MABAN REFUGEE CAMPS

SOUTH SUDAN

Survey conducted: November/December 2014

IN COLLABORATION WITH

WFP, UNICEF, IMC SP, MEDAIR, MSFB, IOM &CHD

NUTRITION SURVEY FINAL REPORT

ACRONYMS AND ABBREVIATIONS

ACTED	Agency for Technical Cooperation and Development
AWD	Acute Water Diarrhoea
BSFP	Blanket Supplementary Feeding Programme
CI	Confidence Interval
CMR	Crude Mortality Rate
CHWs	Community Health Workers
CSB	Corn-Soya Blend
DEFF	Design effect
DPT 3	Diphteria, Pertussis,Tetanus combined vaccine
ENA	Emergency Nutrition Assessment
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
HH	Household
HIS	Health Information System
IMC	International Medical Corps
IOM	International Office of Migration
IYCF	Infant and Young Child Feeding
LRTI	Low Respiratory Tract Infection
MAM	Moderate Acute Malnutrition
MSF-B	Médecins sans Frontières-Belgium
MUAC	Middle 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	Standardised Monitoring & Assessment of Relief & Transitions
SP	Samaritan's Purse
TFP	Therapeutic Feeding Programme
TSFP	Therapeutic Supplementary Feeding Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Funds
URTI	Upper Respiratory Tract Infection
WASH	Water Sanitation and Hygiene
WAZ	Weight-for-Age z-score
WHZ	Weight-for-Height z-score
WFP	World **Food** Programme
WHO	World Health Organization

EXECUTIVE SUMMARY

Maban County is located in Upper Nile state in the North East of South Sudan Republic. The refugee caseload is composed of Sudanese fleing from the conflict in Blue Nile. They were established in four camps: Doro, Yusuf Batil, Gendrassa and Kaya (previously Jamam), to cater for mass influx from Blue Nile state. 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 18th November to December 5th December 2014. It was coordinated by the United Nations High Commissioner for Refugees (UNHCR) with collaboration with The United Nation Children's Fund (UNICEF), the World Food Programme (WFP), International Medical Corps (IMC), Samaritan's Purse (SP), MEDAIR ,Medecin Sans Frontieres –Belgium (MSFB). The International OFficce Of Migration (IOM) provided two staff for data collection and Medecin Sans Frontiere-Hollande (MSFH) provided remote support in terms of materials.

The survey objectives were as follows:

Primary objectives:

1. To measure the prevalence of acute malnutrition in children aged 6-59 months

2. To measure the prevalence of stunting in children aged 6-59 months

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

4. To determine the coverage of vitamin A supplementation in the last 6 months among children aged 6-59 months

5. To assess the two-week period prevalence of diarrhoea among children aged 6- 59 months

6. To measure the prevalence of anaemia in children aged 6-59 months and in women of reproductive age between 15-49 years (non-pregnant)

7. To investigate IYCF practices among children aged 0-23 months

8. To assess household dietary diversity

9. To determine the population's access to, and use of, improved water, sanitation and hygiene facilities

10. To determine the ownership of mosquito nets (all types and LLINs) in households

11. To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women

12. To establish the crude and under 5 mortality rates

13. To establish recommendations on actions to be taken to address the nutrition situation in 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, 653 households in Doro, 608 households in Batil, 608 households in Gendrassa and 608 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
- Water Sanitation and Hygiene (WASH); targeting all the other sampled households

Mortality questionnaire was included as part of the SMART survey, and targeting was all sampled households

Data was collected using paper questionnaires by a team of 4 members. Ten teams were used in all camps. Two camps were run concurrently by a group of five teams.

RESULTS

The Global Acute Malnutrition prevalence dropped down. In Doro, the GAM prevalence was found to be **8.1 %** (6.2-10.7 95% CI) and the Severe Aacute Malnutrition (SAM) prevalence was 0.8% (0.4-1.9 95% CI). In Yusuf Batil camp, the GAM prevalence was found to be **7.6 %** (5.9 – 9.7 95% CI) while the SAM prevalence was 0.8% (0.4-1.6 95% CI). In Gendrassa the GAM prevalence was found to be **6.7%** (5.3-8.5 95% CI) and the SAM prevalence was 1.6 % (0.9-3.0 95 % CI) . In Kaya the GAM prevalence was found to be 7.9 % (6.1-10.2 95 % CI) and the SAM prevalence was 1.3 % (0.7-2.4 95% CI). Consequently, the children 6 to 59 months GAM rates appeared to be within UNHCR standards and the nutrition situation improved as compared with the last survey undertook in February –March 2013 where, given the camps, all GAM prevalences where at least 10% and above up to beyond emergency treshholds .

The prevalence of stunting in Doro was **36.4%** (32.5-40.4 95% CI)**, 44.0%** (40.4-47.8 95% CI) in Batil, **33.5%** (28.7-38.6 95% CI) in Gendassa and **50.9%** (47.4-54.495% CI) in Kaya.

The coverage in measles vaccination was **90%** (86.5-93.5 95 CI) in Doro, **75.5%** (71.1-79.9 95 CI) In Batil, **87.3%** (83.6-91.0 95 CI)in Gendrassa and **85.1 %(**79.7-90.5 95 CI) in Kaya .The coverage of vitamin A was **60 %** (52.8-68.4) in Batil while in Doro, Kaya and Gendrassa the coverage was respectively **88.2%** (83.3-93.0) **88.9%** (85.2-92.6) and **84.3%** (78.8-89.9).

The child anaemia status of the children further deteriorated as half of the children 6-59 months

were found to be anaemic. The child anaemia rate in Doro was **53.2**% (46.5-59.9 95% CI)**,** followed by Yusuf Batil with **52.9%** (47.5-58.3 95% CI). Kaya was **46.9%** (41.3-52.5 95% CI) and Gendrassa was **46.1%** (40.1-52.2 95% CI). One-fifth of the women of reproductive age were also found anemic.

 Exclusive Breastfeeding rates in Doro, Batil, Gendrassa and Kaya were respectively **67.8%** (59.3-79.3 95% CI) **46.4%** (30.5-62.3 95% CI). **74.1%** (57.9-90.2 95% CI) and **76.1%** (63.8-88.3 95% CI). Early initiation rates scored **87.6 %**(83.6-91.7 95%CI) in Doro, **77.9%** (71.8-84.0 95%CI) in Batil, **94.6%** (91.7-97.6 95%CI) in Gendrassa **92.5%** (88.6-96.4 95%CI) in   Kaya. Both indicator's prevalences has increased as compared with 2013 in almost all camps.

The average water usage in Doro in Litre Per Person Per Day (lpppd) was **19.0%** (37.9-50.9 95 % CI), **18.8%** (16.2-21.4 95%CI) in Batil, **20.6%** (18.0-23.2 95%CI) in Gendrassa and **20.5%** (18.0-23.0 95% CI) in Kaya. Also, In Doro, 36.9% (28.7-45.0 95%CI) of the surveyed households are using an improved toilet facility while they 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 **84.5%** (79.3-89.6 95% CI) ,**92.0%** (88.6-95.5 95% CI) in Batil, **90.1%** (85.0-95.4 95%CI) in Gendrassa and **89.3%** (84.1-94.5 95% CI) in Kaya . The average number of person per LLIN was 3.2 in Doro, 2.2 in Batil, 2.6 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)	8.1 (6.2-10.7)	7.6 (5.9- 9.7)	8.4 (6.6-10.7)	7.6 (5.9- 9.8)	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	7.3 (5.5- 9.6)	6.8 (5.2- 8.9)	7.0 (5.4- 9.0)	6.4 (4.8- 8.3)	
Severe Acute Malnutrition (SAM)	0.8 (0.4- 1.9)	0.8 (0.4- 1.6)	1.4 (0.8- 2.3)	1.3 (0.7- 2.4)	
Oedema	0.0	0.1	0.0	0.1	
Mid Upper Arm Circumference (MUAC)					
MUAC <125mm and/or oedema	4.1 (3.0-5.7)	6.3 (4.6-8.5)	6.7 (5.3-8.5)	7.9 (6.1-10.2)	
MUAC 115-124 mm	3.8 (2.7-5.3)	5.7 94.2-7.8)	5.1 (3.9-6.7)	3.8 (2.8-5.2)	
MUAC <115 mm and/or oedema	0.3 (0.1-1.0)	0.6 (0.2-2.1)	1.6 (0.9-3.0)	4.1 (2.9-5.9)	
Stunting (WHO 2006 Growth Standards)					
Total Stunting	36.4 (32.5-40.4)	44.0 (40.4-47.8)	33.5 (28.7-38.6)	50.9 (47.4-54.4)	Critical if ≥ 40%
Severe Stunting	11.9 (9.7-14.4)	16.0 (13.7-19.6)	22.7 (19.5-26.3)	20.6 (17.9-24.6)	
Programme coverage					
Measles vaccination with card or recall (9-59 months)	90 (86.5-93.5)	75.5 (71.1-79.9)	87.3 (83.6-91.0)	85.1 (79.7-90.5)	Target of ≥ 95%
Vitamin A supplementation within past 6 months with card or recall	88.2 (83.3-93.0)	60.6 (52.8-68.4)	88.9 (85.2-92.6)	84.3 (78.8-89.9)	Target of ≥ 90%
Diarrhoea					
Diarrhoea in last 2 weeks	20.1 (15.6-24.7)	9.0 (6.1-11.8)	10.0 (6.5-13.4)	9.0 (6.1-11.7)	
Anaemia Children 6-59 months					
Total Anaemia (Hb <11 g/dl)	53.2 (46.5-59.9)	52.9 (47.5-58.3)	46.1 (40.1-52.2)	46.9 (41.3-52.5)	High if ≥ 40%
Mild (Hb 10-10.9 g/dl)	28.4 (24.2-32.6)	27.8 (23.5-32.1)	25.9 (21.5-30.4)	27.4 (23.4-31.4)	
Moderate (Hb 7-9.9 g/dl)	23.6 (18.4-28.8)	22.8 (18.2-27.4)	19.3 (14.5-24.2)	18.5 (14.5-22.5)	
Severe (Hb<7 g/dl)	1.2 (0.3-2.0)	2.3 (0.8-3.7)	0.8(-0.1-1.9)	0.8 (0.1-0.7)	
CHILDREN 0-23 months					
IYCF indicators					
Timely Initiation of Breastfeeding	**87.6 (83.6-91.7)**	**77.9 (71.8-84.0)**	**94.6 (91.7-97.6)**	**92.5 (88.6-96.4)**	

SURVEYED CAMPS	DORO	YUSUF BATIL	GENDRASSA	KAYA	
Exclusive Breastfeeding under 6 months	67.8 (59.3-79.3)	46.4 (30.5-62.3)	74.1 (57.9-90.2)	76.1 (63.8-88.3)	
Consumption of iron- rich or iron -fortified foods	52.9 (44.5-61.2)	46.0 (37.-54.8)	57.7 (47.8-68.5)	54.2 (43.6-65.2)	
Bottle feeding	5.2 (2.6-7.8)	13.0 (9.9-16.8)	3.7 (1.3-6.2)	4.2 (1.7-6.8)	
WOMEN 15-49 years					
Anaemia (non-pregnant)					
Total Anaemia (Hb <12 g/dl)	25.6 (19.2-32.0)	22.1 (15.3-28.8)	28.3 (23.9-32.7)	19.9 (14.7-25.1)	High if ≥ 40%
Mild (Hb 11-11.9)	18.0 (13.3-22.8)	16.6 (11.0-22.1)	17.2 (14.6-19.7)	14.1 (10.4-17.8)	
Moderate (Hb 8-10.9)	7.2 (4.3-10.1)	5.5 (2.6-8.5)	9.6 (6.4-12.7)	5.2 (2.7-7.9)	
Severe (Hb <8)	0.6 (-0.3-1.0)	0.0 (0.0-0.0)	1.5 (0.4-2.6)	0.6 (-0.2-1.4)	
WASH					
Water quality					
Proportion of households using improved drinking water source	100 (100-100)	100 (100-100)	99.8 (99.4-100)	100 (100-100)	
Water quantity					
Proportion of households that use:					
≥ 20 lpppd	41.7 (35.2-48.3)	34.3 (27.9-40.7)	39.3 (32.7-45.9)	37.7 (31.0-44.4)	Average quantity of water
15 - <20 lpppd	13.9 (10.7-17.0)	18.2 (14.8-21.7)	19.8 (16.2-23.3)	19.7 (16.3-23.0)	available per person / day
<15 lpppd	44.4 (35.2-48.3)	47.5 (40.2-54.7)	40.9 (34.0-47.8)	42.6 35.8-49.5)	≥ 20 litres
Average water usage in litres/person/day	19.0 (37.9-50.9)	18.8 (16.2-21.4)	20.6 (18.0-23.2)	20.5 (18.0-23.0)	
Safe excreta disposal					
Proportion of households that use:					
An improved excreta disposal facility (improved toilet facility, 1 household)	36.9 (28.7-45.0)	46.3 (37.0-55.6)	21.8 (15.5-28.0)	23.9 (17.2-30.6)	
A shared family toilet (improved toilet facility, 2 households)	24.4 (19.2-29.7)	26.7 (20.4-33.1)	24.8 (19.2-30.4)	24.6 (18.5-30.6)	
A communal toilet (improved toilet facility, 3 households or more)	34.2 (25.2-43.2)	25.3 (18.1-32.5)	36.5 (27.3-47.5)	40.3 (31.4-49.4)	
An unimproved toilet (unimproved toilet facility or public toilet)	4.5 (1.9-6.9)	1.6 (0.3-3.0)	16.9 (10.0-23.8)	11.2 (4.2-18.2)	
MOSQUITO NET COVERAGE					
Mosquito net ownership					
Proportion of households owning at least one LLIN	84.5 (79.3-89.6)	92.0 (88.6-95.5)	90.1 (85.0-95.4)	89.3 (84.1-94.5)	Target of >80%
Average number of persons per LLIN (Mean)	3.2	2.2	2.6	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	73.5	82.7	82.1	81.0	
Proportion of children 0-59 months who slept under an LLIN	85.4	96	88.6	86.3	
Proportion of pregnant women who slept under an LLIN	35.2	73.3	72.7	67.7	
Indoor Residual Spraying (IRS)					
Proportion of Household covered by IRS	92.6 (89.1-96.1)	99.3 (98.4-100.2)	98.1 (96.3-99.8)	98.1 (96.4-99.8)	
MORTALITY					
Mortality Rates					
Crude Mortality Rate (Deaths/10000/day)	0.14(0.05-0.38)	0.14(0.05-0.40)	0.16(0.06-0.39)	0.05(0.01-0.22)	High IF >=1.0
Under 5 Mortality Rate (Deaths/10000/day)	0.21(0.05-0.87)	0.09(0.01-0.71)	0.09(0.01-0.71)	0.11(0.01-0.83)	High if >=2.0

Interpretation

- The overall nutrition situation in the Maban camps are within UNHCR camps normal standards (<10%). And far lower than emergency thresholds. This is a significant improvement as compared with 2013. The decrease is significant in Batil, Kaya and Gendrassa but not significant in Doro.

- The stunting rates are below threshold of medium public health significance in Doro and Gendrassa but of high health significance in Batil and Kaya. The rates are worrying as nearly one-third to half of the camps is stunted. Challenges in age determination might nuance the scope of the stunting prevalence.

- The anaemia rates in children 6-59 months are above 40% level of public health significance in all camps. Children aged 6-23 months are most affected.

- Among women of reproductive age the anaemia prevalence is of medium public health significance

- Feeding programme coverage is low. However, the small sample size request caution to be taken while interpreting. Proper coverage assessment is recommended.

- Measles and vitamin A coverage are at acceptable levels as compared with 2013. Some camps are closer to the respective targets of 95 % and 90%

- Infant and Youn Child Feeding indicators such as Exclusive Breastfeeding and Timely initiation to breastmilk are in an acceptable range and showed a better status than 2013, A part from Gendrassa where a slight reduction of exclusive breastfeeding occurred.

- Refugees have enough drinkable water for their needs. However, efforts should continue to afford improved sanitation facilities

- Recommended LLIN Mosquito nets are available at household level in majority and on average, more than 60 % of total population and vulnerable groups (6-59 months and PLW) sleep under the nets.

RECOMMENDATIONS AND PRIORITIES

IMMEDIATE TERM

- UNHCR and Nutrition partners to draft an anaemia reduction strategy document and implement the strategy
- 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)
- UNHCR, WFP and Partners to maintain the efforts in collaboration with WFP to bring the required products (CSB++) in country , to the field and before the rainy season   to implement as soon as possible the preventive interventions agreed such as Blanket Supplementary Feeding for children under 2 PLWS for 6 months

12

- UNHCR and UNICEF to bring in SAM nutrition supplies (RUTF, RUSF) and anthropometric material and medicines before the rainy season .

MEDIUM TERM
- UNHCR, UNICEF and Nutrition partners Review the Infant and Young Child Feeding Interventions, especially the monitoring and follow up as well as aspect to improve the IYCF indicators.
- WFP to resume the Post Distribution Monitoring (PDM)
- Partners and UNHCR to carry out a coverage survey
- UNHCR,WFP and partners to perform the Joint Assessment Mission (JAM)
- WFP to carry out a food security assessment
- UNHCR and partner to conduct the SENS nutrition survey planned in Sept-October 2014
- UNHCR, Nutrition and Livelihood partners to expand the intervention consisting on providing kitchen gardening seeds to other Mother Support Groups , not only in Kaya and Gendrassa but in all the camps

LONG TERM
- UNHCR and Nutrition partners to strengthen the integration aspects of health, nutrition , WASH and Food Security
- UNHCR and livelihood partners to promote the start the usage of available land for cropping

1. INTRODUCTION

1.1. Background

Maban County is located in Upper Nile state in the North East to South Sudan Republic. The refugee caseload is composed of Sudanese fleing from the conflict in Blue Nile. They were established in four camps: Doro, Yusuf Batil, Gendrassa and Kaya (previously Jamam), to cater for mass influx from Blue Nile state. 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 during the wet season. The survey was conducted during the beginning of the dry season from end November to December 2014.

The total registered population was 120,000 as of November 2014. 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 refugee population is thus 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 murram. This ensures that humanitarian work is not hampered. Each of the camps 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.

The United Nations High Commissioner for Refugees (UNHCR) and the World Food Programme have been working 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 Implementing Partners provide 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 The main religions practiced are Islam and Christianity.

At the time of the survey, Doro had a population of 48654, followed by Yusuf Batil with 39366, Kaya with 21034 and Gendrassa with 17362. 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. The registered population is on food aid at 585 grams/person/day, providing slightly above 2100 kcal (Table 1).

Table 1: General Food distribution Rations

Food Item	Grammes/person/day	Kilo Calories	% Energy
Sorghum	500	1675	79.3%
Pulses	50	171	8.0
Vegetable oil	30	266	12.6
Salt	5	0	0
Total	585	2112	

No Post Distribution Monitoring (PDM) was conducted in 2014 in Maban. However, between February and May 2014 , the General Food Distribution(GFD) delivery was extremely poor due to pipeline breakdown and transportation difficulties as the result of the December 2015 South Sudan Crisis. This resulted in very low intakes in terms of daily energy requirements requirements (Table 2)

Figure 1: Monthly Average of Daily Energy needs (Kcal/p/day)in Maban Camps (Jan –Nov 2014)
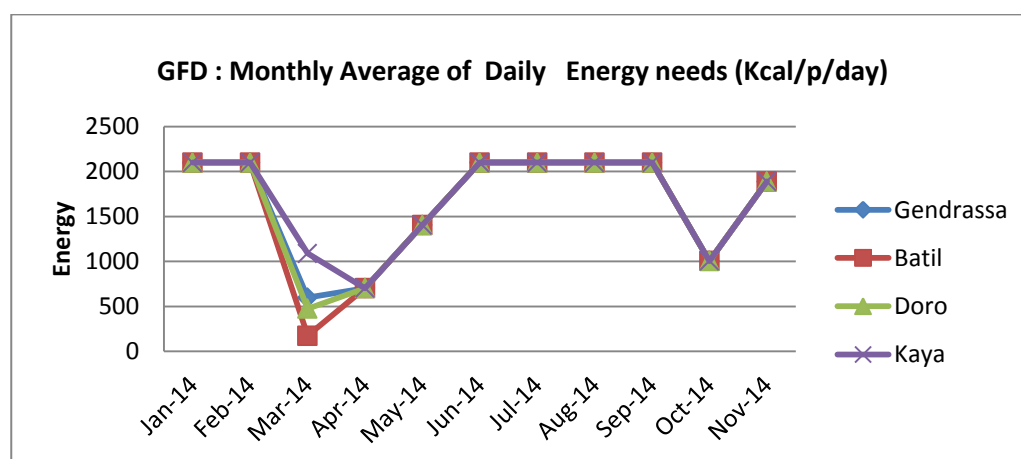
 There has not be a proper food security assessment in the refugee locations as such it is not possible to fathom what other food sources are available to the refugees. In addition to the GFD basket, refugees also receive milling vouchers as a way of cushioning against selling or exchanging the cereal ration to meet milling costs. The milling vouchers were initially for 70% of the cereal but due to funding constraints, WFP has reduced the vouchers to 50% of the cereal ration.

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 comes by road when in the dry season. In 2014 however, it was not possible to take advantage of the dry season to bring food and non-food items when the roads are open due to the security crisis in the country. As a result humanitarian agencies resorted to highly costly air operations, air lifts and air drops to bring both food and non-food items .

Each camp owns its Market. Yusfuf Batil camp has the biggest one. Main items found NFIs are some cereals , pulses and seeds coming partly from the GFD and partly brought by dealers from Ethiopia and blue nile. 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 of the Payam

Health situation

Health care services partners vary according to the camps. In Doro camp, MSFB is the health service provider. In Yusuf Batil, health services are offered by MSFH and MEDAIR while in Kaya and Gendrassa, they are managed by IMC. MSFH Gentil clinic covers also Kaya and Gendrassa .This is the only facility remaining from MSFH after the withdrawals of their PHCCs from Batil and later on from Kaya. The health services in the camps are at primary level with capacity to do blood transfusion. One main achievement is the Bunj Level 2 Hospital run by SP and upgraded fully by UNHCR funding. This Hospital is the biggest in the whole Upper Nile province. It is the referral hospital serving both host communities and refugees A part 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 70 % .

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.

Mortality trends monitoring show that mortality rates were below the emergency thresholds of 2/10000/day for under death rate (U5DR) and 1/10000/day for crude Mortality Rate (CMR). The peaks happened in different periods according to the camps. The mortality trends are illustrated in Figures 1, 2, 3 , 4 and 5 below

Morbidity patterns are common in all four camps. However, the ranking changes according to the camp. Put together, Respiratory Tract Infections (RTI) are the most common morbidities accounting respectively for 38.4% (Doro), 47.5 % (Batil), 60.2% (Gendrassa) and 69.5 % (Kaya) . Upper Respiratory Tract Infections (URTI) come first in Kaya and Gendrassa followed by Lower Respiratory Tract Infections (LRTI). In Yusuf Batil, LRTI is the top morbidity while in Doro watery diarrhoea comes first. Malaria (suspected cases) appears only in Gendrassa. The top five morbidities are illustrated in figures 5, 6, 7 and 8 below.

