96	44.0
30-41	114	19	16.7	38	33.3	57	50.0
42-53	174	32	18.4	57	32.8	85	48.9
54-59	26	5	19.2	4	15.4	17	65.4
Total	668	114	17.1	205	30.7	349	52.2

Figure 54: Trends in the Prevalence of Stunting By Age in Children 6-59 Months

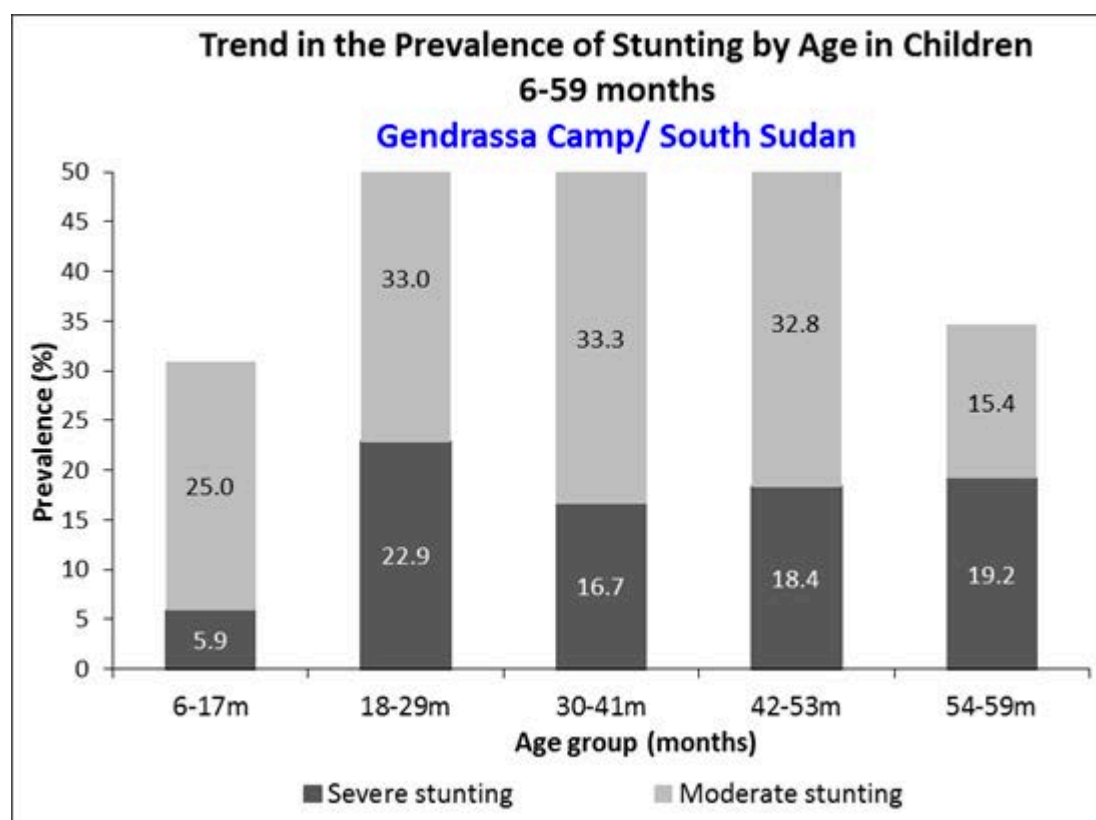


Figure 55: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; the Reference Population Is Shown In Green and the Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

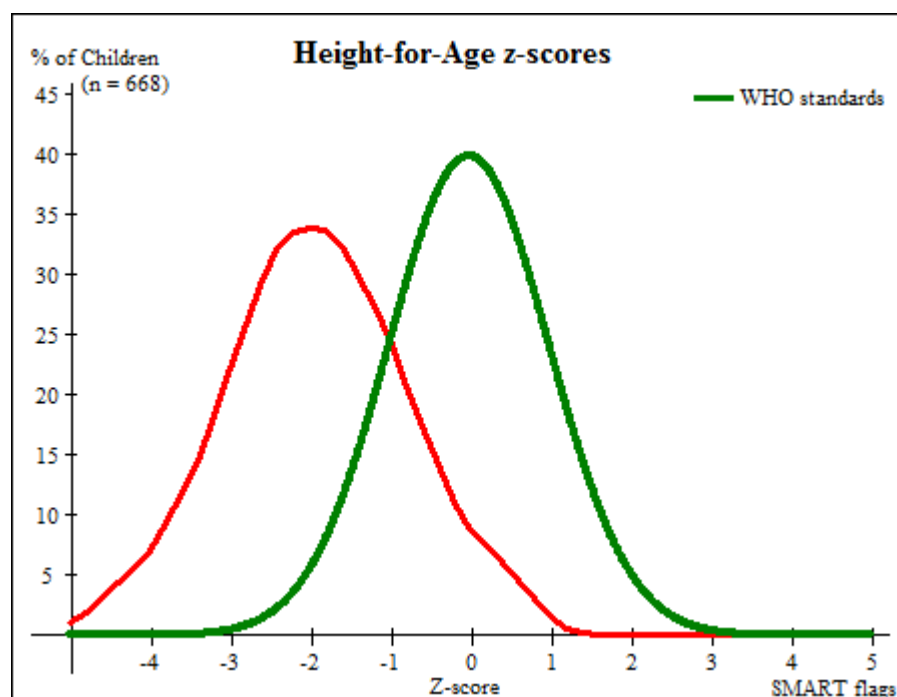


Table 99: Mean z-scores, Design Effects and excluded subjects-Gendrassa Camp

Indicator	n	Mean z-scores \pm SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	679	-0.80 \pm 0.93	1.15	8	4
Weight-for-Age	683	-1.62 \pm 0.96	1.21	4	4
Height-for-Age	668	-1.92 \pm 1.14	1.27	8	15

* contains for WHZ and WAZ the children with edema.

3.16. Health/Feeding programme coverage

Table 100: Programme Coverage for Acutely Malnourished Children Based on MUAC, Oedema and WHZ-Gendrassa camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	7/54	12.9 (3.0-22.9)
Therapeutic feeding programme coverage	1/18	5.6 (-6.7-17.8)

Table 101: Programme coverage for acutely malnourished children based on MUAC and oedema-Gendrassa Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	5/6	38.5(3.4-73.5)
Therapeutic feeding programme coverage	1/3	33.3(-110-176)

Measles vaccination coverage results

Table 102: Measles Vaccination Coverage for Children Aged 9-59 Months (N=646)-Gendrassa Camp

	Measles (with card) n= 280	Measles (with card <u>or</u> confirmation from mother) n= 603
YES	43.3 % (38.8-47.9; 95% CI)	92.0 % (89.0-95.0 95% CI)

Vitamin A supplementation coverage results

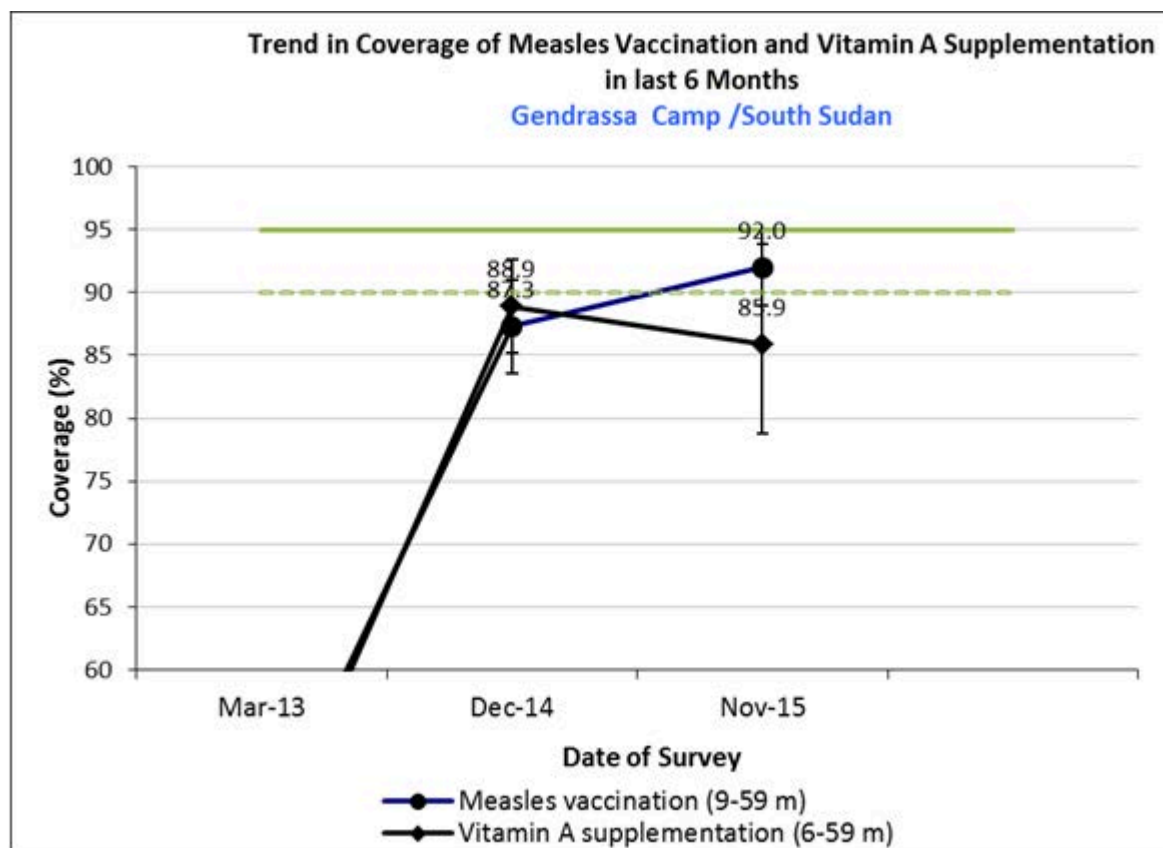
Table 103: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N=851)-Gendrassa Camp

	Vitamin A capsule (with card) n=566	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=777
YES	64.8 % (21.9-45.7; 95% CI)	85.9 % (78.0-93.0 95% CI)

Table 104: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=698)-Gendrassa Camp

	DPT3 / PENTA3 (with card) n=355	DPT3 / PENTA3 (with card <u>or</u> confirmation from mother) n=672
YES	50.9 % (41.3 -60.4; 95% CI)	96.3 % (94.9-97.6; 95% CI)

Figure 56: Trends in the Coverage of Measles Vaccination and Vitamin a Supplementation in Last 6 Months in Children 6-59 Months from 2013 to 2015-Gendrassa Camp



Diarrhoea Results

Table 105: Period Prevalence of Diarrhoea-Gendrassa Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	52/697	7.4 (4.5-10.5)

3.17. Anaemia Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is of high public health significance 55.8 % (50.3 -61.3 95% CI). This is extremely high in Young children of 6 to 23 months with an anaemia prevalence of 65.6% (59.6-71.7 95% CI)

Table 106: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group-Gendrassa Camp

	6-59 months n = 688	6-23 months n=259	24-59 months n=429
Total Anaemia (Hb<11.0 g/dL)	(384) 55.8% (50.3 -61.3 95% CI)	(170) 65.6% (59.6-71.7 95% CI)	(254) 49.9% (42.6 -57.1 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(208) 30.2 % (26.2-34.2 95% CI)	(80) 30.9% (24.7-37.1 95% CI)	(128) 29.9% (24.6-35.0 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(170) 14.7% (20.6-28.8 95% CI)	(88) 34.0 % (25.9-42.0 95% CI)	(82) 19.1% (13.9-24.2 95% CI)
Severe Anaemia (<7.0 g/dL)	(6) 0.9% (1.2-1.5 95% CI)	(2) 0.8 % (0.3-1.8 95% CI)	(4) 0.9 (0.0-1.8 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	11.7 g/dL (10.8-11.0 95% CI) [6.3-15.4]	10.4 g/dL (10.2-10.6 95% CI) [3.0-15.5]	10.9 g/dL (10.7-11.6 95% CI) [6.3-14.2]

Table 107: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Gendrassa Camp

	6-59 months n = 688	6-23 months n= 259	24-59 months n= 255
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(176) 25.6% (21.3-29.9 95% CI)	(90) 34.7% (26.4-45.0 95% CI)	(86) 20.0% (14.7-25.3 95% CI)

Figure 57: Trends in Anaemia Categories in Children 6-59 Months from 2013 to 2015-Gendrassa Camp

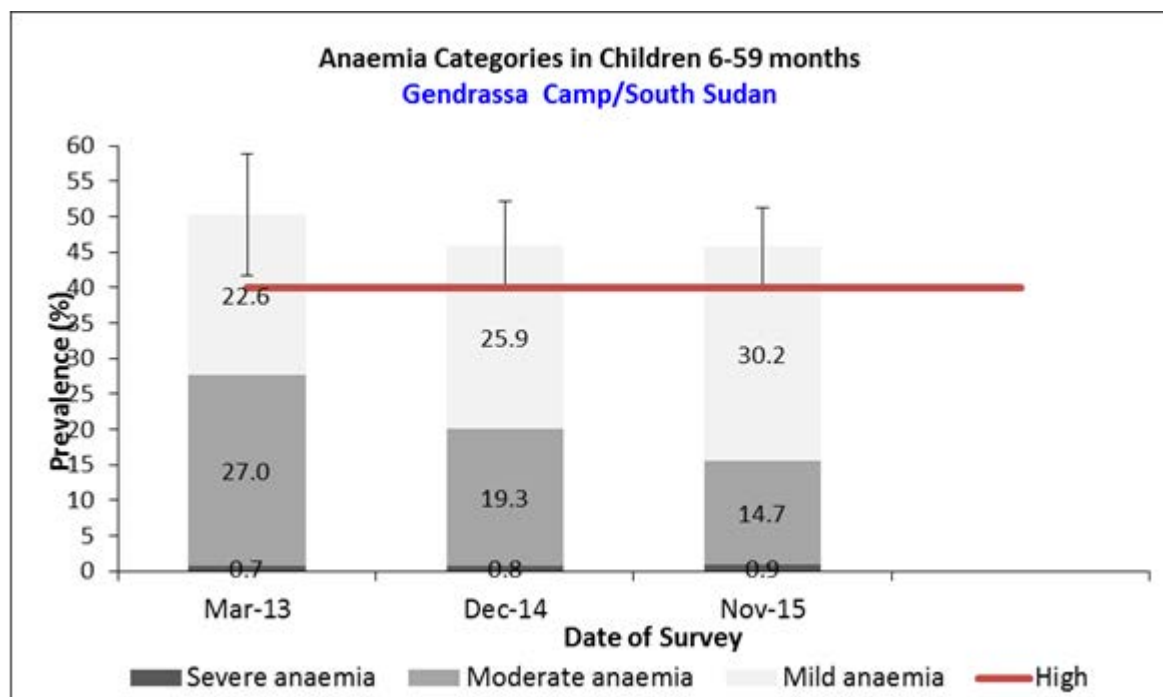


Figure 58: Trend in Total Anaemia (<11 G/Dl), and Moderate and Severe Anaemia (<10 G/Dl) With 95% CI in Children 6-59 Months from 2013 to 2015-Gendrassa Camp

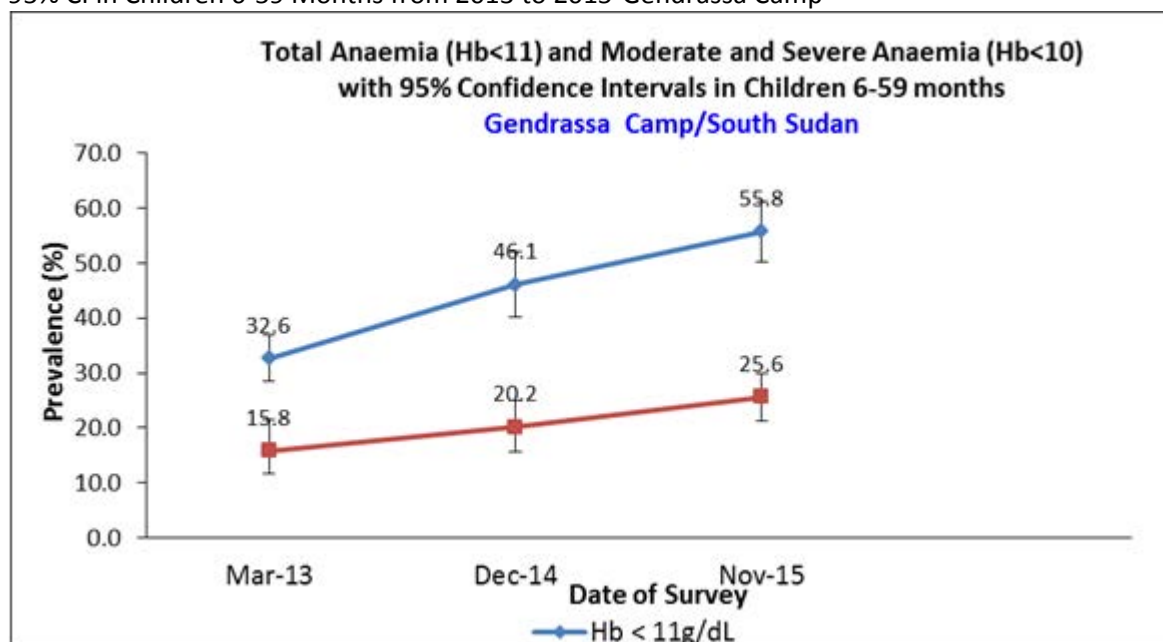
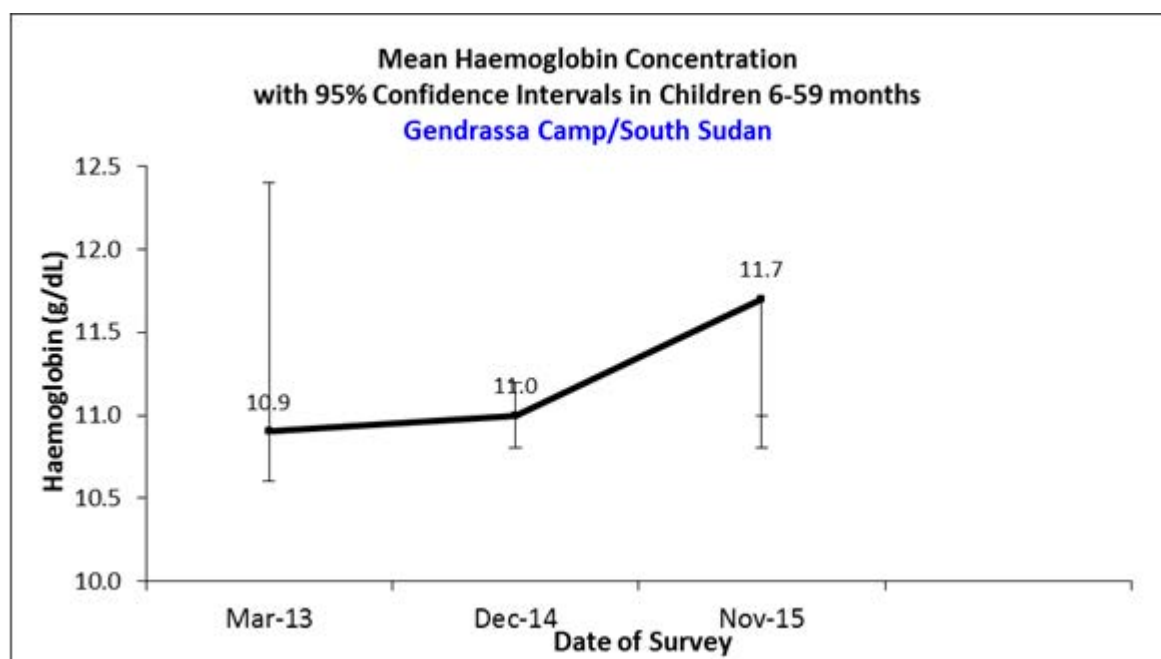


Figure 59: Trend in Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2013 to 2015-Gendrassa Camp

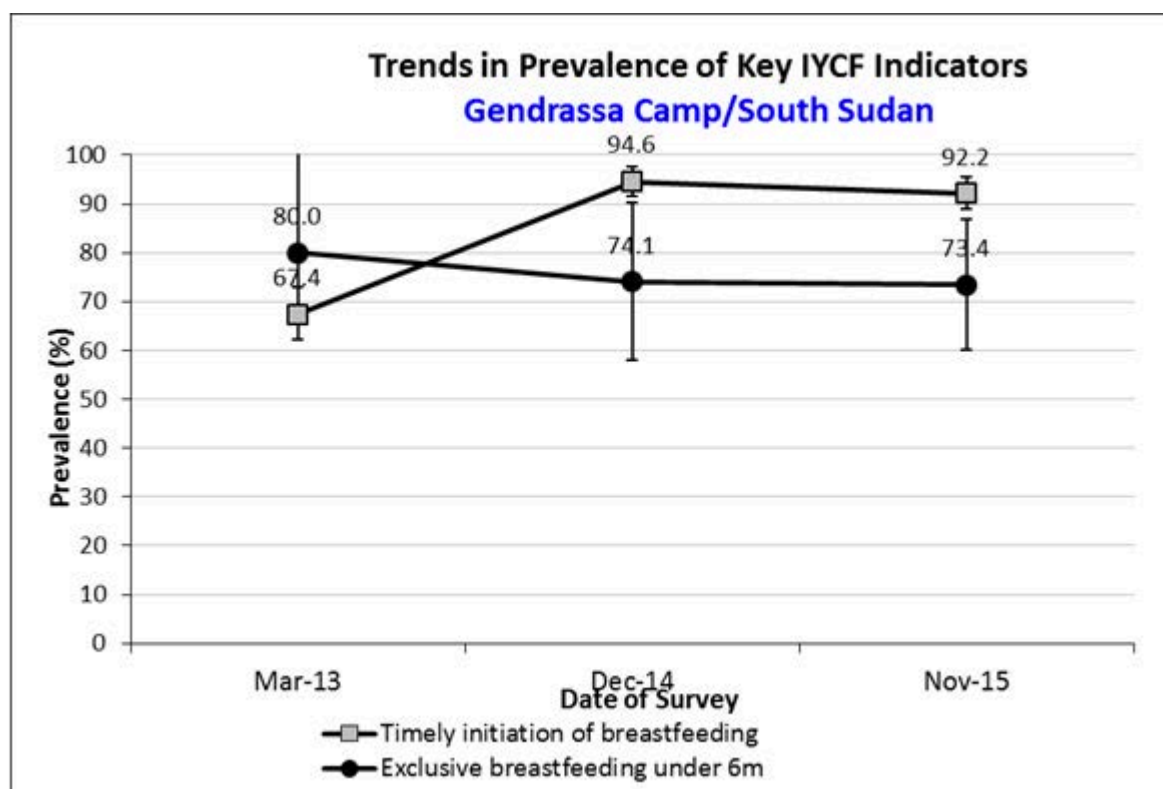


3.18. IYCF Children 0-23 months

Table 108: Prevalence of Infant and Young Child Feeding Practices Indicators-Gendrassa Camp

Indicator	Age range	Number/total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	319/346	92.2	89.0-95.4
Exclusive breastfeeding under 6 months	0-5 months	58/79	73.4	60.0-86.8
Continued breastfeeding at 1 year	12-15 months	35/39	89.7	79.8-99.7
Continued breastfeeding at 2 years	20-23 months	54/68	79.4	69.5-89.3
Introduction of solid, semi-solid or soft foods	6-8 months	4/43	9.3	-1.5-20.9
Consumption of iron-rich or iron-fortified foods	6-23 months	154/266	57.9	47.6-67.1
Bottle feeding	0-23 months	6/346	3.7	-1.3-6.2

Figure 60: Key IYCF Indicators from 2013 to 2015-Gendrassa Camp



Prevalence of intake

Infant formula

Table 109: Infant Formula Intake in Children Aged 0-23 Months-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	14/346	0.7 (0.7-7.3)

Fortified blended foods

Table 110: CSB+ Intake in Children Aged 6-23 Months-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	37/266	13.9 (3.8-24.0)

Table 111: FSB++ Intake in Children Aged 6-23 Months-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	7/266	2.6 (0.2-5.0)

3.19. Anaemia Women 15-49 years

Table 112: Women Physiological Status and Age-Gendrassa Camp

Physiological status	Number/total	% of sample
Non-pregnant	256/287	89.1
Pregnant	30/287	10.4
Don't know	1/287	0.5
Mean age (range)	26.5(15-49)	

Table 113: Prevalence of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years)-Gendrassa Camp

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 253
Total Anaemia (<12.0 g/dL)	(67) 26.5% (19.0-33.9 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(41) 16.2% (11.5-20.9 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(26) 10.3% (5.6-15.0 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0% (0-0 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.7 g/dL (12.5-13.0) [8.3-16.6]

Figure 61: Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2013 to 2015-Gendrassa Camp

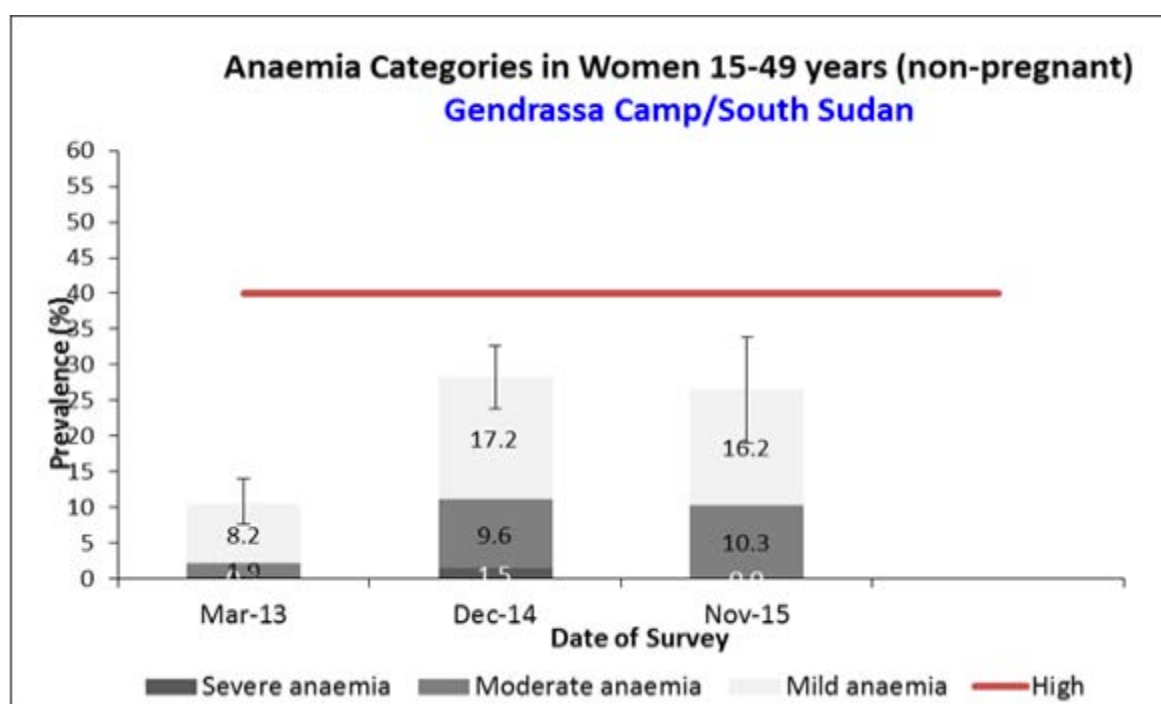


Table 114: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)-Gendrassa Camp

	Number /total	% (95% CI)
Currently enrolled in ANC programme	18/30	60.0 (40.4-79.5)
Currently receiving iron-folic acid pills	18/30	60.0(40.4-79.5)