figure 2: crude and under-5 mortality rates – yusuf batil
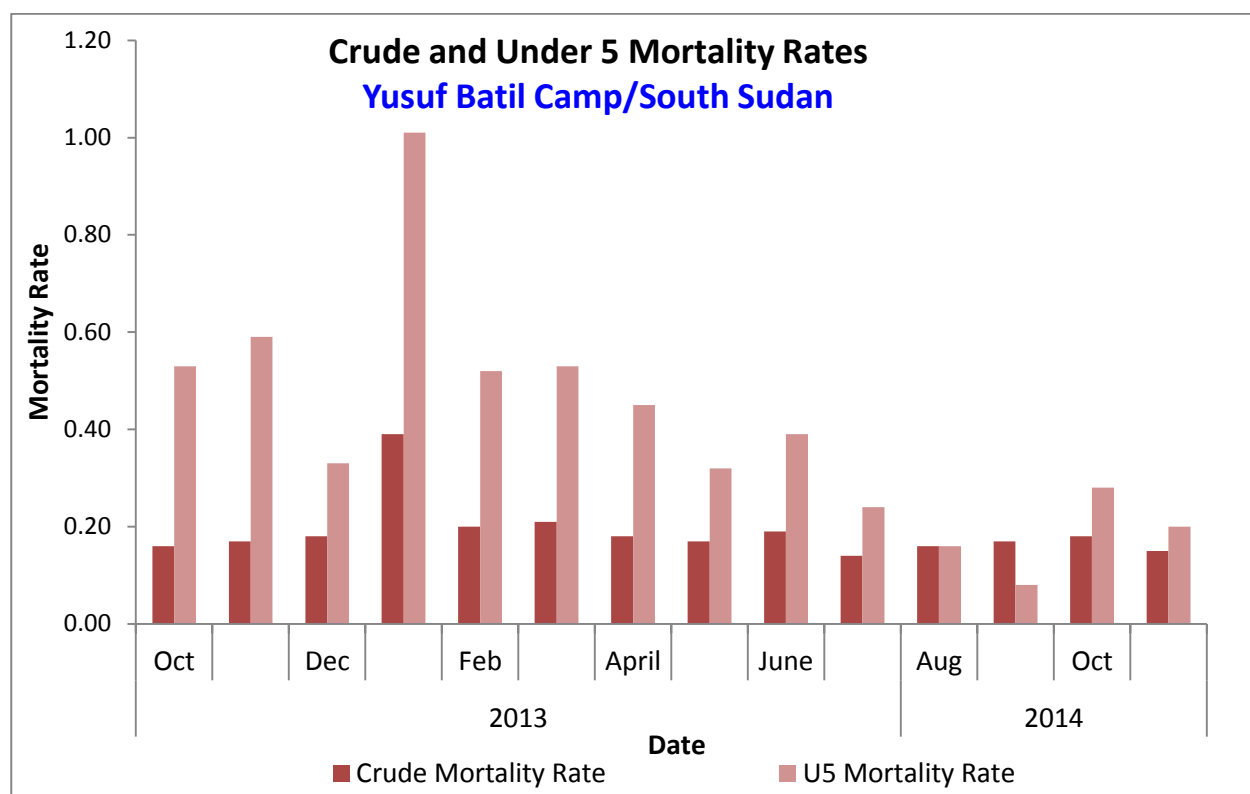
Figure 3: crude and under-5 mortality rates – gendrassa
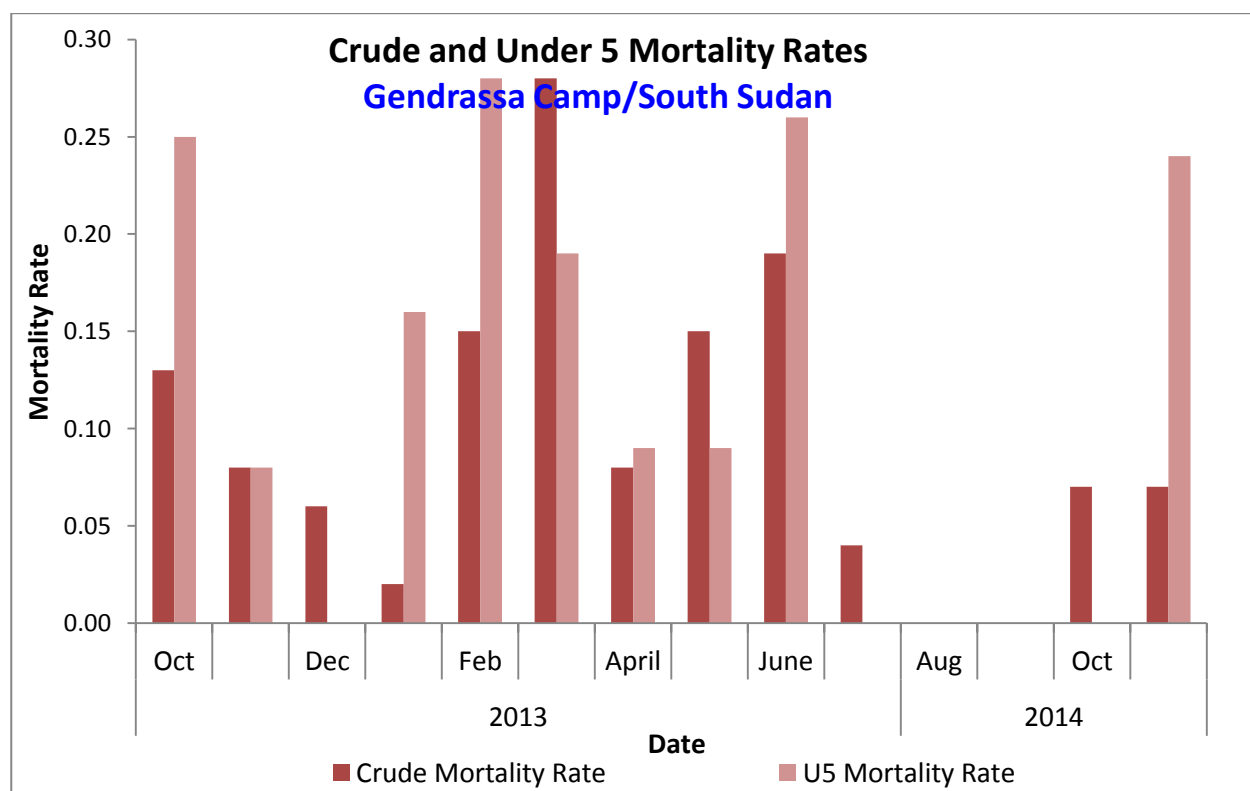
Figure 4: crude and under-5 mortality rates – kaya
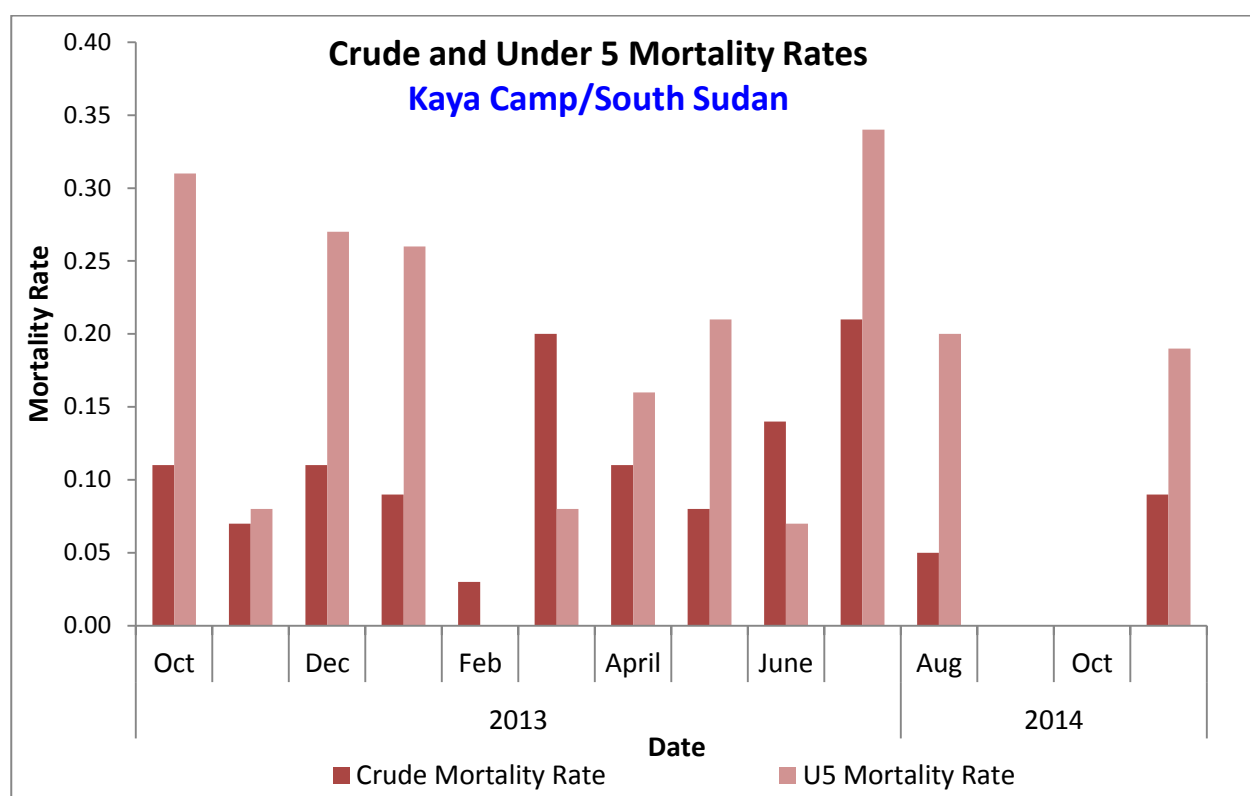
Figure 5: top five causes of morbidity in children under-5; Doro
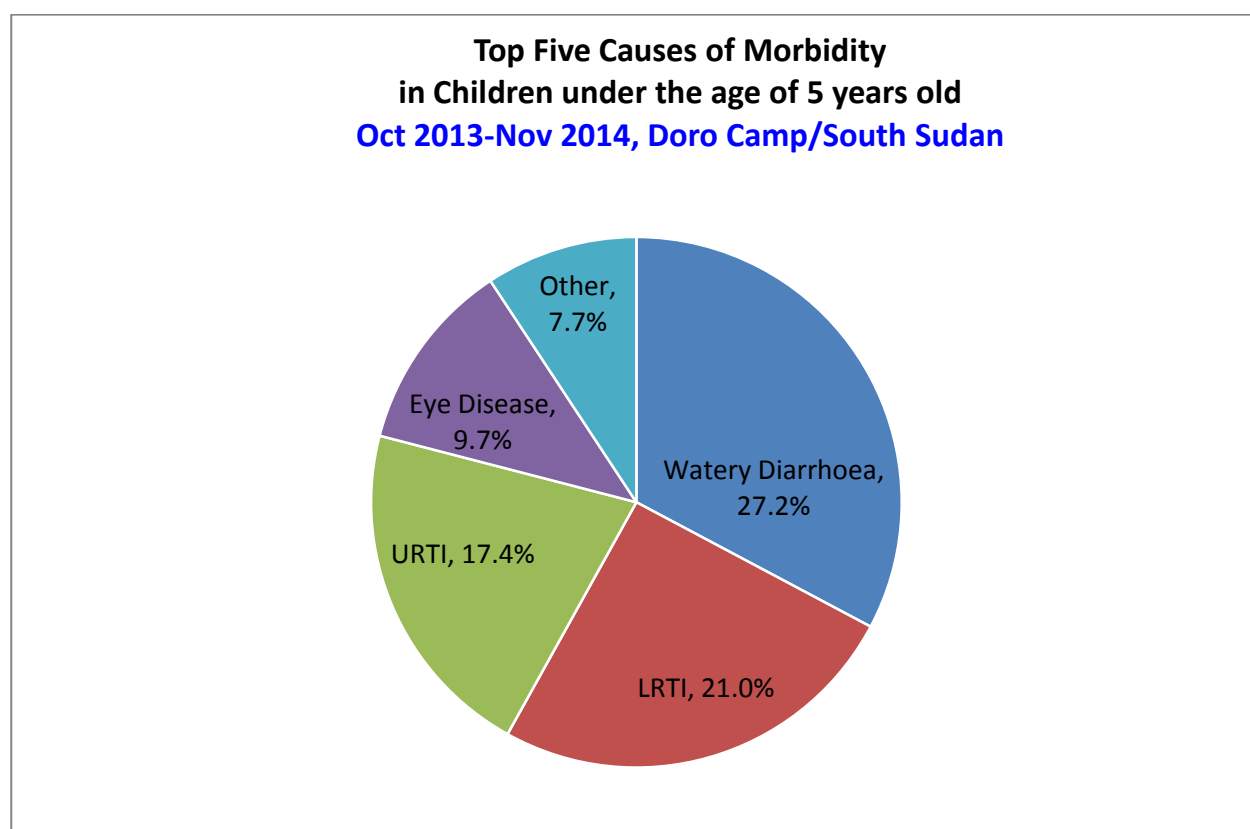
Figure 6: top five causes of morbidity in children under-5; yusuf batil

**Top Five Causes of Morbidity
in Children under the age of 5 years old
Oct 2013-Nov-2014, Yusuf Batil Camp/South Sudan**

- Other, 7.6%
- LRTI, 24.0%
- Eye disease, 11.5%
- Watery Diarrhoea, 18.6%
- URTI, 23.5%
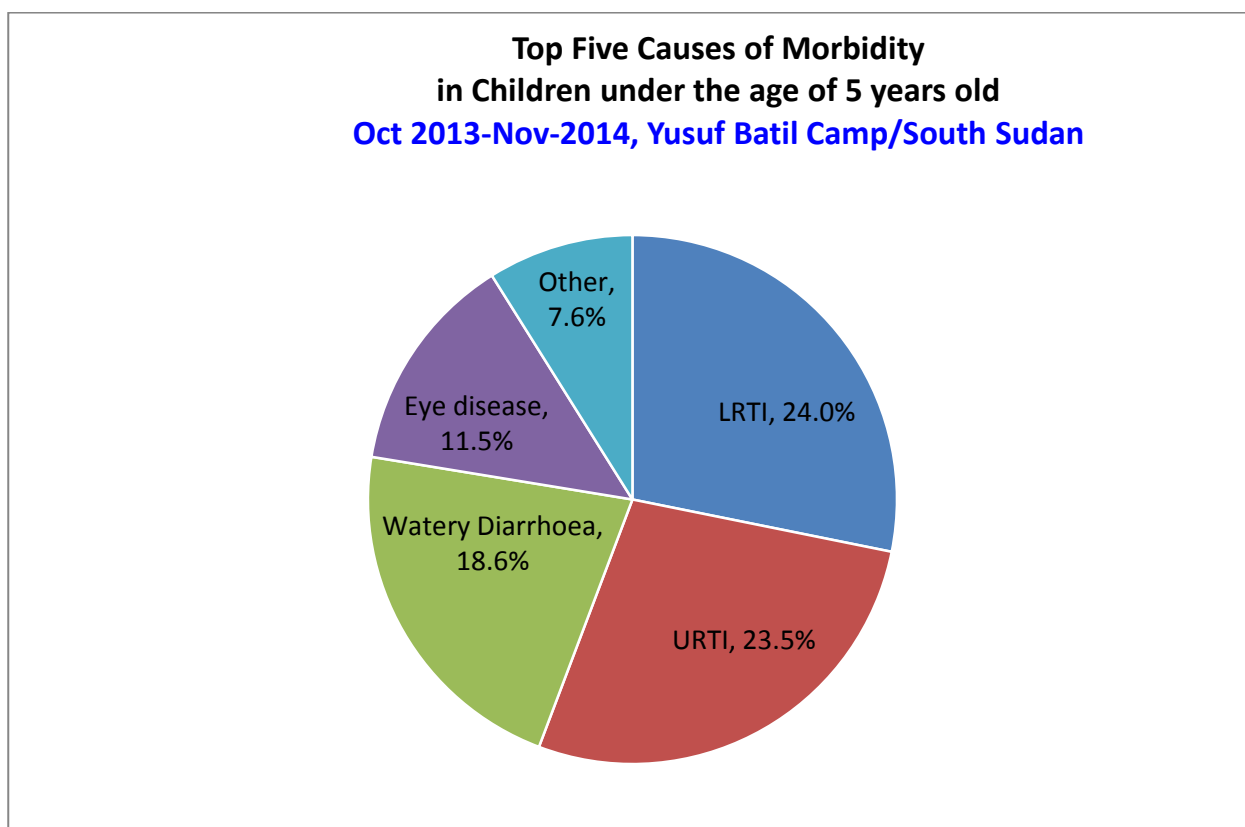
FIGURE 5: Top five causes of morbidity in children under-5; gendrassa

**Top Five Causes of Morbidity
in Children under the age of 5 years old
Oct 2013-Nov 2014,Gendrassa Camp /South Sudan**

- Malaria (suspected), 5.5%
- Eye Disease, 6.7%
- LRTI, 9.2%
- Watery Diarrhoea, 12.9%
- URTI, 51.8%
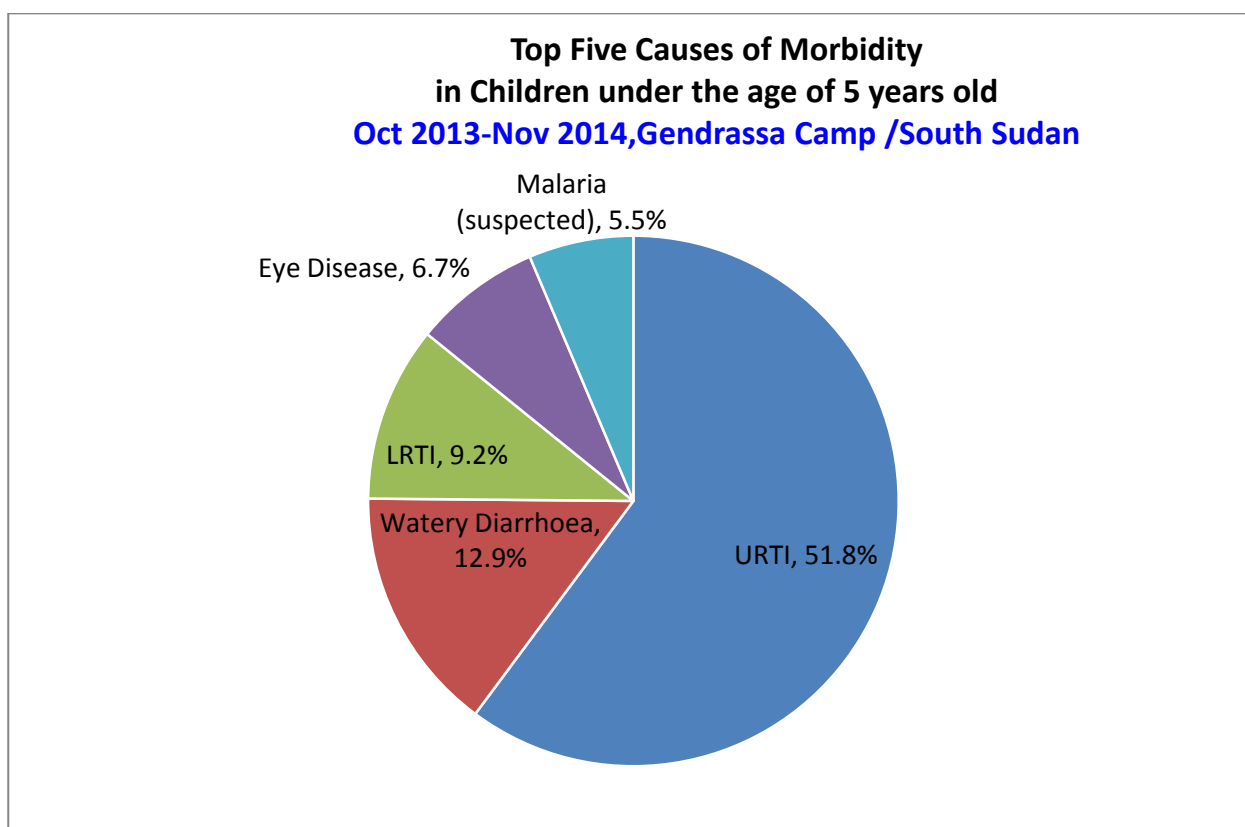
Figure 7: top five causes of morbidity in children under-5; kaya

**Top Five Causes of Morbidity
in Children under the age of 5 years old
Oct 2013-Nov 2014,Kaya Camp/South Sudan**

Skin Disease, 4.4%
Eye Disease, 5.4%
Wtery Diarrhoea, 9.7%
LRTI, 13.5%
URTI, 56.0%
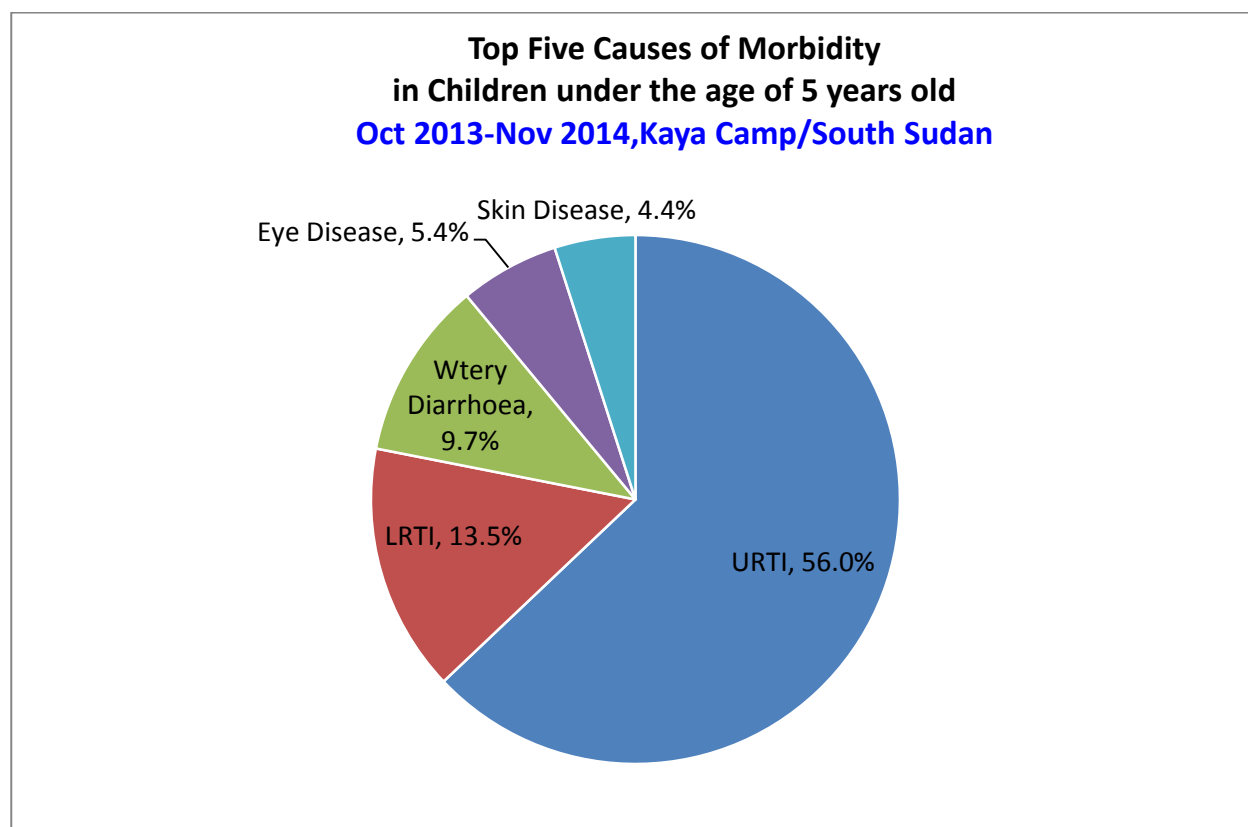
Nutrition situation

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 November 2014. 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, Medecins sans Frontieres –Belgium (MSFB) delivers the SAM services (SC and OTP) while SP manages the MAM (TSFP). In Yusuf Batil, Medecins Sans Frontieres –Holland (MSFH) manages the SC while MEDAIR manages the OTP and TSFP. In Gendrassa and Kaya, MSFH manages the SC and the management of OTP and TSFP services belongs to International Maedical Corps (IMC). It is worthy to note that the SC is managed by MSFH from Gentil Hospital situated in Batil and nearby Gendrassa. Cases are then referred from Kaya (15 km away) and Gendrassa. TSFP for Pregnant and Lactating Women (PLW) has been going on.

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[1] Also called Inpatient Therapeutic Feeding Center (ITFC)
[2] Also called Ambulatory Therapeutic Feeding Center (ATFC)

Preventive Services

In Maban, besides curative interventions, nutrition partners with WFP collaboration implemented Blanket Supplementary Feeding Programme (BSFP) targeting children 6 to 59 months for one year from April 2013 following the worrying results of the nutrition survey. The commodity used for this programme is the Corn-Soya Blend ++ (CSB++) (200g/person/day), also called Super Cereal plus. This activity was stopped more than one year ago as the commodity was not available throughout and it is still not sure   to have continuous BSFP for children 6 to 23 months for 6 months as officially agreed with WFP. For pregnant and lactating women (PLW), BSFP was also effective after 2013 survey results but was shifted to TSFP at both because of commodity availability and malnutrition levels being lowered far below emergency threshold (UNHCR/WFP,2011).

 It has also been agreed with WFP to re-shift to BSFP PLW alongside the BSFP 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

There is no particular programme that seeks to address the anaemia problem. There were pilot activities in Kaya and Gendrassa to provide vegetable seeds in 2014 to Mother Support Groups in both camps (40 MSGs) each as sources of micronutrients. The impacts were not deeply assessed. This year, there is a plan to expand to more households and to all camps and establish a proper follow up.

Current Nutrition Trends

The last nutrition survey results showed serious to critical rates (beyond 15 % threshold) of malnutrition (from 10 % to 17 %), anaemia and stunting in all camps . In between the two surveys and before the present nutrition survey completion, the situation has changed according to the Maban monthly nutrition surveillance system relying on the monthly Mid Upper Arm Circunference(MUAC) screening exercise to provide an estimation of the nutrition situation both children under 5 and PLWs. The peaks in malnutrition levels happened between February and April 2014 conversantly with the very poor GFD intake which was the lowest at that period, reflecting the food shortage crisis as a result   of the South Sudan Conflict. August 2014 crisis in Maban resulting to partial evacuation of humanitarian community affected also the nutrition situation at that time. However, as soon as the situation came close to normal and food delivery became more consistent, the nutrition trends went down as the situation improved. Children Under 5 five trends of malnutrition levels are displayed on **figure 8**.

The PLWs' nutrition situation is still worrying as its always remain 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 2013 nutrition survey and in terms of public health significance classification (WHO, 2000), Stunting prevalence was from of medium to high from 35.4 (31.7-39.2) to 45.3 (30.7-60.7) in all camps according to 2013 Nutrition survey. Anaemia prevalence in children 6 to 59 months was medium in Gendrassa with 32.6% (28.5 – 37.0) but high in Doro , Jamam and Kaya with respectively 47.9% (43.4 – 52.4) 54.8% (50.3 – 59.3) and 57.3% (53.6 – 60.9).

21

Figure 8 : MUAC screening Trends Maban: May 2013-Nov 2014
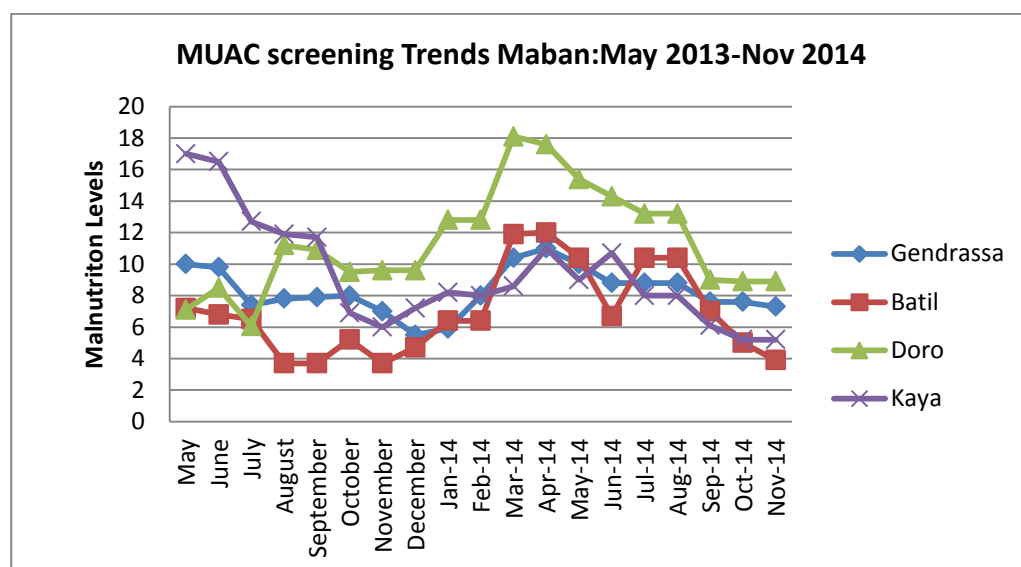
1.2. Survey Objectives

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
Kaya	20 %	12 %	4	1.5	10%	4.2	414	608
Doro	21%	15 %	4	1.5	10%	4.5	500	653
Gendrassa	20 %	12 %	4	1.5	10%	4.2	414	608
Yusuf Batil	21 %	13 %	4	1.5	10%	4.5	443	608

The sample size for anthropometry and health was used for the other modules namely IYCF and WASH. Half the sample size of anthropometry (every other household) was used as the sample size for anaemia and mosquito net coverage. This was done following SENS recommendations, which say that if there is no anaemia intervention in place then half the anthropometry sample size should be sampled for anaemia.

To calculate the mortality sample size, the parameters illustrated in table 3 below were used. The ENA for SMART software October 2012 version was used to calculate the mortality sample size.

Table 3: Mortality Sample Size Calculation

Location	Estimated rate (deaths/10,000/day)	± desired precision	Design Effect	Average household size	Recall period	Non response rate	Population to be included	Households to be included
Kaya	1	1	2	4.2	90 days	10%	929	246
Doro	1	1	2	4.5	90 days	10%	929	229
Gendrassa	1	1	2	4.2	90 days	10%	929	229
Yusuf Batil	1	1	2	4.5	90 days	10%	929	240

Following the SMART recommendations which stipulate that in a combine survey (mortality and anthropometry), the higher sample size of the two is taken as the final sample size; the mortality sample size used in the survey was the same as the anthropometry sample size.

For the purposes of this survey, household size was defined as the number of people who eat from the same pot. The household size used in the survey was obtained from community health worker reports where from their day to day activities. The refugee total population and the proportion of children under the age of 5 years were obtained from the UNHCR ProGres database. A non-response rate of 10 % was factored. The estimated GAM prevalence was obtained from the previous 2013 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 settlements 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 39 clusters of 17 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 October 31 2014. To assign clusters, the probability proportion to sample size (PPS) was employed using the ENA software. Each cluster comprised 17 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 identified clusters where they were asked to number the households. Once the households were numbered, systematic random sampling was employed in second stage sampling. The sampling interval varied depending on the number of households in the cluster. The first household was randomly selected from pieces of papers which were numbered.

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. However, in Gendrassa particularly, many absentees were noted in 2 clusters and even the Reserved Clusters were not enough. 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

The questionnaire was translated from English to Arabic and back translated again to English by a different person to make sure to keep the same meaning during the translation. The final questionnaire was in both in English and Arabic, please see **Appendix 5**. Prior to the survey, the questionnaire was pretested. In the course of the interview, the Arabic language was used to conduct the interview. Each team had one member who was dedicated for conducting the interview.

Measurement methods

Household level indicators

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

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 ≥ 87cm 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 the WHO Growth Standards 2006. Results using the NCHS Growth Reference 1977 are reported in **Appendix 3**.

Table 4: 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 (%) =

       100x   No. of surveyed children with MAM according to SFP

admission criteria who reported being registered in SFP
No. of surveyed children with MAM according to SFP admission criteria

Therapeutic feeding programme

Coverage of OTP programme (%) =

100x   No. of surveyed children with SAM according to OTP
admission criteria who reported being registered in OTP
No. of surveyed children with SAM according to OTP admission criteria

Infant and Young Child Feeding (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	

*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.

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 *maximum* of 2 families / households or with no more than *12 individuals*. Therefore, the following two categories from the above SENS survey definitions are considered "improved excreta disposal facility" for UNHCR WASH monitoring system: "improved excreta disposal facility" and "shared family toilet".

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

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 6: 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 7: Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012)*

				Coverage		
	Recovery	**Case fatality**	**Defaulter rate**	**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 8: 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 9: 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 10: 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 11: 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 runned 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 members; 2 measurers, 1 responsible for anaemia measurements and the fourth member who was responsible for conducting the interview and was also the team leader. A total of 43 enumerators were trained, 40 participated in data collection while 2 were data entry clerks. The other two were trained in case there were some dropouts in one of the teams and there was need to have a replacement.

Team leaders were national staff from SP MEDAIR, IMC and MSFB while 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 6 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 Programme Manager, the MEDAIR Deputy Nutrition Programme Manager and   the SP Nutrition Programme Manager, . The Survey Coordinator was the UNHCR Nutrition and Food Security Officer based in Maban /Upper Nile.

Training

The training lasted for six days from 10 to 16 November 2014. 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.

To ensure high quality data was collected, Standadisation 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 lasted 9 days in in Doro and Batil from 18 to 27 November 2014 and 8 days in Kaya and Gendrassa. 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

 Anthropometry,health and children anaemia were entered in ENA while other modules' data were entered at first in Epi- Info and -Data was entered at first in Epi info version 3.5.4. by four data entry clerks. To ensure quality and accuracy, the Survey Coordinator would randomly spot check 5% of the data entered and compare to the paper questionnaires. There were problems however with the data entry clerks as they were slow and having issues with Epin info. Then the Survey Coordinator had to enter also the data in Excel so as to ensure that the data was available for analysis and not biased. Data entry was conducted every day from day 3 of data collection at the end of the day when data collection teams had returned from the field. Entry was conducted at UNHCR office in Maban.

All the data was entered and cleaned in Microsoft Excel 1997 to 2003 version. Questionnaires with discrepancies and missing data were not included in the analysis. The SMART plausibility report was generated on a daily basis once data was entered to identify any problems with anthropometric data collection such as flags and digit preference for age, height and weight. The exercise aimed to improve the quality of the anthropometric data collected as the survey was on-going. Teams in need of support from the supervision and coordination team were identified. 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. Mortality and anthropometry indices were analysed using the ENA for SMART October 2012 version was used. For analysis of other survey indicators, the data was exported to Epi Info version 3.5.4.

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	650
Total population surveyed	3931
Total U5 surveyed	947
Average household size	4.1
% of U5	24.0

Table 13: Target and Actual Number Captured-Doro Camp

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	500	946	189.2%
Clusters (where applicable)	39	39	100%

3.1. Anthropometric results (based on WHO standards 2006)

Table 14: Distribution of age and sex of sample-Doro Camp

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	138	49.1	143	50.9	281	29.7	1.0
18-29	88	48.6	93	51.4	181	19.1	0.9
30-41	136	53.5	118	46.5	254	26.8	1.2
42-53	94	56.6	72	43.4	166	17.5	1.3
54-59	30	46.9	34	53.1	64	6.8	0.9
Total	486	51.4	460	48.6	946	100.0	1.1

Percentage of children with no exact birthday: 100 %

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

	All n = 945	Boys n = 485	Girls n = 460
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(77) 8.1 % (6.2 - 10.7 95% C.I.)	(46) 9.5 % (6.8 - 13.1 95% C.I.)	(31) 6.7 % (4.6 - 9.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(69) 7.3 % (5.5 - 9.6 95% C.I.)	(43) 8.9 % (6.3 - 12.3 95% C.I.)	(26) 5.7 % (3.7 - 8.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(8) 0.8 % (0.4 - 1.9 95% C.I.)	(3) 0.6 % (0.2 - 1.9 95% C.I.)	(5) 1.1 % (0.5 - 2.5 95% C.I.)

The prevalence of oedema is 0.0 %

Table 16: 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	281	1	0.4	34	12.1	246	87.5	0	0.0
18-29	180	1	0.6	10	5.6	169	93.9	0	0.0
30-41	254	3	1.2	17	6.7	234	92.1	0	0.0
42-53	166	3	1.8	6	3.6	157	94.6	0	0.0
54-59	64	0	0.0	2	3.1	62	96.9	0	0.0
Total	945	8	0.8	69	7.3	868	91.9	0	0.0

Figure 9 : Trend in the Prevalence of Wasting By Age in Children 6-59 Months
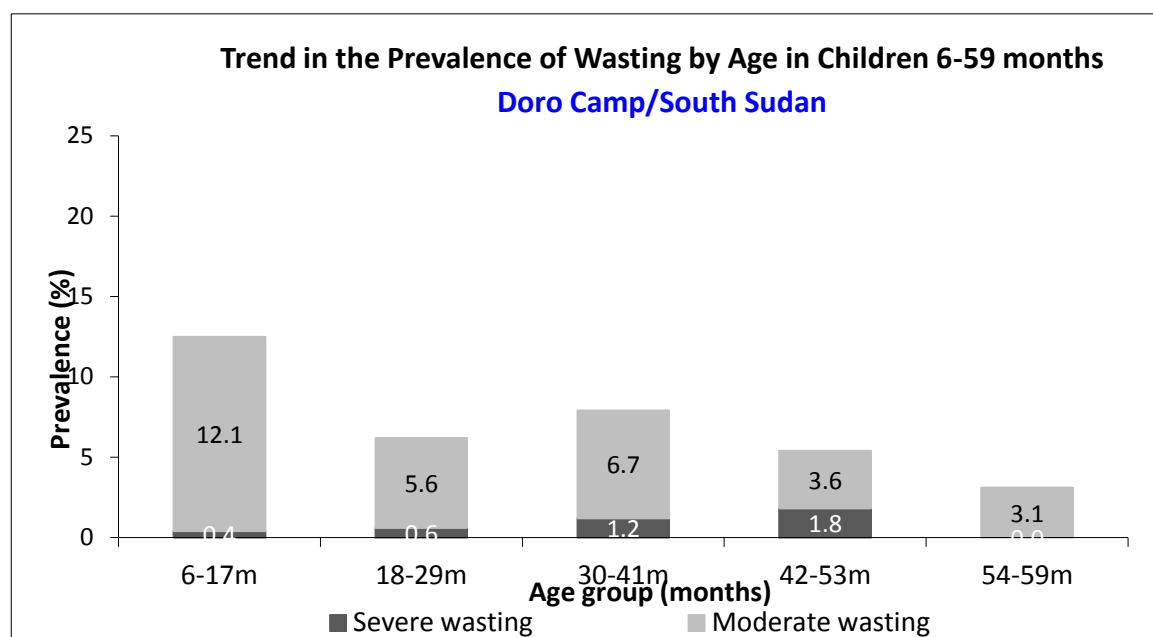
Table 17: Distribution of acute malnutrition and oedema based on weight-for-height z-scores- Doro camp

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 9 (1.0 %)	Not severely malnourished No. 937 (99.0 %)

Figure 10 : Distribution of Weight-For-Height Z-Scores (Based On WHO Growth Standards
The Reference Population Is Shown In Green and The Surveyed Population Is Shown In Red) Of
Survey Population Compared To Reference Population
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 18: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-
Doro Camp

	All	Boys	Girls
	n = 946	n = 486	n = 460
Prevalence of global malnutrition (< 125 mm and/or oedema)	(39) 4.1 % (3.0 - 5.7 95% C.I.)	(12) 2.5 % (1.5 - 4.1 95% C.I.)	(27) 5.9 % (4.0 - 8.6 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(36) 3.8 % (2.7 - 5.3 95% C.I.)	(12) 2.5 % (1.5 - 4.1 95% C.I.)	(24) 5.2 % (3.6 - 7.6 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(3) 0.3 % (0.1 - 1.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(3) 0.7 % (0.2 - 2.1 95% C.I.)

Table 19: 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	281	3	1.1	23	8.2	255	90.7	0	0.0
18-29	181	0	0.0	10	5.5	171	94.5	0	0.0
30-41	254	0	0.0	2	0.8	252	99.2	0	0.0
42-53	166	0	0.0	1	0.6	165	99.4	0	0.0
54-59	64	0	0.0	0	0.0	64	100.0	0	0.0
Total	946	3	0.3	36	3.8	907	95.9	0	0.0

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

	All n = 940	Boys n = 484	Girls n = 456
Prevalence of underweight (<-2 z-score)	(225) 23.9 % (20.6 - 27.7 95% C.I.)	(119) 24.6 % (20.2 - 29.6 95% C.I.)	(106) 23.2 % (19.4 - 27.6 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(181) 19.3 % (16.6 - 22.2 95% C.I.)	(95) 19.6 % (15.9 - 24.0 95% C.I.)	(86) 18.9 % (16.0 - 22.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(44) 4.7 % (3.2 - 6.9 95% C.I.)	(24) 5.0 % (3.0 - 8.0 95% C.I.)	(20) 4.4 % (2.3 - 8.1 95% C.I.)

Table 21: 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	276	13	4.7	47	17.0	216	78.3	0	0.0
18-29	181	9	5.0	47	26.0	125	69.1	0	0.0
30-41	253	12	4.7	48	19.0	193	76.3	0	0.0
42-53	166	7	4.2	26	15.7	133	80.1	0	0.0
54-59	64	3	4.7	13	20.3	48	75.0	0	0.0
Total	940	44	4.7	181	19.3	715	76.1	0	0.0

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

	All n = 902	Boys n = 465	Girls n = 437
Prevalence of stunting **(<-2 z-score)**	(328) 36.4 % (32.5 - 40.4 95% C.I.)	(174) 37.4 % (32.6 - 42.5 95% C.I.)	(154) 35.2 % (30.3 - 40.5 95% C.I.)
Prevalence of moderate stunting **(<-2 z-score and >=-3 z-score)**	(221) 24.5 % (21.3 - 28.0 95% C.I.)	(112) 24.1 % (20.1 - 28.6 95% C.I.)	(109) 24.9 % (21.1 - 29.2 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(107) 11.9 % (9.7 - 14.4 95% C.I.)	(62) 13.3 % (10.4 - 16.9 95% C.I.)	(45) 10.3 % (7.3 - 14.3 95% C.I.)

Table 23: 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	265	13	4.9	52	19.6	200	75.5
18-29	174	34	19.5	47	27.0	93	53.4
30-41	240	32	13.3	73	30.4	135	56.3
42-53	160	19	11.9	34	21.3	107	66.9
54-59	63	9	14.3	15	23.8	39	61.9
Total	902	107	11.9	221	24.5	574	63.6

Figure 11 : Trends in the Prevalence of Stunting By Age in Children 6-59 Months
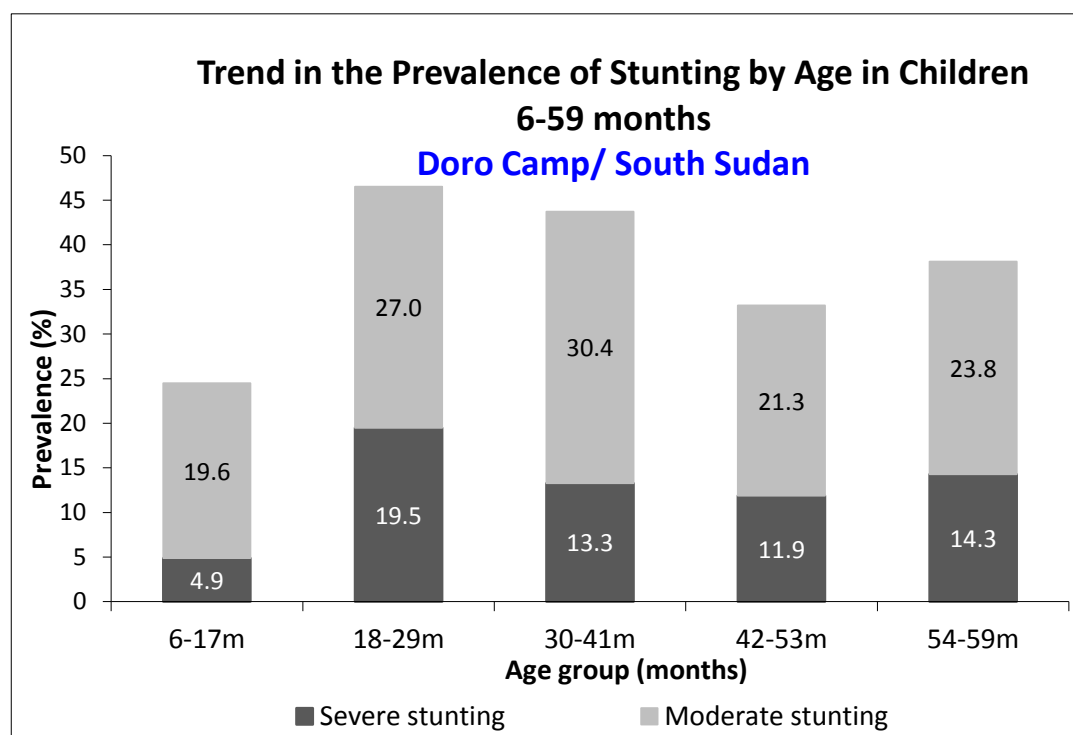
Figure 12: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards;
The Reference Population Is Shown In Green and the surveyed Population Is Shown In Red) Of
Survey Population Compared To Reference Population
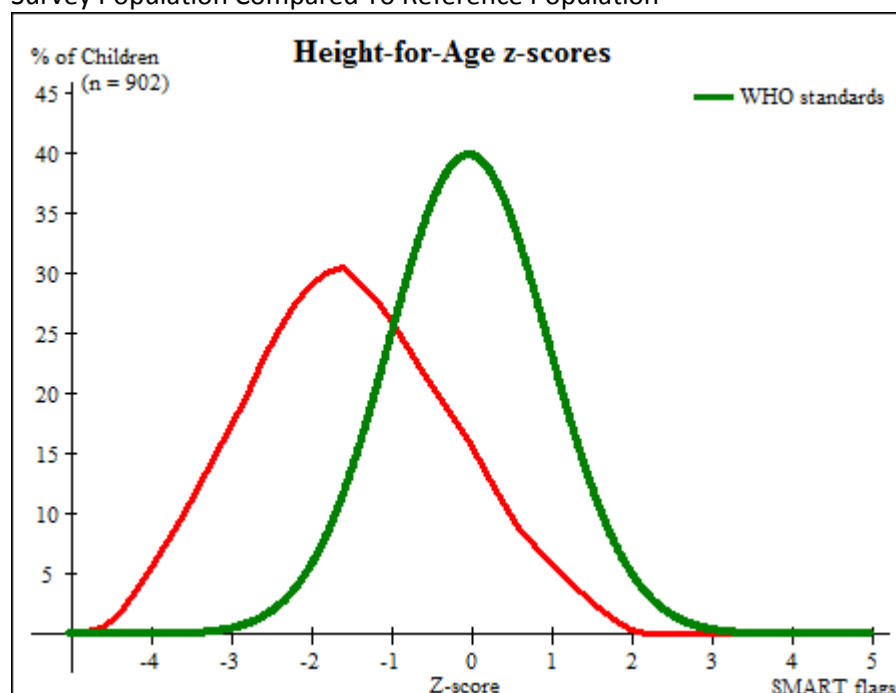
Table 24: Mean z-scores, Design Effects and excluded subjects-Doro Camp

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	945	-0.56±1.03	1.51	0	1
Weight-for-Age	940	-1.20±1.08	1.59	0	6
Height-for-Age	902	-1.50±1.25	1.48	0	44

* contains for WHZ and WAZ the children with edema.

3.2. Health/Feeding Programme Coverage

Feeding Programme Coverage Results

Table 25: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ-Doro Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	20/89	22.5(14.6-30.3)
Therapeutic feeding programme coverage	3/12	25(-1.9-51.9)

Table 26: Programme coverage for acutely malnourished children based on MUAC and oedema-Doro Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	16/36	44.4(27.6-61.3)
Therapeutic feeding programme coverage	1/3	33.3(-110.0-176.7)

Measles vaccination coverage results

Table 27 : Measles Vaccination Coverage for Children Aged 9-59 Months (N=872)-Doro Camp

	Measles (with card) n= 704	Measles (with card or confirmation from mother) n= 780
YES	81.2% (74.7 -87.8 % CI)	90 % (86.5 -93.5 95 % CI)

Vitamin A supplementation coverage results

Table 28 : Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 938)-Doro Camp

	Vitamin A capsule (with card) n=728	Vitamin A capsule (with card or confirmation from mother) n=822
YES	77.9 % (70.6-85.160 95% CI)	88.2% (83.4-93.0 95% CI)

Table 29: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=)-Doro Camp

	DPT3 / PENTA3 (with card) n= 776	DPT3 / PENTA3 (with card or confirmation from mother) n= 875
YES	82.5% (76.8-88.2)	93.0% (90.0-96.0)

Diarrhoea Results

Table 30:2 Period Prevalence of Diarrhoea-Doro Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	69/906	20.1 (15.6-24.7)

3.3. Anaemia Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is 53.2 % (46.5-59.9 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 73.5 % (65.1-81.9 95% CI).

Table 31: 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 = 504	6-23 months n=185	24-59 months n=319
Total Anaemia (Hb<11.0 g/dL)	(268) 53.2 % (46.5-59.9 , 95% CI)	(136) 73.5% (65.1-81.9 , 95% CI)	(132) 41.3% (33.7-49.0 , 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(143) 28.4 % (24.2 -32.6, 95% CI)	(66) 35.7% (28.4-42.9 , 95% CI)	(77) 24.1% (18.7-29.6 , 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(119) 23.6% (18.4-28.8, 95% CI)	(67) 36.2% (28.0-44.4 , 95% CI)	(52) 16.3% (10.0-22.6 , 95% CI)
Severe Anaemia (<7.0 g/dL)	(6) 1.2% (0.2-2.0 95% CI)	(3) 1.6% (-0.3-3.5 , 95% CI)	(3) 0.9 (-0.1-2 , 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	10.7 g/dL (10.6-10.9 , 95% CI) [5.1-15.5]	10.2 g/dL (9.9-10.3 , 95% CI) [5.7-13.0]	11.0 g/dL (10.9-11.3 , 95% CI) [5.1-15.5]

Table 32: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Doro Camp

	6-59 months n = 509	**6-23 months** n= 188	**24-59 months** n= 321
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(126) 24.7% (19.5-30.0 , 95% CI)	(71) 37.8% (29.5-46.0 , 95% CI)	(55) 17.1% (10.8-23.5 , 95% CI)

3.4. IYCF Children 0-23 Months

Table 33: 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**	376/429	87.6	83.6-91.7
Exclusive breastfeeding under 6 months	**0-5 months**	61/90	67.8	59.3-79.3
Continued breastfeeding at 1 year	**12-15 months**	100/104	96.2	92.5-99.8
Continued breastfeeding at 2 years	**20-23 months**	22/30	73.3	55.2-91.4
Introduction of solid, semi-solid or soft foods	**6-8 months**	29/62	46.8	37.0-56.5
Consumption of iron-rich or iron-fortified foods	**6-23 months**	129/244	52.9	44.5-61.2
Bottle feeding	**0-23 months**	22/417	5.2	2.6-7.8

Prevalence of Intake

Infant Formula

Table 34: 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)	4/414	1 (-0.2-2.1)

Fortified Blended Foods

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	12/336	4(1.6-5.2)

Table 36: CSB++ Intake in Children Aged 6-23 Months-Doro Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	14/313	4.5 (1.9-7.0)

3.5. Anaemia Women 15-49 Years Results

Table 37: Women Physiological Status and Age-Doro Camp

Physiological status	Number/total	% of sample
Non-pregnant	511	77.8
Pregnant	139	21.2
Don't Know	7	1
Mean age (range)	26.1(15-49)	

Table 38: 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 = 277
Total Anaemia (<12.0 g/dL)	(71) 25.6% (19.2-32.0 , 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(50) 18.0% (13.3-22.8 , 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(20) 7.2 % (4.3-10.1 , 95% CI)
Severe Anaemia (<8.0 g/dL)	(1) 0.3 (-0.4-1.0, 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.9 g/dL (12.2-13.6, 95% CI) [3.0-21.3]

Table 39: 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	58/93	62.4 (49.6-75.0)
Currently receiving iron-folic acid pills	78/95	37.6 (24.9-50.4)

3.6.Water Sanitation and Hygiene (WASH)

Table 40: WASH Sampling Information-Doro Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	653	599	91.7

Table 41: Water Quality-Doro Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	599/599	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	293/599	48.9 (38.8-59.0)

Table 42: 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	247/592	41.7 (35.2-48.3)
15 – <20 lpppd	82/592	13.8 (10.7-17.0)
<15 lpppd	263/592	44.2 (37.9-50.9)

Add the average water usage in lpppd:_____19.0 lpppd**_____**

Table 43: Satisfaction with Water Supply-Doro Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	**351/599**	**58.6 (48.0-69.2)**

Figure 13: Proportion of Households That Say They Are Satisfied With the Water Supply

Proportion of Households that say they are Satisfied with the Water Supply
Doro Camp/South Sudan

- 58.6 Satisfied
- 38.6 Partially satisfied
- 2.8 Not satisfied
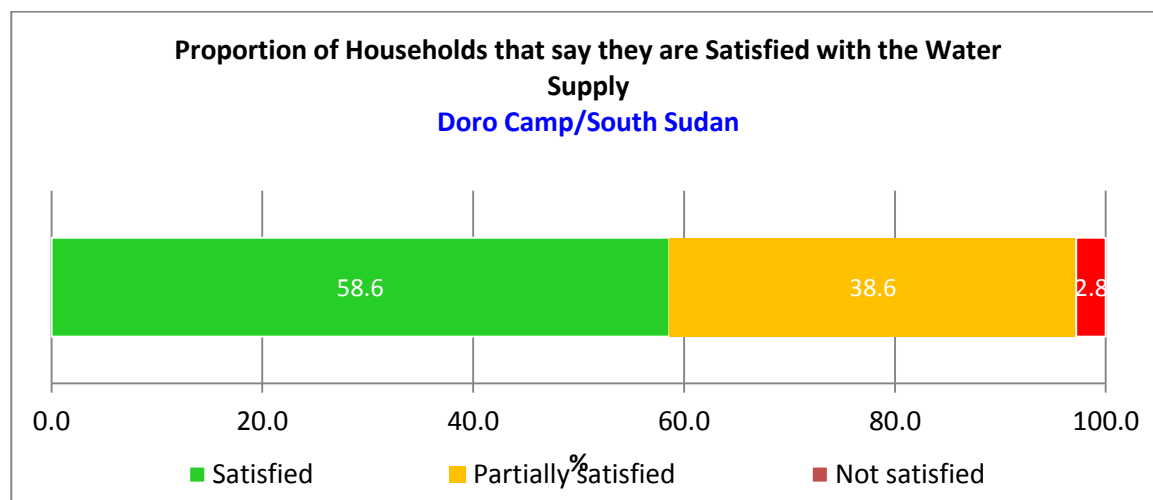
Figure 14: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

Reasons provided for Dissatisfaction of Water Supply
Doro Camp/South Sudan

Main reason for dissatisfaction	Proportion of households (%)
Not enough	20.3
Long waiting queue	60.1
Long distance	13.0
Irregular supply	1.3
Bad taste	2.1
Water too warm	0.4
Bad quality	0.8
Have to pay	0.0
Other	0.0
Don't know	0.0
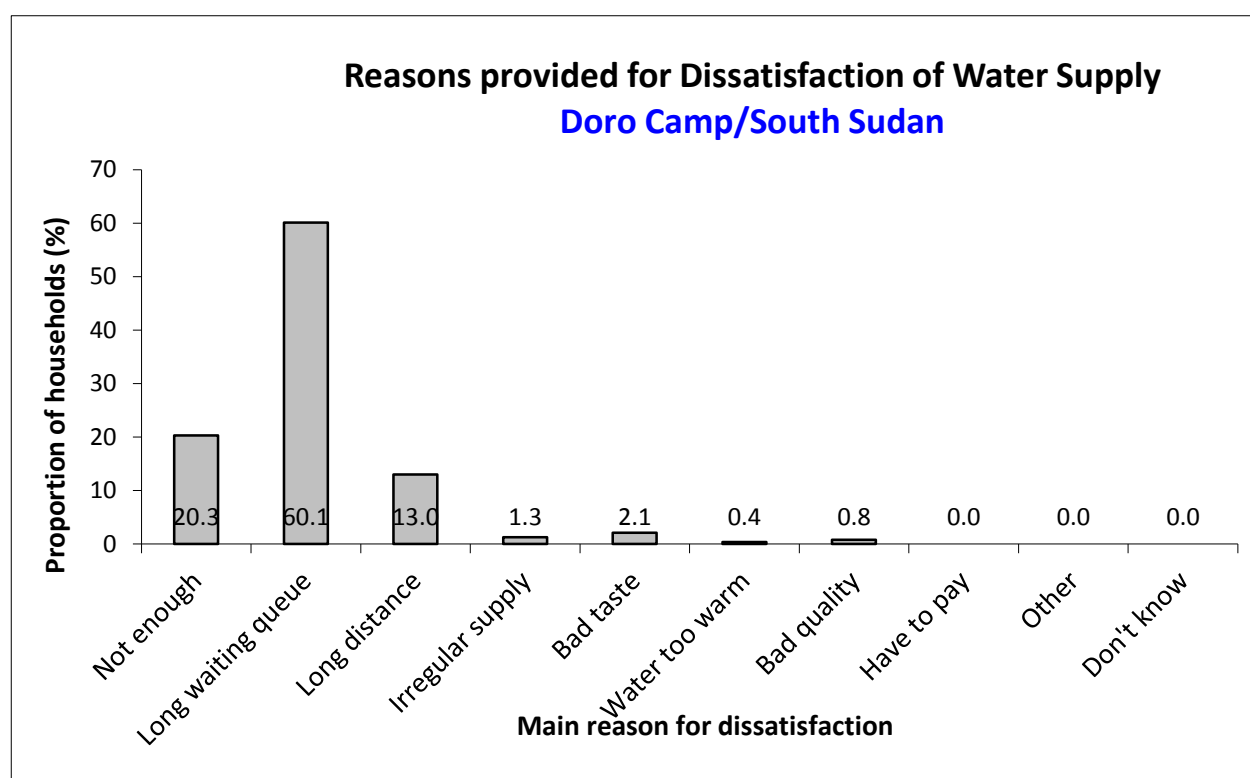
Table 44: Safe excreta disposal-Doro Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,**	207/561	36.9 (28.7-45.0)
A shared family toilet (improved toilet facility, 2 households)**	137/561	24.4 (19.2-29.7)
A communal toilet (improved toilet facility, 3 households or more)	192/561	34.2 (25.2-43.3)
An unimproved toilet (unimproved toilet facility or public toilet)	25/561	4.5 (2.0-7.0
Proportion of households with children under three years old that dispose of faeces safely	378/407	92.8 (88.2-97.5)

*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 facillity, 1 household)" and "shared family toilet (improved toilet facility, 2 households)".