3.20. Water Sanitation and Hygiene (WASH)

Table 115: WASH Sampling Information-Gendrassa Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	608	572	94.0

Table 116: Water Quality-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	508/508	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	300/505	59.4 (47.2-71.6)

Table 117: Water Quantity: Amount of Litres of Water Used Per Person per Day-Gendrassa Camp

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	149/508	29.3 (21.5-37.1)
15 – <20 lpppd	114/508	22.4 (17.1-27.8)
<15 lpppd	245/508	48.2 (39.0-57.4)

Add the average water usage in lpppd: _____ 16.0 lpppd _____

Table 118: Satisfaction with Water Supply-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	430/508	84.6 (76.9-92.4)

Figure 62: Proportion of Households That Say They Are Satisfied With the Water Supply

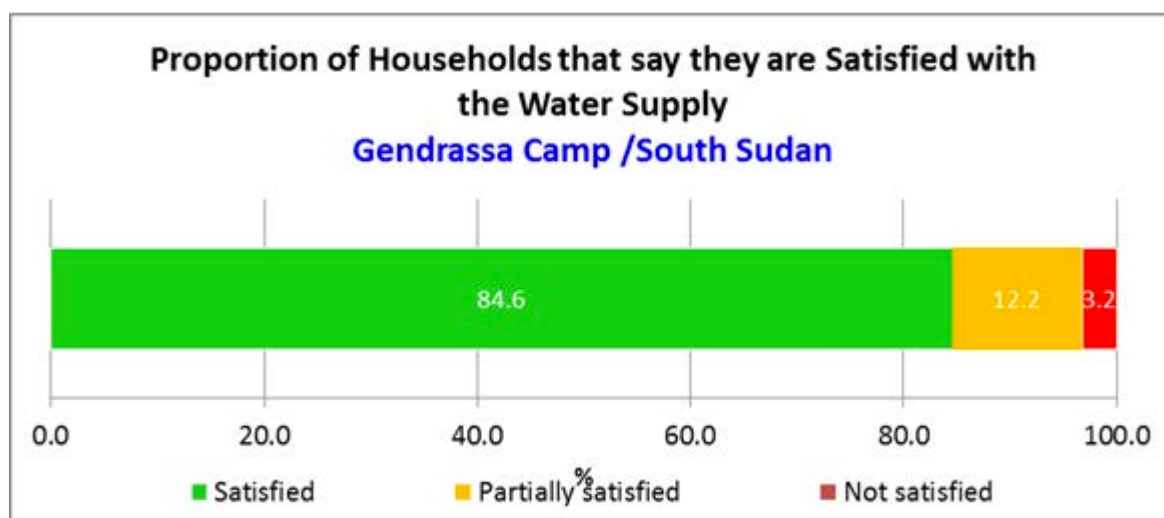


Figure 63: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

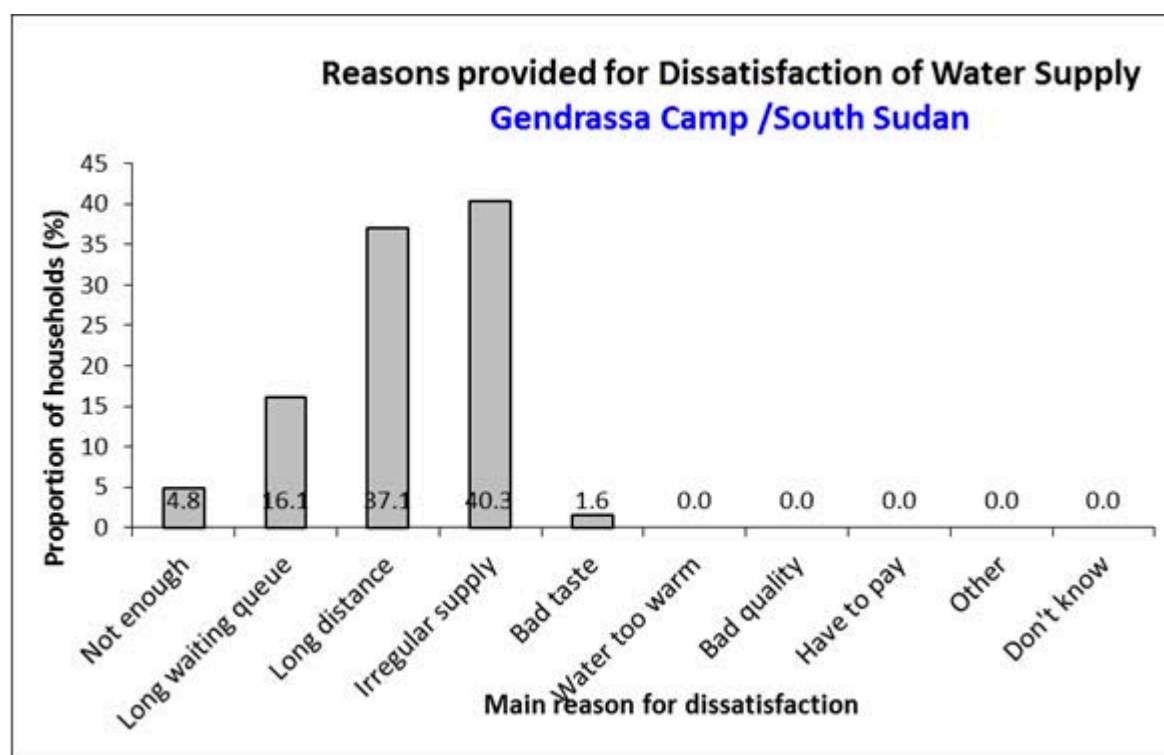


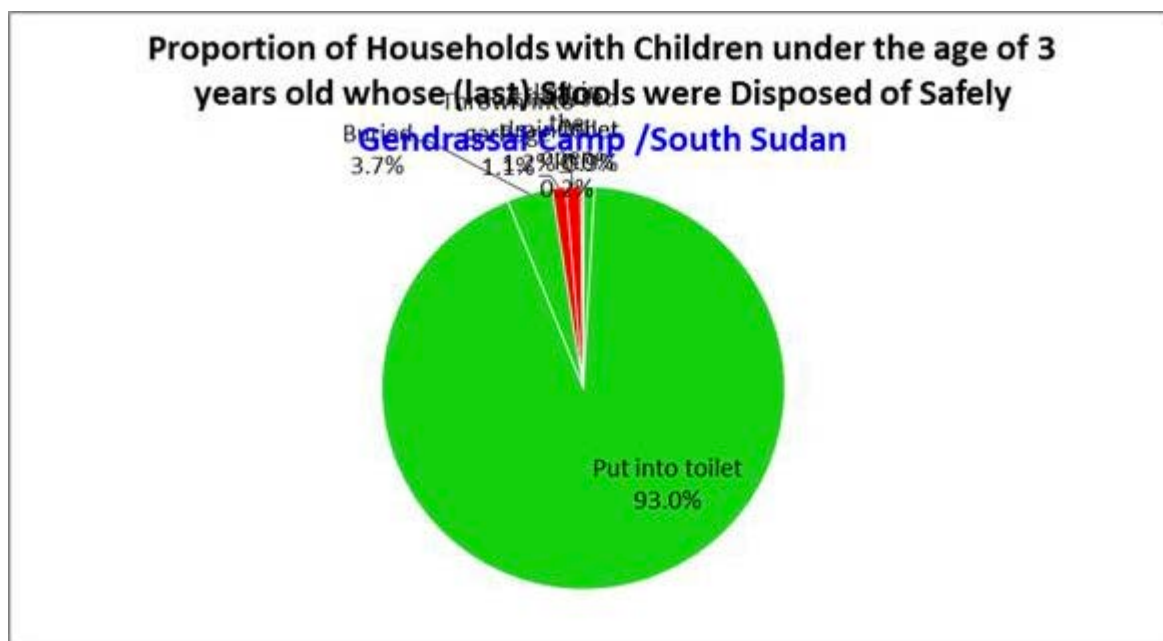
Table 119: Safe excreta disposal-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*, **	319/488	65.4 (55.5-75.2)
A shared family toilet (improved toilet facility, 2 households)**	86/488	17.6 (12.5-22.7)
A communal toilet (improved toilet facility, 3 households or more)	58/488	11.9 (5.7-18.1)
An unimproved toilet (unimproved toilet facility or public toilet)	25/488	5.1 (-1.7-11.9)
Proportion of households with children under three years old that dispose of faeces safely	425/431	98.6 (95.8-101.4)

*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 64: Proportion of Households with Children under the Age of 3 Years Whose (Last) Stools Were Disposed Of Safely



3.21. Mosquito Net Coverage

Table 120: Mosquito Net Coverage Sampling Information-Gendrassa Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	269	256	95.1%

Table 121: Household Mosquito Net Ownership-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	223/256	87.1 (79.1-95.1)
Proportion of total households owning at least one LLIN	219	85.5 (77.8-93.3)

Figure 65: Household Ownership of At Least One Mosquito Net (Any Type)

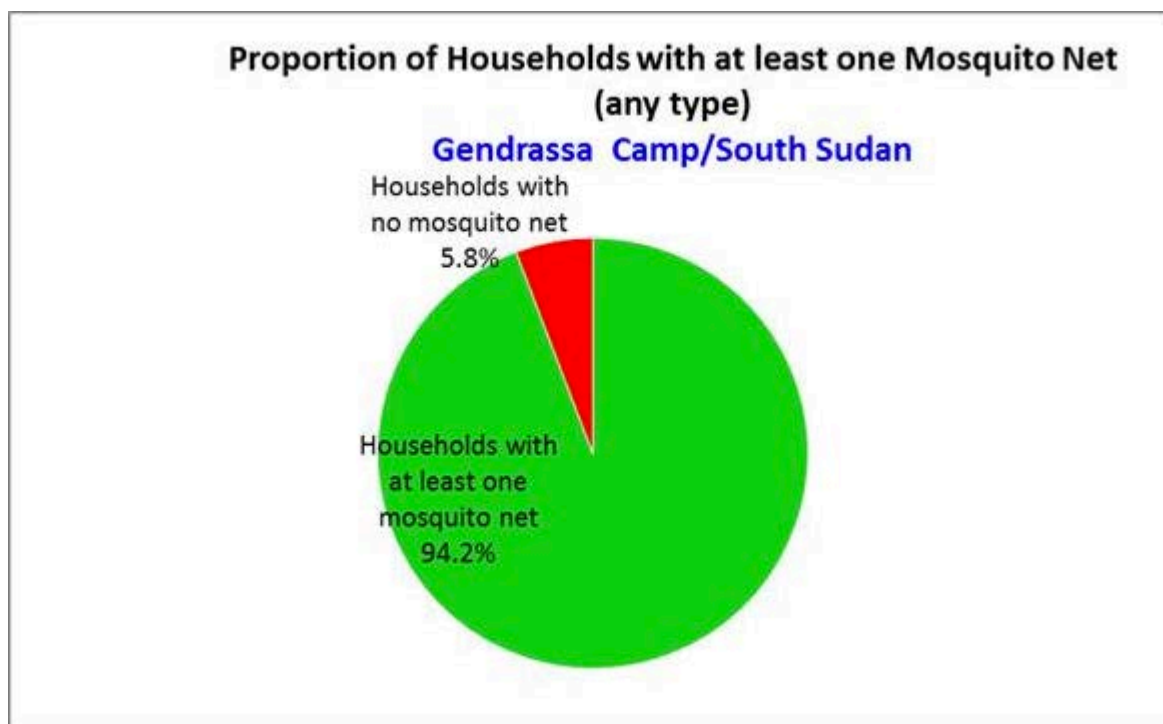


Figure 66: Household Ownership Of At Least One LLIN

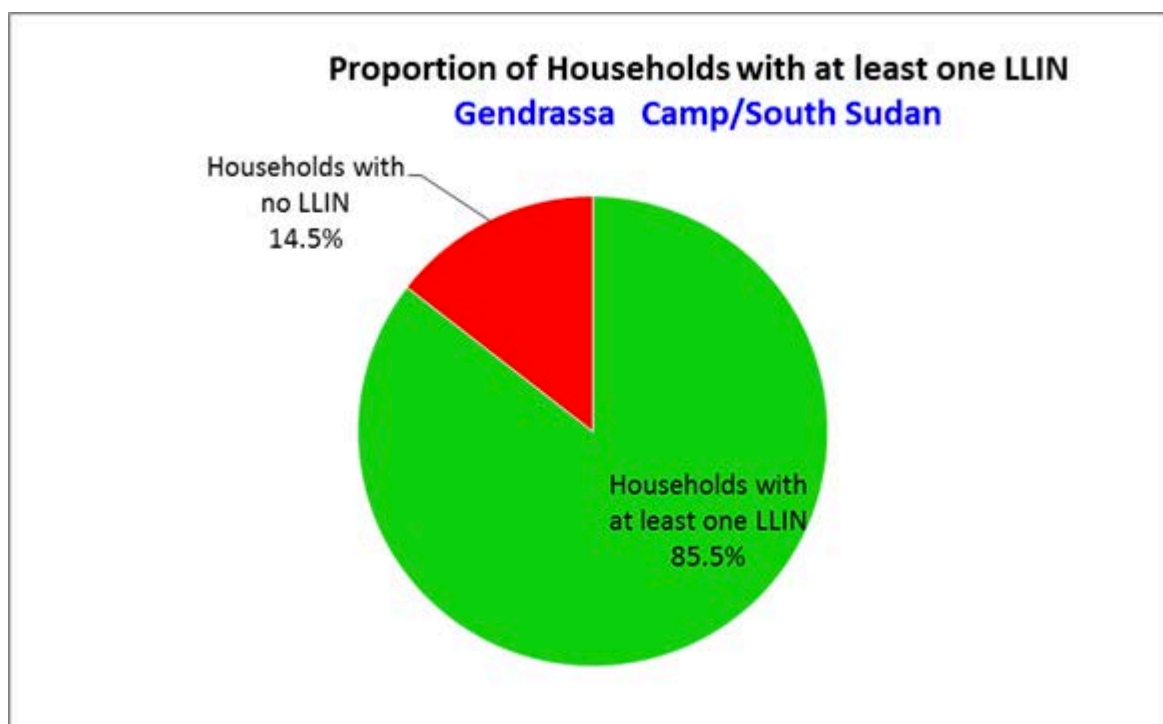


Table 122: Number of Nets-Gendrassa Camp

Average number of LLINs per household	Average number of persons per LLIN
2.4	2.9

Table 123: Mosquito Net Utilisation-Gendrassa Camp.

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1563	%	Total No= 682	%	Total No= 35	%
Slept under net of any type	1090	69.7	333	87.2	28	80
Slept under LLIN	1090	69.7	333	87.2	28	80

Figure 67: Mosquito Net Utilization by Sub-Group

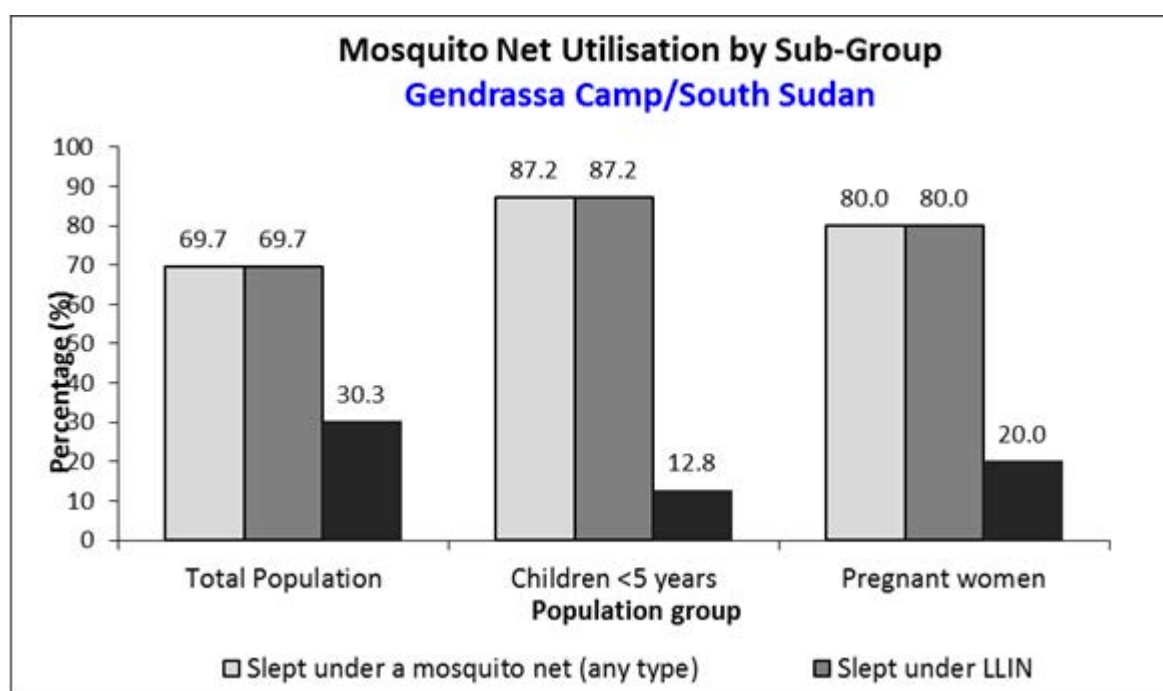


Table 124: Indoor Residual Spraying -Gendrassa Camp.

	Number/total	% (95% CI)
Proportion of total households with Indoor Residual Spraying (IRS)	250/256	97.7 (95.2-100.0)

Kaya Camp

The demographic characteristics are illustrated in table 12 below. It will be noticed that the number of under 5 survey is much higher than anticipated and there was no non response observed.

Table 125: Demographic Characteristics of the Kaya Survey Population-Kaya Camp

Total households surveyed	504
Total population surveyed	3127
Total U5 surveyed	692
Average household size	6.2
% of U5	22.1

Table 126: Target and Actual Number Captured-Kaya Camp

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	351	692	197.1%
Clusters (where applicable)	39	37	94.8 %

3.22. Anthropometric results (based on WHO standards 2006)**Table 127:** Distribution of age and sex of sample-Kaya Camp

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl
6-17	98	55.7	78	44.3	176	25.7	1.3
18-29	94	57.3	70	42.7	164	23.9	1.3
30-41	70	50.4	69	49.6	139	20.3	1.0
42-53	85	50.9	82	49.1	167	24.4	1.0
54-59	17	43.6	22	56.4	39	5.7	0.8
Total	364	53.1	321	46.9	685	100.0	1.1

Table 128: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Kaya Camp

	All n = 669	Boys n = 358	Girls n = 311
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(76) 11.4 % (9.2 - 13.9 95% C.I.)	(47) 13.1 % (10.0 - 17.0 95% C.I.)	(29) 9.3 % (7.1 - 12.1 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(68) 10.2 % (8.0 - 12.8 95% C.I.)	(43) 12.0 % (9.0 - 15.9 95% C.I.)	(25) 8.0 % (5.8 - 11.0 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(8) 1.2 % (0.6 - 2.4 95% C.I.)	(4) 1.1 % (0.3 - 3.7 95% C.I.)	(4) 1.3 % (0.5 - 3.3 95% C.I.)

The prevalence of oedema is 0.1 %

Figure 68: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards in Children 6-59 Months from 2013 to 2015 – Kaya Camp

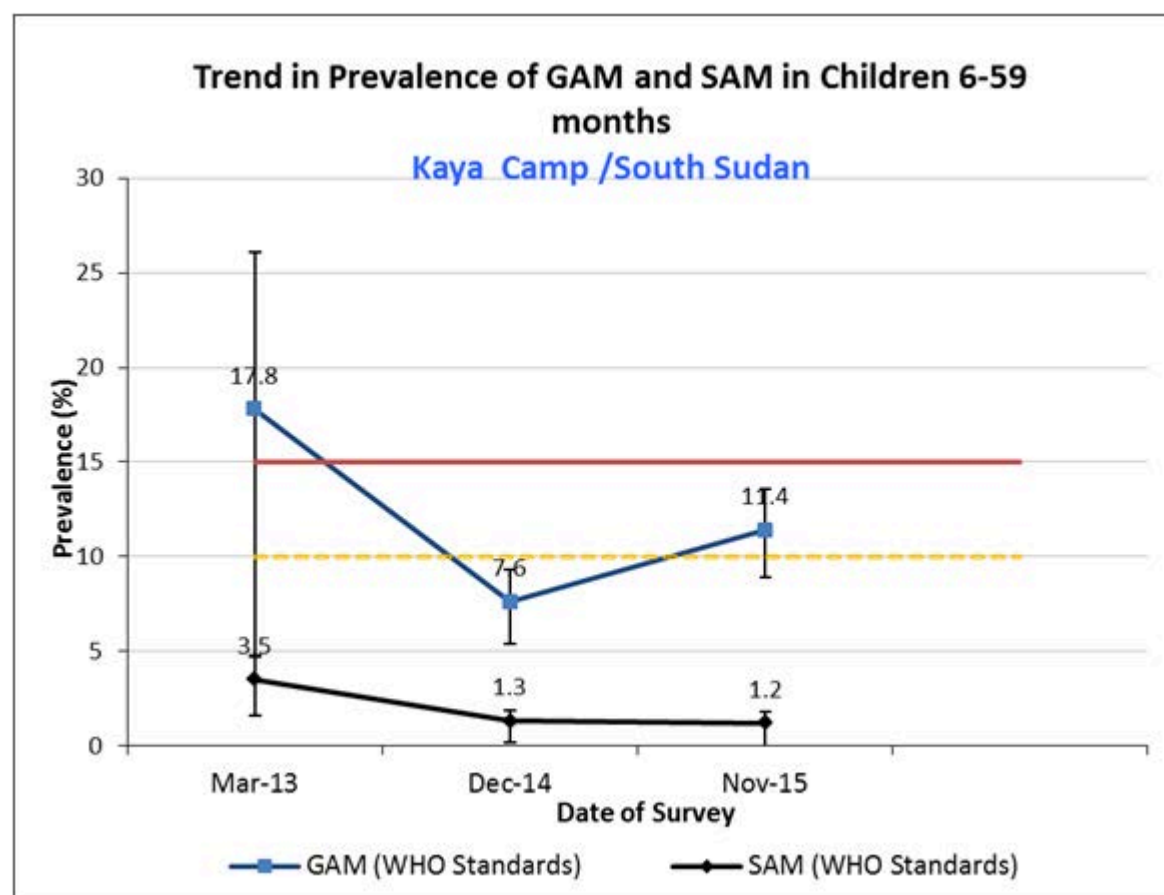
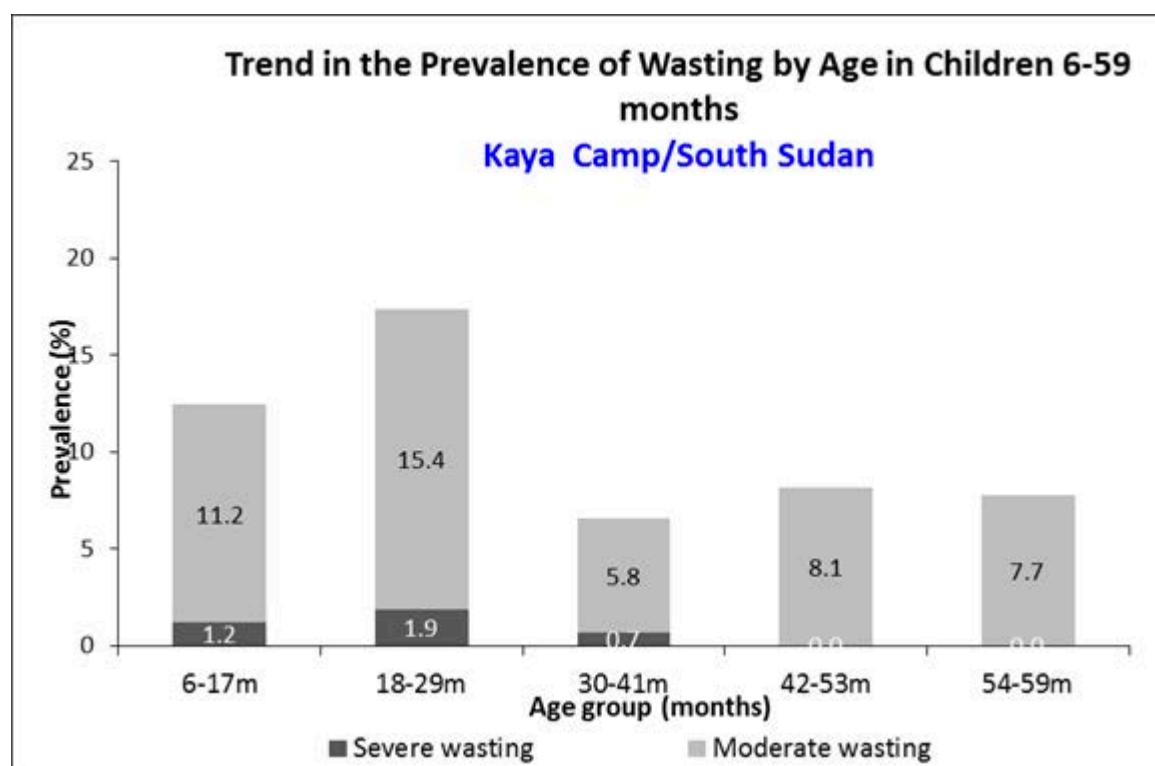


Table 129: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema-Kaya Camp

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	170	2	1.2	19	11.2	148	87.1	1	0.6
18-29	162	3	1.9	25	15.4	134	82.7	0	0.0
30-41	138	1	0.7	8	5.8	129	93.5	0	0.0
42-53	160	0	0.0	13	8.1	146	91.3	1	0.6
54-59	39	0	0.0	3	7.7	36	92.3	0	0.0
Total	669	6	0.9	68	10.2	593	88.6	2	0.3

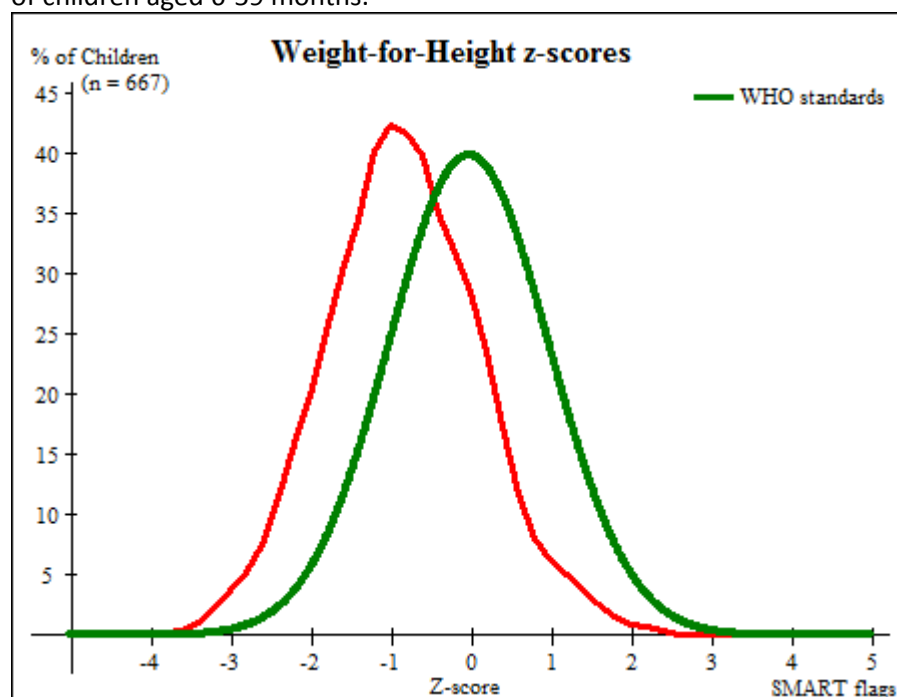
Figure 69: Trend in the Prevalence of Wasting By Age in Children 6-59 Months**Table 130:** Distribution of acute malnutrition and oedema based on weight-for-height z-scores-Kaya Camp

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 2 (0.3 %)
Oedema absent	Marasmic No. 11 (1.6 %)	Not severely malnourished No. 668 (98.1 %)

Figure 70: 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

The Figure below shows that the distribution for weight-for-height z-scores for the survey sample is shifted to the left, illustrating a poorer status than the international WHO Standard population of children aged 6-59 months.

**Table 131:** Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Kaya Camp

	All n = 683	Boys n = 364	Girls n = 319
Prevalence of global malnutrition (< 125 mm and/or oedema)	(22) 3.2 % (2.2 - 4.8 95% C.I.)	(8) 2.2 % (1.2 - 4.0 95% C.I.)	(14) 4.4 % (2.5 - 7.5 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(19) 2.8 % (1.8 - 4.4 95% C.I.)	(8) 2.2 % (1.2 - 4.0 95% C.I.)	(11) 3.4 % (1.7 - 6.8 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(3) 0.4 % (0.1 - 1.3 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(3) 0.9 % (0.3 - 2.9 95% C.I.)

Table 132: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema-Kaya Camp

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	176	2	1.1	11	6.3	163	92.6	1	0.6
18-29	163	0	0.0	7	4.3	156	95.7	0	0.0
30-41	139	0	0.0	1	0.7	138	99.3	0	0.0
42-53	166	0	0.0	0	0.0	166	100.0	1	0.6
54-59	39	0	0.0	0	0.0	39	100.0	0	0.0
Total	683	2	0.3	19	2.8	662	96.9	2	0.3

Table 133: Prevalence of underweight based on weight-for-age z-scores by sex-Kaya Camp

	All n = 675	Boys n = 361	Girls n = 314
Prevalence of underweight (<-2 z-score)	(292) 43.3 % (38.6 - 48.0 95% C.I.)	(170) 47.1 % (40.6 - 53.7 95% C.I.)	(122) 38.9 % (33.8 - 44.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(205) 30.4 % (27.2 - 33.7 95% C.I.)	(121) 33.5 % (29.1 - 38.3 95% C.I.)	(84) 26.8 % (22.6 - 31.3 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(87) 12.9 % (9.9 - 16.6 95% C.I.)	(49) 13.6 % (9.0 - 20.0 95% C.I.)	(38) 12.1 % (8.6 - 16.8 95% C.I.)

Table 134: Prevalence of underweight by age, based on weight-for-age z-scores-Kaya Camp

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	173	10	5.8	41	23.7	122	70.5	1	0.6
18-29	162	24	14.8	60	37.0	78	48.1	0	0.0
30-41	138	27	19.6	39	28.3	72	52.2	0	0.0
42-53	163	21	12.9	58	35.6	84	51.5	1	0.6
54-59	39	5	12.8	7	17.9	27	69.2	0	0.0
Total	675	87	12.9	205	30.4	383	56.7	2	0.3

Table 135: Prevalence of stunting based on height-for-age z-scores and by sex-Kaya Camp

	All n = 650	Boys n = 348	Girls n = 302
Prevalence of stunting (<-2 z-score)	(375) 57.7 % (53.1 - 62.1 95% C.I.)	(216) 62.1 % (55.7 - 68.0 95% C.I.)	(159) 52.6 % (46.9 - 58.3 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥ -3 z-score)	(201) 30.9 % (28.0 - 34.0 95% C.I.)	(117) 33.6 % (29.3 - 38.2 95% C.I.)	(84) 27.8 % (23.8 - 32.2 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(174) 26.8 % (22.7 - 31.3 95% C.I.)	(99) 28.4 % (22.1 - 35.8 95% C.I.)	(75) 24.8 % (20.4 - 29.9 95% C.I.)

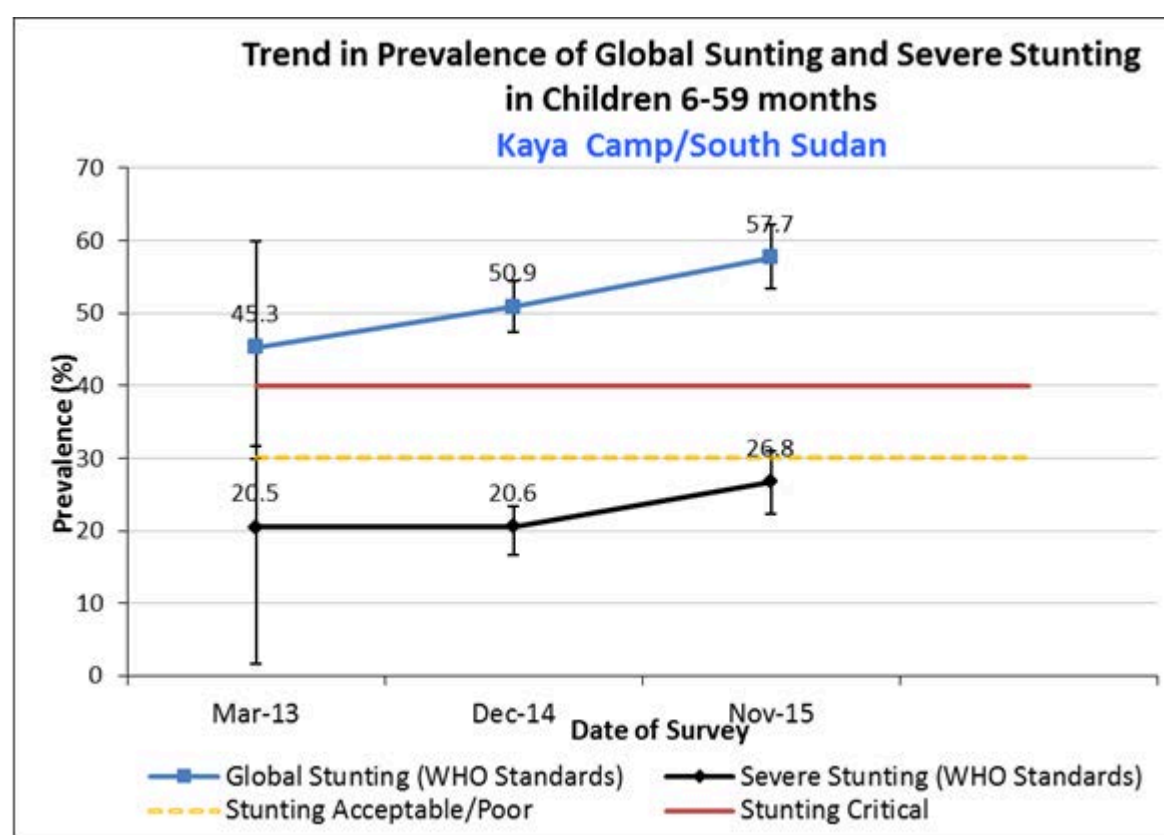
Figure 71: Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards in Children 6-59 Months from 2013 to 2015- Kaya Camp


Table 136: Prevalence of stunting by age based on height-for-age z-scores-Kaya camp

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	161	19	11.8	43	26.7	99	61.5
18-29	159	50	31.4	61	38.4	48	30.2
30-41	132	44	33.3	39	29.5	49	37.1
42-53	159	50	31.4	49	30.8	60	37.7
54-59	39	11	28.2	9	23.1	19	48.7
Total	650	174	26.8	201	30.9	275	42.3

Figure 72: Trends in the Prevalence of Stunting By Age in Children 6-59 Months

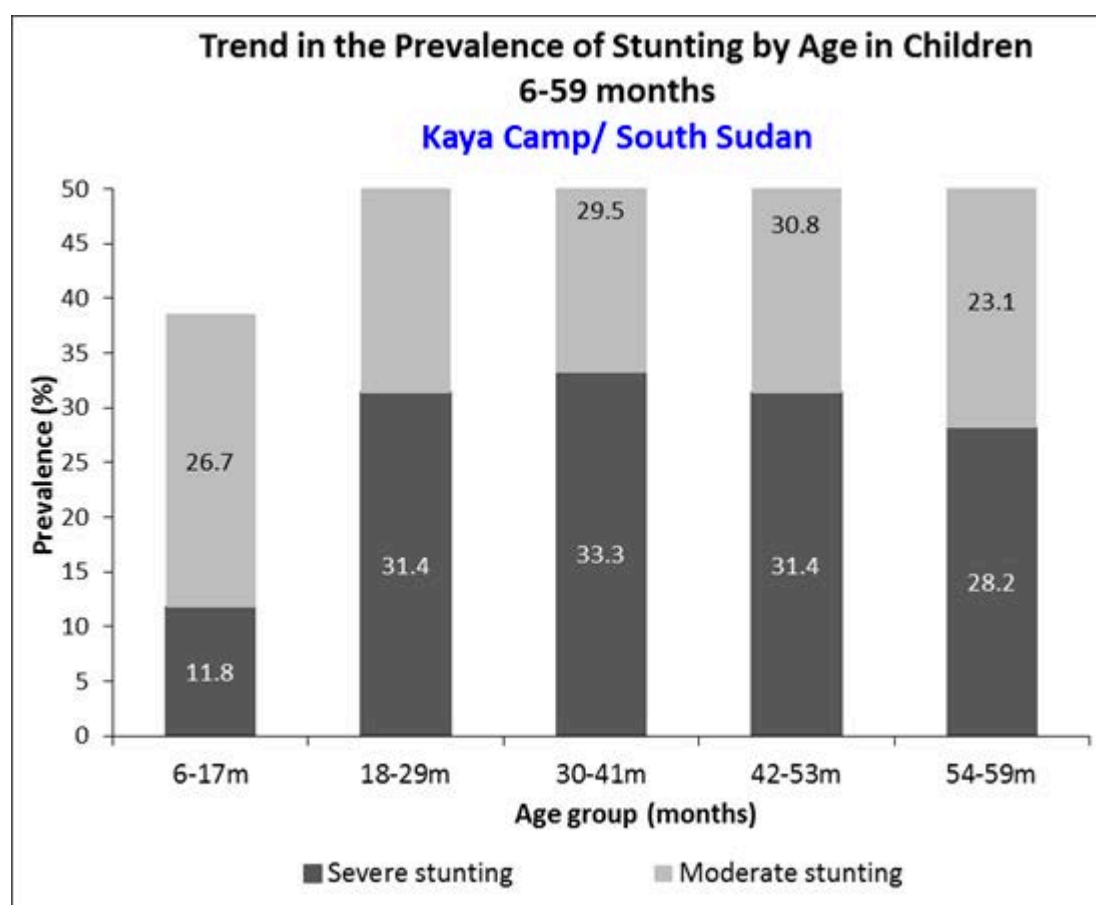


Figure 73: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; The Reference Population Is Shown In Green and the Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

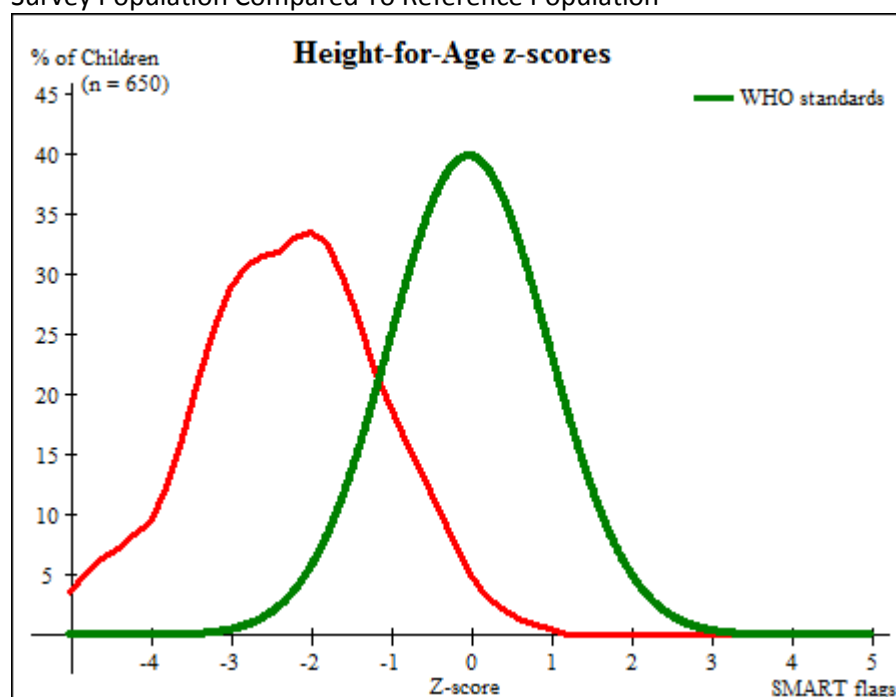


Table 137: Mean z-scores, Design Effects and excluded subjects-Kaya Camp

Indicator	n	Mean z-scores \pm SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	667	-0.84 \pm 0.95	1.00	6	12
Weight-for-Age	675	-1.84 \pm 1.02	1.47	4	6
Height-for-Age	650	-2.27 \pm 1.13	1.30	4	31

* contains for WHZ and WAZ the children with edema.

3.23. Health/Feeding programme coverage

Table 138: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ-Kaya Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	12/77	15.6(7.2-24.0)
Therapeutic feeding programme coverage	2/10	10.0(-13.5-53.5)

Table 139: Programme coverage for acutely malnourished children based on MUAC and oedema-Kaya Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	11/19	57.9 (28.4-87.3)
Therapeutic feeding programme coverage	1/3	33.3(-110-176.6)

Measles vaccination coverage results

Table 140: Measles Vaccination Coverage for Children Aged 9-59 Months (N=633)-Kaya Camp

	Measles (with card) n= 295	Measles (with card <u>or</u> confirmation from mother) n= 607
YES	46.6% (39.7-53.5 95% CI)	95.0 % (94.1-97.6 95% CI)

Vitamin A supplementation coverage results

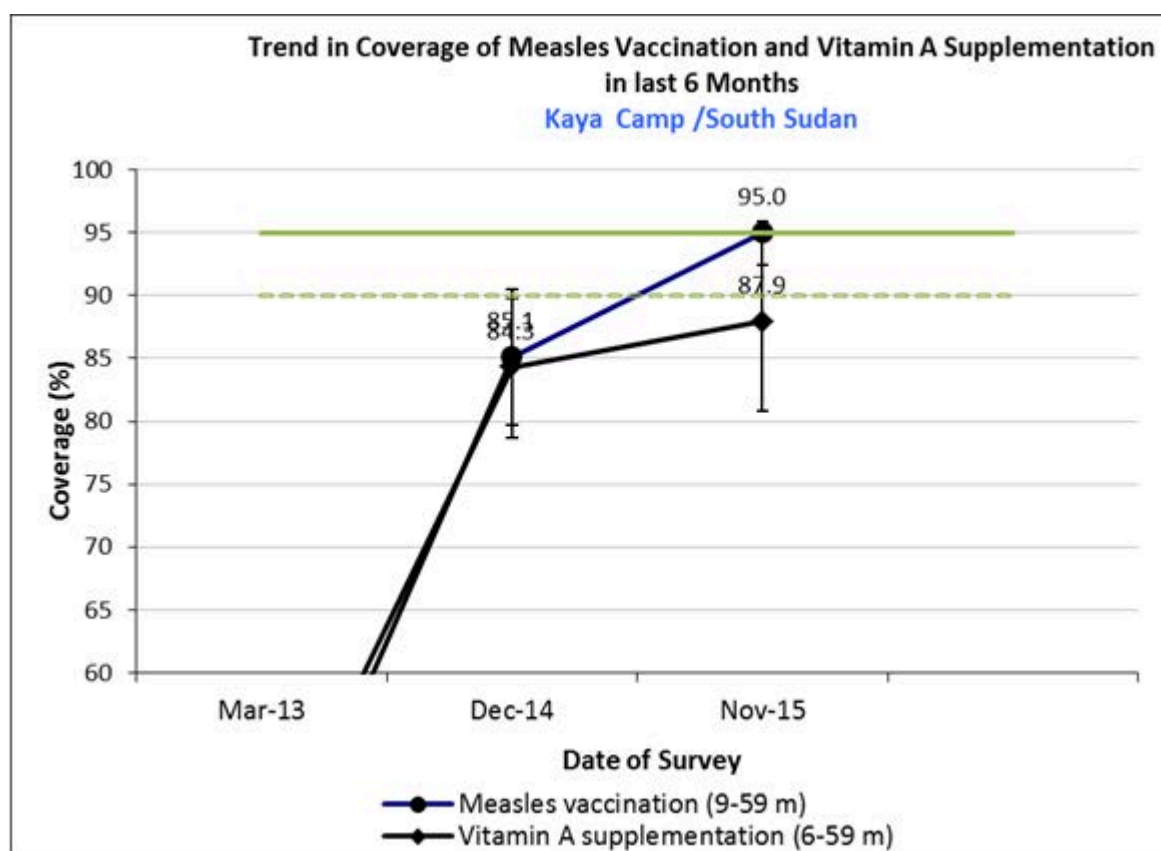
Table 141: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N=686)-Kaya Camp

	Vitamin A capsule (with card) n=251	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=603
YES	36.6% (27.5-47.1 95% CI)	87.9 % (80.8-95.0 95% CI)

Table 142: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=685)-Kaya Camp

	DPT3 / PENTA3 (with card) n=341	DPT3 / PENTA3 (with card <u>or</u> confirmation from mother) n=645
YES	49.8% (43.2-56.3 95% CI)	94.1 % (91.5-96.8 95% CI)

Figure 74: Trends in the Coverage of Measles Vaccination and Vitamin a Supplementation in Last 6 Months in Children 6-59 Months from 2013 to 2015-Kaya Camp



Diarrhoea Results

Table 143: Period Prevalence of Diarrhoea-Kaya Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	74/635	10.8 (6.0-15.5)

3.24. Anaemia Results Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is of high public health significance at 52.9% (48.0-57.9 95% CI). Prevalence of anaemia among children 6 to 23 months is also of high public health significance at 68.1% (55.0-69.1 95% CI).

Table 144: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group-Kaya Camp

	6-59 months n = 669	6-23 months n=267	24-59 months n=402
Total Anaemia (Hb<11.0 g/dL)	(354) 52.9% (48.0-57.9 95% CI)	(182) 68.1% (61.1-75.1 95% CI)	(172) 42.8 % (36.6-49.0 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(198) 29.6% (25.7-33.5 95% CI)	(92) 34.6% (27.0-42.0 95% CI)	(106) 26.4% (21.4-31.3 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(149) 22.3% (19.0-25.6 95% CI)	(86) 32.2% (26.8-37.6 95% CI)	(63) 15.7% (12.0-19.4 95% CI)
Severe Anaemia (<7.0 g/dL)	(7) 1.0% (0.2-2.0 95% CI)	(4) 1.4% (0.1-2.9 95% CI)	(3) 0.7 (-0.1-1.6 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	10.7 g/dL (10.6-11.0 95% CI) [5.6-15.0]	10.3 g/dL (10.2-10.5 95% CI) [5.8-15.6]	11.0 g/dL (10.9-11.2 95% CI) [5.6-15.5]

Table 145: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Kaya Camp

	6-59 months n = 669	6-23 months n= 267	24-59 months n= 402
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(156) 23.3% (19.7-27.0 95% CI)	(90) 33.7% (27.7-39.7 95% CI)	(66) 16.4% (12.3-20.5 95% CI)

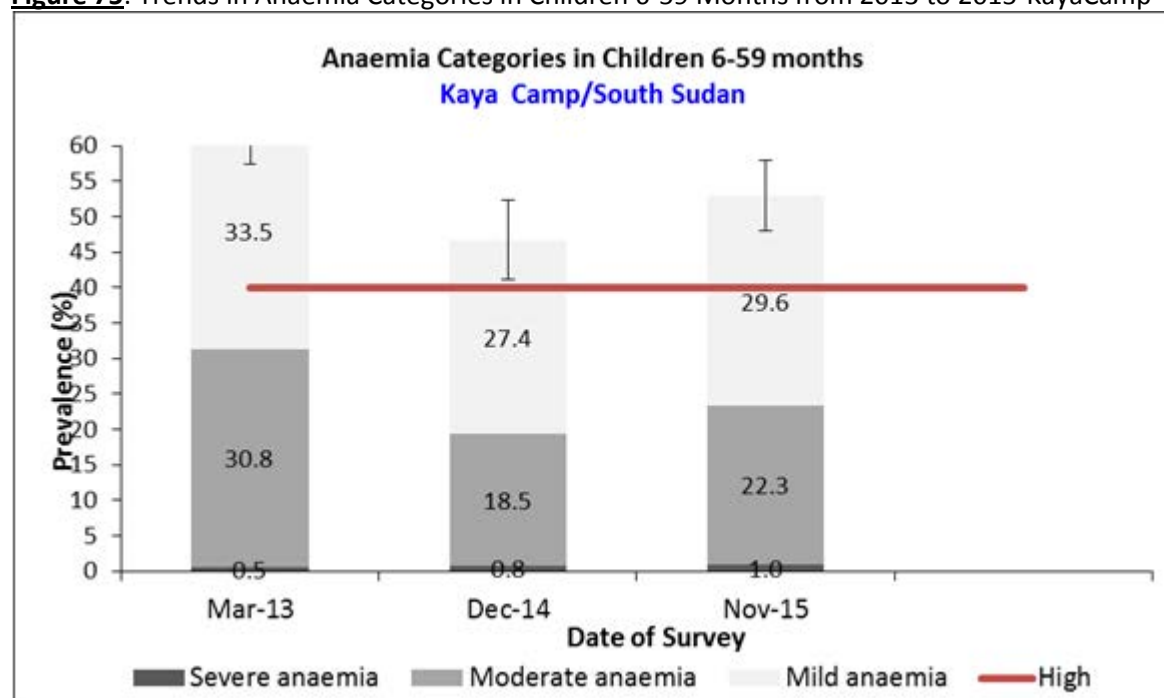
Figure 75: Trends in Anaemia Categories in Children 6-59 Months from 2013 to 2015-KayaCamp

Figure 76: 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 to 2015-Kaya Camp