Figure 15 : Proportion of Households With Children Under The Age Of 3 Years Whose (Last) Stools Were Disposed Of Safely
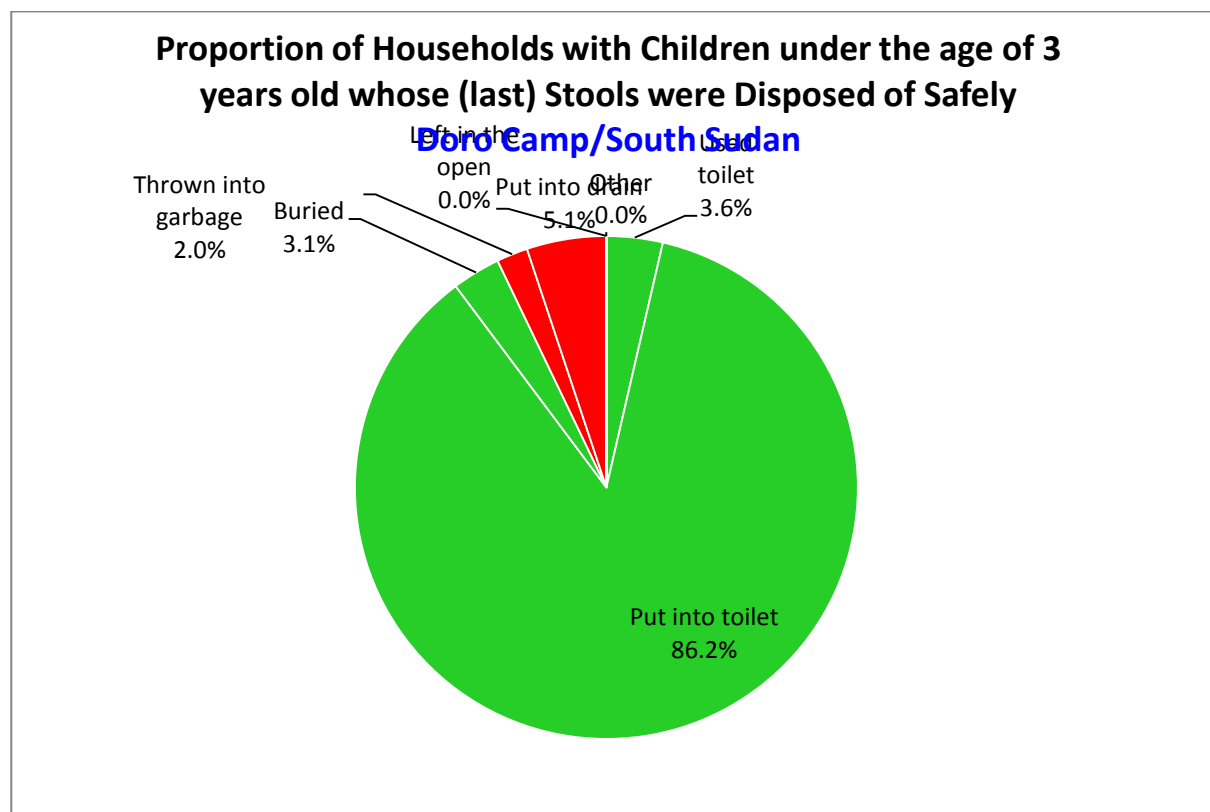
3.7. Mosquito Net Coverage

Table 45: Mosquito Net Coverage Sampling Information-Doro Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	327	369	112.8

Table 46: Household Mosquito Net Ownership-Doro Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	349/367	95.0 (92.7-97.5)
Proportion of total households owning at least one LLIN	310/367	84.5 (79.3-89.6)

Figure 16: Household Ownership of At Least One Mosquito Net (Any Type)

Proportion of Households with at least one Mosquito Net (any type)

Doro Camp/South Sudan

Households with no mosquito net 4.9%

Households with at least one mosquito net 95.1%
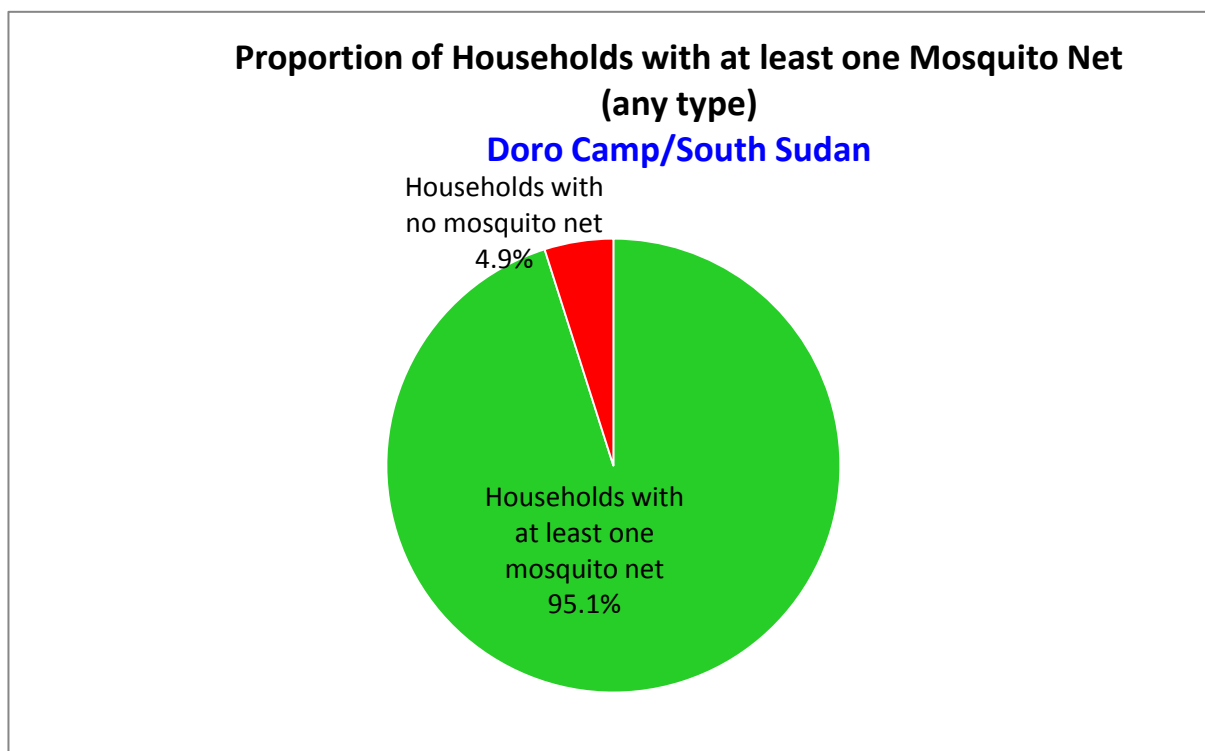
Figure 17: Household Ownership Of At Least One Llin

Proportion of Households with at least one LLIN

Doro Camp/South Sudan

Households with no LLIN 15.5%

Households with at least one LLIN 84.5%
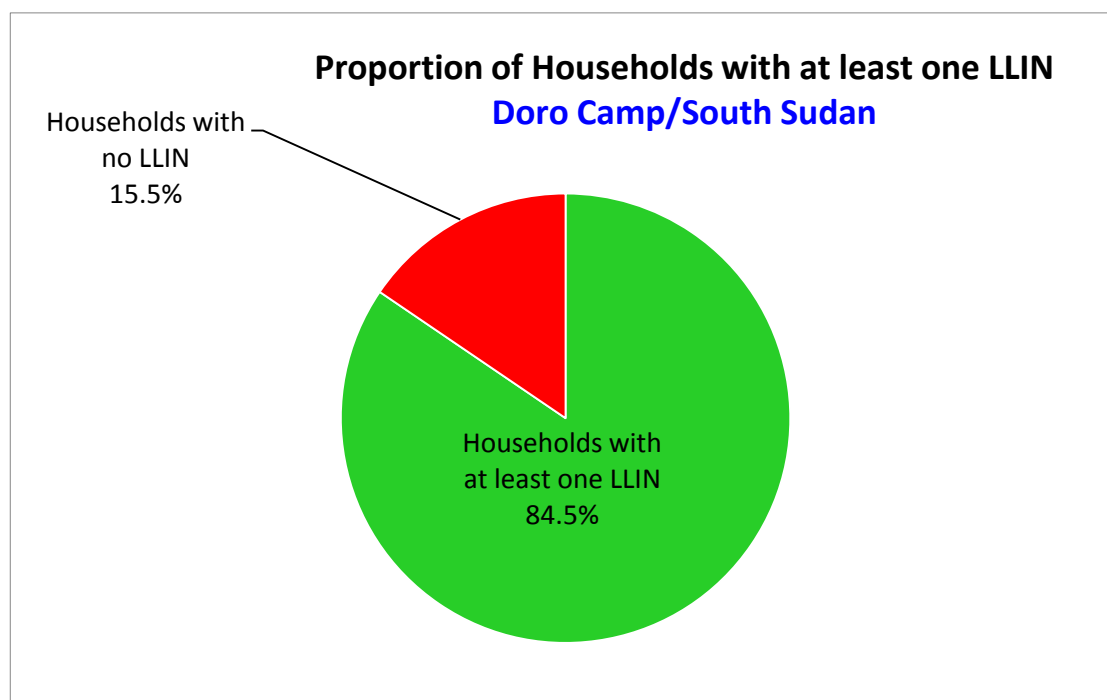
Table 47: Number Of Nets-Doro Camp

Average number of LLINs per household	Average number of persons per LLIN
2.1	3.2

Table 48: Mosquito Net Utilization-Doro Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 2199	%	Total No= 597	%	Total No= 162	%
Slept under net of any type	1360	61.8	436	73.0	63	38.9
Slept under LLIN	1617	73.5	510	85.4	57	35.2

Figure 18: Mosquito Net Utilisation by Sub-Group

50
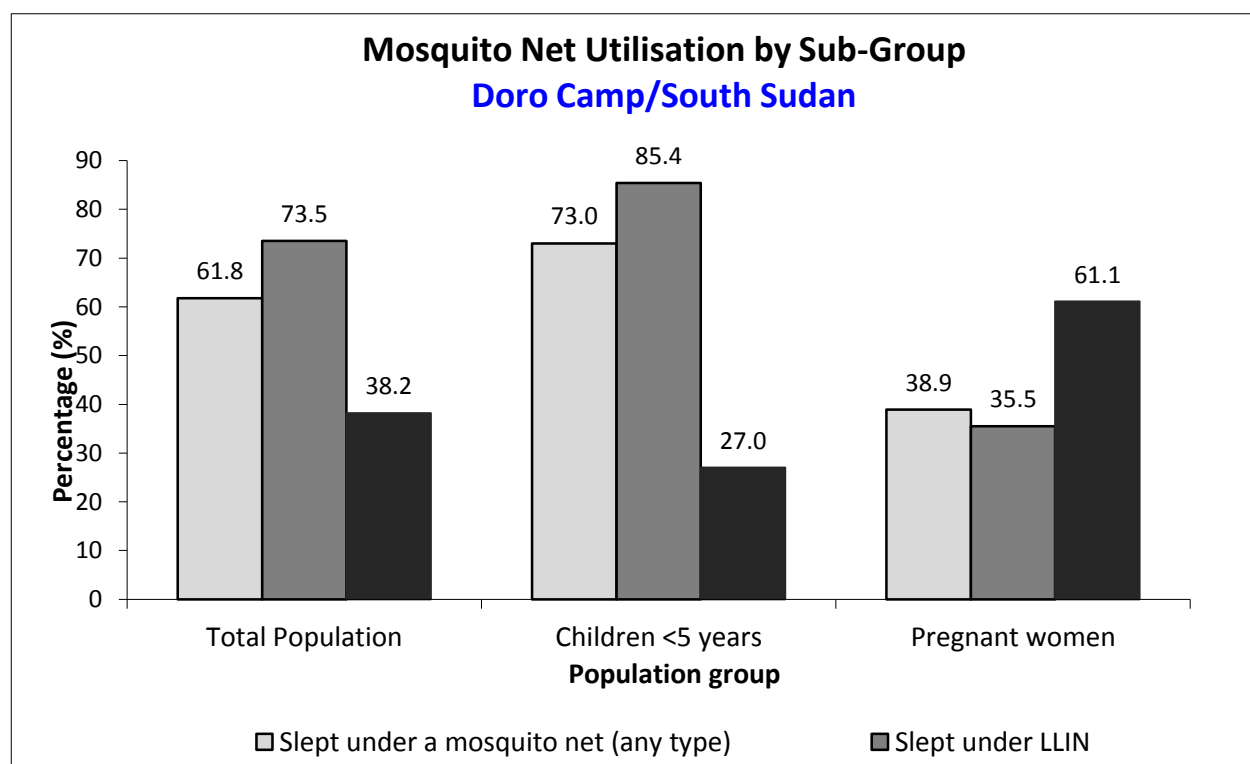
YUSUF BATIL CAMP

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	*631*
Total population surveyed	*3876*
Total U5 surveyed	*873*
Average household size	*4.4*
% of U5	*22.5*

Table 50: Target and Actual Number Captured-Batil Camp

	Target (No.)	**Total surveyed (No.)**	**% of the target**
Children 6-59 months	443	873	197.0%
Clusters (where applicable)	39	39	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	141	48.1	152	51.9	293	33.6	0.9
18-29	63	47.4	70	52.6	133	15.2	0.9
30-41	136	56.7	104	43.3	240	27.5	1.3
42-53	82	52.6	74	47.4	156	17.9	1.1
54-59	24	47.1	27	52.9	51	5.8	0.9
Total	446	51.1	427	48.9	873	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 = 869	Boys n = 442	Girls n = 427
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(66) 7.6 % (5.9 - 9.7 95% C.I.)	(33) 7.5 % (5.4 - 10.2 95% C.I.)	(33) 7.7 % (5.6 - 10.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(59) 6.8 % (5.2 - 8.9 95% C.I.)	(30) 6.8 % (4.8 - 9.4 95% C.I.)	(29) 6.8 % (4.7 - 9.7 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(7) 0.8 % (0.4 - 1.6 95% C.I.)	(3) 0.7 % (0.2 - 2.2 95% C.I.)	(4) 0.9 % (0.4 - 2.4 95% C.I.)

The prevalence of oedema is 0.1 %

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	291	2	0.7	27	9.3	262	90.0	0	0.0
18-29	133	1	0.8	12	9.0	119	89.5	1	0.8
30-41	239	2	0.8	12	5.0	225	94.1	0	0.0
42-53	155	1	0.6	8	5.2	146	94.2	0	0.0
54-59	51	0	0.0	0	0.0	51	100.0	0	0.0
Total	869	6	0.7	59	6.8	803	92.4	1	0.1

Figure 19: Trend in the Prevalence of Wasting By Age in Children 6-59 Months
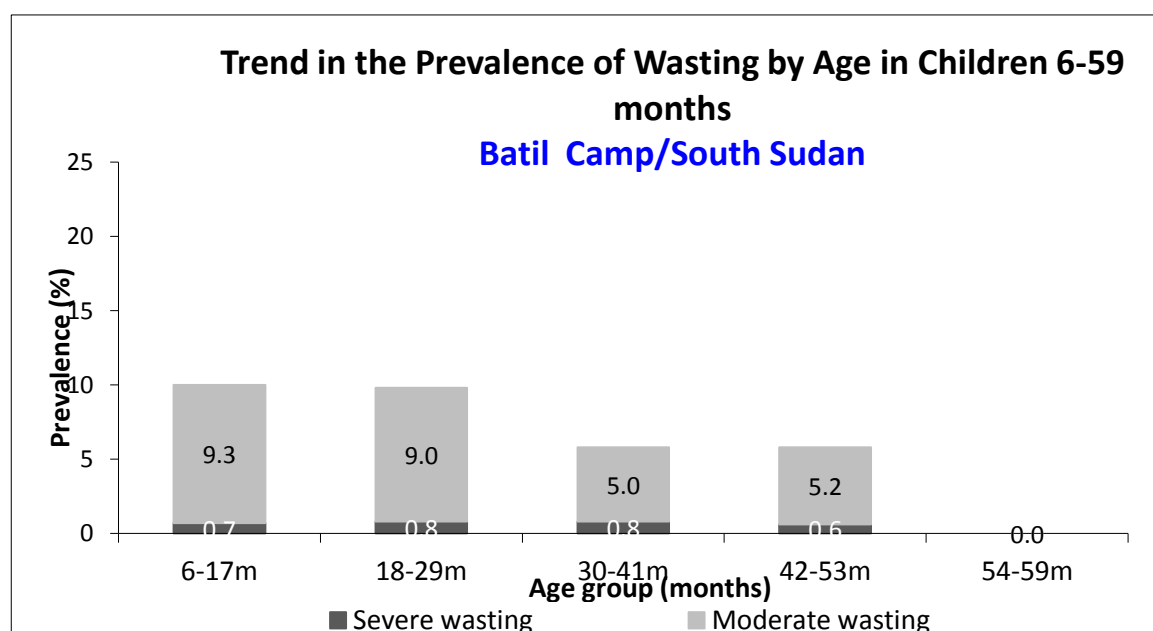
Table 54: Distribution of acute malnutrition and oedema based on weight-for-height z-scores-Batil Camp

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 1 (0.1 %)
Oedema absent	Marasmic No. 8 (0.9 %)	Not severely malnourished No. 864 (99.0 %)

Figure 20: 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.
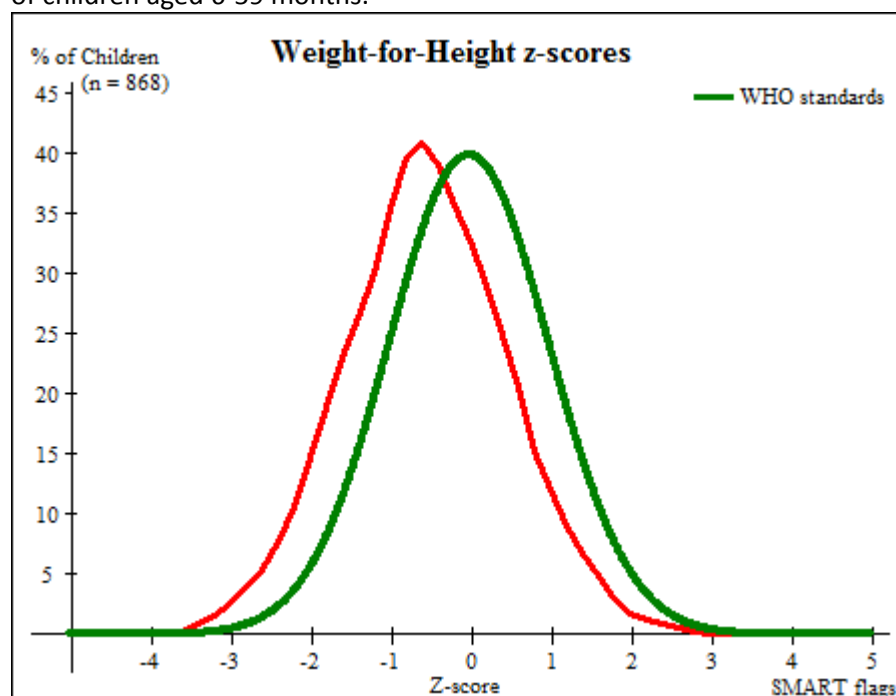
Table 55: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Batil Camp

	All n = 873	**Boys** n = 446	**Girls** n = 427
Prevalence of global malnutrition (< 125 mm and/or oedema)	(55) 6.3 % (4.6 - 8.5 95% C.I.)	(18) 4.0 % (2.5 - 6.4 95% C.I.)	(37) 8.7 % (6.0 - 12.4 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(50) 5.7 % (4.2 - 7.8 95% C.I.)	(17) 3.8 % (2.4 - 6.0 95% C.I.)	(33) 7.7 % (5.4 - 10.9 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(5) 0.6 % (0.2 - 2.1 95% C.I.)	(1) 0.2 % (0.0 - 1.7 95% C.I.)	(4) 0.9 % (0.2 - 4.5 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	293	4	1.4	41	14.0	248	84.6	0	0.0
18-29	133	0	0.0	5	3.8	128	96.2	1	0.8
30-41	240	0	0.0	4	1.7	236	98.3	0	0.0
42-53	156	0	0.0	0	0.0	156	100.0	0	0.0
54-59	51	0	0.0	0	0.0	51	100.0	0	0.0
Total	873	4	0.5	50	5.7	819	93.8	1	0.1

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

	All n = 866	Boys n = 445	Girls n = 421
Prevalence of underweight (<-2 z-score)	(233) 26.9 % (23.8 - 30.3 95% C.I.)	(123) 27.6 % (23.6 - 32.1 95% C.I.)	(110) 26.1 % (21.6 - 31.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(189) 21.8 % (19.0 - 24.9 95% C.I.)	(100) 22.5 % (18.8 - 26.6 95% C.I.)	(89) 21.1 % (16.9 - 26.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(44) 5.1 % (3.7 - 6.9 95% C.I.)	(23) 5.2 % (3.4 - 7.7 95% C.I.)	(21) 5.0 % (3.2 - 7.8 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	290	17	5.9	56	19.3	217	74.8	0	0.0
18-29	130	11	8.5	29	22.3	90	69.2	1	0.8
30-41	239	12	5.0	57	23.8	170	71.1	0	0.0
42-53	156	4	2.6	32	20.5	120	76.9	0	0.0
54-59	51	0	0.0	15	29.4	36	70.6	0	0.0
Total	866	44	5.1	189	21.8	633	73.1	1	0.1

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

	All n = 840	Boys n = 425	Girls n = 415
Prevalence of stunting **(<-2 z-score)**	(370) 44.0 % (40.4 - 47.8 95% C.I.)	(197) 46.4 % (41.3 - 51.4 95% C.I.)	(173) 41.7 % (36.8 - 46.7 95% C.I.)
Prevalence of moderate stunting **(<-2 z-score and >=-3 z-score)**	(232) 27.6 % (24.5 - 30.9 95% C.I.)	(116) 27.3 % (22.4 - 32.8 95% C.I.)	(116) 28.0 % (24.3 - 31.9 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(138) 16.4 % (13.7 - 19.6 95% C.I.)	(81) 19.1 % (15.2 - 23.6 95% C.I.)	(57) 13.7 % (10.7 - 17.5 95% C.I.)