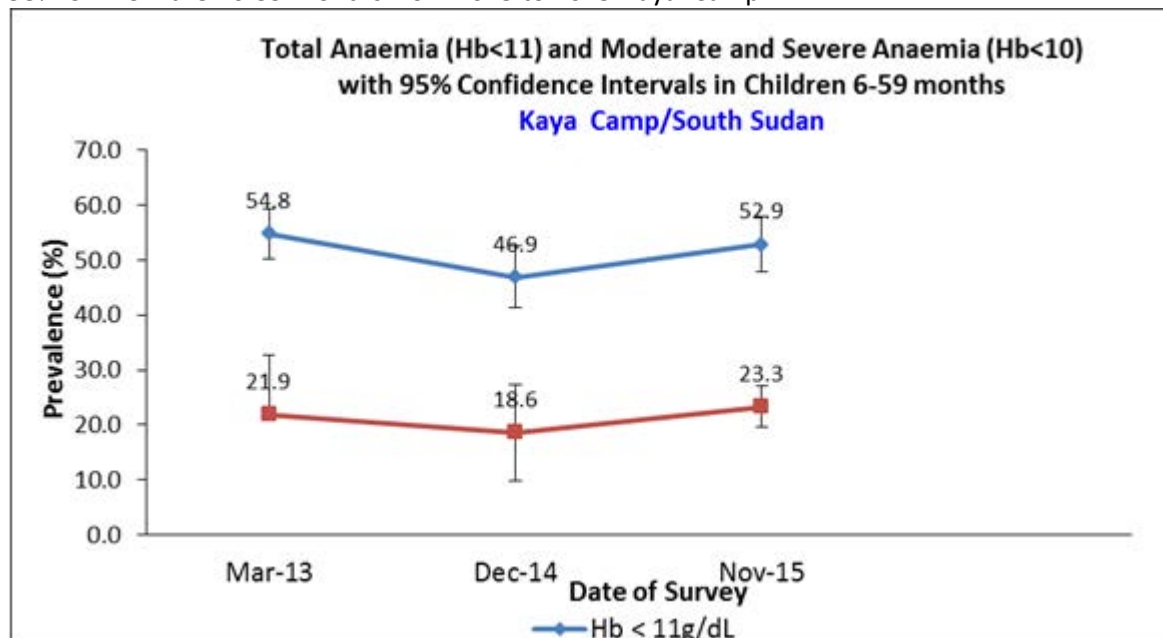
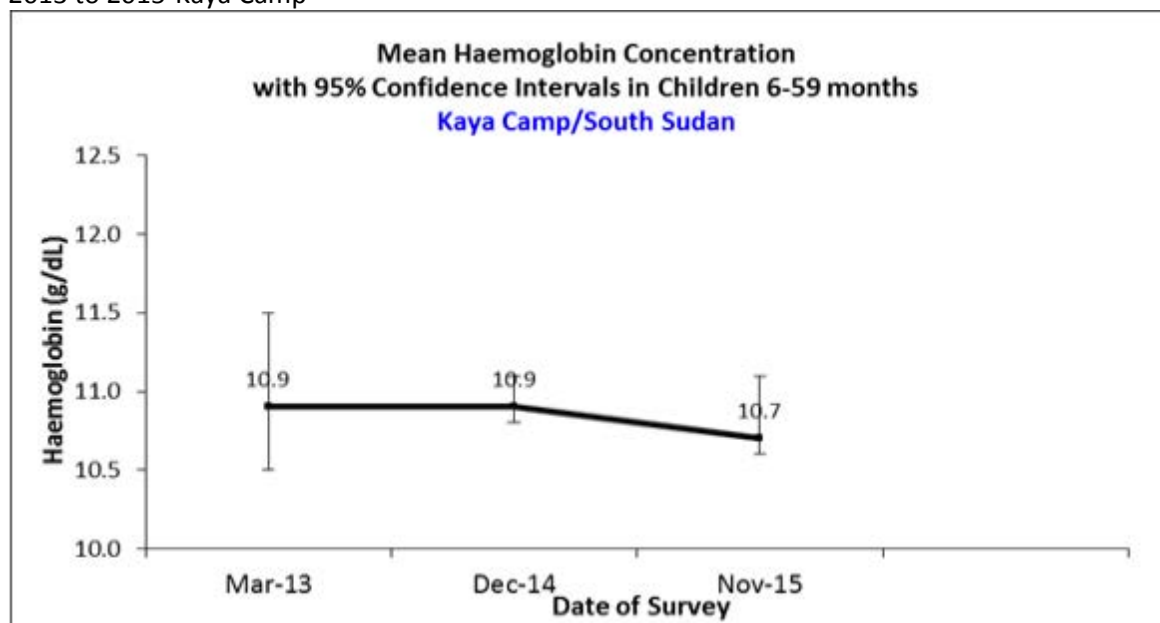


Figure 77: Trend in Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2013 to 2015-Kaya Camp

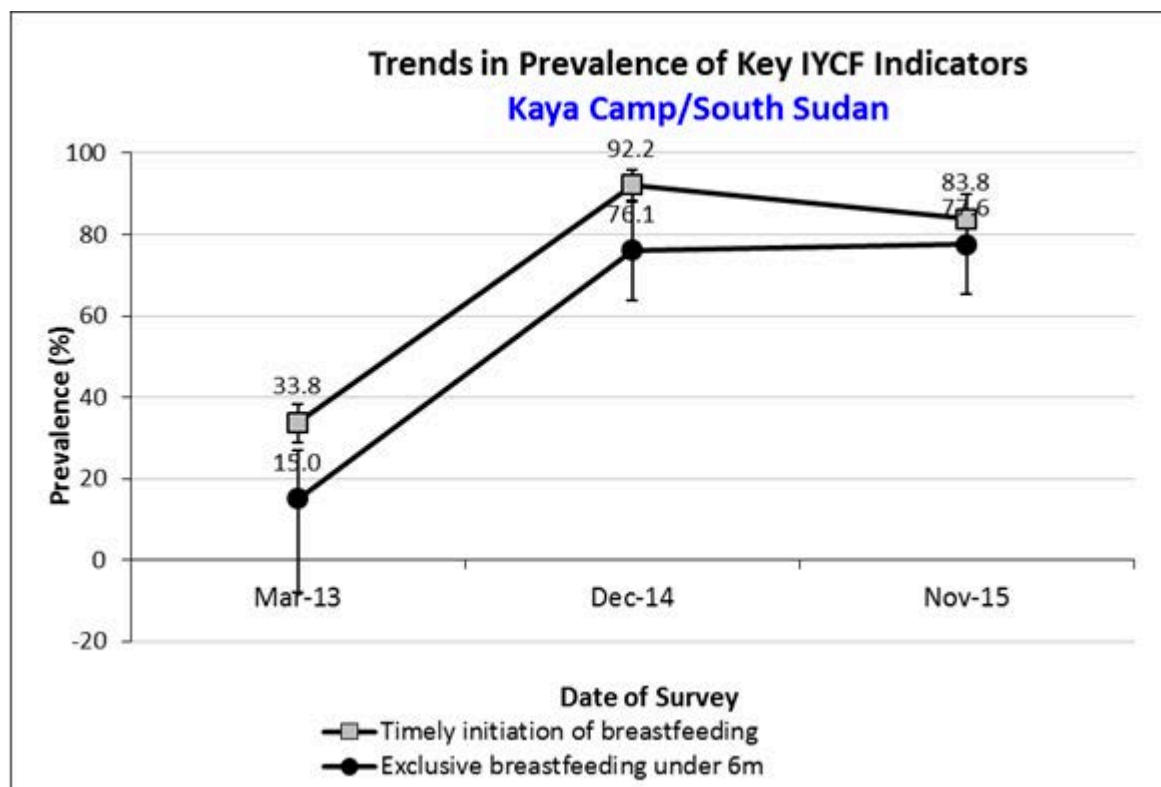


3.25. IYCF Children 0-23 months

Table 146: Prevalence of Infant and Young Child Feeding Practices Indicators-Kaya Camp

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	234/339	83.8	77.7-89.9
Exclusive breastfeeding under 6 months	0-5 months	52/67	77.6	65.2-90.0
Continued breastfeeding at 1 year	12-15 months	52/52	100	100-100
Continued breastfeeding at 2 years	20-23 months	41/50	82.0	68.3-95.7
Introduction of solid, semi-solid or soft foods	6-8 months	08/53	15.0	4.0-26.2
Consumption of iron-rich or iron-fortified foods	6-23 months	96/269	35.6	23.5-47.9
Bottle feeding	0-23 months	2/339	0.5	0.0-1.4

Figure 78: Key IYCF Indicators from 2013 to 2015-Kaya Camp



Prevalence of intake

Infant formula

Table 147: Infant Formula Intake in Children Aged 0-23 Months-Kaya Camp

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	9/339	2.6 (-1.5-6.8)

Fortified blended foods

Table 148: CSB+ Intake in Children Aged 6-23 Months –Kaya Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	50/270	18.5 (4.6-32.5)

Table 149: FSB++ Intake in Children Aged 6-23 Months-Kaya Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	4/270	1.4(-0.9-3.8)

3.26. Anaemia Women 15-49 years

Table 150: women physiological status and age-Kaya Camp

Physiological status	Number/total	% of sample
Non-pregnant	260/282	92.2
Pregnant	20/282	7.0
Don't Know	2/282	0.7
Mean age (range)	26.2(15-47)	

Table 151: Prevalence of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years)-Kaya Camp

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 259
Total Anaemia (<12.0 g/dL)	(67) 25.9% (20.8-30.9 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(39) 15.0% (10.0-20.1 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(27) 10.4% (7.4-13.5 95% CI)
Severe Anaemia (<8.0 g/dL)	(1) 0.4 (-0.4-1.1 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.7 g/dL (12.5-12.9) [7.8-17.4]

Figure 79: Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2013 to 2015-Kaya Camp

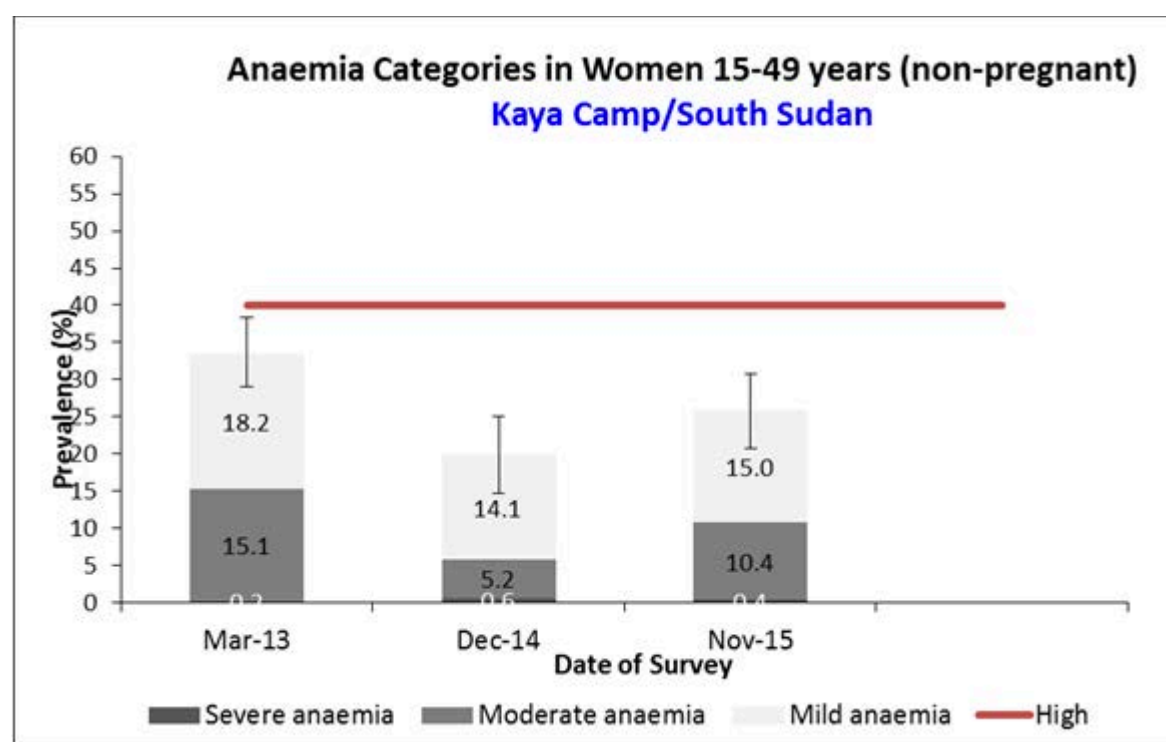


Table 152: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	14/18	77.8 (58.2-97.3)
Currently receiving iron-folic acid pills	14/18	77.8 (58.2-97.3)

3.27. Water sanitation and hygiene (wash)

Table 153: WASH Sampling Information-Kaya Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	512	504	98.4

Table 154: Water Quality-Kaya Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	100/100	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	373/504	74 (65.9-82.1)

Table 155: Water Quantity: Amount of Litres of Water Used Per Person per Day-Kaya Camp

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	119/504	23.6 (17.6-29.6)
15 – <20 lpppd	111/504	22.0 (17.4-26.6)
<15 lpppd	274/504	54.4 (46.3-62.5)

Add the average water usage in lpppd:_____15.2lpppd_____

Table 156: Satisfaction with Water Supply-Kaya Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	411/504	81.5 (73.0-90.0)

Figure 80: Proportion of Households That Say They Are Satisfied With the Water Supply

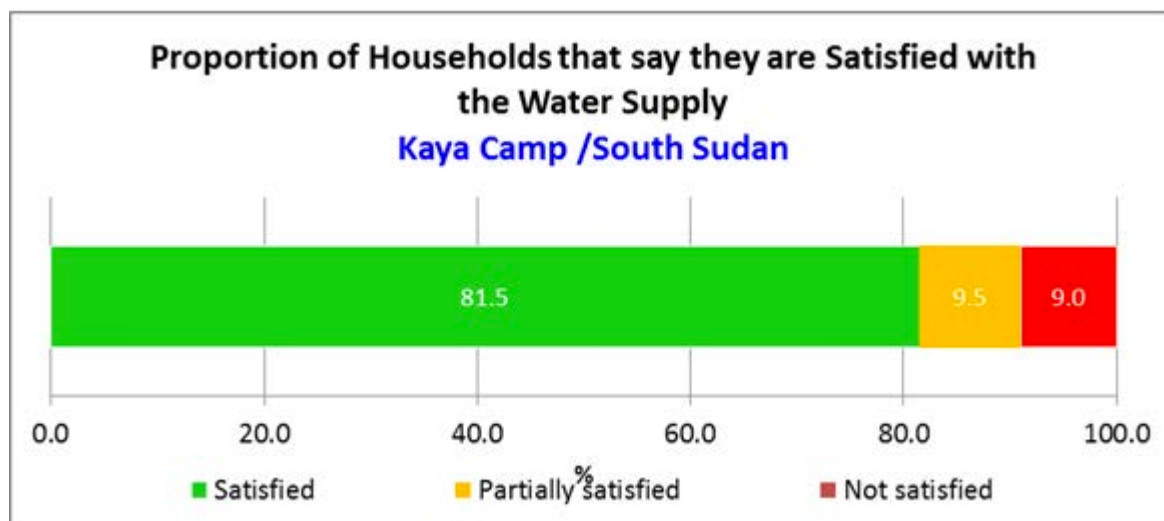


Figure 81: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

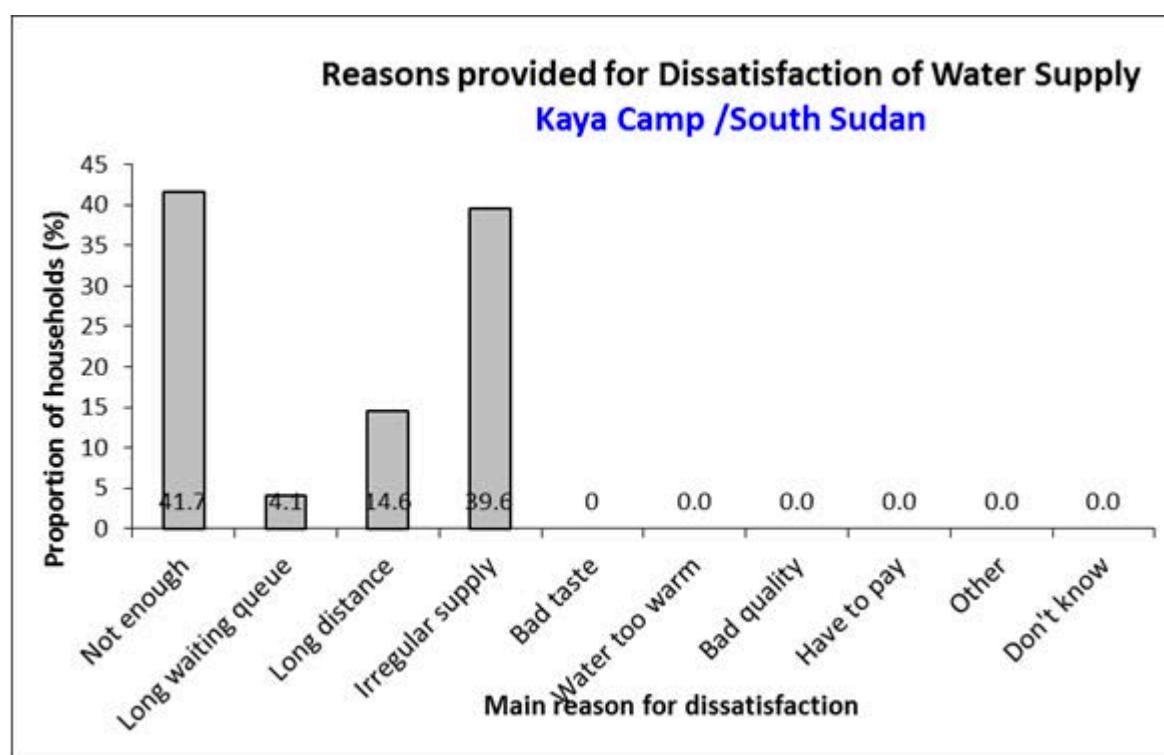


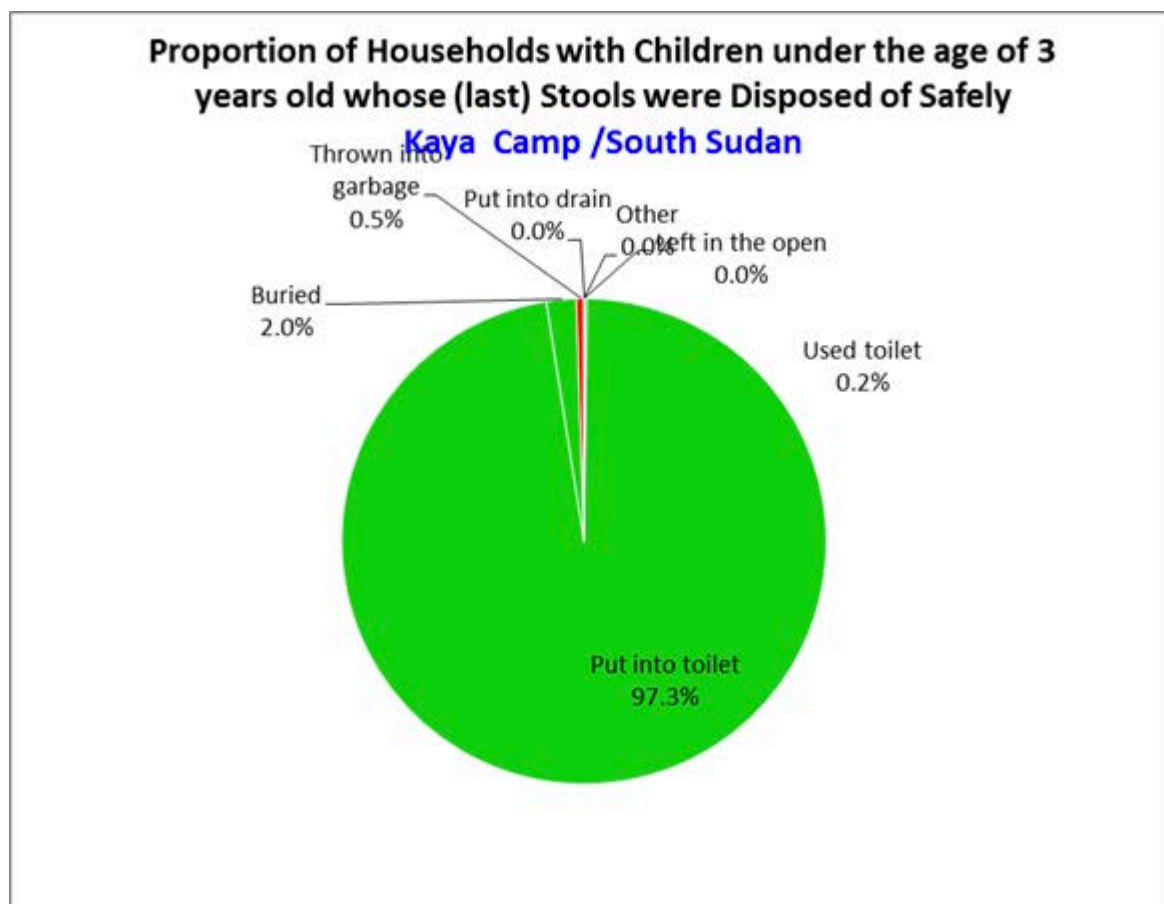
Table 157: safe excreta disposal-Kaya Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*, **	197/495	39.8 (29.6-50.0)
A shared family toilet (improved toilet facility, 2 households)**	113/495	22.8 (15.8-29.9)
A communal toilet (improved toilet facility, 3 households or more)	93/495	18.8 (13.6-23.9)
An unimproved toilet (unimproved toilet facility or public toilet)	92/495	18.6 (7.4-29.8)
Proportion of households with children under three years old that dispose of faeces safely	435/437	99.5 (98.9-100.2)

*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 82: Proportion of Households with Children under the Age of 3 Years Whose (Last) Stools Were Disposed Of Safely



3.28. Mosquito Net Coverage

Table 158: Mosquito Net Coverage Sampling Information-Kaya Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	256	258	100.7%

Table 159: Household Mosquito Net Ownership-Kaya Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	243/258	94.2 (91.0-97.3)
Proportion of total households owning at least one LLIN	240/3248	93.0 (89.8-96.2)

Figure 83: Household Ownership of At Least One Mosquito Net (Any Type)

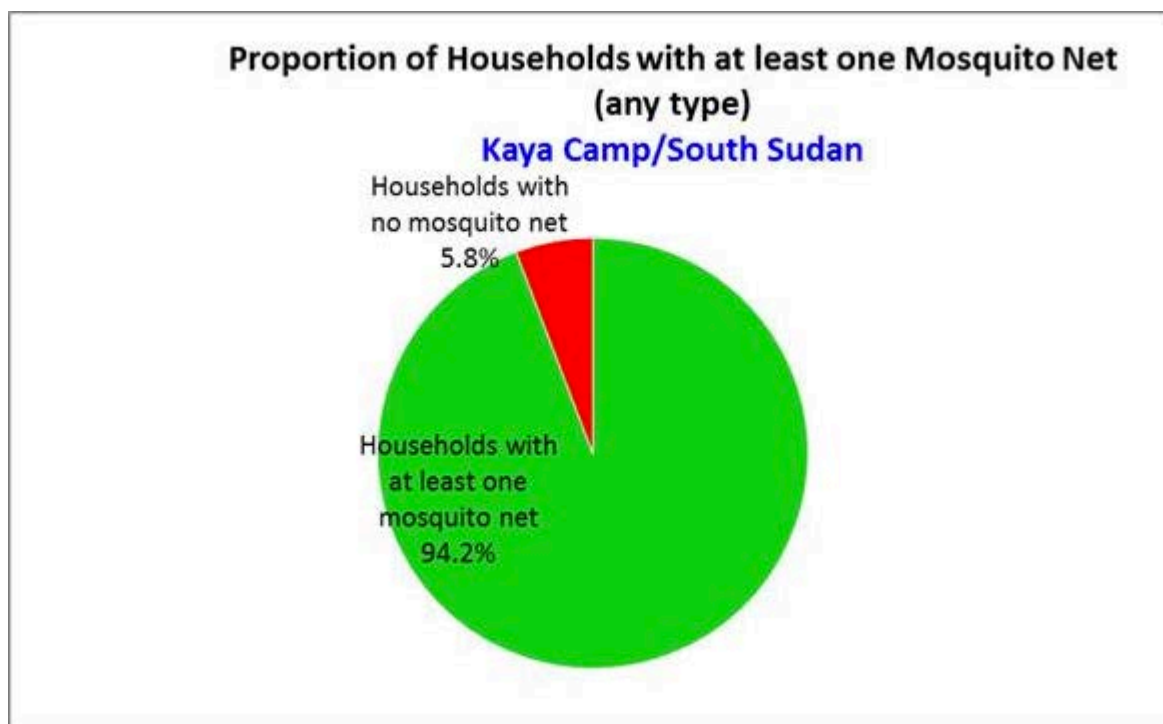


Figure 84: household ownership of at least one llin (this figure can be automatically generated by using SENS pre-module tool 12 – trends and graphs)

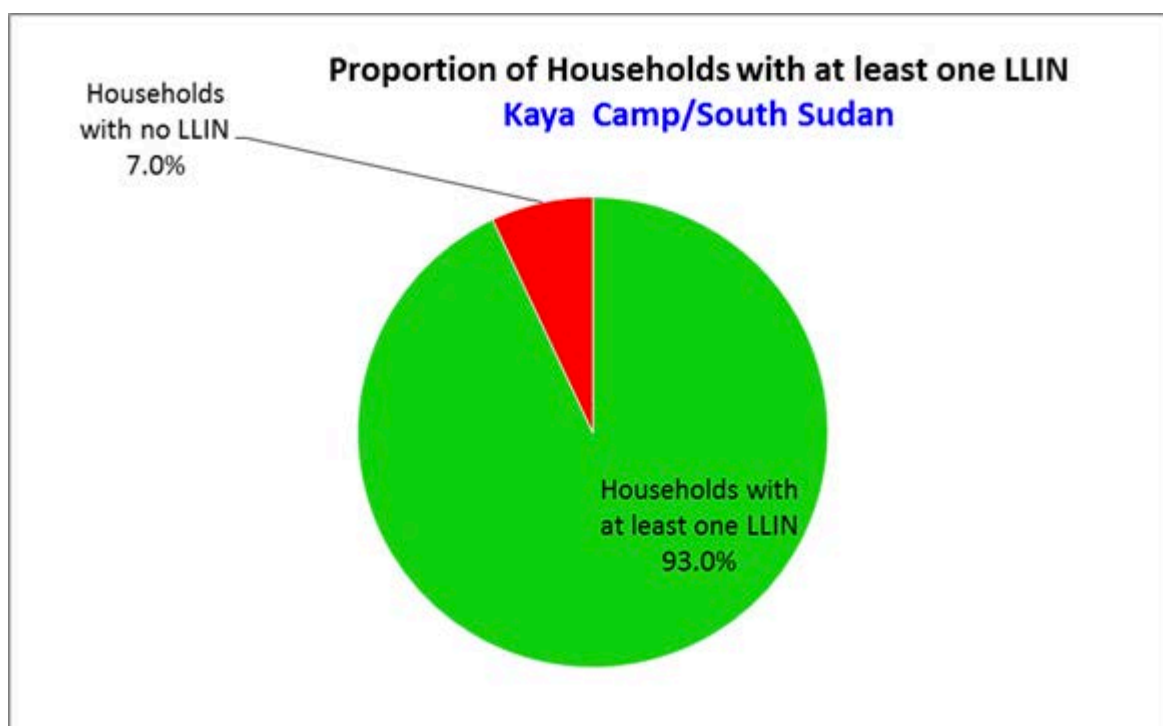


Table 160: Number of Nets-Kaya Camp

Average number of LLINs per household	Average number of persons per LLIN
2.5	2.6

Table 161: Mosquito Net Utilization-Kaya Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1571	%	Total No= 384	%	Total No= 20	%
Slept under net of any type	1269	80.8	333	86.7	18	90
Slept under LLIN	1250	79.6	331	86.2	17	85

Figure 85: Mosquito Net Utilization by Sub-Group

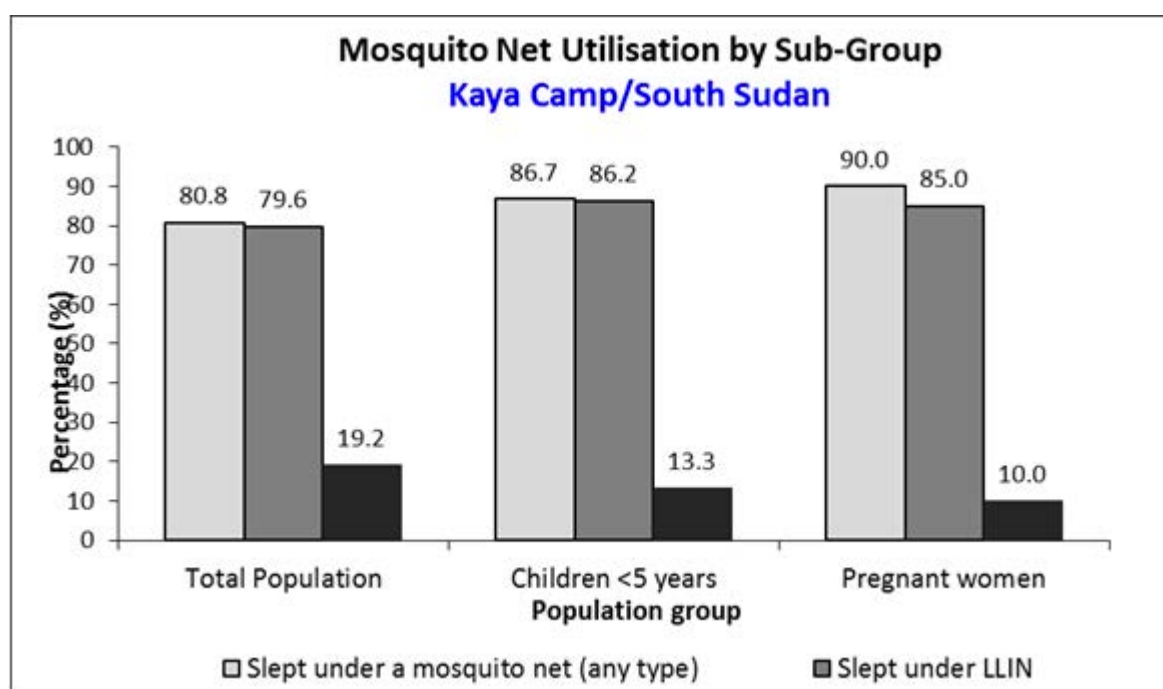


Table 162: Indoor Residual Spraying -Kaya Camp.