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	278	21	7.6	62	22.3	195	70.1
18-29	125	24	19.2	42	33.6	59	47.2
30-41	236	56	23.7	68	28.8	112	47.5
42-53	150	28	18.7	41	27.3	81	54.0
54-59	51	9	17.6	19	37.3	23	45.1
Total	840	138	16.4	232	27.6	470	56.0

Figure 21: Trends in the Prevalence of Stunting By Age in Children 6-59 Months

Figure 21: Trend in the Prevalence of Stunting by Age in Children 6-59 months — Batil Camp/ South Sudan
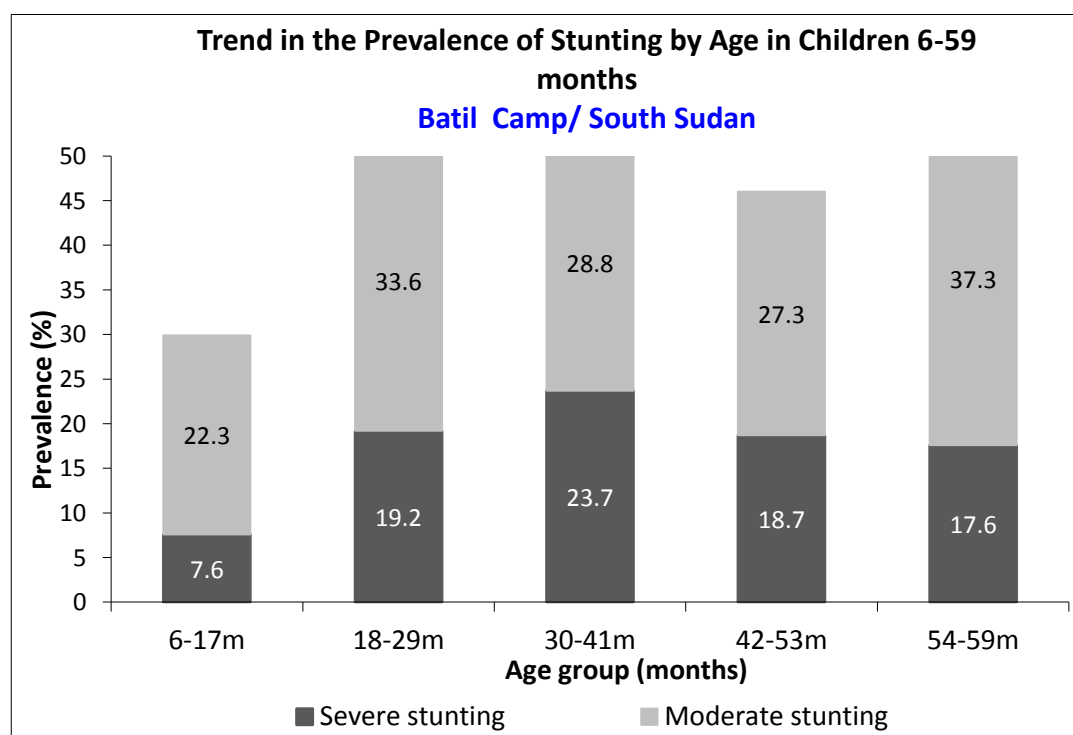
Figure 22: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; The Reference Population Is Shown In Green And The Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population
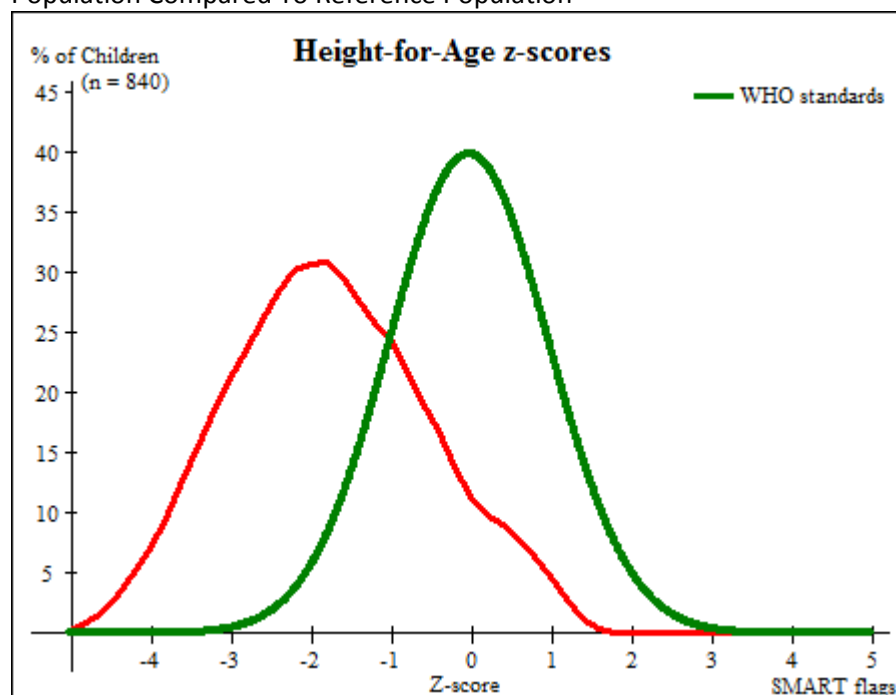
Table 61: Mean z-scores, Design Effects and excluded subjects-Batil Camp

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	868	-0.55±1.00	1.16	1	4
Weight-for-Age	866	-1.36±1.00	1.16	1	6
Height-for-Age	840	-1.75±1.23	1.14	0	33

* 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	32/93	34.4(23.5-45.3)
Therapeutic feeding programme coverage	4/11	36.4(.7-71.0)

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

	Number/total	% (95% CI)
Supplementary feeding programme coverage	26/50	52.0(37.6-66.4)
Therapeutic feeding programme coverage	2/5	40.0(-114.9-194.9)

Measles vaccination coverage results

Table 64: Measles Vaccination Coverage for Children Aged 9-59 Months (N=775)-Batil Camp

	Measles (with card) n= 396	Measles (with card or confirmation from mother) n= 585
YES	51.0% (45.5-56.7; 95% CI)	75.5 % (71.1-79.9; 95% CI)

Vitamin A supplementation coverage results

Table 65: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 873)-Batil Camp

	Vitamin A capsule (with card) n=367	Vitamin A capsule (with card or confirmation from mother) n=529
YES	42.0% (33.3-50.8; 95% CI)	60.6 % (52.8-68.4 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=457	DPT3 / PENTA3 (with card or confirmation from mother) n=681
YES	52.4% (47.9-57.0; 95% CI)	78.0 % (73.9-82.2 95% CI)

Diarrhoea Results

Table 67:3 Period Prevalence of Diarrhoea-Batil Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	75/838	8.9 (6.1-11.8)

3.10. Anaemia Results Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is of high health significance at 52.9 % (47.5-58.3 95% CI). Prevalence of anaemia among children 6 to 23 months is also of high public health significance at 69.2 % (61.4-77.2 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 = 482	6-23 months n=192	24-59 months n=290
Total Anaemia (Hb<11.0 g/dL)	(255) 52.9% (47.5-58.3 ; 95% CI)	(133) 69.2 % (61.4-77.2 95% CI)	(122) 42.0% (35.0-49.1 ; 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(134) 27.8 % (23.5-32.1 ; 95% CI)	(61) 31.8% (24.8-38.8 ; 95% CI)	(73) 25.1 % (19.4-30.9 ; 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(110) 22.8 % (18.2-27.4 ; 95% CI)	(68) 35.4% (26.8-44.0 ; 95% CI)	(42) 14.5 % (9.7-19.3 ; 95% CI)
Severe Anaemia (<7.0 g/dL)	(11) 2.3 % (0.8-3.7 ; 95% CI)	(4) 2.0% (0.0-4.1 ; 95% CI)	(7) 2.4 (0-1.7 ; 95% CI)
Mean Hb (g/dL) **(SD / 95% CI)** **[range]**	10.7 g/dL (10.5-10.9 ; 95% CI) [2-15.3]	10.2 g/dL (10.0-10.5 ; 95% CI) [3.0-15.3]	10.9 g/dL (10.7-11.2 ; 95% CI) [2.0-14.6]

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 = 482	6-23 months n= 192	24-59 months n= 290
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(121) 25.1 % (20.0-30.1 95% CI)	(72) 37.5 % (28.3-46.7 95% CI)	(49) 16.9 % (11.6-22.2 95% CI)

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 month**	279/358	77.9	71.8-84.0
Exclusive breastfeeding under 6 months	**0-5 months**	45/97	46.4	30.5-62.3
Continued breastfeeding at 1 year	**12-15 months**	62/63	98.4	95.0-101.8
Continued breastfeeding at 2 years	**20-23 months**	15/21	71.4	47.4-95.5
Introduction of solid, semi-solid or soft foods	**6-8 months**	17/64	26.6	15.7-37.4
Consumption of iron-rich or iron-fortified foods	**6-23 month**	109/237	46.0	37.2-54.8
Bottle feeding	**0-23 month**	45/346	13.0	9.9-16.8

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)	23/351	6.6 (2,2-10.9)

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	344/386	89.1
Pregnant	42/386	10.9
Mean age (range)	26.9(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 = 290
Total Anaemia (<12.0 g/dL)	(64) 22.1% (15.3-28.8 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(48) 16.6 % (11.0-22.1 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(16) 5.5 % (2.6-8.5 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0.0 (0-0 ; 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.9 g/dL (12.8-13.2 95% CI) [9.6-16.2]

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	34/40	85.0 (70.0-99.9)
Currently receiving iron-folic acid pills	34/34	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	608	510	83.9

Table 78: Water Quality-Batil Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	510/510	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	386/510	75.7 (68.6-82.8)

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	175/510	34.3 (27.9-40.7)
15 – <20 lpppd	93/510	18.2 (14.8-21.7)
<15 lpppd	242/510	47.5 (40.2-54.7)

Add the average water usage in lpppd:_____18.7 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	432/510	84.7 (78.0-91.4)

Figure 23: Proportion of Households That Say They Are Satisfied With the Water Supply

Proportion of Households that say they are Satisfied with the Water Supply
Batil Camp/South Sudan

Satisfied 84.7 — Partially satisfied 14.3 — Not satisfied 0.
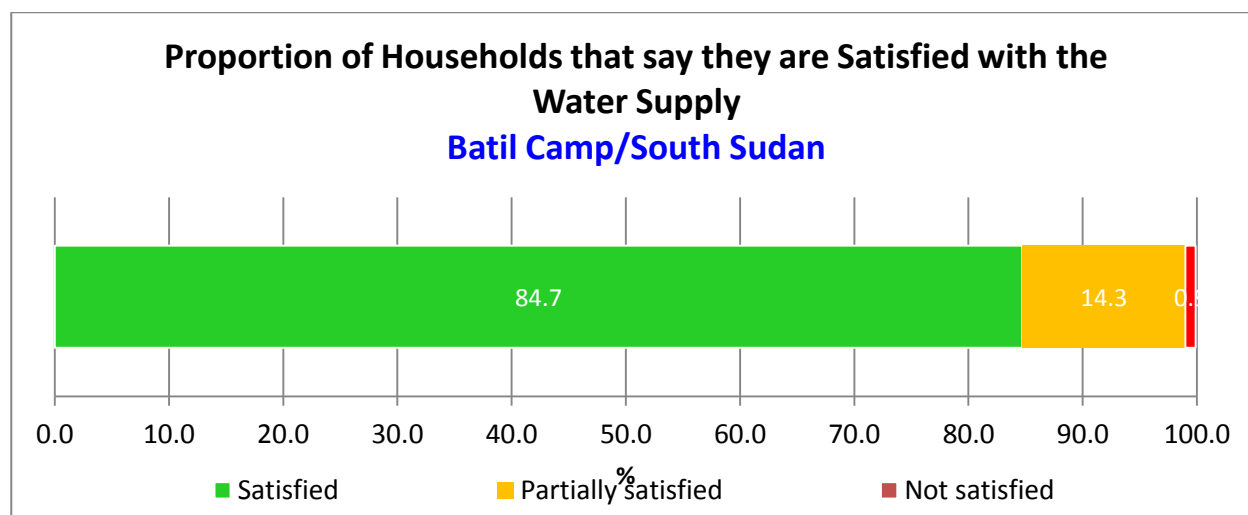
Figure 24: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply
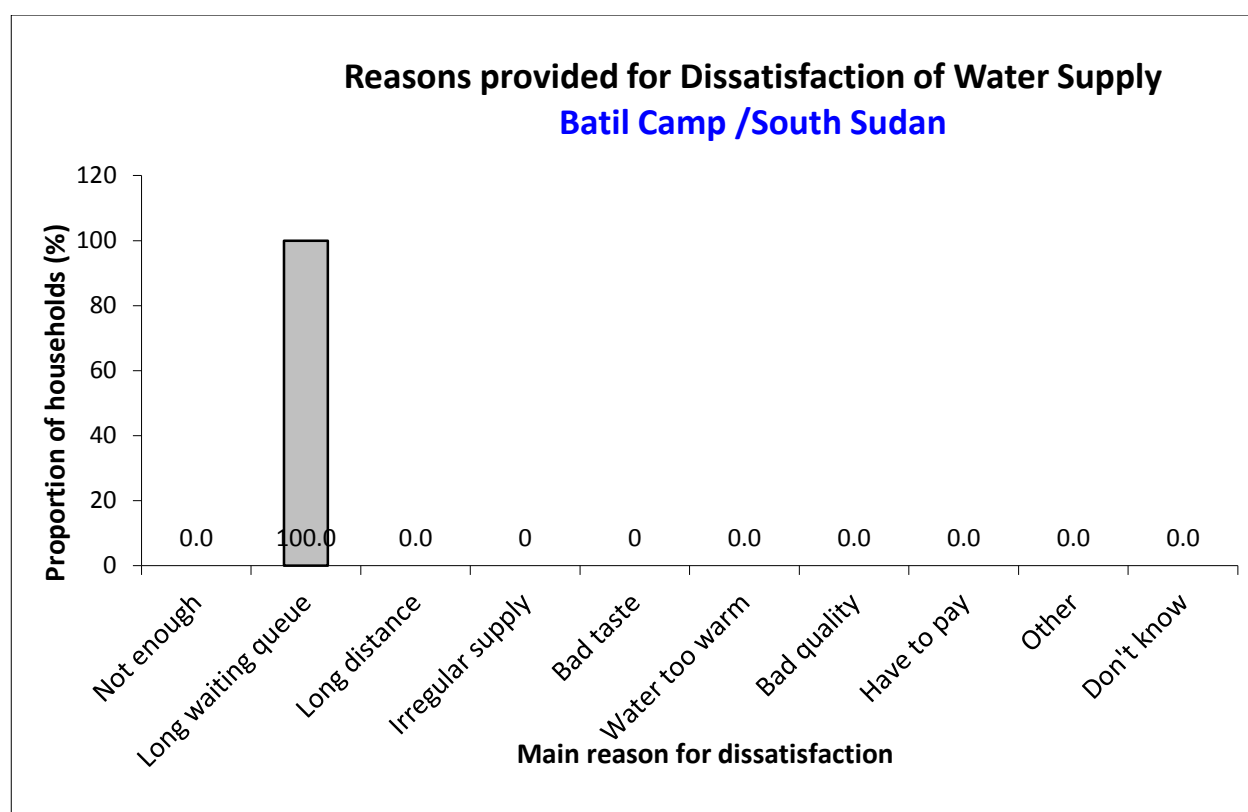
Table 81: safe excreta disposal-Batil Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,**	225/486	46.3 (37.0-55.6)
A shared family toilet (improved toilet facility, 2 households)**	130/486	26.7 (20.4-33.1)
A communal toilet (improved toilet facility, 3 households or more)	123/486	25.3 (18.1-32.5)
An unimproved toilet (unimproved toilet facility or public toilet)	8/486	1.6 (0.3-3.0)
Proportion of households with children under three years old that dispose of faeces safely	277/289	95.8 (92.8-98.9)

***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 facillity, 1 household)" and "shared family toilet (improved toilet facility, 2 households)".

Figure 25: Proportion of Households With Children Under The Age Of 3 Years Whose (Last) Stools Were Disposed Of Safely

Proportion of Households with Children under the age of 3 years old whose (last) Stools were Disposed of Safely
Yusuf Batil Camp /South Sudan
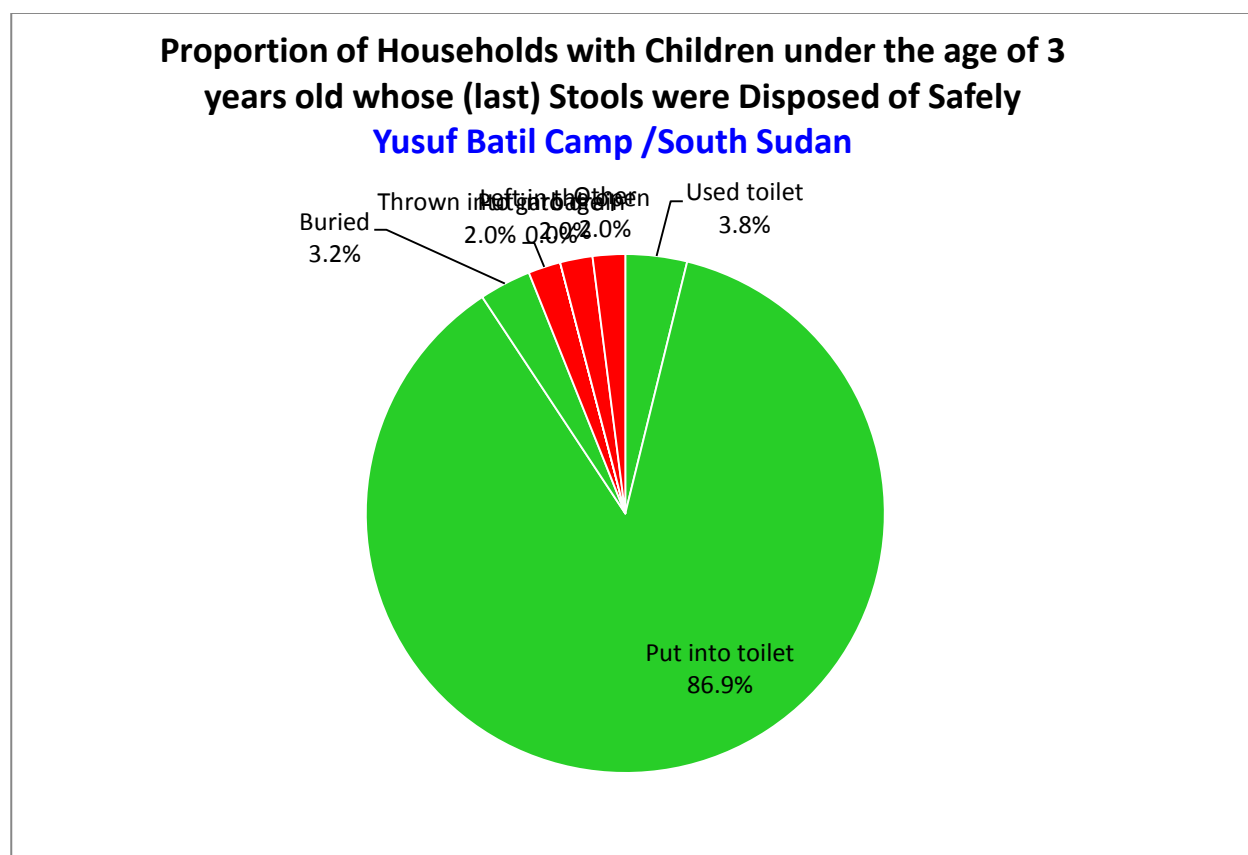
3.14. Mosquito Net Coverage

Table 82: Mosquito Net Coverage Sampling Information- Batil Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	304	304	100

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	296/302	98.0 (96.2-99.9)
Proportion of total households owning at least one LLIN	278/302	92.0 (88.6-95.5)

Figure 26: Household Ownership of At Least One Mosquito Net (Any Type)
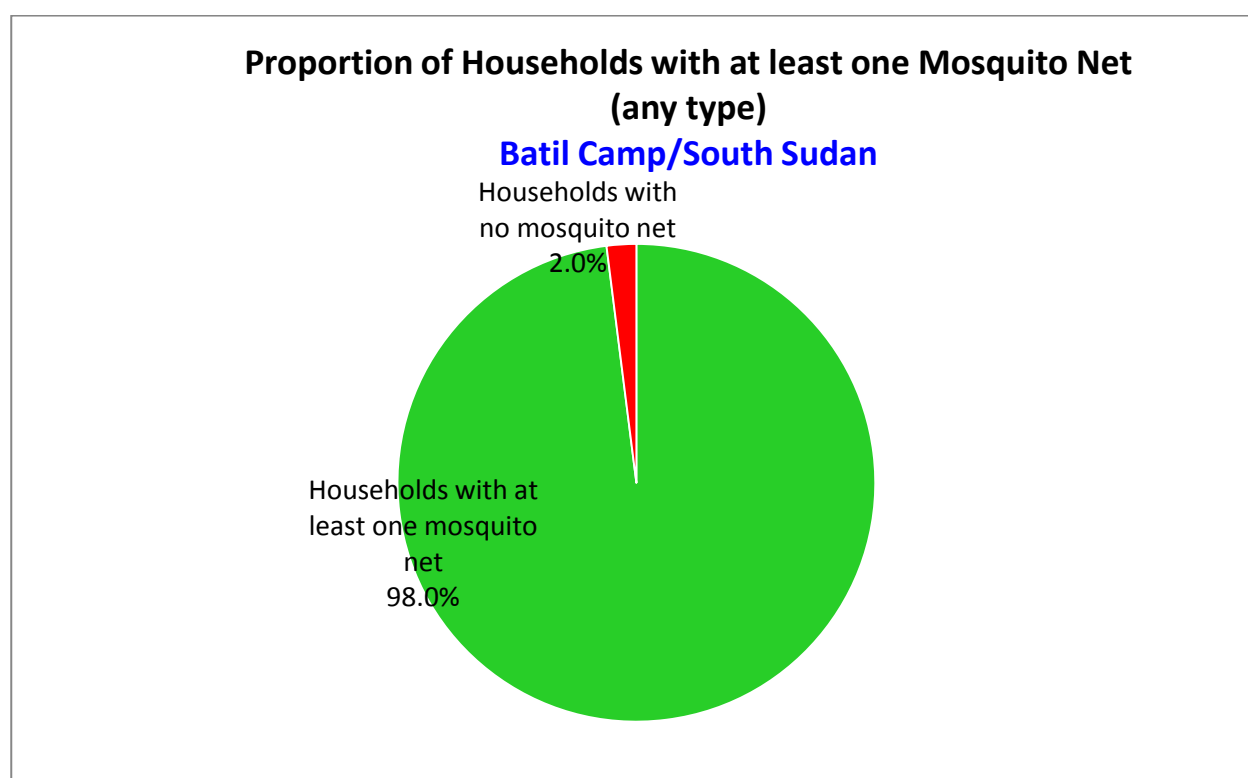
Figure 27: Household Ownership Of At Least One Llin
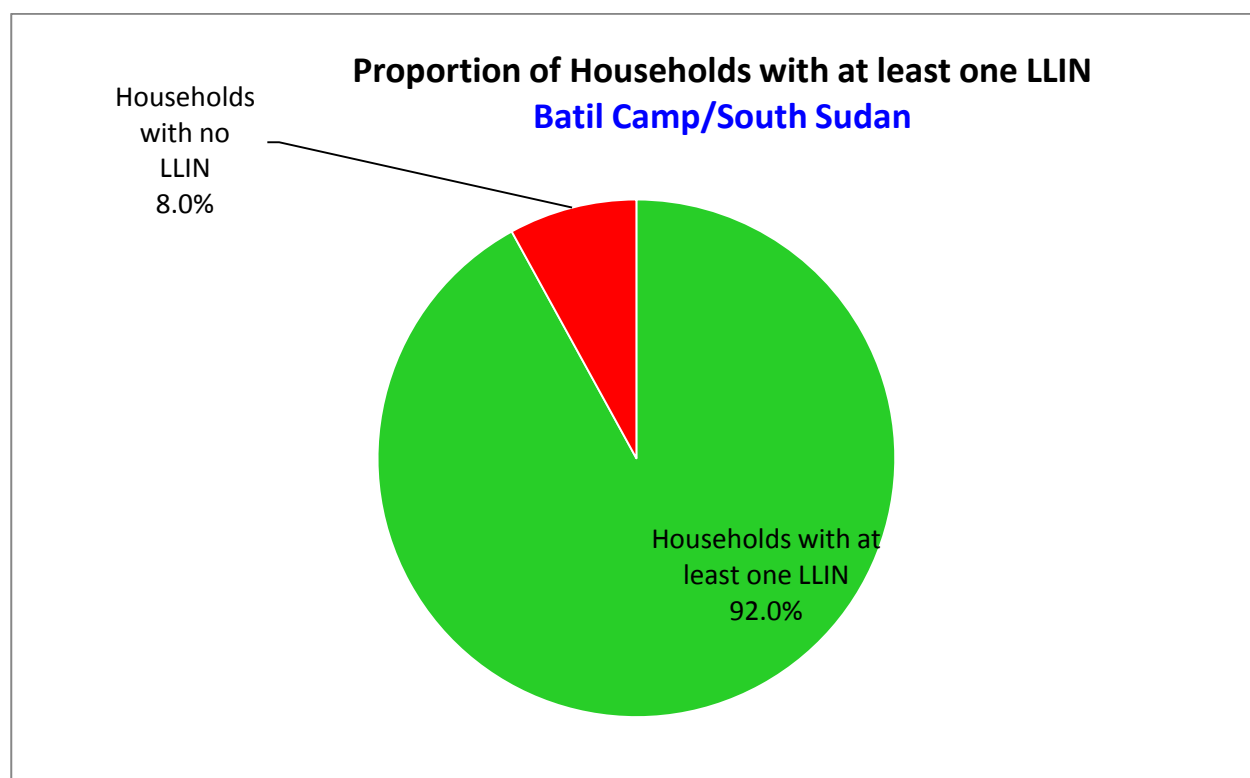
Table 84: Number Of Nets-Batil Camp

Average number of LLINs per household	Average number of persons per LLIN
2.8	2.2

Table 85: Mosquito Net Utilisation- Batil Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1894	%	Total No= 470	%	Total No= 60	%
Slept under net of any type	1712	90.3	468	99.6	51	85
Slept under LLIN	1567	82.7	451	96	44	73.3

Figure 28: Mosquito Net Utilization by Sub-Group

Mosquito Net Utilisation by Sub-Group
Yusuf Batil/South Sudan
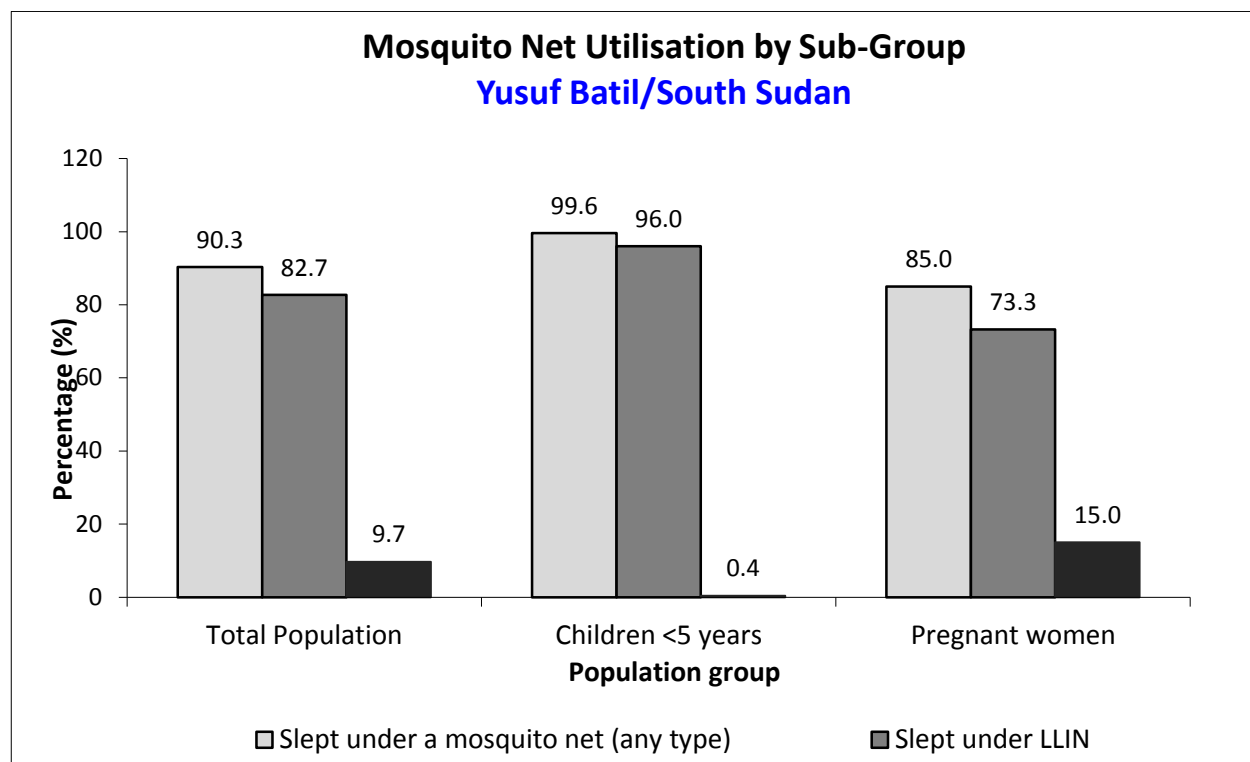
Gendrassa Camp

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 86 : Demographic Characteristics of the Gendrassa Survey Population-Gendrassa Camp

Total households surveyed	*596*
Total population surveyed	*4072*
Total U5 surveyed	*875*
Average household size	*4.6*
% of U5	*21.4*

Table 87: Target and Actual Number Captured-Gendrassa Camp

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	414	875	211%
Clusters (where applicable)	39	37	94.9%

3.15. Anthropometric results (based on WHO standards 2006)

Table 88: Distribution of age and sex of sample- Gendrassa Camp

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	163	55.8	129	44.2	292	33.4	1.3
18-29	99	55.0	81	45.0	180	20.6	1.2
30-41	116	51.8	108	48.2	224	25.6	1.1
42-53	75	58.6	53	41.4	128	14.6	1.4
54-59	23	45.1	28	54.9	51	5.8	0.8
Total	476	54.4	399	45.6	875	100.0	1.2

Table 89: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Gendrassa Camp

	All n = 856	Boys n = 464	Girls n = 392
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(72) 8.4 % (6.6 - 10.7 95% C.I.)	(38) 8.2 % (6.1 - 10.9 95% C.I.)	(34) 8.7 % (5.8 - 12.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(60) 7.0 % (5.4 - 9.0 95% C.I.)	(32) 6.9 % (4.9 - 9.7 95% C.I.)	(28) 7.1 % (4.7 - 10.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(12) 1.4 % (0.8 - 2.3 95% C.I.)	(6) 1.3 % (0.6 - 2.8 95% C.I.)	(6) 1.5 % (0.7 - 3.3 95% C.I.)

The prevalence of oedema is 0.0 %

Table 90: 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	281	4	1.4	26	9.3	251	89.3	0	0.0
18-29	174	1	0.6	15	8.6	158	90.8	0	0.0
30-41	224	4	1.8	10	4.5	210	93.8	0	0.0
42-53	126	2	1.6	6	4.8	118	93.7	0	0.0
54-59	51	1	2.0	3	5.9	47	92.2	0	0.0
Total	856	12	1.4	60	7.0	784	91.6	0	0.0

Figure 29 : Trend in the Prevalence of Wasting By Age in Children 6-59 Months
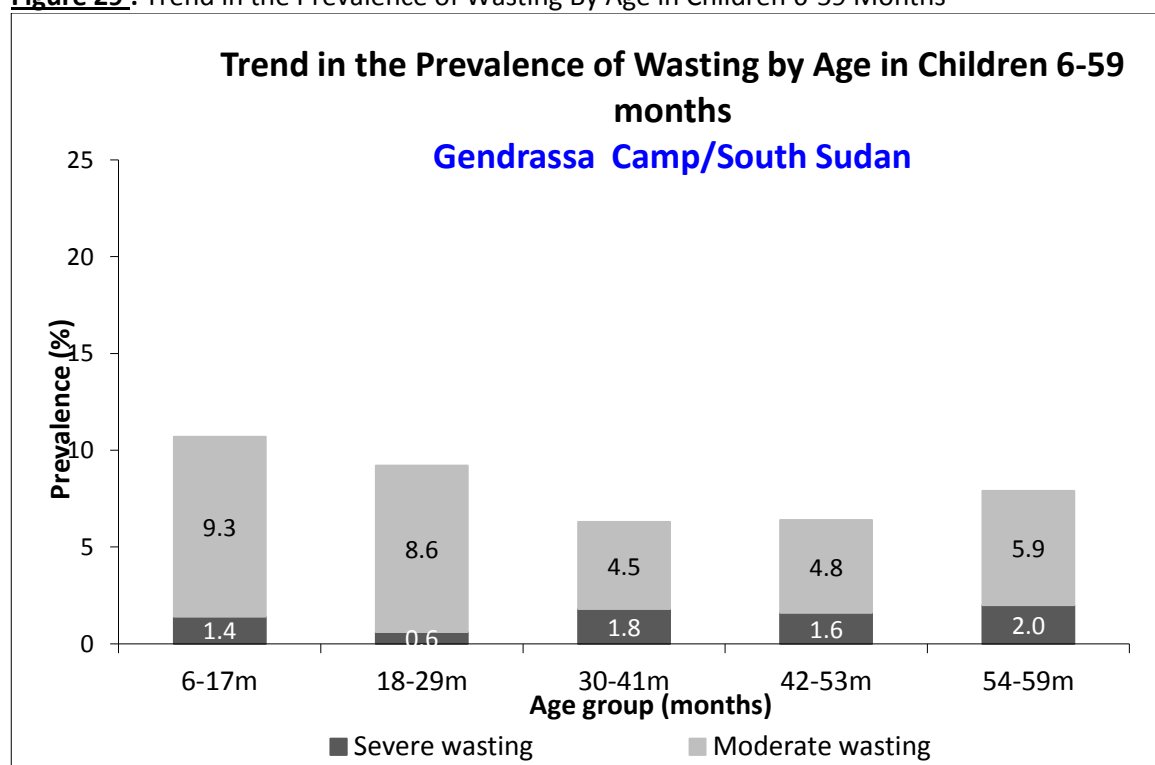
Table 91: Distribution of acute malnutrition and oedema based on weight-for-height z-scores-Gendrassa Camp

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 22 (2.5 %)	Not severely malnourished No. 853 (97.5 %)

Figure 30: Distribution of Weight-For-Height Z-Scores (Based On WHO Growth Standards

The Reference Population Is Shown In Green and The Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population
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.
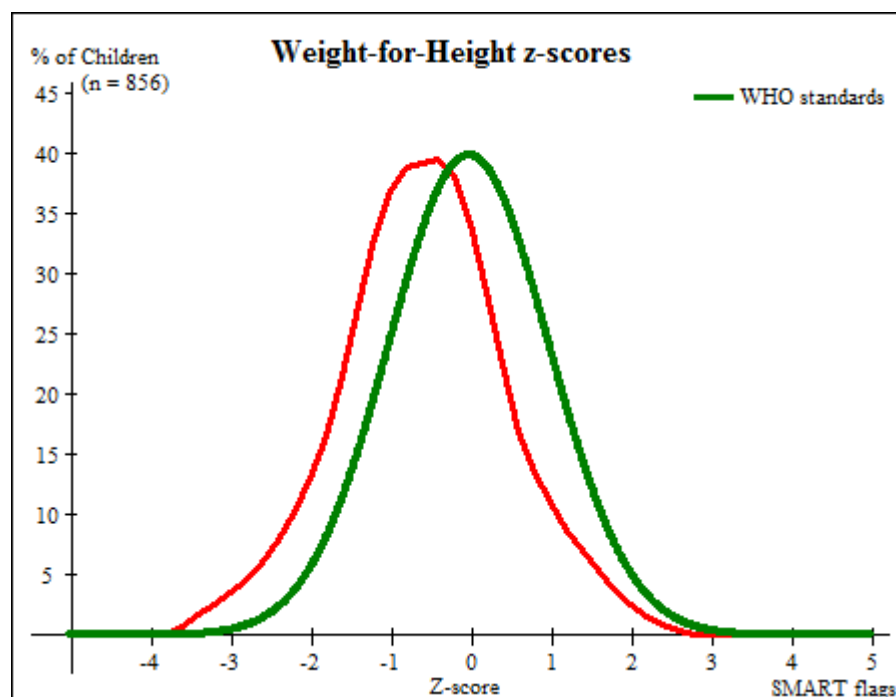
Table 92: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex- Gendrassa Camp

	All n = 875	Boys n = 476	Girls n = 399
Prevalence of global malnutrition (< 125 mm and/or oedema)	(59) 6.7 % (5.3 - 8.5 95% C.I.)	(23) 4.8 % (3.3 - 7.0 95% C.I.)	(36) 9.0 % (6.4 - 12.6 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(45) 5.1 % (3.9 - 6.7 95% C.I.)	(18) 3.8 % (2.4 - 5.8 95% C.I.)	(27) 6.8 % (4.8 - 9.5 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(14) 1.6 % (0.9 - 3.0 95% C.I.)	(5) 1.1 % (0.4 - 2.9 95% C.I.)	(9) 2.3 % (1.1 - 4.8 95% C.I.)

Table 93: 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	292	5	1.7	37	12.7	250	85.6	0	0.0
18-29	180	4	2.2	3	1.7	173	96.1	0	0.0
30-41	224	4	1.8	3	1.3	217	96.9	0	0.0
42-53	128	0	0.0	2	1.6	126	98.4	0	0.0
54-59	51	1	2.0	0	0.0	50	98.0	0	0.0
Total	875	14	1.6	45	5.1	816	93.3	0	0.0

Table 94: Prevalence of underweight based on weight-for-age z-scores by sex-Gendrassa Camp

	All n = 858	Boys n = 468	Girls n = 390
Prevalence of underweight (<-2 z-score)	(193) 22.5 % (18.6 - 26.9 95% C.I.)	(103) 22.0 % (17.8 - 26.9 95% C.I.)	(90) 23.1 % (17.3 - 30.0 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(155) 18.1 % (14.6 - 22.1 95% C.I.)	(82) 17.5 % (13.6 - 22.2 95% C.I.)	(73) 18.7 % (13.8 - 24.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(38) 4.4 % (3.1 - 6.4 95% C.I.)	(21) 4.5 % (2.9 - 6.9 95% C.I.)	(17) 4.4 % (2.7 - 6.9 95% C.I.)

Table 95: 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	283	12	4.2	46	16.3	225	79.5	0	0.0
18-29	176	14	8.0	27	15.3	135	76.7	0	0.0
30-41	222	5	2.3	38	17.1	179	80.6	0	0.0
42-53	126	5	4.0	26	20.6	95	75.4	0	0.0
54-59	51	2	3.9	18	35.3	31	60.8	0	0.0
Total	858	38	4.4	155	18.1	665	77.5	0	0.0

Table 96: Prevalence of stunting based on height-for-age z-scores and by sex-Gendrassa Camp

	All n = 806	Boys n = 437	Girls n = 369
Prevalence of stunting **(<-2 z-score)**	(270) 33.5 % (28.7 - 38.6 95% C.I.)	(154) 35.2 % (29.5 - 41.4 95% C.I.)	(116) 31.4 % (26.0 - 37.4 95% C.I.)
Prevalence of moderate stunting **(<-2 z-score and >=-3 z-score)**	(183) 22.7 % (19.5 - 26.3 95% C.I.)	(103) 23.6 % (18.8 - 29.1 95% C.I.)	(80) 21.7 % (17.7 - 26.3 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(87) 10.8 % (7.8 - 14.7 95% C.I.)	(51) 11.7 % (8.1 - 16.5 95% C.I.)	(36) 9.8 % (6.2 - 15.0 95% C.I.)

Table 97: 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	262	16	6.1	45	17.2	201	76.7
18-29	161	12	7.5	37	23.0	112	69.6
30-41	210	35	16.7	54	25.7	121	57.6
42-53	122	11	9.0	31	25.4	80	65.6
54-59	51	13	25.5	16	31.4	22	43.1
Total	806	87	10.8	183	22.7	536	66.5

Figure 31 : Trends in the Prevalence of Stunting By Age in Children 6-59 Months
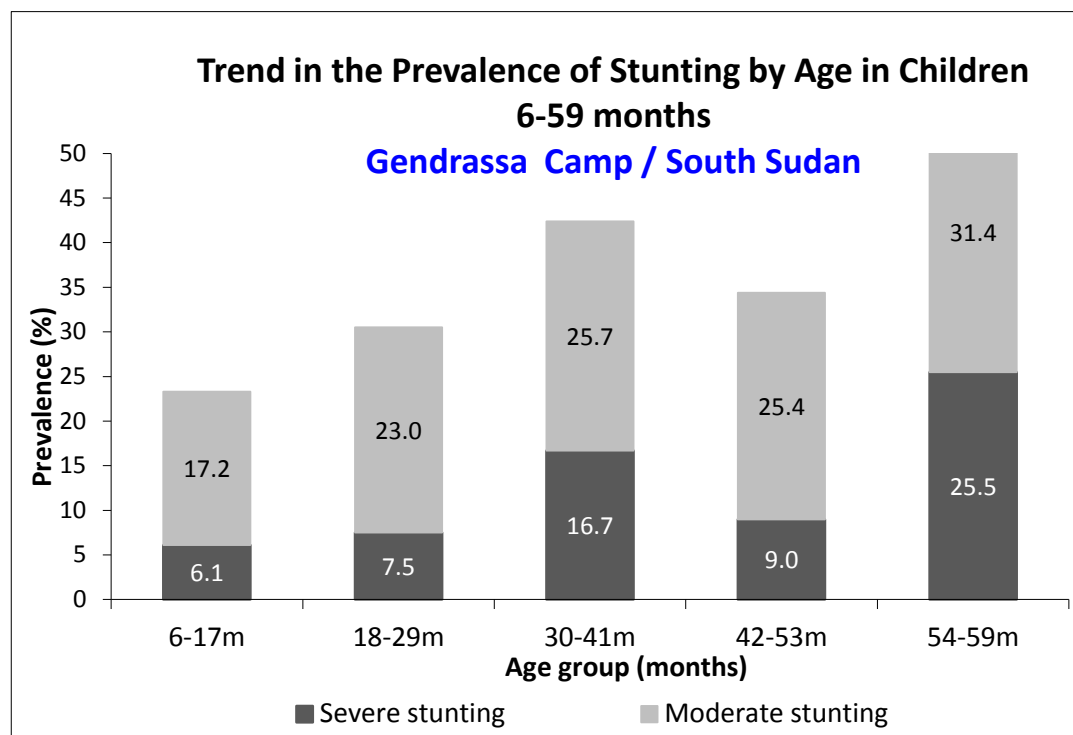
Figure 32: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; The Reference Population Is Shown In Green And The Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population
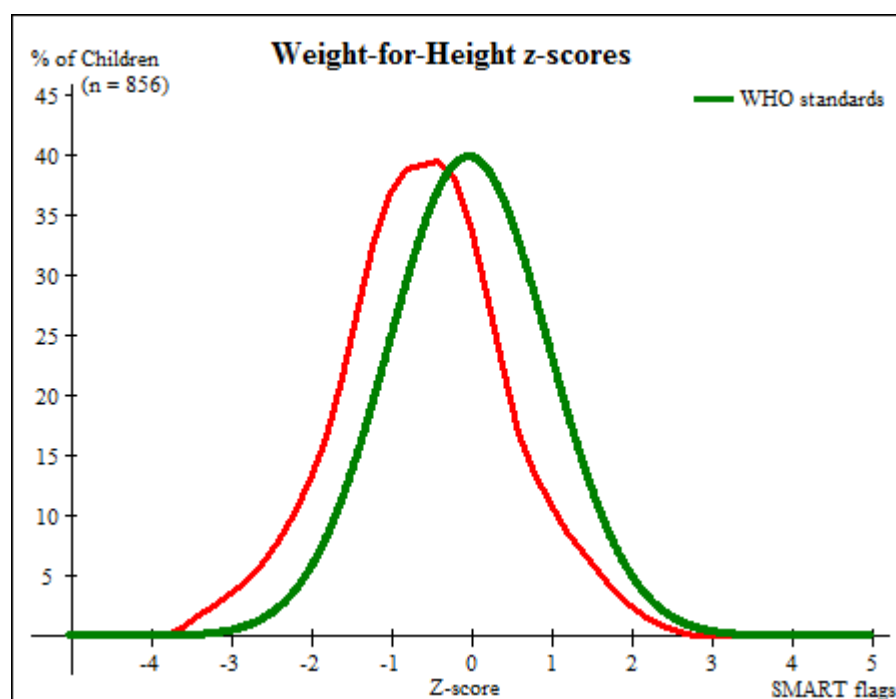
Table 98: Mean z-scores, Design Effects and excluded subjects-Gendrassa Camp

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	856	-0.57±1.03	1.12	0	19
Weight-for-Age	858	-1.13±1.13	2.04	0	17
Height-for-Age	806	-1.41±1.30	2.17	0	69

* contains for WHZ and WAZ the children with edema.

3.16. Health/Feeding programme coverage

Table 99: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ-Gendrassa camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	22/79	27.9 (17.5-38.2)
Therapeutic feeding programme coverage	6/41	14.6 (2.3-27.0)

Table 100: Programme coverage for acutely malnourished children based on MUAC and oedema-Gendrassa Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	20/42	47.6(29.6-65.7)
Therapeutic feeding programme coverage	5/25	18.7(0.0-36.9)

Measles vaccination coverage results

Table 101: Measles Vaccination Coverage for Children Aged 9-59 Months (N=791)-Gendrassa Camp

	Measles (with card) n= 506	Measles (with card or confirmation from mother) n= 690
YES	64.0 % (55.6-72.3; 95% CI)	87.3 % (83.6-91.0 95% CI)

Vitamin A supplementation coverage results

Table 102: 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 or confirmation from mother) n=777
YES	64.8 % (56.0-73.5; 95% CI)	88.9 % (85.2-92.6 95% CI)

Table 103: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=852)-Gendrassa Camp

	DPT3 / PENTA3 (with card) n=607	DPT3 / PENTA3 (with card <u>or</u> confirmation from mother) n=793
YES	69.3 % (61.7-76.9 95% CI)	90.7 % (87.0-94.4 95% CI)

Diarrhoea Results

Table 104:4 Period Prevalence of Diarrhoea-Gendrassa Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	85/849	10.0 (6.5-13.4)

3.17. Anaemia Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is of high public health significance 46.1 % (40.1 -52.2 95% CI). This is extremely high in Young children of 6 to 23 months with an anaemia prevalence of 71.0% (63.5-78.5 95% CI)

Table 105: 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 = 455	6-23 months n=192	24-59 months n=255
Total Anaemia (Hb<11.0 g/dL)	(210) 46.1% (40.1 -52.2 95% CI)	(142) 71.0% (63.5-78.5 95% CI)	(68) 26.6% (18.6-33.8 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(118) 25.9 % (21.5-30.4 95% CI)	(81) 40.5% (32.3-48.7 95% CI)	(37) 14.5% (10.2-18.9 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(88) 19.3% (14.5-24.2 95% CI)	(59) 29.5 % (22.3-36.7 95% CI)	(29) 11.4% (7.2-15.6 95% CI)
Severe Anaemia (<7.0 g/dL)	(4) 0.8% (-0.1-1.9 95% CI)	(2) 1.0% (-1.0-3.0 95% CI)	(2) 0.7 (-0.3-1.8 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	11.0 g/dL (10.8-11.2 95% CI) [2.0-15.5]	10.4 g/dL (10.2-10.6 95% CI) [3.0-15.5]	11.5 g/dL (11.3-11.7 95% CI) [2-14.3]

Table 106: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Gendrassa Camp

	6-59 months n = 455	**6-23 months** n= 200	**24-59 months** n= 255
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(92) 20.2% (15.6-24.9 95% CI)	(61) 30.5% (23.6-37.4 95% CI)	(31) 12.2% (8.0-16.3 95% CI)

3.18. IYCF Children 0-23 months

Table 107: 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**	405/428	94.6	91.7-97.6
Exclusive breastfeeding under 6 months	**0-5 months**	60/81	74.1	57.9-90.2
Continued breastfeeding at 1 year	**12-15 months**	69/70	98.6	95.7-101.5
Continued breastfeeding at 2 years	**20-23 months**	32/32	100	100-100
Introduction of solid, semi-solid or soft foods	**6-8 months**	46/81	56.8	41.2-68.4
Consumption of iron-rich or iron-fortified foods	**6-23 months**	164/284	57.7	47.8-68.5
Bottle feeding	**0-23 months**	16/427	3.7	1.3-6.2

Prevalence of intake

Infant formula

Table 108: 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)	16/427	3.7 (0.1-6.5)

Fortified blended foods

Table 109: CSB+ Intake in Children Aged 6-23 Months-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	9/338	2.7 (0.8-4.5)

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

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	5/337	1.4 (0.2-2.7)

3.19. Anaemia Women 15-49 years

Table 111: Women Physiological Status and Age-Gendrassa Camp

Physiological status	Number/total	% of sample
Non-pregnant	489/561	88.1
Pregnant	71/561	11.7
Don't know	1/561	0.2
Mean age (range)	26.7(15-49)	

Table 112: 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 = 396
Total Anaemia (<12.0 g/dL)	(112) 28.3% (23.9-32.7 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(68) 17.2% (14.6-19.7 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(38) 9.6% (6.4-12.7 95% CI)
Severe Anaemia (<8.0 g/dL)	(6) 1.5% (0.4-2.6 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.4 g/dL (12.3-12.7) [3-16.0]

Table 113 : 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	41/50	82.0 (69.4-94.6)
Currently receiving iron-folic acid pills	40/44	90.9 (81.0-100.7)

3.20. Water Sanitation and Hygiene (WASH)

Table 114: WASH Sampling Information-Gendrassa Camp

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

Table 115: Water Quality-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	571/572	99.8 (99.4-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	337/566	59.5 (49.2-69.9)

Table 116: 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	223/567	39.3 (32.7-45.9)
15 – <20 lpppd	112/567	19.8 (16.2-23.3)
<15 lpppd	232/567	40.9 (34.0-47.8)

Add the average water usage in lpppd:_____20.6 lpppd**_____**

Table 117: Satisfaction with Water Supply-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	451/571	79.0 (72.2-85.8)

Figure 33: Proportion of Households That Say They Are Satisfied With the Water Supply
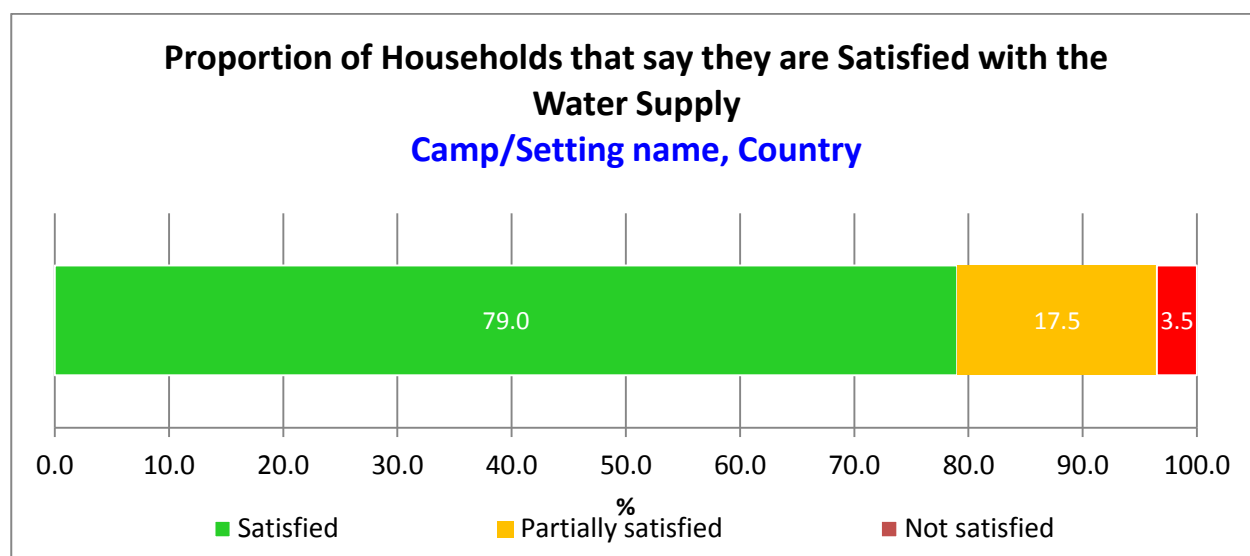
Figure 34: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply
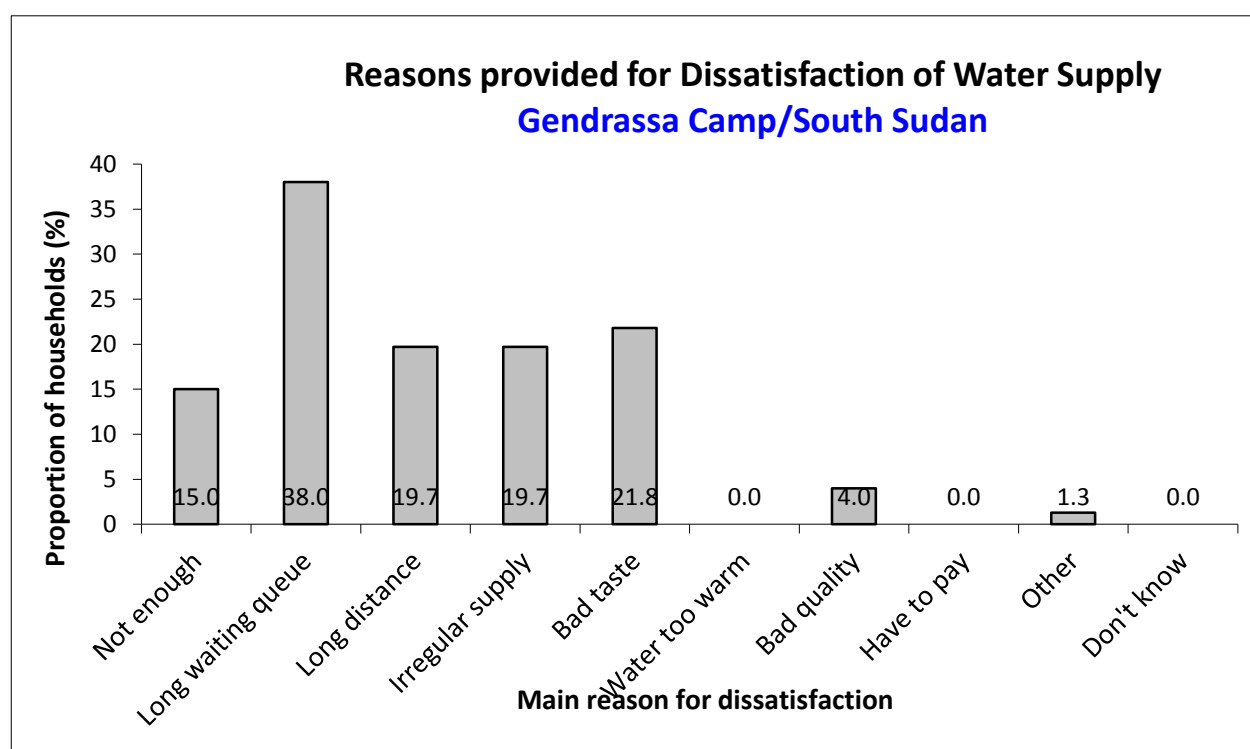
Table 118: Safe excreta disposal-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,*	121/556	21.8 (15.5-28.0)
A shared family toilet (improved toilet facility, 2 households)*	138/556	24.8 (19.2-30.4)
A communal toilet (improved toilet facility, 3 households or more)	203/556	36.5 (27.3-45.7)
An unimproved toilet (unimproved toilet facility or public toilet)	94/556	16.9 (10.0-23.8)
Proportion of households with children under three years old that dispose of faeces safely	398/407	97.8 (95.9-99.7)

*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 facillity, 1 household)" and "shared family toilet (improved toilet facility, 2 households)".