	Number/total	% (95% CI)
Proportion of total households with Indoor Residual Spraying (IRS)	148/258	57.4 (41.2-73.5)

3.30. Limitations

Data Quality

The plausibility report generated by the ENA software showed that the data was generally of good quality, scoring 12 % in all camps a part from Gendrassa where it scored 18 %. However, the age data is not as reliable as the children 85 % of the children used age estimates and not actual date of birth in determining their ages. With this in mind, the stunting and underweight results are not as reliable as would be expected. Also this might also led to oversampling as compared with the number of children expected.

Data collection Enumerators

The general level of the enumerators was not as expected. To improve their level, the training was done at a very slow pace with additional days allocated as well as additional sessions of standardization and field tests and very tough supervision.

SFP/TFP Coverage

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

IYCF Indicators

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

4. DISCUSSIONS

4.1. Nutritional Status of Young Children

The GAM prevalence has increased in all Maban camps in 2015 as compared with 2014. In Doro, the GAM prevalence was found to be **15.2%** (11.9 - 19.1 95% CI) and the SAM prevalence was **2.3%** (1.5 - 3.5 95% CI). In Yusuf Batil camp, the GAM prevalence was found to be **11.1 %** (8.7 - 14.0 95% CI) while the SAM prevalence was **2.1 %** (1.1 - 3.7 95% CI). In Gendrassa the GAM prevalence was found to be **9.1%** (7.0 - 11.8 95% CI) and the SAM prevalence was **2.1%** (1.2 - 3.5 95% CI). In Kaya the GAM prevalence was found to be **11.4%** (9.2 - 13.9 95% CI) and the SAM prevalence was **1.2% (0.6 - 2.4 95% CI)**. In comparison, the last nutrition survey results showed a GAM rate of 8.1 % (6.2-10.7 95% CI) in Doro, 7.6 % (5.9 – 9.7 95% CI) in Batil, 6.7% (5.3-8.5 95% CI) in Gendrassa and 7.9 % (6.1-10.2 95 % CI) in Kaya. The increase in 2015 was significant in Doro and Gendrassa ($p < 0.05$) while it was not significant in Batil and Kaya camps ($p > 0.05$).

Doro camp has the highest, malnutrition prevalence and is in critical situation as the GAM prevalence have crossed the emergency threshold (GAM $\geq 15\%$). Yusuf Batil and Gendrassa are in a serious situation (GAM between 10%-14%). Gendrassa is the only camp within UNHCR standards (GAM $< 10\%$) with a GAM in a medium range (GAM between 5% -9%).

Note that the SAM prevalence in 2015 are above the threshold (>2%) in three camps, showing that children under five might be at risk of mortality.

According to the malnutrition trends since 2013 (figures 15, 32, 50 and 68) The GAM trends from, 2013, 2014 and 2015, showed the same pattern: there is a sharp drop in prevalence from 2013 to 2014 followed by a marked increase from 2014 to 2015. The SAM trends are more or less similar. According to the Nutrition assessments in host communities conducted in 2015, the national GAM average is 13 %. A survey conducted by RI in Maban host communities showed a host community GAM rate of 11.7 % and the SAM rate was 4.7 % (RI SMART Survey Report, May 2015). Food Security and Nutrition Monitoring System (FSNMS) survey, the national GAM was 12.5% and SAM 3.2%. (FSNMS Round 17, 2015). This shows that in average the nutrition situation in the camps is much better than that in Maban host community and national level, apart from Doro camp.

MUAC screening is used to monitor malnutrition trends and for admission and discharge in nutrition programmes. The improvement of the nutrition situation is conversant with the monthly MUAC trends used for monthly surveillance. Also there is a difference between the Weight-For –Height results and the MUAC as according to the survey MUAC results the MUAC malnutrition ranges from **5.6%** (3.7 - 8.2 95% CI) in Doro to **2.3%** (1.4 - 3.8 95% CI) in Kaya.

Looking at the periodicity, the surveys in 2014 and 2015 with a difference of one month at the post-harvest period when food is expected to be available country wide in non-refugee settings. For refugee settings such as Maban camps, given the fact that the population depends heavily on food assistance, the worsening of the nutrition situation could be attributed to a range of factors.

One major factor could be the successive depletion of food assistance and related services starting by the 30 % ration cut. As mentioned earlier, the funding constrains has led GFD ration to be reduced to 70 %, corresponding to a reduction of the daily energy intake from 2100 Kcal/p/day to 1470 Kcal/p/day. In addition, frequent pipeline breaks and transportation issues sometimes caused delays in food distributions as well as missing items. Salt was missing most of the months. The ration cut was preceded by the scrapping of the milling voucher programme in March 2015 which was allowing the refugees to grind 70 % of the GFD cereals. Knowing the importance of milling, the stoppage of this program could have also played an important role on the current nutrition situation as refugees exchange a significant part of their ration over miller's services. The issue of sharing should not also be neglected as it is well known that refugees share both their GFD and nutrition rations respectively mainly among neighbours and siblings of the malnourished child. Some of the products end up in the market. The issue of diversity also comes in as there is no Fortified Blended Food (FBF)/CSB+ incorporated in the GFD as compared with other countries. FBF such as CSB+ /CSB++ contains good quantities of protein/energy and blended micronutrients.

In 2015 as compared with Unity camps, Blanket Supplementary Feeding Programme for children under 2 and PLW were planned in Upper Nile State camps but could not occur due to pipeline break. In terms of diversity, the issue of agricultural programming/seeds should also be mentioned as a cause of the increasing trends. In 2015, UNHCR and partners procured seeds to refugees to plant but the initiative could not really pick up and monitor properly. One issue raised was that the seeds came late and some of them were not fitting to the refugee's food habits.

Morbidity patterns might have also played a key role on the aggravation of malnutrition from 2014 to 2015. The survey was conducted in a high malaria incidence period translated into high malaria prevalence. Upsurge in watery diarrhoea and in respiratory tract infections (URTI) among others are suspected to have contributed to the deterioration of the nutrition situation. The

incidence of RTI was higher in Maban camps in 2015 than in 2014. The morbidity might have particularly affected SAM cases, explaining the high SAM rates in three camps. High anaemia rates might have also contributed to malnutrition.

The prevalence of stunting in Doro and Gendrassa were respectively **42.1%** (37.6 - 46.7 95% CI) and **47.8%** (43.4 - 52.2 95% CI). In Batil **55.0%** (50.2 - 59.7 95% CI) were found stunted while they were **57.7%** (53.1 - 62.1 95% CI) in Kaya. In Batil, Gendrassa and Kaya camps, the increase as compared with 2014 was significant ($p < 0.05$) while in Doro the increase was not significant ($P > 0.05$). All camps are of high public health significance (≥ 40). Looking at the trends since 2013 (figures 15, 32, 50 and 68), there has been a continuous increase.

Before further analysis, it is important to remind that age determination has been a challenge and the stunting prevalences should be interpreted with caution.

The stunting levels means that long term food practices have not been improved along the years. The composition of the GFD food basket lacks animal proteins as well as energy and consequently there is no source for skeletal growth particularly important at this period between 6 and 24 months where the transition is made for exclusive breastfeeding to normal meal after 2 years.

No particular programme targeting stunting has been implemented so far in the camps. Also, looking at IYCF indicators, one main stunting issue must be linked to the type/quality of food introduced or consumed since Breastfeeding –related indicators looks better than those of the last survey (even though the small size sample would suggest the results being taken with caution). As compared with some other operations in the region and considering the full dependence on GFD, the refugee nutrition programme lacks a BSFP for under 2 intervention with CSB++ to cater for both stunting and micronutrient reduction. UNHCR, WFP and partners has agreed on such intervention for 6 months but due to product shortage, this has not yet been implemented.

According to the 6-59 months GAM rates, acknowledging that the situation has worsened, quick measures would have to be taken to mitigate the situation, especially in the context of high stunting and anemia rates. UNHCR and partners would put in place serious mitigation measures: reinforcing the CMAM, periodical review of activities/protocols/contingency plans, preventive nutrition and anaemia strategy, stronger linkages with food security and livelihoods. It is important to recognize the work of all nutrition partners in Maban as well as the support of WFP and UNICEF on the delivery of the programmes in the field.

4.2. Programme Coverage

Measles vaccination coverage is satisfactory throughout the camps as the coverage target of 95 % is almost reached in Doro, Gendrassa and Batil while Kaya has reached the target. The coverage is **93.7%** (90.8 -96.6 95% CI) in Doro, **94.8%** (91.2-98.4 95% CI) In Batil, **92.0%** (89.0-95.0 95% CI) in Gendrassa **95.0%** (94.1-97.6 95% CI) in Kaya. There is a marked improvement on measles coverage as compared with 2014 where the coverage ranged between 75 % and 90%. It is to be noted that the current statistics are about showing card and recall. The measles vaccination coverage with card as the proof is much lower, varying from 35.7% to 46.6%. Additional Measles vaccination campaigns happened throughout the year in order to permit all camps to achieve and maintain coverage of more than 95 %.

Like last year, Vitamin A coverage in Yusuf Batil is the lowest with **66.7%** (53.2-80.2 95% CI) while Doro, Kaya and Gendrassa with respectively **91.0%** (86.8-95.2 95% CI), **87.9%** (80.8-95.0 95% CI) and **85.9%** (78.0-93.0 95% CI) closer to the target of 90 %. This might be due to the outreach component confronted with distance issues. The community level intervention in Batil might

have been more constrained as compared with other camps. This might have affected the coverage.

Doro camps Diarrhoea rate is **19.0%** (13.6-24.3 95% CI) followed by Batil with **17.8%** (11.7-33.8 95% CI), Kaya with **10.8%** (6.0-15.5 95% CI) and Gendrassa with **7.4%** (4.5-10.5 95% CI). This might be expected as Doro has always been the camps with most recurrent WASH issues due to the congestion.

A part from vaccination campaigns, routine immunization is ongoing. The routine immunization in Maban has definitely shifted to pentavalent vaccines (Meningitis, pertussis, Tetanus, Hepatitis B and Diphtheria). This is reflected in the routine pentavalent vaccine rates being 92.2% (88.9-95.6) in Doro, 91.5 % (86.8-96.4 95% CI) in Batil, 96.3% (94.9-97.6 95% CI) in Gendrassa and 94.1% (91.5-96.8 95% CI) in Kaya

In terms of Feeding programme coverage results it looks like the camps are far to reach the target of 90 % and three-quarter (3/4) of malnourished children are not yet included in the programmes as Doro, Batil, Gendrassa and Kaya's programme coverage results were respectively 18.3 % (7.6-29.4 95% CI), 7.8 % (2.5-13.0 95% CI), 12.9 % (3.0-22.9 95% CI) and 15.6 % (7.2-24.0 95% CI) for TSFP coverage with all admission criteria and 9.7 % (-1.4-20.8 95% CI), 4.1% (0.2-8.0 95% CI), 5.6 % (-6.7-17.8 95% CI) and 10.0% (-13.5-53.5 95% CI) for OTP coverage with all admissions criteria. When it comes to the coverage based on MUAC only, Doro, Batil, Kaya and Gendrassa were respectively 32.5 % (15.9-49.1 95% CI), 17.5% (3.1-31.3 95% CI), 38.5% (3.4-73.5 95% CI), 57.9% (28.4-87.3 95% CI) for Supplementary Feeding Programme while they are 50.0% (-7.4-107.4 95% CI), 0.0% (0-0 95% CI), 33.3 % (-110-176 95% CI) and 33.3 % (-110-176.6 95% CI) for Therapeutic Feeding Programmes. However, those results need to be considered with precaution as the sample sizes are very small ($N \leq 100$). Also, frequent coverage calculation based on programme admissions versus total number of children 6-59 months of the camps always show coverage between 85 % and 100 %. A proper coverage Semi Quantitative Evaluation of Access and Coverage (SQUEAC) assessment needs to be done to get the true picture of the nutrition services coverage. A SQUEAC survey performed in Kaya in 2015 showed a MAM coverage of 83.9% and OTP coverage was greater than 90%.

Ante Natal Care (ANC) enrolment and iron-folic acid coverage were respectively 73.2 % (58.9-87.5 95% CI) and 74.5% (60.9-88.1 95% CI) in Doro, 85.0% (87.6-100 95% CI) and 100% (100-100 95% CI) in Batil, 60.0% (40.4-79.5 95% CI) and 60.0 % (40.4-79.5 95% CI) in Gendrassa and 77.8% (58.2-97.3 95% CI) and 77.8% (58.2-97.3 95% CI) in Kaya. The trends show an overall improvement in Doro for ANC enrolment and iron-acid coverage. In Doro camps, the referral issue has been handled quite well the process is much smoother than before.

4.3. Anaemia in Young Children 6-59 Months and Women

Anaemia is used as a proxy indicator to assess for micronutrient deficiencies (UNHCR Anaemia reduction strategy, 2011, UNHCR Strategic Plan for Nutrition and Food Security, 2012): WFP/UNHCR, 2011). Looking at the 6-59 months anaemia prevalence as displayed, The child anaemia prevalence in Doro were found to be the highest in Batil and Gendrassa with respectively **55.7%** (51.9-59.6 95% CI) and **55.8%** (50.3 -61.3 95% CI), followed by Doro and Kaya camps with respectively **54.1 %** (49.2-59.0 95% CI) and **52.9 %** (48.0.-57.9 95% CI). In all camps, the situation has significantly worsened ($p < 0.05$). The trends since 2013 (figures 22, 40, 58 and 76) showed a steady increase.

The current prevalences are all of high public health significance (WHO, 2000). This is predictable because since 2014 where the rates were already alarming, only sparse interventions were

planned and no comprehensive anaemia strategy has been put in place to reverse the trends. Blanket Supplementary Feeding Programmes even though planned for under five and PLW could not be performed due to pipeline break as mentioned before.

Even though they are parallel health, nutrition, WASH and Food Security activities that were being conducted, the linkage has been not effective to drive them towards a common anaemia reduction goal. From this year, the focus would definitely be to set up as soon as possible the strategy. There will be a review on the clinical treatment of anemic children and mother, a review of the routine treatment of anaemia, a systematic anemia testing of malnourished children to follow up on their status monthly. A cohort list would be put in place over one year period until the next survey. Other anemia reduction activities comprises seeds distributions (for kitchen gardening on vegetables as micronutrient sources) to Mother Supports Groups (MSGs) in Kaya and 40 others in Gendrassa, Since malaria endemicity could also be one of the causes of the high anaemia rate, health interventions such as mosquito nets distributions, Indoor Residual Spraying and WASH activities such as control of stagnant water and usage of waste water for kitchen gardens would be set up, reinforced and coordinated.

Anaemia prevalence in non-pregnant women 15 to 49 months is of medium public health significance since in Doro the prevalence was found to be **31.4 %** (24.5-38.3 95 %), Batil was **27.4 %** (20.9-33.9 95 %) Gendrassa was **26.5 %** (19.0-33.9 95 %) and Kaya was **25.9 %** (20.8-30.9 95 %). This is also alarming since one-third of the women are of concern. Even though their physiological status is different, the non-pregnant women results could be linked to the Pregnant and Lactating Women nutrition status revealed by the monthly surveillance system in the camps as the malnutrition levels (from monthly MUAC screening) lie between 18% and 31 %.

Looking at the age range, the youngest children of the critical age range of 6-23 months are the most anaemic. Iron deficiency anaemia at this age is highly predictable in a situation where there is no Fortified Blended Food (FBF) in the GFD ration, and no blanket feeding with FBF. Anaemia rates in non-pregnant women, high malnutrition rates in PLW (through monthly MUAC screening) and the lack of food alternative to cater for the lack of micronutrient and protein in the food aid ration contribute as well to put children in weaning period at high risk of anaemia deficiency and malnutrition. Even though efforts have been made to reinforce Infant and Young Child Feeding (IYCF) interventions, the availability of sustainable food sources containing the essential nutrients is important to improve the anaemia status.

It is important to implement immediately a structured and comprehensive anaemia reduction strategy. This would contain not only nutrition activities, but also health (malaria reduction activities), WASH (control of stagnant water, contribution to water kitchen gardening, promotion of proper sanitation practices), food security and livelihoods (kitchen gardening). There should be a strong link with IYCF activities

4.4. Infant and Young Child Feeding (IYCF) Indicators

As compared with 2014 nutrition survey, early initiation of breastfeeding in all camps has improved as well as Exclusive Breastfeeding (EBF). EBF rates in Doro, Batil, Gendrassa and Kaya were respectively **90.1%** (84.0-96.2 95% CI), **67.6%** (41.8-93.5 95% CI), **73.4%** (60.0-86.8 95% CI), and **77.6%** (65.2-90.0 95% CI). By comparing with 2014 survey results, there is an improvement in all camps a part from Gendrassa which experienced a marked decrease. The case of Gendrassa is not conversant with the IYCF interventions that happened in that camp the last 2 years, suggesting that the EBF rate for this particular camp needs to be taken with precaution. Timely initiation rates have improved in all camps since infants were reported being given the breastmilk

within one hour by **87.8 %** (84.0-91.7 95% CI) of the mothers in Doro, **91.8%** (88.6-95.0 95% CI) in Batil, **92.2 %** (89.0-95.4 95% CI) in Gendrassa and **83.8 %** (77.7-89.9 95% CI) in Kaya. This might be the result of the implementation of IYCF strategies and activities. Since the launching of IYCF strategy in Maban in February 2013 with the support of UNICEF, throughout Maban camps, more than 446 mother support groups meeting on weekly or bi-weekly basis and working on nutrition education, messaging food demonstration have been set up. Looking at the trends since 2013 (figures 24, 42, 60, and 78), Doro and Batil seemed to have improved and caught up Kaya and Gendrassa which are stagnant /decreased. However, in terms of absolute percentage, the camps are closed to each other. This might be due to the positive effect of the push on Doro especially which had the lowest prevalence before.

Across the camps, the overall proportion of children having consumed iron –rich foods is less than that of 2014. That is not surprising as the iron rich foods are lacking as this particular type of nutrients are one of the gaps in their diets. Even though the pulses ration of the GFD contains iron, its low bioavailability might undermine the uptake of this nutrient, leaving very little opportunity to catch up on iron. Iron -related food opportunities, especially at the starting of the dry season where alternative food sources might become scarce and non-existence of preventive FBF distribution being through GFD or BSFP. Iron uptake is suspected to be even worse in malnourished children which not only are already more vulnerable than children in normal status but have also their RUTF, RUSF and FBF shared with their siblings.

It is important to reinforce the integration of anaemia reduction activities to IYCF e.g. in terms of messaging and food demonstration during Mother Support Groups sessions, micronutrient issues should be more emphasized.

The majority of mothers continue to Breastfeed their children up to one and two year. As expected, the older is the child, the lesser is the proportion of mother continuing to breastfeed or the proportion decreases. Throughout the camps, an average of 89.5 % of mothers continue to breastfeed up to one year while 78.1 % of them breastfeed up to two years. Doro is the camp where the proportion on mothers breastfeeding up to two years is the least as only 61.4% (48.4-74.4 95% CI) do so while they are 71.1% (56.9-85.3 95% CI) in Batil, 79.4% (69.5-89.3 95% CI) in Gendrassa and 82.0 % (68.3-95.7 95% CI) in Kaya. The lowest prevalence on breastfeeding up to one year belongs to Batil with 83.3% (68.5-98.2 95 %CI), just below Doro with 85.2% (74.4-95.2 95%CI), Gendrassa 89.7 % (79.8-99.7 95% CI) and Kaya with 100 % (100-100 95% CI) scoring the highest prevalence for both periods. However, the small sample size of IYCF would suggest some caution for interpretation.

FBF (CSB+) and FBF+ (CSB++) intake rates were low, ranging from 4.6 % to 18.5% for the first and 1.4% to 12.6 % for the second. It is to be recall that CSB++ was not made available and used for BSFP because of pipeline break. Few quantities were managed to be brought to replace plumpy sup when that product was on shortage. That explains the low rate of intake on CSB++. Premixed with sugar and oil, CSB+ was used for malnourished mothers at TSFP PLW. Consequently it could be assumed that part of the CSB+ was also shared with their children, explaining the better rates on uptake.

Bottle feeding rates were reported being low in the camps, Gendrassa has the highest rate with 3.7 % (-1.3-6.2 95% CI), followed by Doro camp with 2.2% (0-5.9 95% CI), Batil with 0.6% (-0.3-1.6 95% CI) and Kaya with 0.5% (0.0-1.4 95% CI). The rates are much lower than those of 2014. Infant formula intakes are within acceptable ranges since 3.8 (-0.9-8.5) of the 6-23 months in Doro took infant formula while it was 16.7% (10.1-23.4 95% CI) in Batil, 0.7% (0.7-7.3 95% CI) in Gendrassa and 2.6% (-1.5-6.8 95% CI) in Kaya. UNHCR has released the SOP on Breastmilk substitutes as a technical guidance tool to deal with alternative feeding cases.

IYCF programming would be a key component of the nutrition strategy in 2016 as insisting on improving child feeding is a way to reach sustainability in the current context of food assistance reduction. The existing mother support groups would be qualitatively improved. UNHCR is strengthening the technical capacities of its one staff as well as that of partners to be able to bring IYCF into gold standards. A series of capacity building training is scheduled with the support of UNICEF.

4.5. Water Sanitation and Hygiene (WASH)

All households interviewed acknowledged the access and usage of improved drinking water sources. All four camps scored **100 %** (100-100 95% CI). However, the average water usage in the camps have decreased as compared with 2014 survey's outcome as well as routine collection data. In Doro, the average consumption in Litre per Person per Day (lpppd) is **16.9%** (37.9-50.9 95 % CI), **27.9 %** (23.6-32.3 95%CI) in Batil, **16.0%** (14.6-17.5 95%CI) in Gendrassa and **15.2%** (14.0-16.4 95% CI) in Kaya. However, there is a need to discuss more about these results as they might not necessarily reflect the right consumption since for instance, the water coverage in Kaya camps is 100% from pumping source and central. Coincidentally it might have happened that the consumption of many respondents the day before interviews were on average lower than as usual. UNHCR programmatic WASH standards is that the average quantity of water available per person per day should be equal or above 20 litre per person per day.

The fact that refugees in three out of four camps are not consuming the 20 lpppd does not mean that quantity is not available as the WASH infrastructures have significantly improved over the last two years. Looking at individual camp levels, the proportion of households achieving a daily usage of at least 20 lpppd has accordingly decreased as compared with 2014. In Doro, 35.8% (28.9-42.6 95% CI) were able to use 20 lpppd , while they were 64.8% (57.4-72.1 95% CI) in Batil, 29.3% (21.5-37.1 95% CI)in Gendrassa and 23.6% (17.6-29.6 95% CI) in Kaya. The proportion of refugees using 20 lpppd in Batil has drastically increased. This is due to the marked improvement on the water network in Batil. In Doro, Gendrassa and Kaya, a large proportion of households, respectively 45.7% (39.0-52.2 95% CI), 48.2 (39.0-57.4 95% CI) and 54.4 (46.3-62.5 95% CI) consumes daily the maximum of 15 lpppd while the lowest percentage of households use between 15 lpppd and 20 lpppd.

At household level, using less than 20 lpppd or even less than 15 lpppd does not automatically mean that the needs are not fulfilled since the level of entire satisfaction of the water supply in Batil was 87.0 %(79.4-94.5 95% CI). In Gendrassa, 84.6 % (76.9-92.4 95% CI) were entirely satisfied. In Kaya, they were 81.5 % (73.0-90.0 95% CI) as opposed to Doro where only 37.5% (26.2-48.8 95% CI). However, in Doro, more than half of the households were at least partially satisfied. As main reasons of dissatisfaction, households were complaining mainly about irregular supplies and waiting queue. In Batil and Kaya, complaints about water not being enough came also out.