Figure 35: **Proportion of Households With Children Under The Age Of 3 Years Whose (Last) Stools Were Disposed Of Safely**
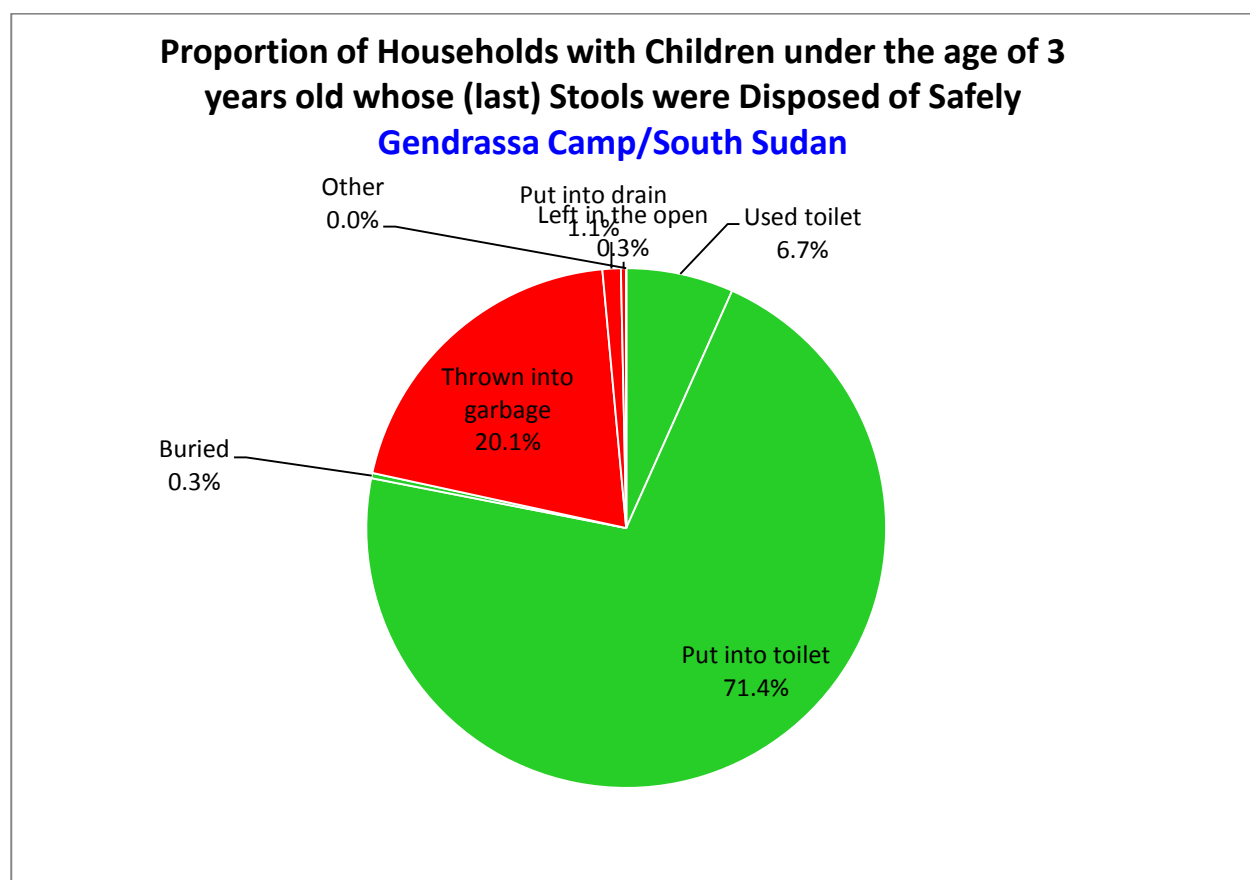
3.21. Mosquito Net Coverage

Table 119: Mosquito Net Coverage Sampling Information-Gendrassa Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	304	307	100.9%

Table 120: Household Mosquito Net Ownership-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	302/306	98.7 (97.4-100.0)
Proportion of total households owning at least one LLIN	276/306	90.1 (85.0-95.4)

Figure 36: Household Ownership of At Least One Mosquito Net (Any Type)
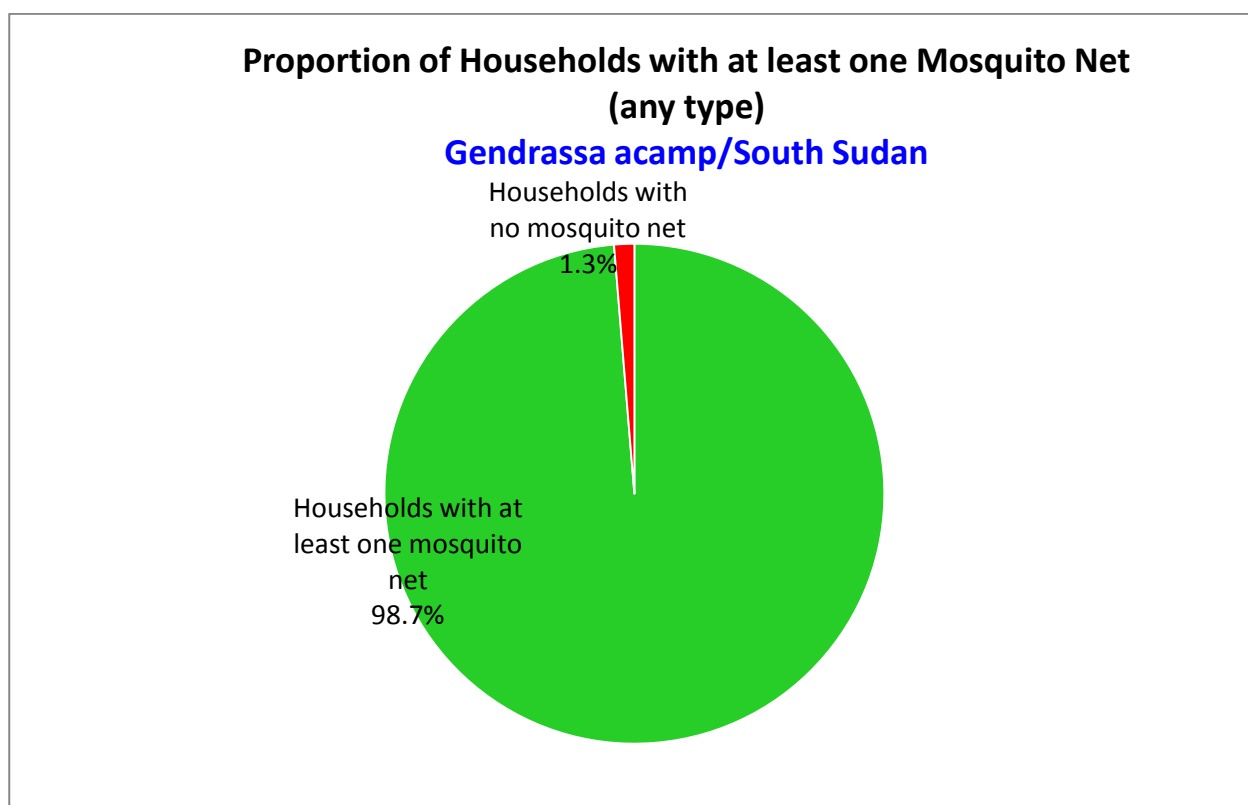
Figure 37: Household Ownership Of At Least One LLIN
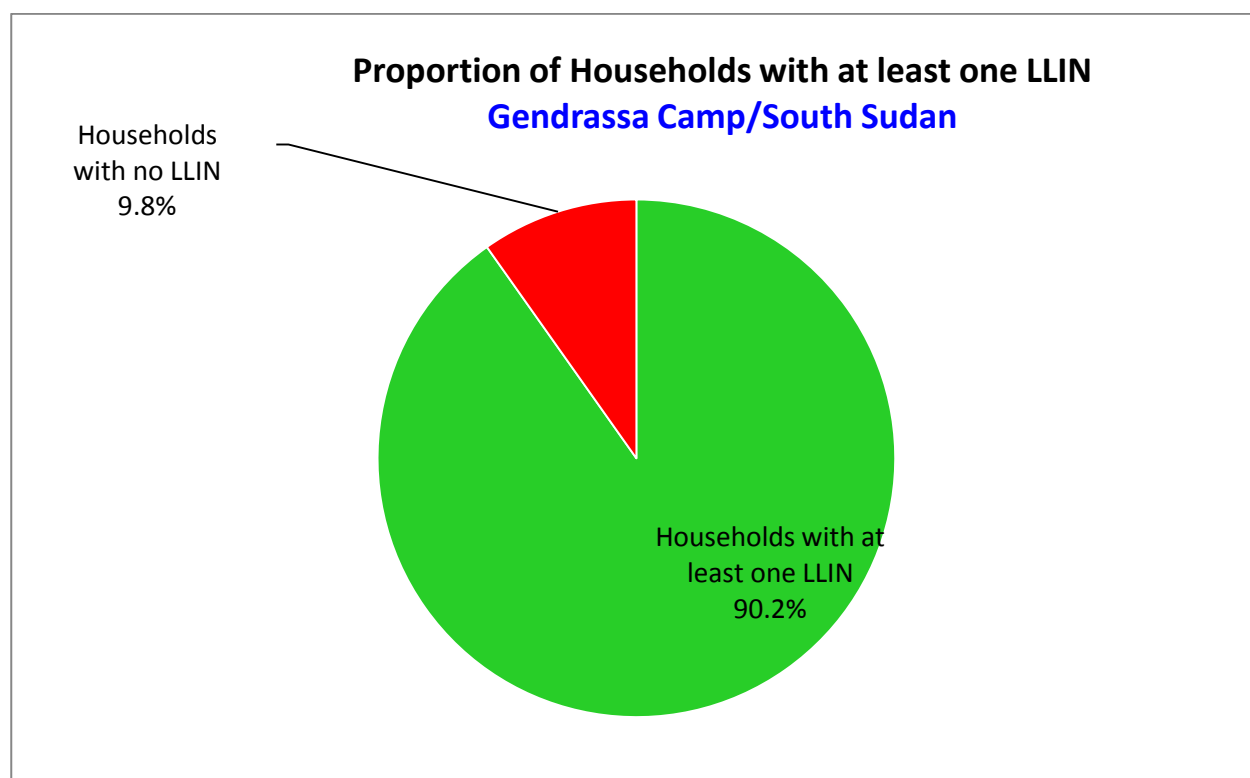
Table 121: Number Of Nets-Gendrassa Camp

Average number of LLINs per household	Average number of persons per LLIN
2.7	2.6

Table 122: Mosquito Net Utilisation-Gendrassa Camp.

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 2039	%	Total No= 501	%	Total No= 66	%
Slept under net of any type	1654	81.1	424	84.6	47	71.12
Slept under LLIN	1675	82.1	444	88.6	48	72.7

Figure 38 : Mosquito Net Utilisation by Sub-Group

Mosquito Net Utilisation by Sub-Group
Gendrassa Camp/South Sudan
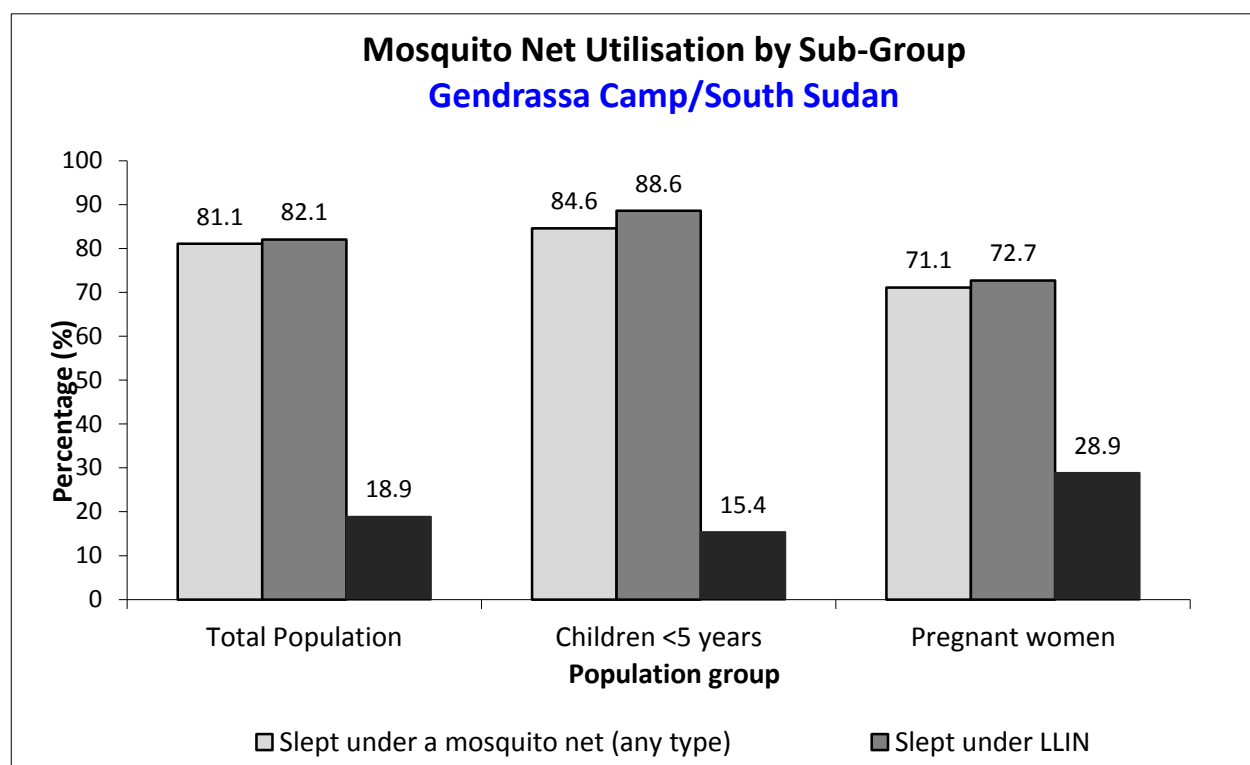
Kaya Camp

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 153 : Demographic Characteristics of the Kaya Survey Population-Kaya Camp

Total households surveyed	613
Total population surveyed	4022
Total U5 surveyed	946
Average household size	6.5
% of U5	23.5

Table 124: Target and Actual Number Captured-Kaya Camp

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	414	947	228%
Clusters (where applicable)	39	37	94.8 %

3.22. Anthropometric results (based on WHO standards 2006)

Table 125: Distribution of age and sex of sample-Kaya Camp

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	134	47.7	147	52.3	281	29.7	0.9
18-29	74	48.7	78	51.3	152	16.1	0.9
30-41	118	49.8	119	50.2	237	25.1	1.0
42-53	85	53.1	75	46.9	160	16.9	1.1
54-59	54	46.6	62	53.4	116	12.3	0.9
Total	465	49.2	481	50.8	946	100.0	1.0

Table 126 : Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Kaya Camp

	All n = 929	Boys n = 458	Girls n = 471
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(71) 7.6 % (5.9 - 9.8 95% C.I.)	(36) 7.9 % (6.2 - 10.0 95% C.I.)	(35) 7.4 % (5.0 - 11.0 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(59) 6.4 % (4.8 - 8.3 95% C.I.)	(29) 6.3 % (4.7 - 8.5 95% C.I.)	(30) 6.4 % (4.4 - 9.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(12) 1.3 % (0.7 - 2.4 95% C.I.)	(7) 1.5 % (0.8 - 3.1 95% C.I.)	(5) 1.1 % (0.4 - 2.6 95% C.I.)

The prevalence of oedema is 0.1 %

Table 127: 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	272	3	1.1	22	8.1	247	90.8	0	0.0
18-29	149	3	2.0	8	5.4	138	92.6	0	0.0
30-41	234	4	1.7	16	6.8	213	91.0	1	0.4
42-53	159	0	0.0	9	5.7	150	94.3	0	0.0
54-59	115	1	0.9	4	3.5	110	95.7	0	0.0
Total	929	11	1.2	59	6.4	858	92.4	1	0.1

Figure 39 : Trend in the Prevalence of Wasting By Age in Children 6-59 Months
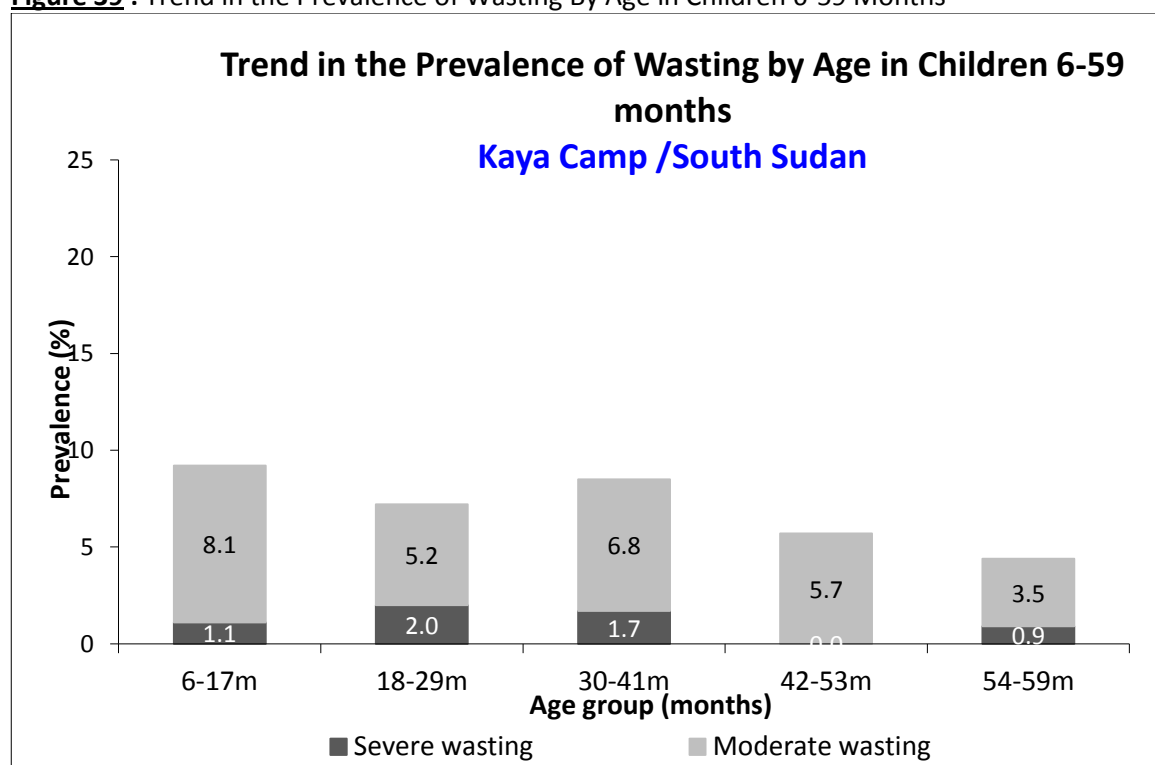
Table 128: Distribution of acute malnutrition and oedema based on weight-for-height z-scores-Kaya Camp

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 1 (0.1 %)
Oedema absent	Marasmic No. 21 (2.2 %)	Not severely malnourished No. 924 (97.7 %)

Figure 40: 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.
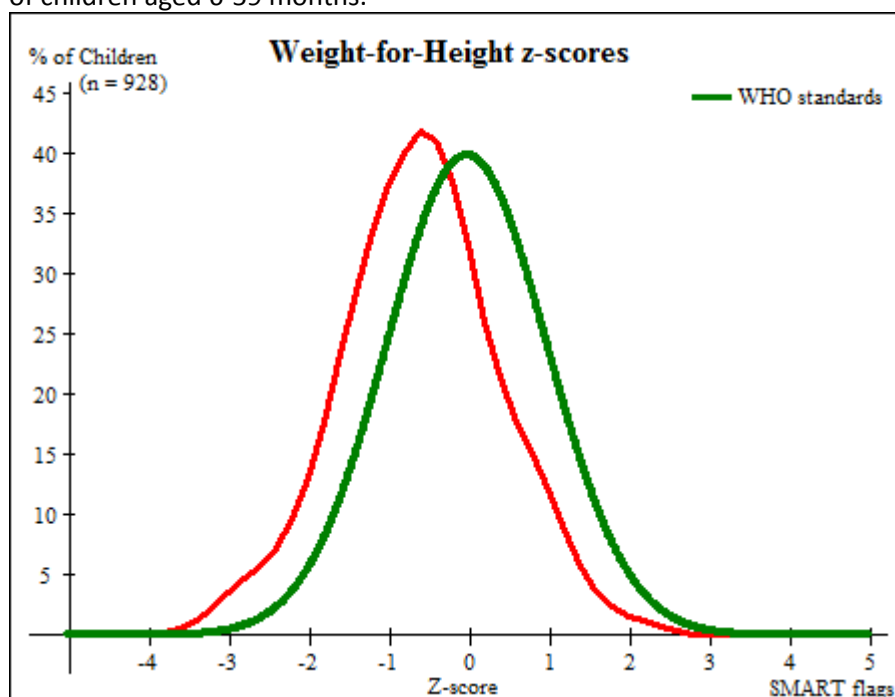
Table 129 : Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Kaya Camp

	All n = 946	Boys n = 465	Girls n = 481
Prevalence of global malnutrition (< 125 mm and/or oedema)	(75) 7.9 % (6.1 - 10.2 95% C.I.)	(26) 5.6 % (3.8 - 8.1 95% C.I.)	(49) 10.2 % (7.1 - 14.4 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(36) 3.8 % (2.8 - 5.2 95% C.I.)	(11) 2.4 % (1.4 - 4.1 95% C.I.)	(25) 5.2 % (3.4 - 7.9 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(39) 4.1 % (2.9 - 5.9 95% C.I.)	(15) 3.2 % (1.9 - 5.4 95% C.I.)	(24) 5.0 % (2.8 - 8.6 95% C.I.)

Table 130: 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	281	13	4.6	24	8.5	244	86.8	0	0.0
18-29	152	7	4.6	7	4.6	138	90.8	0	0.0
30-41	237	10	4.2	6	2.5	221	93.2	1	0.4
42-53	160	4	2.5	0	0.0	156	97.5	0	0.0
54-59	116	4	3.4	0	0.0	112	96.6	0	0.0
Total	946	38	4.0	37	3.9	871	92.1	1	0.1

Table 131: Prevalence of underweight based on weight-for-age z-scores by sex-Kaya Camp

	All n = 928	Boys n = 459	Girls n = 469
Prevalence of underweight (<-2 z-score)	(305) 32.9 % (29.2 - 36.8 95% C.I.)	(152) 33.1 % (28.9 - 37.6 95% C.I.)	(153) 32.6 % (28.3 - 37.3 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(237) 25.5 % (22.5 - 28.8 95% C.I.)	(121) 26.4 % (22.6 - 30.5 95% C.I.)	(116) 24.7 % (21.0 - 28.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(68) 7.3 % (5.5 - 9.7 95% C.I.)	(31) 6.8 % (4.8 - 9.5 95% C.I.)	(37) 7.9 % (5.6 - 11.0 95% C.I.)

Table 132: 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	272	15	5.5	57	21.0	200	73.5	0	0.0
18-29	149	15	10.1	41	27.5	93	62.4	0	0.0
30-41	232	22	9.5	73	31.5	137	59.1	1	0.4
42-53	160	5	3.1	45	28.1	110	68.8	0	0.0
54-59	115	11	9.6	21	18.3	83	72.2	0	0.0
Total	928	68	7.3	237	25.5	623	67.1	1	0.1

Table 133: Prevalence of stunting based on height-for-age z-scores and by sex-Kaya Camp

	All n = 898	Boys n = 440	Girls n = 458
Prevalence of stunting **(<-2 z-score)**	(457) 50.9 % (47.4 - 54.4 95% C.I.)	(233) 53.0 % (47.6 - 58.2 95% C.I.)	(224) 48.9 % (44.6 - 53.3 95% C.I.)
Prevalence of moderate stunting **(<-2 z-score and >=-3 z-score)**	(272) 30.3 % (27.5 - 33.3 95% C.I.)	(132) 30.0 % (25.1 - 35.3 95% C.I.)	(140) 30.6 % (26.5 - 34.9 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(185) 20.6 % (17.9 - 23.6 95% C.I.)	(101) 23.0 % (19.1 - 27.3 95% C.I.)	(84) 18.3 % (14.9 - 22.3 95% C.I.)

Table 134: Prevalence of stunting by age based on height-for-age z-scores-Kaya camp

Age (mo)	Total no.	Severe stunting (<-3 z-score) No.	%	Moderate stunting (>= -3 and <-2 z- score) No.	%	Normal (> = -2 z score) No.	%
6-17	266	18	6.8	69	25.9	179	67.3
18-29	139	33	23.7	51	36.7	55	39.6
30-41	226	63	27.9	78	34.5	85	37.6
42-53	156	38	24.4	43	27.6	75	48.1
54-59	111	33	29.7	31	27.9	47	42.3
Total	898	185	20.6	272	30.3	441	49.1

Figure 41: Trends in the Prevalence of Stunting By Age in Children 6-59 Months
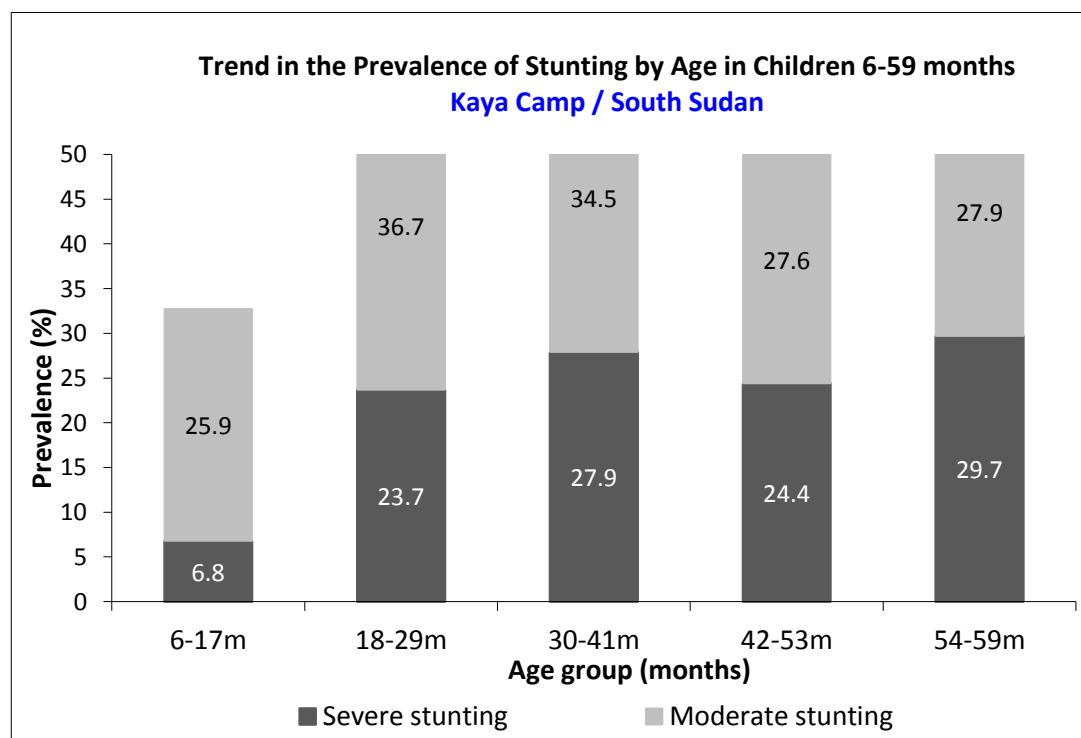
Figure 42: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; The Reference Population Is Shown In Green And The Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population
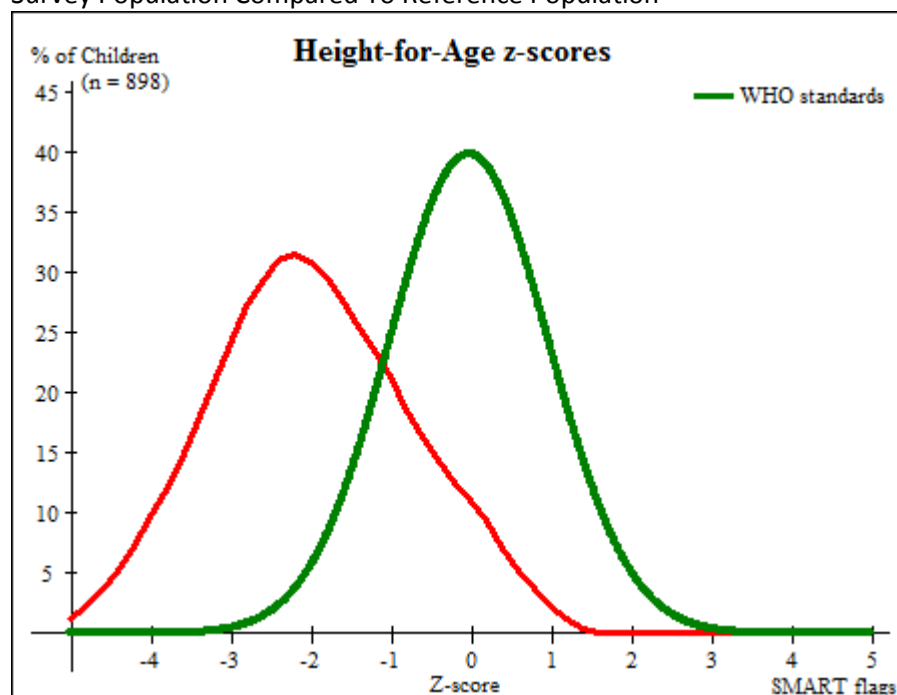
Table 135: Mean z-scores, Design Effects and excluded subjects-Kaya Camp

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	928	-0.60±1.00	1.14	1	17
Weight-for-Age	928	-1.55±1.05	1.47	1	17
Height-for-Age	898	-1.97±1.22	1.06	0	48

 * contains for WHZ and WAZ the children with edema.