In terms of latrine facilities, more needs to be achieved as a part from Gendrassa camp where 64.8% (57.4-72.1 95% CI) of the household assumed having their own toilets, less than 50 % of the households in other camps had access to improved excreta disposal facilities (improved toilet facility, 1 household). In Doro, 16.8 % (9.3-24.3 95%CI) of the surveyed households were using an improved toilet facility while they were 31.4 %(24.8-38.0 95% CI) in Batil and 39.8% (29.6-50.0 95% CI) in Kaya. It could be noted that the proportions of household with improved toilet facilities have decreased in Doro and Batil camps while they have increased in Kaya and Gendrassa camps. Given that in 2014, Kaya and Gendrassa camps were behind. It could be

assumed that those two camps accelerated the speed of moving to individual household latrines. However, on this matter, it is important to contextualize the results as in some camps having lower rates, the ownership by the refugee is higher since the refugees themselves are building their latrine and that might take longer to achieve a satisfactory ratio of improved toilet facility than another camp where the WASH agencies are taking the lead.

In terms of safe hygiene behaviour, the safe excreta disposal rates was satisfactory as 92.8% (88.2-97.5 95% CI) of the households in Doro, 87.2% (81.8-92.5.0 95% CI) in Batil, 98.6% (95.8-101.4 95% CI) in Gendrassa and 99.5% (98.9-100.2 95% CI) in Kaya disposed safely the excreta in the latrines.

4.6. Mosquito Net Coverage

The Long Lasting Insecticide Net (LLIN) mosquito net ownership is very satisfactory in terms of coverage in Batil, Gendrassa and Kaya camps as the rates were over the 80 % target while in Doro, the rate was slightly below. The percentage of households owning at least one LLIN mosquito net in Doro was found to be 77.2% (69.0-85.4 95% CI), 88.3 % (81.4-95.2 95% CI) in Batil, 85.5% (77.8-93.3 95% CI) in Gendrassa and 93.0% (89.8-96.2 95% CI) in Kaya. The coverage is above the recommended 70% coverage for the mosquito nets to have community level protection against malaria. The following results are derived from not only from respondents report but also through cross checking through direct observations of the mosquito nets availability in the households. In 2015, they have been targeted bed net distribution in all camps.

In terms of average number of person per LLIN, the UNHCR target stipulates that not more than 2 person should sleep under an LLIN. The lowest score belongs to Doro camp where 4 persons in average sleep under one recommended mosquito net. Other camps are slightly below the standards. Batil, Gendrassa and Kaya score respectively an average of 2.9, 2.9 and 2.6 sleeping under one LLIN mosquito net. However, considering the tukuls/tent structures, the applicability of 1 mnet per 2 individuals may be not practical as many people sleep together

The scores might improve in case the distribution shift from household target to household blanket distribution. However, the rationale of proceeding to target mosquito net distribution is that past experiences have shown the mosquito nets were misused and diverted to other usages. Also, the aim of target distribution is to assist those who are in real need. A part of household level target distribution, there is also facility level target distribution such as mothers at ANC and mothers at delivery. In 2015, mosquito nets were distributed to targeted families unlike the blanket distribution conducted in 2014

In 2015, 68.5% of the household members in Doro, 79.2% in Batil, 69.7% in Gendrassa and 79.2 % of them in Batil slept under an LLIN. In Doro, 78.3% of children 6-59 months, 92.2% in Batil, 87.2% in Gendrassa and 86.2% in Kaya slept under the recommended mosquito net. The percentage of pregnant women sleeping under LLIN was 68.5% in Doro, 79.5% in Batil, 97.7% in Gendrassa and 85.0% in Kaya. The percentages of household members and Children under five who slept under LLIN are lower in 2015 than 2014 while the percentages of pregnant women sleeping under LLIN are higher. This might be more or less due to the distribution targeting pregnant women at health facility level.

It is also worth mentioning that all camps have undergone in 2015 an Indoor Residual Spraying (IRS) as confirmed by more than 97 % of the respondents in all camps a part from Kaya (57%) where the IRS was not completed entirely completed at the time of data collection.

This achievements could explain why Malaria in terms of ranking is below RTIS and Diarrhoea in of 2015.

5. CONCLUSION

The results of the survey undertaken in October-November 2015 results showed a worsening improvement of the nutrition situation as compared with 2014 survey undertaken in November . The Global Acute Malnutrition prevalence which before were within UNHCR standards (GAM prevalence < 10 %) in 2014 survey in the medium range have increased in all camps. Despite the increase, Gendrassa camp was the less impacted with a GAM rate still within UNHCR standards. Yusuf Batil in Kaya camps were found to be in serious situation (GAM prevalence ≥ 10 and < 15). Doro is the most affected camp with a critical nutrition situation (GAM prevalence $\geq 15\%$).

Anaemia levels in children 6-59 months are very high and passed the public health significance (> 40%) as half of the children 6-59 months were found anaemic while in average one third of the women of reproductive age 15 to 49 years were also diagnosed anaemic.

Stunting is also showing high prevalence as in all camps, with prevalence over the threshold (prevalence 40%) and at least 40% of the children 6-59 months are stunted.

However, in general, Key IYCF indicators have also shown an improvement of the situation as compared with 2013.

Most of the health indicators are also satisfactory or at least acceptable. Routine vitamin A and measles supplementation are almost close to the recommended targets. Mosquito net coverage indicators could be classified from acceptable (almost meeting the target) to satisfactory (met the target coverage).

In terms of WASH, All households have access to drinkable water and an average of at least 84 % was satisfied with the water services in Batil, Kaya and Gendrassa while in Doro at least 50 % were partially satisfied. Depending on the camps, from 23 % to 64.8 % can afford the UNHCR recommended quantity of 20 litre per person per day and more than 50 % are meeting the SPHERE standards. In more than 92 % of the households, safe hygiene behaviour on excreta disposal has been noticed. More household are having access to improved toilet facility.

Given that some nutrition related health and WASH indicators were satisfactory, it could be suggested that the depletion of food assistance by 30% (due to pipeline/funding constrains), linked to the stoppage of milling vouchers and coupled with the morbidity incidences have contributed to worsen the situation. However, it is also important to notice that the lack and delays in putting in place or insure the comprehensiveness of certain interventions such as anaemia education strategy and well-structured agriculture/livelihoods strategy as well as early preposition preventing some interventions to take place might have substantially contributed to the increase of malnutrition levels in Maban camps.

6. RECOMMENDATION AND PRIORITIES

IMMEDIATE TERM

- UNHCR and Nutrition partners to immediately draft and anaemia reduction strategy document and implement the strategy
- WFP to consider bringing back the GFD ration to 100% as well as exploring the possibility to re-instate the milling vouchers implementation. UNHCR to support WFP on lobbying and funding research for this matter
- UNHCR and Nutrition Partners to implement the qualitative assessment on Pregnant and Lactating Women
- UNHCR and Nutrition partners to reinforce the link between anaemia reduction and IYCF by putting more emphasis on iron and micronutrient –related issues during the MSGs sessions and food demonstration
- UNHCR, WFP and Nutrition partners to maintain the current curative activities (TSFP, OTP, SC)
- UNICEF to continue supporting the camps on SAM nutrition supplies (RUTF, RUSF) and anthropometric material and medicines delivery as well as trainings.
- WFP and UNHCR to introduce Fortified Blend Food (FBF) to the GFD ration to cater for minimal micronutrient blended food for the population
- UNHCR and WFP to implement BSFP for children 6-59 months with CSB++ for twelve months
- UNHCR and WFP to implement BSFP for children 6-23 months with CSB++
- WFP to expedite the preposition on ground of all required nutrition and GFD items before the rainy season

MEDIUM TERM

- UNHCR, FAO and WFP to coordinate on immediate implementation of livelihood strategies such as: early seed distribution planning with beneficiaries profiling
- UNHCR, UNICEF and Nutrition partners to review the Infant and Young Child Feeding Interventions, especially the monitoring and follow up as well as aspect to improve the IYCF indicators.
- WFP, UNHCR and partners to resume the Post Distribution Monitoring (PDM)
- WFP to carry out a food security assessment
- UNHCR and partner to conduct the SENS nutrition survey planned by end Year 2016
- UNHCR, Nutrition and Livelihood partners to expand the intervention consisting on providing kitchen gardening seeds to other Mother Support Groups

LONG TERM

- UNHCR and Nutrition partners to strengthen the integration aspects of health, nutrition, WASH and Food Security
- UNHCR, CRA, government and livelihood partners to expedite all prerequisites on the use of available land for cropping

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8. SURVEY TEAM

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9. APPENDICES

9.1. Appendix 1: SMART Plausibility Check Reports

SMART Plausibility Check Report – Doro

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
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Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of in-range subjects)			0	5	10	20	0 (1.6 %)

Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	0 (p=0.350)

Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	10 (p=0.000)

Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	0	(3)	

Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	2	(10)	

Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	0	(7)	

Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.		and	and	and	or		
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
	0	2	6	20	0	(1.04)	

Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
	0	1	3	5	0	(-0.06)	

Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
	0	1	3	5	1	(-0.30)	

Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
	0	1	3	5	1	(p=0.019)	

OVERALL SCORE WHZ =		0-9	10-14	15-24	>25	14 %
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The overall score of this survey is 14 %, this is good.

Appendix 2: SMART Plausibility Check Report – Yusuf Batil**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
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Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of in-range subjects)			0	5	10	20	0 (1.2 %)

Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	0 (p=0.909)

Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	10 (p=0.000)

Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	0	(3)	

Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	2	(10)	

Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	0	(6)	

Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.		and	and	and	or		
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	2	6	20	0 (0.98)

Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
	0	1	3	5	0	(-0.06)	

Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
	0	1	3	5	0	(0.08)	

Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
	0	1	3	5	0	(p=0.441)	

OVERALL SCORE WHZ =		0-9	10-14	15-24	>25	12 %
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The overall score of this survey is 12 %, this is good.

SMART Plausibility Check Report – Gendrassa**Standard/Reference used for z-score calculation: WHO standards 2006**

(Flagged data is included in the evaluation)

Overall data quality**Overall data quality**

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
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Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of in-range subjects)			0	5	10	20	0 (0.6 %)

Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	2 (p=0.087)

Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	10 (p=0.000)

Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	0	(5)	

Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	2	(10)	

Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
	0	2	4	10	2	(8)	

Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.		and	and	and	or		
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
	0	2	6	20	0	(0.93)	

Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
	0	1	3	5	1	(-0.25)	

Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
	0	1	3	5	1	(0.37)	

Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
	0	1	3	5	0	(p=0.283)	

OVERALL SCORE WHZ =		0-9	10-14	15-24	>25	18 %
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The overall score of this survey is 18 %, this is acceptable.

SMART Plausibility Check Report – Kaya**Standard/Reference used for z-score calculation: WHO standards 2006**

(Flagged data is included in the evaluation)

Overall data qualityCriteria Flags* Unit Excel. Good Accept Problematic **Score**

Flagged data Incl % 0-2.5 >2.5-5.0 >5.0-7.5 >7.5
 (% of in-range subjects) 0 5 10 20 **0** (1.8 %)

Overall Sex ratio Incl p >0.1 >0.05 >0.001 <=0.001
 (Significant chi square) 0 2 4 10 **0** (p=0.100)

Overall Age distrib Incl p >0.1 >0.05 >0.001 <=0.001
 (Significant chi square) 0 2 4 10 **10** (p=0.000)

Dig pref score - weight Incl # 0-7 8-12 13-20 > 20
 0 2 4 10 **0** (3)

Dig pref score - height Incl # 0-7 8-12 13-20 > 20
 0 2 4 10 **2** (10)

Dig pref score - MUAC Incl # 0-7 8-12 13-20 > 20
 0 2 4 10 **2** (9)

Standard Dev WHZ Excl SD <1.1 <1.15 <1.20 >=1.20
 and and and or
 Excl SD >0.9 >0.85 >0.80 <=0.80
 0 2 6 20 **0** (0.95)

Skewness WHZ Excl # <±0.2 <±0.4 <±0.6 >=±0.6
 0 1 3 5 **0** (0.14)

Kurtosis WHZ Excl # <±0.2 <±0.4 <±0.6 >=±0.6
 0 1 3 5 **0** (0.09)

Poisson dist WHZ-2 Excl p >0.05 >0.01 >0.001 <=0.001
 0 1 3 5 **0** (p=0.441)

OVERALL SCORE WHZ = 0-9 10-14 15-24 >25 **14** %

The overall score of this survey is 14 %, this is good.

9.2. Appendix 2: Assignments of Clusters***Doro Cluster Allocation***

Community	Sheikh	Cluster
Agadi	Abdallah Adarif Alum	
	Abtos Alhaj	
	Adam Karoth Ahmed	
	Adam Nimir Ahmed	
	Ali Mallah Bardos	
Anyile	Juma Matar	1
Baldugu	Akos Adut	
	Karkab Gassim	2
	Khalifa Rajab	
	Ramadan Mohamed	
	Yaguk Jabir	
Balila	Delil Zaik	3,4
Balila Dawala	Idris Mohamed	
Bee	Bebai Bam	5,6
Belatuma	Samual Jeka	7,8,9
	Talha Jebal	
Benamayu 1	Joshua Musa	10,RC
Benamayu 2	Raha Erke Ube	11
Borfa	Musa Labib	12
Chali 1	Alnur Waya	13,14
Chali 2	Abdalbakheit Luye	RC,15
Darfur 1	Suleiman Ibrahim	
Darfur 2	Juma Adam	
Dereng	Jakam Komea Borfa	
	Khalifa Abdallah	
Dendiro	Atom Khemis Jarom	
Gabanite	Abdrahman Matar	16
	Alfil Juma Adam	
	Alumda Mismis Dido	
	Asheib Barach	
	Mohamed Balal Khalifa	17
	Rajab Ponj Alemin	
	Sabir Medani Tifil	
Jabel Morufa	Omar Toffa Balla	
Jeigo	Aduma Khemis	
	Babu Idris	
	Rajab Hamad	
Jindi	Liman Haris	18,19
	Sila Hassan	20
Kernkan	Osman Jebaroun	21
Kilgo	Abas Doka Sadiq	
	Algali Mallah	

	Kamal Ykuob Jaden	
	Mahajub Ateib Musa	
	Musa Abu	
	Rajab Abdallah	
Kolnugura	Philip Timiri	22,23
Kukuli	Abdallah Bendel	
	Behaidin Abduallah	
Mayak 1	Ali Shatta	24
Mayak 2	Alfeki Woro Lal	25
Mayak 3	Owles Agago	RC
Mugum	Ardeb Jabuk	
Nuba	Kuku Adam	
Null	Null	
Samari 1	Ismail Kanyi	26
Samari 2	Ali Yanti	27
Samari 3	Tisko Wadaga	
Samari 4	Sabanai Philip	RC
Soda	Joseph Nota	
Surkum	Sadallah Bashir	28
Tongo	Ahmed Debit	
Wadaga	Abusok Idris	29
	Ranmadan Anaim	30
	Yousif Abdallah	
Wego	Jubara Mohamud	
Yabus	Khalid Itinen	31
Zariba	Nureen Omar	32

Batil Cluster Allocation

UMDA	SHEIKH	POP	CLUSTER
Ahmed Mahajoub Adam	Agabalabun Hamadanil	77	
	Ahmed Shukri	12	
	Bade Kambal Albay	14	
	Alyas Ajabon	173	
Ali Jakalo	Abdalla Mohammed Adam	177	
	Aburas Abdalla Turmbal	481	
	Ali Jakolo Suliman	988	1
	Jadain Meaida Alemin	193	2
	Jader Galmo Eta	246	
	Juma Bilel	1012	3
	Khamis Abulang	173	
	Mohammed Godor Male	327	
	Musa Bagar	498	4
	Osman Mohammed Makawi	602	
	Sarduk Dol Ahmed	1507	5
Almak Mufatish Meleh	Abduli Gulus	72	
	Abdulmajid Tom	925	6
	Abusita Suliman Lol	721	7
	Albashir Saad Lol	1281	8
	Abur Hussein Adam	754	RC
	Asadig Tayog Som	1389	9
	Bashir Komodan Lol	459	
	Mufatish Hamid Kon	992	10
	Osman Karab Asheikh	1093	11
	Ramadhan Safa John	872	RC
	Sabun Mugort Jor	1104	12
	Sadig Malag Alnur	506	
	Saraf Aljundi Sadig	1324	13,14
Alnumeri Maki	Aburizig Hangug	1327	RC
	Alfaki Tifil	82	
	Khalifa Gasim	856	15
	Khalifa Nasir	705	
Gedem Sil Sil	Alnil Alkheir Aseemut	644	16
	Asad Matar Margan	159	
	Babikir Bungut Toksuma	422	
	Bakhit Berfa Dor	362	17
	Bashir Eissa Leyam	266	
	Bungut Bata Jabvir	518	
	Bunzuga Bonj Rafar	189	
	Darwish Shawish Waifa	520	18
	Erka Kheiralla Tirlgel	455	
	Fadalmula Som	422	19

	Hassen Ratina Hussein	355	
	Hussein Batel Kalfa	417	
	Jor Mahadi Aljundi	150	20
	Khames Kurmuk Yok	492	
	Lagot Daso Eda	374	
	Mohammed Tongut Kadamas	239	
	Mohammed Umran Idriss	317	21
	NULL	13	
	Suliman Air Lay	595	
Hamid Joda	Abbud Hassen Haroun	378	22
	Abdullahi Yousif Alwali	235	
	Alamin Kotom Gogain	310	
	Aldew Altom Abdalla	452	23
	Alnazir Joda Altom	360	
	Altom Rajab Saed	527	
	Bakhit Munsour Alamin	445	RC
	Idris Mohammed Saad	339	
	Maduk Musa Moi	783	24
	Nuri Abdalla Jaifa	611	
	Omer Maida Abdalla	760	25
Ibrahim Adam	Abdalla Dikam Abas	76	
	Abdulazim Baduri	62	
	Abdulgadir Hamdan Alyam	101	
	Ahmed Ageed Jalal	24	
	Albay Suliman Taga	31	
	Ali Hano Salim	17	
	Asaad Alnair	109	
	Awadalla Almudir Barakat	13	
	Babikir Humdan	59	
	Ibrahim Idres Turok	52	
	Kawaja Omer Abdalla/Adalil Ramadan Bashir	90	
	Nasradein Badawi Balol	7	
	Null	6	
	Tumsah Adlan Suat	30	26
Jakalo Adam	Ali Matar Makana	166	
	Jahala akassala Omer	167	
	Jakolo Adam	461	
	NULL	4	
	Osman Siliman	208	
Mistirbis Abushok	Adam Jurfa Hamid	450	27
	Ibrahim Alfil Alabyat	156	
	Ibrahim Bade Falah	427	
	Ismaeil Meleh Hussein	196	
	Musa Mufatish Abdalla	208	28

	Nile Yassin Sanduk	230	
	NULL	25	
Rajab Serdal	Abjal Gumfa Suldak	601	
	Alshaieb Asyak Koi	311	29
	Awad Doka Konzar	369	
	Eissa Semat Belfa	311	
	Juma Megas Kol	413	30
	Moon Jumada Shanfa	393	
	Sebit Alum	456	
	Umbasha Alamin Leyam	1375	31,32

Gendrassa Cluster Allocation

COMMUNITY	SHEIKHS	POPULATION	CLUSTER
Bau	Abdulgadir Karam	165	
	Asir Tilyan	501	1
	Hessen Bagar	1756	2,3,4,RC
Fademia	About Jamum	148	
	Almansy Khamis	495	5
	Bade Altom	95	
	Bakhit Masom	511	6
	Matar Yasin	165	RC
	Sabit Balla	738	RC
JumJum	Adam Abdallah	18	
Kukurs	Abass Abdallaziz	450	7
	Alhadi Semat	1616	8,9,RC
	Alhaji Afandi	480	10
	Ali Aljudi	1425	11,12,13
	Azaki Saad	762	14,15
	Bashir Hassan	319	
	Eid Atom	1425	16,17,18
	Khalifa Bakhit	1220	19,20,21
	Mohammed Doka	380	22
	Nimir Siliman	612	23
	Ramadhani Yagub	208	
	Sadik Adud	474	24
Magaja	Abdalah Isa	192	25
	Abdallah Oman	114	
	Nimeri Al Amin	71	
	Rajab Alhaj	305	26
	Alhadi Semat	6	
Soda North	Alfaki Bata	332	
	Ohmeda Ahmed Musa	1131	27,28,29
	Mohamud Atom	342	
Soda South	Ibrahim Siliman	506	30
	Tifil Saad	233	31
	Timsah Ali	431	32

Kaya Cluster Allocation

COMMUNITY	SHEIKHS	Population size	Cluster
Armau	Abdallah Bashir	359	RC
Asilik	Fetish Kol	593	1
Baldugu	Almak Farna	33	
Belmet	Alfaki Baras	868	2
Bindisi	Siliman Abdaraman	15	
Bofe	Hassan Hussein Rama	269	3
Fuguluk	Mahmud Deen Issa	49	
Gabanite	Balla Albe	698	4
Godor	Mohamed Yousif Bashir	630	5
Guren	Rajab Seid	716	6
Joda	Abdallazim Ahmed Turuk	73	7
JumJum	NULL	27	
	Adam Abdallah	470	
Kaltuma	Ramadan Said	128	8
Kamer	Osman Alemin	1015	9
Kamerol Garib	Mohammed Musa Wangi	555	10
Kamerol Sharig	Wadbes Nimer	742	11,12
Kurba	Ateib Kojeli	451	13
Lifir	Osman Som	736	14
Mada	Alhaj Diar Jubara	106	
Magaja	Null	34	
	Abdulgadir Hamdan Alyam	113	
	Agabalabun Hamadanil	95	
	Ahmed Ageed Jalal	52	
	Ahmed Shukri	107	15
	Albay Suliman Taga	62	
	Ali Hano Salim	104	
	Awadalla Almudir Barakat	95	
	Garum Mahamoud Bashir	70	
	Ibrahim Idris Turok	121	
	Kawaja Omer Abdalla/Adalil Ramadan Bashir	94	16
	Nasradein Badawi Balol	117	
	Saad Shelbi	460	17
	Tumsah Adlan Suat	111	
Mak	Abdallah Nimer	1040	18,19
Malifa	Abdrahaman Gumfut	395	
Mayak	Hajer Abomina	147	20
Medelik	Atom Tayuk	628	21
Mifol	Daeab Bagar Adam	1352	22,23
Mol	Mordien Awad	852	24
Mose	Monjil Mol Nassir	359	25

Mufu	Almina Jarum	378	26
	Gisiz Ateib	46	
	Sheikh Limam Mobruk	72	
Purdubel Garib	Ortha Adow	409	27
Purdubel Sharig	Hassan Rabi	692	28
Sabunabut	Mohamed Yousif Joda	601	RC
Soda	Madani Bafe	449	RC
Soda Amol	Abas Albe	315	
Tomfona	Maki Seid	204	29
Tormile	Nasrideen Abdallah Adam	468	
Wadabok	Alhadi Adam	172	30
Wadaga	Mohandis Shawish	390	
	Hassan Abdalgelil	413	RC
	Isaac Abdarahaman	1176	31,32

9.3. Appendix 3: Result Tables for NCHS growth reference 1977**Results Tables for NCHS growth reference 1977-Doro Camp****Table 163:** Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 759	Boys n = 392	Girls n = 367
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(128) 16.9 % (13.7 - 20.5 95% C.I.)	(78) 19.9 % (15.5 - 25.2 95% C.I.)	(50) 13.6 % (10.3 - 17.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(119) 15.7 % (12.6 - 19.3 95% C.I.)	(74) 18.9 % (14.8 - 23.8 95% C.I.)	(45) 12.3 % (8.8 - 16.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(9) 1.2 % (0.6 - 2.3 95% C.I.)	(4) 1.0 % (0.4 - 2.6 95% C.I.)	(5) 1.4 % (0.6 - 3.1 95% C.I.)

The prevalence of oedema is 0.0 %

Table 164: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (>= -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	172	2	1.2	32	18.6	138	80.2	0	0.0
18-29	226	4	1.8	43	19.0	179	79.2	0	0.0
30-41	157	2	1.3	14	8.9	141	89.8	0	0.0
42-53	159	1	0.6	26	16.4	132	83.0	0	0.0
54-59	45	0	0.0	4	8.9	41	91.1	0	0.0
Total	759	9	1.2	119	15.7	631	83.1	0	0.0

Table 165: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 9 (1.2 %)	Not severely malnourished No. 755 (98.8 %)

Table 166: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 771	Boys n = 398	Girls n = 373
Prevalence of global malnutrition (< 125 mm and/or oedema)	(43) 5.6 % (3.7 - 8.2 95% C.I.)	(20) 5.0 % (3.2 - 7.9 95% C.I.)	(23) 6.2 % (3.7 - 10.2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(39) 5.1 % (3.3 - 7.7 95% C.I.)	(19) 4.8 % (2.9 - 7.7 95% C.I.)	(20) 5.4 % (3.1 - 9.2 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(4) 0.5 % (0.2 - 1.4 95% C.I.)	(1) 0.3 % (0.0 - 1.9 95% C.I.)	(3) 0.8 % (0.3 - 2.5 95% C.I.)

Table 167: 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	176	3	1.7	27	15.3	146	83.0	0	0.0
18-29	232	1	0.4	9	3.9	222	95.7	0	0.0
30-41	158	0	0.0	1	0.6	157	99.4	0	0.0
42-53	160	0	0.0	2	1.3	158	98.8	0	0.0
54-59	45	0	0.0	0	0.0	45	100.0	0	0.0
Total	771	4	0.5	39	5.1	728	94.4	0	0.0

Table 168: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 759
Prevalence of global acute malnutrition (<80% and/or oedema)	(78) 10.3 % (7.9 - 13.2 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(73) 9.6 % (7.2 - 12.7 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(5) 0.7 % (0.2 - 1.8 95% C.I.)

Table 169: 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	172	1	0.6	22	12.8	149	86.6	0	0.0
18-29	226	1	0.4	27	11.9	198	87.6	0	0.0
30-41	157	2	1.3	9	5.7	146	93.0	0	0.0
42-53	159	1	0.6	12	7.5	146	91.8	0	0.0
54-59	45	0	0.0	3	6.7	42	93.3	0	0.0
Total	759	5	0.7	73	9.6	681	89.7	0	0.0

Table 170: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 767	Boys n = 394	Girls n = 373
Prevalence of underweight (<-2 z-score)	(320) 41.7 % (36.7 - 47.0 95% C.I.)	(180) 45.7 % (39.9 - 51.5 95% C.I.)	(140) 37.5 % (31.4 - 44.1 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and ≥ -3 z-score)	(222) 28.9 % (25.2 - 33.0 95% C.I.)	(123) 31.2 % (26.4 - 36.5 95% C.I.)	(99) 26.5 % (22.6 - 30.9 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(98) 12.8 % (10.5 - 15.5 95% C.I.)	(57) 14.5 % (11.4 - 18.2 95% C.I.)	(41) 11.0 % (7.5 - 15.8 95% C.I.)

Table 171: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		Moderate underweight (≥ -3 and <-2 z-score)		Normal (≥ -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	173	20	11.6	45	26.0	108	62.4	0	0.0
18-29	231	46	19.9	85	36.8	100	43.3	0	0.0
30-41	158	20	12.7	36	22.8	102	64.6	0	0.0
42-53	160	11	6.9	44	27.5	105	65.6	0	0.0
54-59	45	1	2.2	12	26.7	32	71.1	0	0.0
Total	767	98	12.8	222	28.9	447	58.3	0	0.0

Table 172: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 713	Boys n = 374	Girls n = 339
Prevalence of stunting (<-2 z-score)	(254) 35.6 % (31.2 - 40.3 95% C.I.)	(143) 38.2 % (33.5 - 43.2 95% C.I.)	(111) 32.7 % (26.7 - 39.5 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥ -3 z-score)	(168) 23.6 % (19.8 - 27.8 95% C.I.)	(99) 26.5 % (21.4 - 32.2 95% C.I.)	(69) 20.4 % (16.0 - 25.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(86) 12.1 % (9.6 - 15.0 95% C.I.)	(44) 11.8 % (8.6 - 15.9 95% C.I.)	(42) 12.4 % (9.2 - 16.5 95% C.I.)

Table 173: 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	157	5	3.2	34	21.7	118	75.2
18-29	216	42	19.4	54	25.0	120	55.6
30-41	149	18	12.1	26	17.4	105	70.5
42-53	147	15	10.2	44	29.9	88	59.9
54-59	44	6	13.6	10	22.7	28	63.6
Total	713	86	12.1	168	23.6	459	64.4

Table 174: 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	759	-1.10 \pm 0.91	1.49	10	5
Weight-for-Age	767	-1.73 \pm 1.10	2.03	3	4
Height-for-Age	713	-1.49 \pm 1.27	1.53	9	52

* contains for WHZ and WAZ the children with edema.

Results Tables for NCHS growth reference 1977-Batil Camp

Table 175: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 682	Boys n = 342	Girls n = 340
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(76) 11.1 % (8.6 - 14.3 95% C.I.)	(40) 11.7 % (8.5 - 15.9 95% C.I.)	(36) 10.6 % (7.6 - 14.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and ≥ -3 z-score, no oedema)	(63) 9.2 % (7.1 - 12.0 95% C.I.)	(33) 9.6 % (6.8 - 13.5 95% C.I.)	(30) 8.8 % (6.1 - 12.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(13) 1.9 % (1.0 - 3.6 95% C.I.)	(7) 2.0 % (1.0 - 4.0 95% C.I.)	(6) 1.8 % (0.8 - 3.7 95% C.I.)

The prevalence of oedema is 0.1 %

Table 176: 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	169	2	1.2	18	10.7	149	88.2	0	0.0
18-29	179	7	3.9	19	10.6	152	84.9	1	0.6
30-41	107	2	1.9	12	11.2	93	86.9	0	0.0
42-53	174	1	0.6	10	5.7	163	93.7	0	0.0
54-59	53	0	0.0	4	7.5	49	92.5	0	0.0
Total	682	12	1.8	63	9.2	606	88.9	1	0.1

Table 177: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	≥-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 1 (0.1 %)
Oedema absent	Marasmic No. 13 (1.9 %)	Not severely malnourished No. 672 (98.0 %)

Table 178: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 686	Boys n = 345	Girls n = 341
Prevalence of global malnutrition (< 125 mm and/or oedema)	(33) 4.8 % (3.3 - 7.0 95% C.I.)	(10) 2.9 % (1.7 - 5.0 95% C.I.)	(23) 6.7 % (4.0 - 11.2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and ≥ 115 mm, no oedema)	(28) 4.1 % (2.7 - 6.1 95% C.I.)	(7) 2.0 % (1.0 - 4.0 95% C.I.)	(21) 6.2 % (3.6 - 10.5 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(5) 0.7 % (0.3 - 1.7 95% C.I.)	(3) 0.9 % (0.3 - 2.7 95% C.I.)	(2) 0.6 % (0.1 - 2.4 95% C.I.)

Table 179: 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	170	2	1.2	17	10.0	151	88.8	0	0.0
18-29	181	0	0.0	7	3.9	174	96.1	1	0.6
30-41	107	1	0.9	2	1.9	104	97.2	0	0.0
42-53	175	0	0.0	2	1.1	173	98.9	0	0.0
54-59	53	1	1.9	0	0.0	52	98.1	0	0.0
Total	686	4	0.6	28	4.1	654	95.3	1	0.1

Table 180: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 682
Prevalence of global acute malnutrition (<80% and/or oedema)	(47) 6.9 % (5.0 - 9.4 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and ≥ 70%, no oedema)	(43) 6.3 % (4.7 - 8.4 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(4) 0.6 % (0.2 - 1.9 95% C.I.)

Table 181: 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	169	0	0.0	8	4.7	161	95.3	0	0.0
18-29	179	2	1.1	16	8.9	160	89.4	1	0.6
30-41	107	1	0.9	10	9.3	96	89.7	0	0.0
42-53	174	0	0.0	7	4.0	167	96.0	0	0.0
54-59	53	0	0.0	2	3.8	51	96.2	0	0.0
Total	682	3	0.4	43	6.3	635	93.1	1	0.1

Table 182: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 680	Boys n = 342	Girls n = 338
Prevalence of underweight (<-2 z-score)	(344) 50.6 % (45.4 - 55.8 95% C.I.)	(175) 51.2 % (44.1 - 58.2 95% C.I.)	(169) 50.0 % (43.5 - 56.5 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and ≥ -3 z-score)	(252) 37.1 % (33.0 - 41.3 95% C.I.)	(130) 38.0 % (32.3 - 44.1 95% C.I.)	(122) 36.1 % (30.1 - 42.5 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(92) 13.5 % (10.9 - 16.7 95% C.I.)	(45) 13.2 % (9.3 - 18.4 95% C.I.)	(47) 13.9 % (10.2 - 18.6 95% C.I.)

Table 183: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		Moderate underweight (≥ -3 and <-2 z-score)		Normal (≥ -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	167	15	9.0	56	33.5	96	57.5	0	0.0
18-29	179	28	15.6	76	42.5	75	41.9	1	0.6
30-41	106	21	19.8	31	29.2	54	50.9	0	0.0
42-53	175	24	13.7	65	37.1	86	49.1	0	0.0
54-59	53	4	7.5	24	45.3	25	47.2	0	0.0
Total	680	92	13.5	252	37.1	336	49.4	1	0.1

Table 184: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 659	Boys n = 331	Girls n = 328
Prevalence of stunting (<-2 z-score)	(312) 47.3 % (42.2 - 52.5 95% C.I.)	(160) 48.3 % (42.5 - 54.3 95% C.I.)	(152) 46.3 % (40.0 - 52.8 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥ -3 z-score)	(194) 29.4 % (25.8 - 33.3 95% C.I.)	(95) 28.7 % (24.5 - 33.3 95% C.I.)	(99) 30.2 % (24.8 - 36.2 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(118) 17.9 % (15.2 - 21.0 95% C.I.)	(65) 19.6 % (15.1 - 25.1 95% C.I.)	(53) 16.2 % (12.1 - 21.2 95% C.I.)

Table 185: Prevalence of stunting by age based on height-for-age z-scores

		Severe stunting (<-3 z-score)		Moderate stunting (≥ -3 and <-2 z-score)		Normal (≥ -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	162	16	9.9	41	25.3	105	64.8
18-29	177	25	14.1	51	28.8	101	57.1
30-41	100	20	20.0	36	36.0	44	44.0
42-53	168	46	27.4	49	29.2	73	43.5
54-59	52	11	21.2	17	32.7	24	46.2
Total	659	118	17.9	194	29.4	347	52.7

Table 186: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores \pm SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	681	-0.99 \pm 0.88	1.28	2	4
Weight-for-Age	680	-1.95 \pm 0.96	1.78	2	5
Height-for-Age	659	-1.96 \pm 1.16	1.70	1	27

* contains for WHZ and WAZ the children with edema.

Results Tables for NCHS growth reference 1977-Gendrassa Camp**Table 187:** Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 681	Boys n = 362	Girls n = 319
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(68) 10.0 % (7.3 - 13.5 95% C.I.)	(38) 10.5 % (7.5 - 14.5 95% C.I.)	(30) 9.4 % (6.2 - 14.0 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(59) 8.7 % (6.2 - 12.0 95% C.I.)	(35) 9.7 % (6.8 - 13.6 95% C.I.)	(24) 7.5 % (4.6 - 12.0 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(9) 1.3 % (0.7 - 2.4 95% C.I.)	(3) 0.8 % (0.3 - 2.5 95% C.I.)	(6) 1.9 % (0.9 - 3.9 95% C.I.)

The prevalence of oedema is 0.0 %

Table 188: 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	139	2	1.4	12	8.6	125	89.9	0	0.0
18-29	223	4	1.8	23	10.3	196	87.9	0	0.0
30-41	118	1	0.8	7	5.9	110	93.2	0	0.0
42-53	175	2	1.1	14	8.0	159	90.9	0	0.0
54-59	26	0	0.0	3	11.5	23	88.5	0	0.0
Total	681	9	1.3	59	8.7	613	90.0	0	0.0

Table 189: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 9 (1.3 %)	Not severely malnourished No. 674 (98.7 %)

Table 190: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 688	Boys n = 367	Girls n = 321
Prevalence of global malnutrition (< 125 mm and/or oedema)	(16) 2.3 % (1.4 - 3.8 95% C.I.)	(7) 1.9 % (0.8 - 4.2 95% C.I.)	(9) 2.8 % (1.5 - 5.0 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(13) 1.9 % (1.0 - 3.4 95% C.I.)	(5) 1.4 % (0.5 - 3.8 95% C.I.)	(8) 2.5 % (1.3 - 4.7 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(3) 0.4 % (0.1 - 1.4 95% C.I.)	(2) 0.5 % (0.1 - 2.2 95% C.I.)	(1) 0.3 % (0.0 - 2.4 95% C.I.)

Table 191: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	143	2	1.4	6	4.2	135	94.4	0	0.0
18-29	224	0	0.0	4	1.8	220	98.2	0	0.0
30-41	118	0	0.0	1	0.8	117	99.2	0	0.0
42-53	177	0	0.0	2	1.1	175	98.9	0	0.0
54-59	26	1	3.8	0	0.0	25	96.2	0	0.0
Total	688	3	0.4	13	1.9	672	97.7	0	0.0

Table 192: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 681
Prevalence of global acute malnutrition (<80% and/or oedema)	(39) 5.7 % (4.1 - 7.9 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(39) 5.7 % (4.1 - 7.9 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 193: Prevalence of malnutrition by age, based on weight-for-height percentage of the median and oedema

		Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	139	0	0.0	10	7.2	129	92.8	0	0.0
18-29	223	0	0.0	12	5.4	211	94.6	0	0.0
30-41	118	0	0.0	5	4.2	113	95.8	0	0.0
42-53	175	0	0.0	9	5.1	166	94.9	0	0.0
54-59	26	0	0.0	3	11.5	23	88.5	0	0.0
Total	681	0	0.0	39	5.7	642	94.3	0	0.0

Table 194: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 684	Boys n = 366	Girls n = 318
Prevalence of underweight (<-2 z-score)	(307) 44.9 % (40.1 - 49.7 95% C.I.)	(169) 46.2 % (40.3 - 52.2 95% C.I.)	(138) 43.4 % (36.5 - 50.6 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(257) 37.6 % (33.9 - 41.4 95% C.I.)	(142) 38.8 % (33.9 - 44.0 95% C.I.)	(115) 36.2 % (30.3 - 42.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(50) 7.3 % (5.4 - 9.9 95% C.I.)	(27) 7.4 % (5.1 - 10.6 95% C.I.)	(23) 7.2 % (4.3 - 11.9 95% C.I.)

Table 195: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z- score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	139	6	4.3	41	29.5	92	66.2	0	0.0
18-29	224	17	7.6	99	44.2	108	48.2	0	0.0
30-41	118	12	10.2	35	29.7	71	60.2	0	0.0
42-53	177	13	7.3	72	40.7	92	52.0	0	0.0
54-59	26	2	7.7	10	38.5	14	53.8	0	0.0
Total	684	50	7.3	257	37.6	377	55.1	0	0.0

Table 196: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 667	Boys n = 354	Girls n = 313
Prevalence of stunting (<-2 z-score)	(263) 39.4 % (34.5 - 44.6 95% C.I.)	(148) 41.8 % (36.5 - 47.3 95% C.I.)	(115) 36.7 % (30.2 - 43.8 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥ -3 z-score)	(186) 27.9 % (24.2 - 31.9 95% C.I.)	(105) 29.7 % (25.1 - 34.6 95% C.I.)	(81) 25.9 % (20.8 - 31.7 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(77) 11.5 % (9.1 - 14.5 95% C.I.)	(43) 12.1 % (9.4 - 15.6 95% C.I.)	(34) 10.9 % (7.1 - 16.4 95% C.I.)

Table 197: Prevalence of stunting by age based on height-for-age z-scores

		Severe stunting (<-3 z-score)		Moderate stunting (≥ -3 and <-2 z-score)		Normal (≥ -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	136	6	4.4	29	21.3	101	74.3
18-29	219	27	12.3	67	30.6	125	57.1
30-41	113	11	9.7	34	30.1	68	60.2
42-53	173	28	16.2	52	30.1	93	53.8
54-59	26	5	19.2	4	15.4	17	65.4
Total	667	77	11.5	186	27.9	404	60.6

Table 198: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores \pm SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	681	-1.01 \pm 0.83	1.69	8	2
Weight-for-Age	684	-1.82 \pm 0.89	1.54	4	3
Height-for-Age	667	-1.72 \pm 1.08	1.70	8	16

* contains for WHZ and WAZ the children with edema.

Results Tables for NCHS growth reference 1977-Kaya Camp

Table 199: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 671	Boys n = 359	Girls n = 312
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(82) 12.2 % (9.6 - 15.4 95% C.I.)	(52) 14.5 % (10.8 - 19.2 95% C.I.)	(30) 9.6 % (7.2 - 12.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(73) 10.9 % (8.3 - 14.2 95% C.I.)	(47) 13.1 % (9.5 - 17.8 95% C.I.)	(26) 8.3 % (6.0 - 11.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(9) 1.3 % (0.7 - 2.7 95% C.I.)	(5) 1.4 % (0.6 - 3.3 95% C.I.)	(4) 1.3 % (0.5 - 3.3 95% C.I.)

The prevalence of oedema is 0.1 %

Table 200: 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	169	2	1.2	19	11.2	147	87.0	1	0.6
18-29	162	2	1.2	29	17.9	131	80.9	0	0.0
30-41	139	1	0.7	9	6.5	129	92.8	0	0.0
42-53	162	2	1.2	14	8.6	145	89.5	1	0.6
54-59	39	0	0.0	2	5.1	37	94.9	0	0.0
Total	671	7	1.0	73	10.9	589	87.8	2	0.3

Table 201: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	≥ -3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 2 (0.3 %)
Oedema absent	Marasmic No. 9 (1.3 %)	Not severely malnourished No. 670 (98.4 %)

Table 202: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 683	Boys n = 364	Girls n = 319
Prevalence of global malnutrition (< 125 mm and/or oedema)	(22) 3.2 % (2.2 - 4.8 95% C.I.)	(8) 2.2 % (1.2 - 4.0 95% C.I.)	(14) 4.4 % (2.5 - 7.5 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and ≥ 115 mm, no oedema)	(19) 2.8 % (1.8 - 4.4 95% C.I.)	(8) 2.2 % (1.2 - 4.0 95% C.I.)	(11) 3.4 % (1.7 - 6.8 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(3) 0.4 % (0.1 - 1.3 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(3) 0.9 % (0.3 - 2.9 95% C.I.)

Table 203: 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	176	2	1.1	11	6.3	163	92.6	1	0.6
18-29	163	0	0.0	7	4.3	156	95.7	0	0.0
30-41	139	0	0.0	1	0.7	138	99.3	0	0.0
42-53	166	0	0.0	0	0.0	166	100.0	1	0.6
54-59	39	0	0.0	0	0.0	39	100.0	0	0.0
Total	683	2	0.3	19	2.8	662	96.9	2	0.3

Table 204: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 671
Prevalence of global acute malnutrition (<80% and/or oedema)	(48) 7.2 % (5.7 - 9.0 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(43) 6.4 % (5.0 - 8.2 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(5) 0.7 % (0.3 - 1.7 95% C.I.)

Table 205: 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	169	0	0.0	11	6.5	157	92.9	1	0.6
18-29	162	0	0.0	18	11.1	144	88.9	0	0.0
30-41	139	1	0.7	6	4.3	132	95.0	0	0.0
42-53	162	2	1.2	6	3.7	153	94.4	1	0.6
54-59	39	0	0.0	2	5.1	37	94.9	0	0.0
Total	671	3	0.4	43	6.4	623	92.8	2	0.3

Table 206: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 677	Boys n = 361	Girls n = 316
Prevalence of underweight (<-2 z-score)	(355) 52.4 % (47.8 - 57.0 95% C.I.)	(194) 53.7 % (46.8 - 60.5 95% C.I.)	(161) 50.9 % (45.6 - 56.3 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and ≥ -3 z-score)	(263) 38.8 % (35.5 - 42.3 95% C.I.)	(144) 39.9 % (35.2 - 44.7 95% C.I.)	(119) 37.7 % (33.4 - 42.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(92) 13.6 % (10.6 - 17.3 95% C.I.)	(50) 13.9 % (9.7 - 19.4 95% C.I.)	(42) 13.3 % (9.5 - 18.2 95% C.I.)

Table 207: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		Moderate underweight (≥ -3 and <-2 z-score)		Normal (≥ -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	173	15	8.7	53	30.6	105	60.7	1	0.6
18-29	162	27	16.7	81	50.0	54	33.3	0	0.0
30-41	138	25	18.1	54	39.1	59	42.8	0	0.0
42-53	165	21	12.7	67	40.6	77	46.7	1	0.6
54-59	39	4	10.3	8	20.5	27	69.2	0	0.0
Total	677	92	13.6	263	38.8	322	47.6	2	0.3

Table 208: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 656	Boys n = 353	Girls n = 303
Prevalence of stunting (<-2 z-score)	(335) 51.1 % (46.2 - 55.9 95% C.I.)	(191) 54.1 % (47.0 - 61.1 95% C.I.)	(144) 47.5 % (42.0 - 53.1 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥ -3 z-score)	(208) 31.7 % (28.6 - 35.0 95% C.I.)	(122) 34.6 % (29.8 - 39.7 95% C.I.)	(86) 28.4 % (24.5 - 32.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(127) 19.4 % (15.6 - 23.8 95% C.I.)	(69) 19.5 % (13.9 - 26.8 95% C.I.)	(58) 19.1 % (14.9 - 24.2 95% C.I.)

Table 209: Prevalence of stunting by age based on height-for-age z-scores

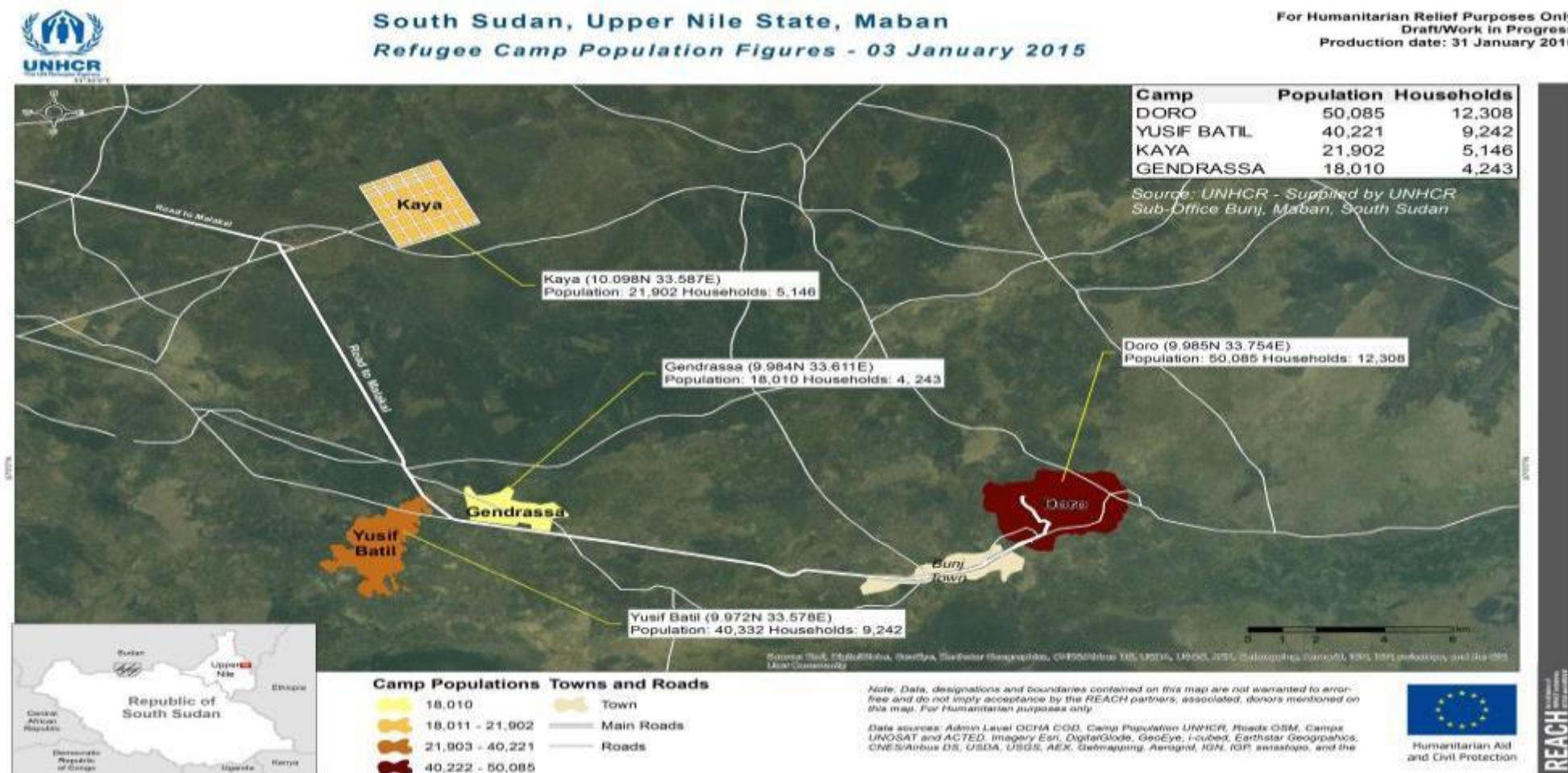
		Severe stunting (<-3 z-score)		Moderate stunting (≥ -3 and <-2 z-score)		Normal (≥ -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	165	9	5.5	47	28.5	109	66.1
18-29	160	29	18.1	66	41.3	65	40.6
30-41	134	35	26.1	39	29.1	60	44.8
42-53	158	43	27.2	47	29.7	68	43.0
54-59	39	11	28.2	9	23.1	19	48.7
Total	656	127	19.4	208	31.7	321	48.9

Table 210: 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	669	-1.04 \pm 0.85	1.38	6	10
Weight-for-Age	677	-2.01 \pm 0.93	1.40	4	4
Height-for-Age	656	-2.06 \pm 1.12	1.49	4	25

* contains for WHZ and WAZ the children with edema.

9.4. Appendix 4: Map Of the area



curve

(SENS) الدم وضربة الدم حالك غنية الموسعة
س تلبي ان

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.

مذالبيان هو أنتق رقابل لقليل قربة الاسرة أو إذا ما غاب
أوعضو الطوبال غين مل طبيت عري فسك ان لييت مجموع
من الناس الذين يعيشون مع اي الطوبال تشوكل وتوين يفي قدر او
(هال) واحترع يفس مؤول واربة الي تفرد من أفراد
الأسرة الذي دير موارد الأسرة وموان الخقر رالن طي في
البيت.

مرحباء، اسمي _____ وأنا أعمل مع
[المفوضية]. نود أن ندعو أُمهيتك للمشاركة في
الدراسة أن نتبحث في أحوال غنيمة إلى صحتي لأن اس
لذي نعيش ونرفي هذا لم نحي.

- الم فوضي في رعية مزال مس ح لك غذوي.
- لمش ارك في مزال مس ح موت الم ح ت ي ارك.
- يم كنك أن تقرّر عدم لمش لرك، أو إذ كنت تفعل لمش ارك قم كن في قافل لمش ارك في مزال مس ح في أي وقت ولأي سبب. إذ كنت تتوقف عن أنتك ون في مزال دراسة غلّه لن يكون له أثار ي ر س ل ي عل في في الت عامل معك أو أس رت ك أو م ت ل ق ي الم س ا ع د ات لك.
- إذ اننت فلق عل لمش ارك، وس وف أس لك بعض الأمثلة عن م ت ك و س و ف ي أض ا ق ي اس ال وزن وال طول للأ ط ف ال ك ل في الأسرة ل في ن م ك ب ر س ن ا م ن 6 ث ر و ل في ن ق ل أ ع م ا ر م ع ن ك س ن و ات ب الإ ض ا ف ا ل ي م ذ ل ق ي م ا ت ، I س ي ت م ا ت ب ا ر ك ه ي ص غ ي رة م ن ل ا د م م ن ال اص ب ع م ن ا ل ف ا ل ل و ل س ا ع ل م ع فة إذ ا كان ل ي م ق ر ل د م .
- ق ب ل أن ن ب د ا أن ا ط ب م ن ك أ ه ي لة أو ن خ ا ذ أي ق ي اس ا ت ، س و ف ن ط ب م ن ك م ق ل ت ك ل ق ي ال ب و لة م ذ ال ن م و ذ ج ل ك أ ك د م ن أن أي س ي ت ق ي الم ع ل و م ا ت ال ي س و ف ن ق د ف ي س ر ي ق ا مة .
- يم كنك أن ت س أ ل أي س و أ ل ل ي أ ل د ي ك ح و ل م ذ ال م س ح ب ل أن ت ق ر ر الش ا ر كة أ م لا .
- إذ اننت ل ا ن ف م الم ع ل و م ا ت أو إذ ا ل م ت كن الإ ج لة ع ل ي الأمثلة ال خ ص ق ب ك ل ل ا ت ي ا ح ال خ ص ب ك ، ل ا ت ع ل ن م ق ل ت ك ع ل ي م ذ ال ن م و ذ ج .

شارك الـ

SENS- MORTALITY QUESTIONNAIRE (One questionnaire per HH)

Date (dd/mm/yyyy) / يوم وقيل: /	Camp / لحي كفرة	Cheikh/Boma.....	Block/Code Number / رغب مبع
_ _ / _ _ / _ _ _ _ _	Doro=1, Yusuf Batil =2 , Gendrassa=3 , Kaya=4 _	_ _ _ _	_ _ _ _
Cluster Number (in cluster survey only).....	HH Number / رغب مبع لحي	House/Tent Number / رغب نجم قليب	Team Number / رغب مبع
_ _	_ _ _ _	_ _ _ _	_

#	COL1 / مبع	COL2	COL3	COL4	COL5	COL6
	NAME / اسم	SEX / نوع زكرا / أنثى M/F	AGE IF ≥ 5 YRS سنة > 5 UNIT: وحدة YRS	AGE IF < 5 YRS سنة إذا < 5 SPECIFY UNIT: حدد الوحدة DAYS / MONTHS / YRS يوم / شهر / سنة	BORN BETWEEN LAST 3 MONTHS AND TODAY تم بين الدفيعين واليوم (زكرا اليوم) (Y/N)	JOINED HOUSEHOLD BETWEEN END (3 MONTHS) AND TODAY (Y/N) بيت مزدوقين آخر و لايوم
A. LIST ALL MEMBERS WHO ARE CURRENTLY LIVING IN THIS HOUSEHOLD AND EATING FROM THE SAME POT سجل لكل اعضاء الذين يسكنون الرفى مزاليت يواكلون نفس القدر						
01						
02						
03						
04						
05						
06						
07						

08						
09						
10						
11						
12						
B. DID ANY MEMBERS OF THE HOUSEHOLD LEAVE BETWEEN LAST 3 MONTHS AND TODAY? IF SO LIST THEM (زكرك اليوم) و اليوم ازك عن جلهم						
01						
02						
03						
C. DID ANY MEMBERS OF THE HOUSEHOLD DIE BETWEEN LAST 3 MONTHS AND TODAY? IF SO LIST THEM (زكرك اليوم) اليوم؟ ازك عن س جلهم						
01						
02						
MORTALITY SUMMARY (for supervisor only) (خلاصة الوفيات (خاص لشرف						
		TOTAL ال سجله		Under 5 تحت 5		
1. Members present now يقدم الاخضاء الان	A. COL 1					
2. Joined household between last 3 months) and	A. COL 6					
3. Members that left the household between last 3	B. COL 1					
4. Births between last 3 months) and today بي زك اليوم	A, B. COL 5					
5. Deaths between last 3 months) and today بي	C. COL 1					

NB:

- Household members are defined as members who are living together *in the camp* and who are eating from the same cooking area
 لبايت هم الذين يسكنون في نفس مكان قواكل ونفس نفس كل

- Members of the household present now are the members who slept in the household last night. Members of the **الاعضاء البقيت لموجين الان** household who slept here last night but who are away today to the market/elsewhere and will return before the end of the day should be listed here also.
- A child who was born and dead during the recall period is counted as a death only when entering data in ENA (SMART Version 1, April 2006). **الطفل الذي ولد ومات خلال فترة تذكير كنتس لمجة كلا هي ت**

SENS CHILDREN 6-59 QUESTIONNAIRE

Date (dd/mm/yyyy) / يوم مقباله :	Camp لبحس كفرة	Cheikh/Boma.....	Block/Code Number / رغب مبيع
_ _ _ / _ _ _ / _ _ _ _ _ _ _	Doro=1, Yusuf Batil =2 , Gendrassa=3 , Kaya =4 _ _	_ _ _ _ _ _ _	_ _ _ _ _ _ _
Cluster Number (in cluster survey only).....	HH Number رغب مبيع البيت	House/Tent Number رغب غيم فليت	Team Number رغب فريق
_ _ _	_ _ _ _ _ _ _	_ _ _ _ _ _ _	_ _

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

Date of interview (dd/mm/yyyy): التاريخ لمقباله : يوم / شهر / سنة				Cluster Number (in cluster survey only) رغب المجمع				Team number رغب الفريق							
_ _ _ _ _ _ _ / _ _ _ _ _ _ _ / _ _ _ _ _ _ _				_ _ _ _ _ _ _				_ _							
CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11	CH12	CH13	CH14	CH 15	CH16
ID لبطاقة	HH رغبة	Consent لقبولة given 1=yes نعم 2=no لا 3=absent غائب	Sex نوع (m/f) ذكر/انثى	Birthdate* تاريخ لميلاد dd/mm/yyyy يوم / شهر / سنة	Age سن ** (months) (شهرات)	Weigh وزن t (kg) ±100g ±100g +/-	Height طول cm (cm) ±0.1cm	Oede ma وزمة الامعاء (y/n)	MUAC مقياس الاعلى (mm)	Child enrolled المسجل للطفل 1=SFP للكل 2=TFP للكل 3=None لا شيء	Meas les لحصبة 1=yes card نعم بطاقة 2=yes recall نعم 3=no or don't know	Vit. A in past 6 فيتامين في الفترة الماضية 6 months (show capsule) 1=yes card نعم بطاقة 2=yes recall نعم 3=no or don't know	Diarrh oea in past 2 weeks اسهال في الفترة الماضية 2 weeks 1=yes نعم 2=no لا 3=DK لا اعرف	DPT3/ Penta 3 1=yes card لدى بطاقة 2=yes recall نعم 3=no or don't know لا اعرف	Hb (g/dL)

											لا عرف	لا know اعرف			
01				/ /											
02				/ /											
03				/ /											
04				/ /											
05				/ /											
06				/ /											
07				/ /											
08				/ /											
09				/ /											
10				/ /											
11				/ /											
12				/ /											
13				/ /											

*The exact birth date should only be taken from an age documentation showing day, month and year of birth. It is only recorded if an official age documentation is available; if the mother recalls the exact date, this is not considered to be reliable enough. **Leave blank if no official age documentation is available.**

**If no age documentation is available, estimate age using local event calendar. If an official age documentation is available, record the age in months from the date of birth.

اللوطنقفي التايغ/ش مرسنة الميلاد ازي وج دس جل اليلطق لارسية ولس جل ضى لوالايجيز كراتايغ اليلاد لترك خالصة ازا اللوطنق رسيه غير موجود. وازا لا توجد وطقق اليلاد خ من التايغ احسب حواي نطق م حلى. وازا س جل موجود س جل

Annex -SENS IYCF questionnaire

No	QUESTION <small>السؤال</small>	ANSWER CODES <small>الجابات</small>
SECTION IF1		
IF1	Sex نوع	Male ذكر.....1 Female أنثى.....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 إذا لم يتواجد وثيق تاريخ الميلاد فاستخدم التقويم لتقدير العمر من تاريخ الميلاد _ _
IF4	Has [NAME] ever been breastfed? هل (الاسم) قد حلي رضى	Yes نعم.....1 No لا.....2 DK لا أعرف8
IF5	How long after birth did you first put [NAME] to the breast? بعد الميلاد كم زمت رضيت ضال طفل؟	Less than one hour ساعة من 1.....1 Between 1 and 23 hours ساعة 1 و 23.....2 More than 24 hours ساعة 24 من.....3 DK لا أعرف8
IF6	Was [NAME] breastfed yesterday during the day or at night? هل رضيت طفلك خلال اليوم أم ليلاً؟	Yes نعم.....1 No لا.....2 DK لا أعرف8
SECTION IF2		
IF7	<p>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?</p> <p>الآن أريد أن أسألك عن السوائل التي قد تناولها (الاسم) أمس خلال اليوم أو ليلاً. أنا مهتم في معرفة ما إذا كان طفلك قد تناول هذه السوائل مع أو بدون أطعمة أخرى. أمس، خلال اليوم أو ليلاً، هل تناول (الاسم) أي من هذه السوائل؟</p> <p>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.</p> <p>اسأل عن كل سائل. إذا أعطيت السائل، دوائر '1'. إذا لم تعط السائل، دوائر '2'. إذا لم تعرف، دوائر '8'. كل سطر يجب أن يكون له رمز.</p> <p>(1) و (2) و (8) لا أعرف</p>	
<p>Yes No DK</p>		

	<p>7A. Plain water بي الفل س هل</p> <p>7B. Infant formula: for example (Libto Mama)] طقول مريضى على سويل النبال اضيف عيش الحلى من كلقوى غرقوى (ميتوم ام قوت سويل)</p> <p>7C. Milk such as tinned, powdered, or fresh animal milk: for example (Nido, Formost) لبن على الفل جفيف اول حجي وان طازج على سويل النبال اضيف عضل بن نجيب</p> <p>7D. Juice or juice drinks (Gungules-Aradeb, Kedem) عصير اومشروب عصير اضيف شروبات الحلى نقي ولويس, اييب, قويم).</p> <p>7E. Clear broth or Soup مرقال صلفى</p> <p>7F. Sour milk or yogurt for example: (Zabadi , Roob) لبن حامض (زبادي , روب)</p> <p>7G. Thin porridge for example: (Medida Khafif) نثقفى ف اكراسم لمجى (ميدجفيف)</p> <p>7H. Tea or coffee with milk الشايبين اوقهوة</p> <p>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 ازكوب عض من السوطل نبال شروبات غايية و شروبات الشاى الى من بن شروبات الحلى لى لى شروبات عشية</p>	<p>7A.....1 2 8</p> <p>7B.....1 2 8</p> <p>7C.....1 2 8</p> <p>7D.....1 2 8</p> <p>7E.....1 2 8</p> <p>7F.....1 2 8</p> <p>7G.....1 2 8</p> <p>7H.....1 2 8</p> <p>7I.....1 2 8</p>	
IF8	<p>Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? امس خلال اليوم او الليل هل (سم) لظلت الكل صلب امش, قصل بلين عصى</p>	<p>Yes نعم..... 1 No لا2 DK... لا اعرف..... ..8</p>	
SECTION IF3			
IF9	<p>Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night? هل (سم) شرب ايشى من زجاج لى حلى امس خلال النهار او الليل</p>	<p>Yes نعم..... 1 No لا2</p>	

		لا اعرف DK8	
SECTION IF4			
IF10	Is child aged 6-23 months? طفلك عمره 6-23 شهر REFER TO IF2	Yes نعم1 No لا2	IF ANSWER IS 2 STOP NOW اذا للجواب 2 قف الان
IF11	<p>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?</p> <p>الان اريد عناسا ابعض غزاء ت (سم) وطفلك لكلة مزى المواد ملى و ملحوت مع اغذية اخرى امس خلال الليل اون ها ر (سم) الكلى التلى:</p> <p>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.</p> <p>اسا لكلى لى مواد از ال مواد ملى غزاء (1) از ال مواد اعطى غزاء (2) و از ال ملى غزاء (8) لكلى خطوط عتلكن لة رمز</p>		
		Yes	No DK
IF12	<p>11A. Flesh foods for example: beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart غزاء لحمى (سجل لكلى لحم ال عا مة نخل سمك دجاج و لبد لى سويل نفا لل لحم قرضا زبط ان ببل حم نخرى ر لبد لك لية</p> <p>11B CSB+ Premix ال غزاء الم ملحوت قوى وسجل الم و فى المنطقة</p> <p>11C. FBF++ : for example CSB++ صي اف ول زرة ملى قوى ل غزاء</p> <p>11D. RUTF : for example Plumpy'Nut® (SHOW SACHET) ي ست عا مل فة ل جا ل غزاء ل ملى ل غنى فية فوى سجل ل علا لى</p> <p>11E. RUSF : for example Plumpy'Sup® (SHOW SACHET) ف ي دالاضا ملى ل جا فة ل ملى ل مولى ل فة ل فة سجل ل</p> <p>11F.</p> <p>11G. Infant formula: for example Libto Mama ال طفلى وصفة ل قوى حى دى ال ل غنى فية اسماء فة ملى عض ازك رال رضى</p> <p>11H. List any iron fortified solid, semi-solid or soft foods designed specifically for infants and young children available in the local setting</p>	<p>11A.....1 2 8</p> <p>11B.....1 2 8</p> <p>11C.....1 2 8</p> <p>11D.....1 2 8</p> <p>11E.....1 2 8</p> <p>11F.....1 2 8</p> <p>11G.....1 2 8</p> <p>11H.....1 2 8</p>	

	that are different than distributed commodities.ل م ص ن ع ل ي ن س ج ل ب عض ل غ ز ي م ن ف ر ق و ل ة ل م ن ط ق ف ي ل م و ج و ن ي ر ض ي و ا ل ا ط ف ا ل ل ل ا ط ف ا ل ا و و ص ل ب ص ل ب ش ب ة ي ل غ ز ي	
--	--	--

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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 الأسرة : اولتفت الحائل (هذا التفت اعني كنون النظام الادار على الحائل اولتفت الحائل عن منزل الحائل

Section code / number: _____ Block code / number: _____ Consent : yes / no / absent

الرقم المسمى رقم المبيع:

Date of interview (dd/mm/yyyy) تاريخ المكالمة	Cluster Number (in cluster survey only) الرقم المسمى
____/____/____	____
Team Number رقم الفريق	HH Number عدد الأسرة
____	____

No	QUESTION السؤال	ANSWER CODES رموز الاجابة
SECTION WS1 لقسم		
WS 1	How many people live in this household and slept here last night? كم عدد افراد الذين قضاوا الليل في هذا المنزل؟	____
WS 2	What is the main 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 مصدر ادر هي الشرب تشاراد لاسنك؟ DO NOT READ THE ANSWERS تقرأ الاجابة؟ SELECT ONE ONLY اختر ا	Piped water 01 الماء المزمر Public tap/standpipe 02 النخعي قلاع امه Tubewell/borehole (& pump) 03 Protected dug well 04 الحفرة لم حية Protected spring 05 الربيع المحمى Rain water collection 06 مياه الامطار UNHCR Tanker 07 قبال قالماء Unprotected spring 08 الحفرة لم حية Unprotected dug well.. 09 الربيع غير المحمى Small water vendor 10 قبال قالم المص غير Tanker truck 11 قبال قالم المصير Bottled water 12 الماء المعبأ Surface water (e.g. river, pond) 13 الماء السطحى Other 96 اشياء اخرى Don't know 98 لا اعلم
WS 3	Are you satisfied with the water supply? هل انت متفقد من خدمات المياه؟ THIS RELATES TO THE DRINKING WATER SUPPLY هذا يتعلق بخدمات جيز المياه للمحلى شرب	Yes 1 نعم No 2 لا Partially 3 جزئيا Don't know 8 لا اعلم
WS 4	What is the main reason you are not satisfied with the water supply? ما هي الامباب	Not enough 01 لى Long waiting queue 02 قظار طيل للصرف

	<p>التفتي عملك لتستوفي من خدمات المياه</p> <p>ADAPT LIST TO LOCAL SETTING BEFORE SURVEY.</p> <p>لي في تم تحضيل س كن قبل لمسح لى دلى</p> <p>DO NOT READ THE ANSWERS</p> <p>تلقوا الاجبة</p> <p>اختر اجملة واح فقط</p> <p>SELECT ONE ONLY</p>	<p>Long distance..... 03 لم سرفلق عيدة</p> <p>Irregular supply 04 الت جيزش اذ</p> <p>Bad taste..... 05 الطعم لى لى</p> <p>Water too warm 06 الم الم س راخن</p> <p>Bad quality 07 الن وعى قريه</p> <p>Have to pay..... 08 ي جب ان تفع</p> <p>Other 96 اشياء اخرى</p> <p>Don't know 98 لا اعلم</p>	<p>_____</p>
WS 5	<p>What kind of toilet facility does this household use?</p> <p>اين نوع من المراحيض التى يتاسست خدام على لى لى ؟</p> <p>ADAPT LIST TO LOCAL SETTING BEFORE SURVEY.</p> <p>WHEN ADAPTING THE LIST, KEEP THE ORIGINAL ANSWER CODES AND DO NOT CHANGE.</p> <p>بى ن ق ل م ل س كن قبل لمسح لى دلى و عى جى بى ن ل ق ل م</p> <p>يقى الاجبة الاصح و لى عى</p> <p>DO NOT READ THE ANSWERS</p> <p>تلقوا الاجبة</p> <p>SELECT ONE ONLY</p> <p>اختر اجملة واح فقط</p>	<p>Flush to piped sewer system 01 تتفقن ظام البلاء</p> <p>الزم</p> <p>Flush to septic system 02 تتفقن ظام القك</p> <p>Pour-flush to pit .. 03 صب الاحمرار القك</p> <p>VIP/simple pit latrine with floor/slab 04 الحفرة</p> <p>فى الارض</p> <p>Composting/dry latrine 05 لى سى د</p> <p>Flush or pour-flush elsewhere 06 تتفقن اقصى بى</p> <p>لمكان اخر</p> <p>Pit latrine without floor/slab 07 حفرة مرحاض</p> <p>بدون ارضية</p> <p>Service or bucket latrine 08 صرل قس لى ع</p> <p>للمرحاض</p> <p>Hanging toilet/latrine 09 المرحاض معلق</p> <p>No facility, field, bush, plastic bag 10 لاوسيلة , حقول , لى لى بلاستيك</p>	<p>_____</p> <p>IF ANSWER IS 10 GO TO WS7</p>
WS 6	<p>How many households share this toilet?</p> <p>كم عدد الاسر اللى يشركو فى مرحاض واحد ؟</p> <p>THIS INCLUDES THE SURVEYED HOUSEHOLD</p> <p>هذا من ضمن اللى ع لى الم مسح</p>	<p>RECORD NUMBER OF HOUSEHOLDS IF KNOWN (RECORD 96 IF PUBLIC TOILET OR 98 IF UNKNOWN) عدى لى سى من ال عو ط ل الم عرفة (96 لى لى لى 98 لى لى لى)</p> <p>للمراحيض لى لى ع و 98 لى لى لى لى</p>	<p>_____</p> <p>Households</p>
		<p>SUPERVISOR SELECT ONE ONLY</p> <p>ي ق ل ال مشرف واح فقط</p> <p>Not shared (1 HH)..... 1 لى لى لى لى</p> <p>Shared family (2 HH) 2 لى لى لى لى</p> <p>Communal toilet (3 HH or more) 3 المرحاض لى لى</p> <p>Public toilet (in market or clinic etc.) 4 المرحاض</p> <p>للى لى لى</p> <p>Don't know 8 لا اعلم</p>	<p>_____</p>
WS 7	<p>Do you have children under three years old?</p> <p>هل لى لك اطفال تحت ال اعمار 3 سنه ؟</p>	<p>Yes 1 نعم</p> <p>No 2 لا</p>	<p>_____</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? اخبري رأس م أصغر طفل؟</p> <p>للمق اعد لم عورة ماذا عملت لخص من للمق اعد؟ DO NOT READ THE ANSWERS تلقوا الاجابات</p> <p>اختر واحد فقط SELECT ONE ONLY</p>	<p>Child used toilet/latrine 01 ال طفل الى ديس تخدم</p> <p>Put/rinsed into toilet or latrine 02 ض الى خن ف طفل ل مرحاض</p> <p>Buried 03 ل خنون</p> <p>Thrown into garbage 04 ري تال طلق مامه</p> <p>Put/rinsed into drain or ditch 05 ض شرف طي الى بلاعة اول خندق</p> <p>Left in the open 06 تر لخم فو ح</p> <p>Other 96 اشياء اخرى</p> <p>Don't know 98 لا اعلم</p>	<p>_____</p>
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SECTION WS2**Observation Based Questions (done after the initial questions to ensure the flow of the interview is not broken)**

أسند ملاحظة و الاصل فالتى عمل رب عد الايلة الاولي قل الكد من جاح المقال ففلوش ها

No	OBSERVATION / QUESTION الايلة / الاراء	ANSWER الايلة			
WS9	<p>CALCULATE THE TOTAL AMOUNT OF WATER USED BY THE HOUSEHOLD PER DAY أحس بالكمي ذلك الي اقل م المم ست عمل من قبل ل عمل فى اليوم</p> <p>THIS RELATES TO ALL SOURCES OF WATER (DRINKING WATER AND NON-DRINKING WATER SOURCES) هذا يتعلق بمص ادر ل الي الصال ح ل لشرب ولا يغري صال ح لي ك ونص ال ل لشرب</p>	<p>Please show me the containers you used yesterday for collecting water فينض لك اعطي ل ل حفر التي يتم جم م افي ها</p> <p>ASSIGN A NUMBER TO EACH CONTAINER التي يتم تخصي ص ذلك ل حفرة</p>	Capacity in litres س عة ل حفر ل ح مام	Number of journeys made with each container عد دال مرات او الرح لالتى امتق رق ها كل حفرة	<p>Total litres ج لية ل ح مامات</p> <p>SUPERVISOR TO COMPLETE HAND CALCULATION قلم فني</p>
		1 E.g. jerry can	25 L	1 x	25
		2 E.g. jerry can	10 L	2 x	20
		3 E.g. jerry can	5 L	2 x	10
		4 E.g. jerry can بلى	5 L	1 x	5
		5 E.g. bucket جر دل	50 L	1 x	50
		6			
		7			
		9			
		Total liters used by household ل لخم فى لتى			110
		ي ستخدم ها البصرة من لماء			
WS10	<p>Please show me where you store your drinking water. فينض لك راش نى الل م كان ال ذى ت خزن في ها الي لشرب .</p> <p>ARE THE DRINKING WATER CONTAINERS COVERED OR NARROW NECKED? هل حايات الي لشرب ت غطى او هي ضيقة</p>	<p>All are 1 عام ل</p> <p>Some are 2 بعض في ها</p> <p>None are 3 لاشئ</p>			<p>_____</p>

	ANSWER اسأل الميسرة عن شبكة صحيح TN شبكة في العجلة اذا كانت 6 جواب				
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 , انك قد اى بطاقة او غير صالحة قراءة , لي عرف				
TN 9	For surveyor/supervisor only (not to be done during interview): للمساح ولمشرف فقط , بشيء المعلن WHAT TYPE OF NET IS THIS? BASED ON THE TAG INDICATE IF THIS IS A LLIN OR OTHER TYPE OF NET OR DK. اذن هذه الشبكة؟ و ما نوع المعلن في بطاقة و DK شبكة او	1=LLIN 2=Other/DK __	1=LLIN 2=Other/DK __	1=LLIN 2=Other/DK __	1=LLIN 2=Other/DK __
TN 10	For surveyor/supervisor only (not to be done during interview): للمساح ولمشرف فقط بشيء المعلن RECORD THE TOTAL NUMBER OF LLINs IN HOUSEHOLD BY COUNTING THE NUMBER OF '1' IN TN9. سجل العدد في الخلية في العجلة في 9				__ LLINs

SECTION TN2

Line no	Household members افراد الأسرة	Sex للنوع	Age لعمر	Pregnancy status وضع لحمل	Slept under net لنمين ن ادوكحت	Which net اي عينة من شبكَة	Type of net نوع لشبكة
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#	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 رجاء اعطيني اسماء افراد الاسرة الذين نائموا في البيت بالأمس	Sex النوع m/f ذكور/نساء	Age العمر Years السنة	FOR WOMEN 15-49 YEARS, 45 – 15 للنساء 15 – 45 اسأل: Is (NAME) currently pregnant? (CIRCLE NOT APPLICABLE OR N/A '99' IF FEMALE <15- >49 YEARS OR MALE) هل هي حاليًا حامل؟ (الدائرة لا تنطبق أو N/A '99' إذا كانت أنثى <15- >49 سنة أو ذكر) Yes No/DK نعم أو لا	Did (NAME) sleep under a net last night? الاسم الذي نائم في البيت بالأمس Yes No/DK نعم أو لا	ASK THE RESPONDENT TO PHYSICALLY IDENTIFY WHICH OF THE OBSERVED NETS THEY SLEPT UNDER. WRITE THE NUMBER CORRESPONDING TO THE NET THEY USED. أطلب من الشخص تحديد واحدة من الشبكات التي نائموا فيها بالأمس. اكتب الرقم الذي يتوافق مع الشبكة التي استخدموها بالأمس.	For surveyor/ supervisor only: للمراقب/المشرف فقط: BASED ON THE OBSERVED NET BRANDNAME RECORDED (TN8), INDICATE IF IT IS AN LLIN OR OTHER / DON'T KNOW (DK). بناءً على العلامة المسجلة (TN8)، اذكر إذا كانت LLIN أو أخرى / لا أعرف (DK). LLIN OTHER/DK
01		m f	<5 ≥5	1 0 99	1 0	___	1 2
02		m f	<5 ≥5	1 0 99	1 0	___	1 2
03		m f	<5 ≥5	1 0 99	1 0	___	1 2
04		m f	<5 ≥5	1 0 99	1 0	___	1 2
05		m f	<5 ≥5	1 0 99	1 0	___	1 2
06		m f	<5 ≥5	1 0 99	1 0	___	1 2
07		m f	<5 ≥5	1 0 99	1 0	___	1 2
08		m f	<5 ≥5	1 0 99	1 0	___	1 2
09		m f	<5 ≥5	1 0 99	1 0	___	1 2
10		m f	<5 ≥5	1 0 99	1 0	___	1 2
11		m f	<5 ≥5	1 0 99	1 0	___	1 2
12		m f	<5 ≥5	1 0 99	1 0	___	1 2
13		m f	<5 ≥5	1 0 99	1 0	___	1 2
14		m f	<5 ≥5	1 0 99	1 0	___	1 2

15		m f	<5 ≥5	1 0 99	1 0	__	1 2
Mosquito net summary (for surveyor / supervisor only, not to be done during interview) خلاصة الناموسية (للمساحل فقط، ان لا يكون مع مولدات المقيال)							
	Total household members عدد أفراد الأسرة		Total <5 <small>الجيل <5</small>		Total Pregnant <small>عدد الحوامل</small>		
Slept under a net of any type النائم تحت الناموسية او اى شئ	Count the number of '1' in COL5 احسب الاعداد من	TN11 __	For children < 5 الاطفال اعمار 5 سنوات (COL3 is '<5'), count the number of '1' in COL5 احسب الاعداد	TN13 __	For pregnant women (COL4 is '1'), count the number of '1' in COL5 المرهات لحوامل من 1 الى 4 احسب الاعداد من 1 الى 5	TN15 __	
Slept under an LILIN نامت تحت	Count the number of '1' in COL7 احسب الاعداد من	TN12 __	For children <5 الاطفال (COL3 is '<5'), count the number of '1' in COL7 احسب الاعداد من	TN14 __	For pregnant women المرهات لحوامل احسب من (COL4 is '1'), count the number of '1' in COL7	TN16 __	