3.23. Health/Feeding programme coverage

Table 136: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ-Kaya Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	22/81	27.1(14.6-39.7)
Therapeutic feeding programme coverage	6/50	12.0(1.6-22.4)

Table 137: Programme coverage for acutely malnourished children based on MUAC and oedema-Kaya Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	17/37	45.9 (27.5-64.3)
Therapeutic feeding programme coverage	5/39	12.8(2.0-23.6)

Measles vaccination coverage results

Table 138: Measles Vaccination Coverage for Children Aged 9-59 Months (N=854)-Kaya Camp

	Measles (with card) n= 508	Measles (with card <u>or</u> confirmation from mother) n= 727
YES	59.4% (49.8-69.1 95% CI)	85.1 % (79.7-90.5 95% CI)

Vitamin A supplementation coverage results

Table 140: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 946)-Kaya Camp

	Vitamin A capsule (with card) n=548	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=798
YES	**57.9%** **(48.6-67.2 95% CI)**	**84.3 %** **(78.8-89.9 95% CI)**

Table 141: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=946)-Kaya Camp

	DPT3 / PENTA3 (with card) n=606	DPT3 / PENTA3 (with card <u>or</u> confirmation from mother) n=830
YES	64.0% (54.7-73.4 95% CI)	89.7 % (83.3-92.1 95% CI)

Diarrhoea Results

Table 142:6 Period Prevalence of Diarrhoea-Kaya Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	84/935	9.0 (6.1-11.7)

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 44.9 (33.6-50.3). Prevalence of anaemia among children 6 to 23 months is also of high public health significance at 62.0% (55.0-69.1 95% CI).

Table 143: 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 = 512	6-23 months n=195	24-59 months n=317
Total Anaemia (Hb<11.0 g/dL)	(230) 44.9% (33.6-50.3 95% CI)	(121) 62.0% (55.0-69.1 95% CI)	(109) 34.4 % (27.1-41.6 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(135) 26.4% (22.6-30.0 95% CI)	(61) 31.3% (24.4-38.2 95% CI)	(74) 23.3% (17.9-28.8 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(89) 17.4% (13.7-21.0 95% CI)	(56) 28.7% (21.7-35.7 95% CI)	(33) 10.4% (6.5-14.3 95% CI)
Severe Anaemia (<7.0 g/dL)	(6) 1.2% (0.4-2.0 95% CI)	(4) 2.0% (0.1-4.0 95% CI)	(2) 0.6 (-0.2-1.5 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	10.9 g/dL (10.8-11.1 95% CI) [2.0-14.1]	10.4 g/dL (10.2-10.5 95% CI) [5.5-13.0]	11.3 g/dL (11.1-11.5 95% CI) [2-14.5]

Table 144: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Kaya Camp

	6-59 months n = 512	6-23 months n= 195	24-59 months n= 317
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(95) 18.6% (9.8-27.3 95% CI)	(60) 30.7% (23.6-37.9 95% CI)	(35) 11.0% (7.3-14.7 95% CI)

3.25. IYCF Children 0-23 months

Table 145: 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	395/427	92.5	88.6-96.4
Exclusive breastfeeding under 6 months	0-5 months	76/88	76.1	63.6-88.3
Continued breastfeeding at 1 year	12-15 months	57/58	98.3	94.8-101.7
Continued breastfeeding at 2 years	20-23 months	38/38	100.0	100.0-100.0
Introduction of solid, semi-solid or soft foods	6-8 months	39/85	45.8	34.4-57.4
Consumption of iron-rich or iron-fortified foods	6-23 months	160/295	54.2	43.6-65.2
Bottle feeding	0-23 months	18/426	4.2	1.7-6.8

Prevalence of intake

Infant formula

Table 146: 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)	13/426	3.0 (0.4-5.7)

Fortified blended foods

Table 147: CSB+ Intake in Children Aged 6-23 Months –Kaya Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	12/331	3.6 (0.7-6.4)

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

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	6/330	1.8(0.1-3.5)

3.26. Anaemia Women 15-49 years

Table 149: women physiological status and age-Kaya Camp

Physiological status	Number/total	% of sample
Non-pregnant	506/574	88.1
Pregnant	67/574	11.8
Don't Know	1/574	0.1
Mean age (range)	26.7(15-49)	

Table 150: 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 = 326
Total Anaemia (<12.0 g/dL)	(65) 19.9% (14.7-25.1 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(46) 14.1% (10.4-17.8 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(17) 5.2% (2.7-7.9 95% CI)

Severe Anaemia (<8.0 g/dL)	(2) 0.6 (-0.2-1.4 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.9 g/dL (12.7-13.1) [3.0-16.1]

Table 151 : ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	49/58	84.5 (73.5-95.4)
Currently receiving iron-folic acid pills	48/52	92.3 (83.8-100.8)

3.27. Water sanitation and hygiene (wash)

Table 152: WASH Sampling Information-Kaya Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	608	589	96.8

Table 153: Water Quality-Kaya Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	589/589	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	362/589	61.4 (51.3-71.7)

Table 154: 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	220/584	37.7 (31.0-44.4)
15 – <20 lpppd	115/584	19.7 (16.3-23.0)
<15 lpppd	249/584	42.6 (35.8-49.5)

Add the average water usage in lpppd:_____20.5 lpppd_____

Table 155: Satisfaction with Water Supply-Kaya Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	463/589	78.6 (71.5-85.6)

Figure 43: Proportion of Households That Say They Are Satisfied With the Water Supply
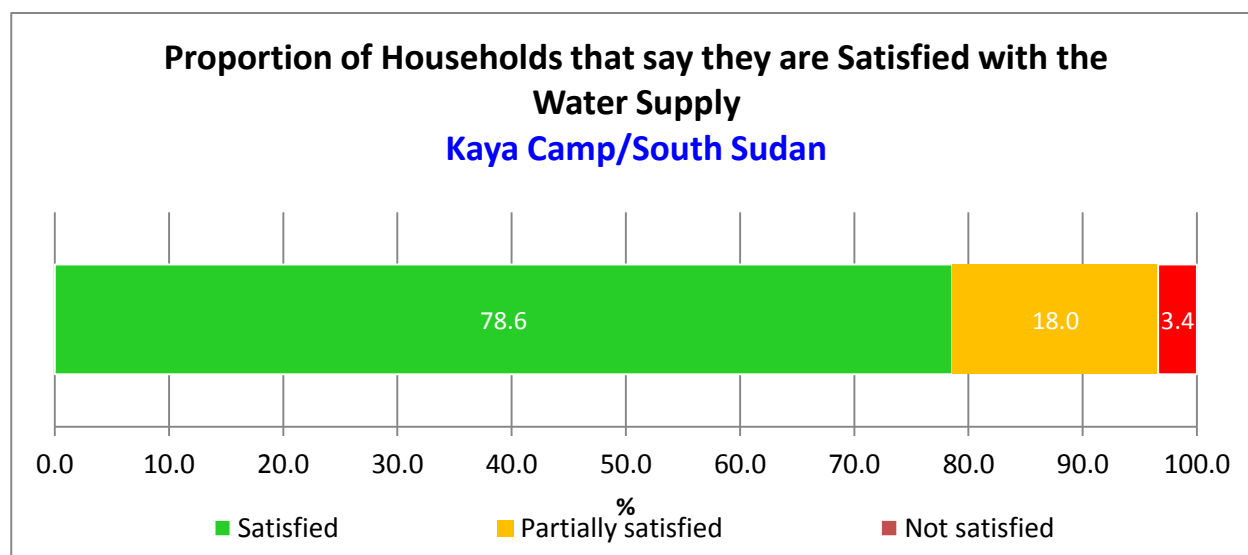
Figure 44: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply
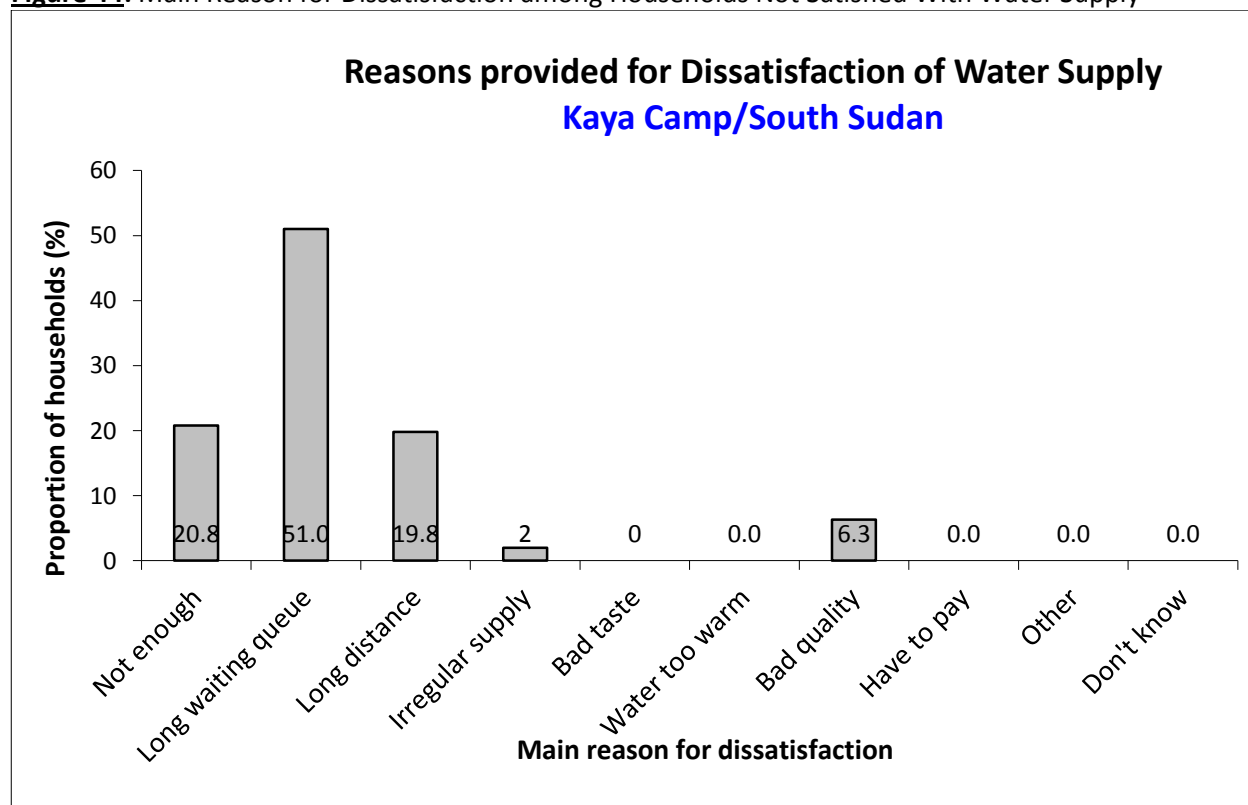
Table 156: safe excreta disposal-Kaya Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,**	136/570	23.9 (17.2-30.6)
A shared family toilet (improved toilet facility, 2 households)**	140/570	24.7 (18.5-30.6)
A communal toilet (improved toilet facility, 3 households or more)	230/570	43.0 (31.35-49.4)
An unimproved toilet (unimproved toilet facility or public toilet)	64/570	11.2 (4.2-18.2)
Proportion of households with children under three years old that dispose of faeces safely	396/406	97.5 (95.6-99.5)

*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 facillity, 1 household)" and "shared family toilet (improved toilet facility, 2 households)".

Figure 45: Proportion of Households with Children Under The Age Of 3 Years Whose (Last) Stools Were Disposed Of Safely
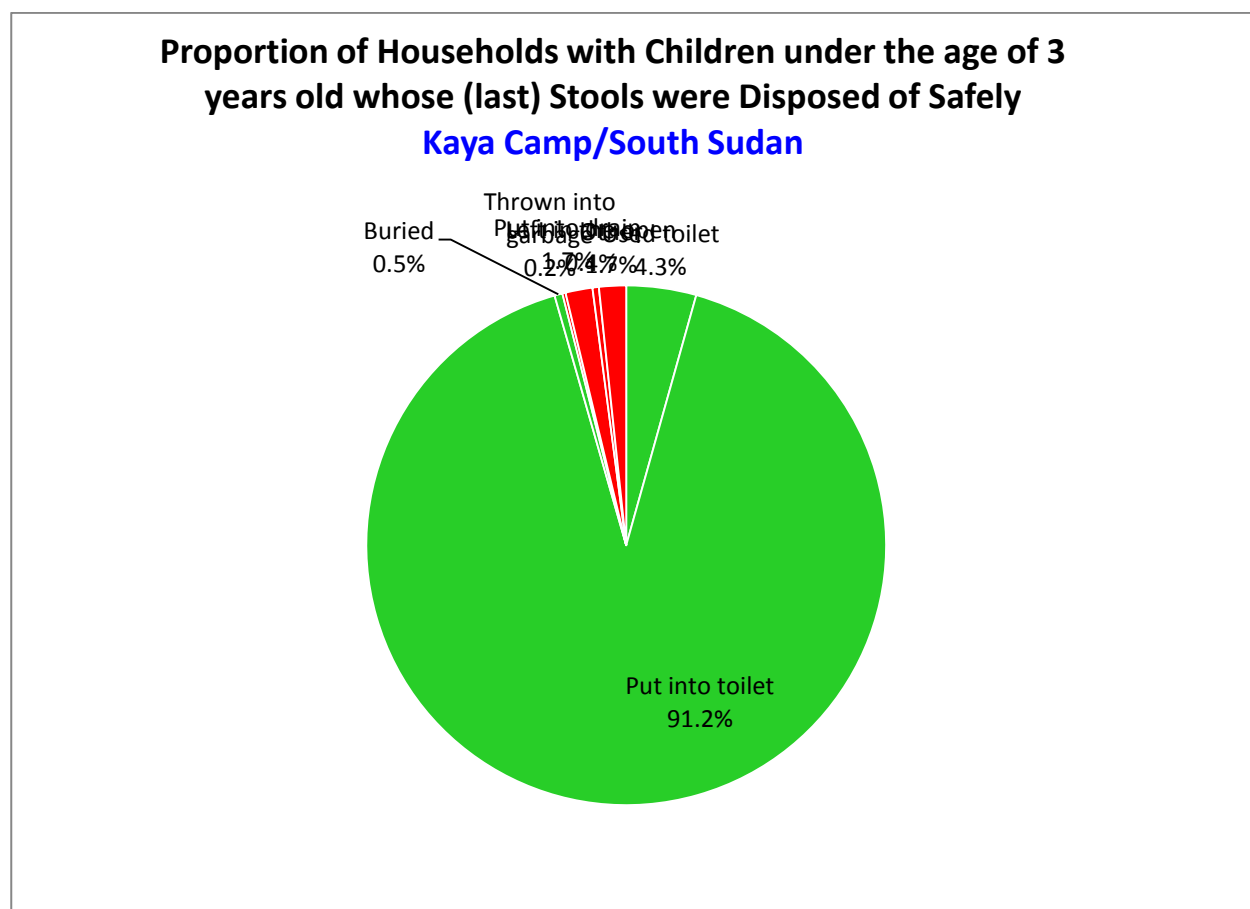
3.28. Mosquito Net Coverage

Table 157: Mosquito Net Coverage Sampling Information-Kaya Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	304	318	104.5

Table 158: Household Mosquito Net Ownership-Kaya Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	314/317	99.0 (98.0-100.1)
Proportion of total households owning at least one LLIN	283/317	89.3 (84.1-94.5)

Figure 46: Household Ownership of At Least One Mosquito Net (Any Type)

Proportion of Households with at least one Mosquito Net (any type)
Kaya Camp/South Sudan

Households with no mosquito net 0.9%

Households with at least one mosquito net 99.1%
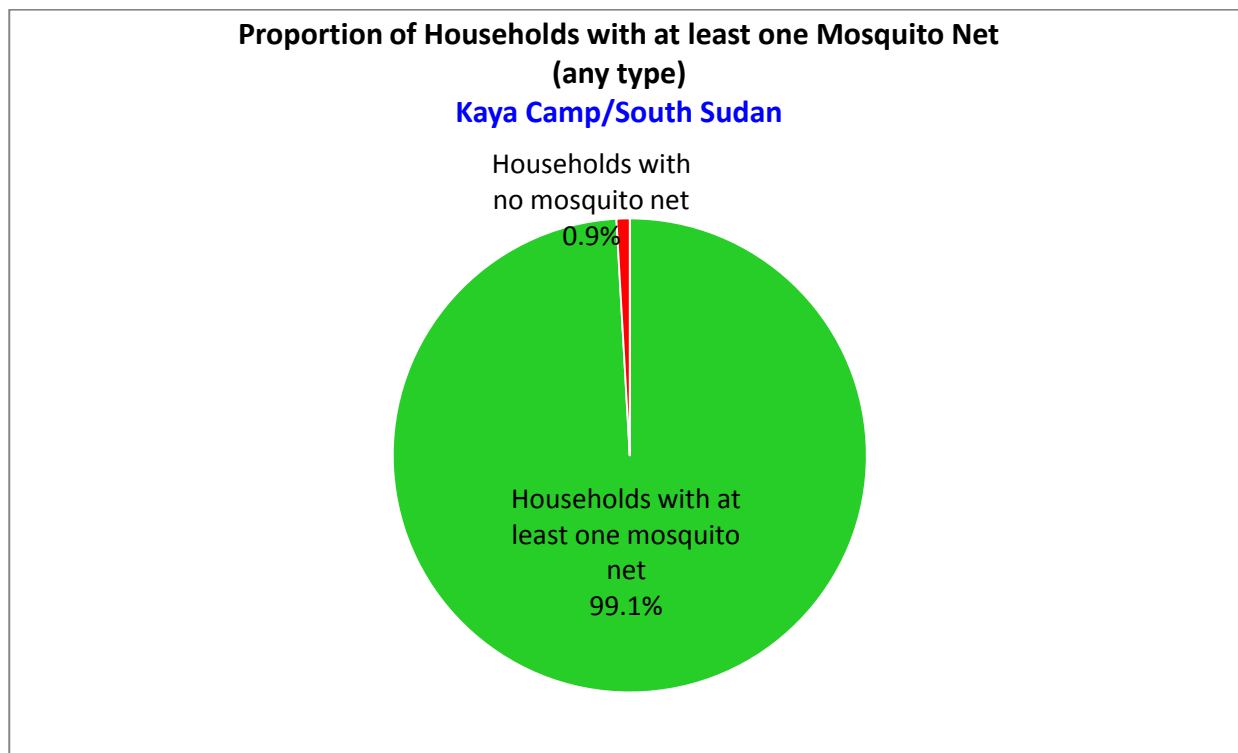
Figure 47: household ownership of at least one llin (this figure can be automatically generated by using sens pre-module tool 12 – trends and graphs)
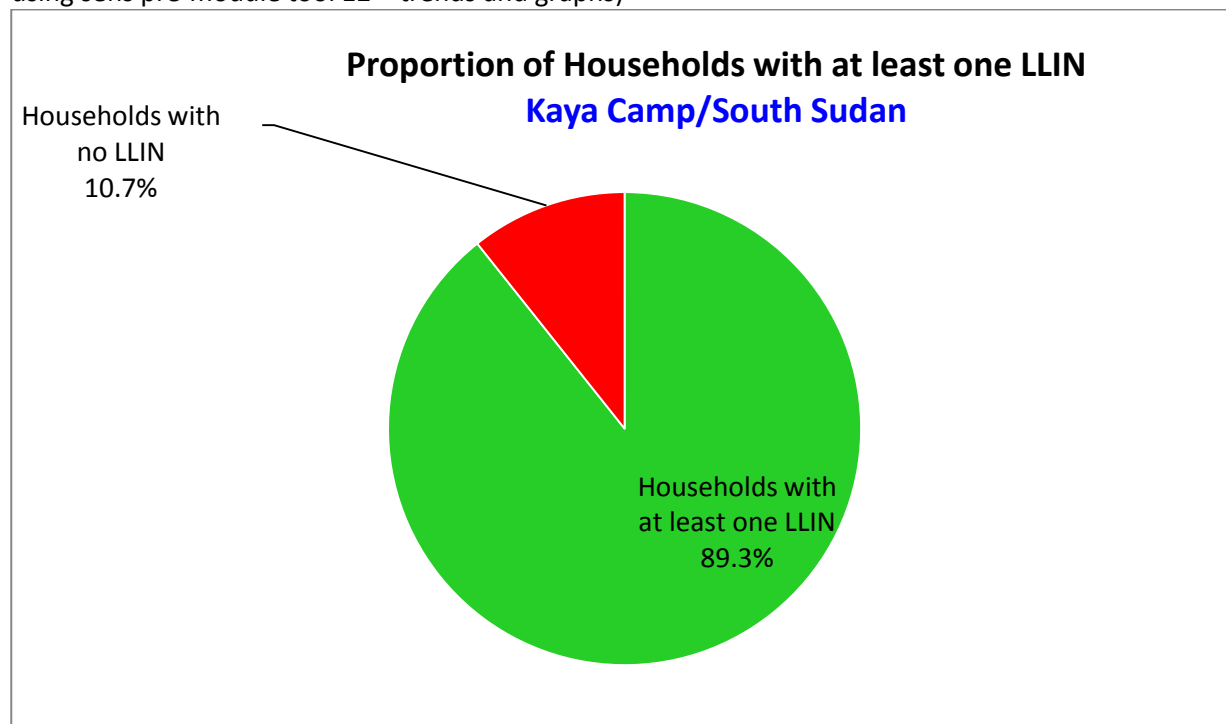
Table 159: Number Of Nets-Kaya Camp

Average number of LLINs per household	Average number of persons per LLIN
2.7	2.6

Table 160: Mosquito Net Utilisation-Kaya Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 2136	%	Total No= 527	%	Total No= 62	%
Slept under net of any type	1717	80.3	435	82.5	42	67.7
Slept under LLIN	1731	81.0	455	86.3	42	67.7

Figure 48: Mosquito Net Utilisation by Sub-Group
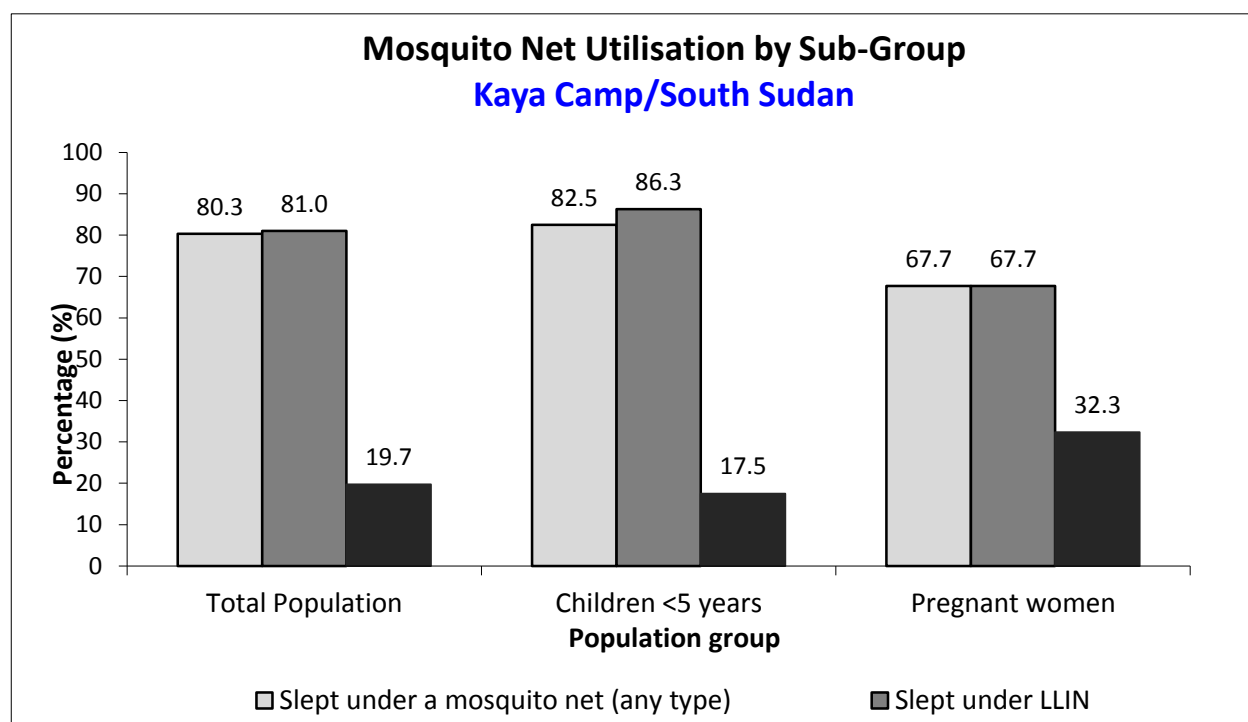
3.29. Other results – Mortality

Doro Mortality Results (retrospective over 90 days prior to interview)

Table 161: Crude and under 5 mortality rates-Doro Camp

CDR (total deaths/10,000 people / day):) 0.14(0.05-0.38 95%CI)
U5DR (deaths in children under five/10,000 children under five / day): 0.21(0.05-0.87 95%CI)

Yusuf Batil Mortality Results (retrospective over 90 days prior to interview)

Table 162: Crude and under 5 mortality rates-Batil Camp

CDR (total deaths/10,000 people / day):) 0.14(0.05-0.40 95%CI)
U5DR (deaths in children under five/10,000 children under five / day): 0.11(0.01-0.87 95%CI)

Gendrassa Mortality Results (retrospective over 90 days prior to interview)

Table 163: Crude and under 5 mortality rates-Gendrassa Camp

CDR (total deaths/10,000 people / day): 0.16(0.06-0.39 95%CI)
U5DR (deaths in children under five/10,000 children under five / day): 0.09(0.01-0.71 95%CI)

Kaya Mortality Results (retrospective over 90 days prior to interview)

Table 164: Crude and under 5 mortality rates-Kaya Camp

CDR (total deaths/10,000 people / day): 0.05(0.01-0.22 95%CI)
U5DR (deaths in children under five/10,000 children under five / day): 0.11(0.01-0.83 95%CI)

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. 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

Cluster and Household Completion
The data collection was particularly affected by unpredictable GFD distributions and vaccination campaigns particularly in Kaya and Gendrassa. Many households were found empty when some of the respondents were rushing to the GFD. The population was stressed also by Security incidents and it was difficult to achieve the daily allocated numbers of clusters/household. This makes it also difficult challenging to come back to many households in 2 clusters in Gendrassa that were finally discarded from the data analysis.

Data collection Enumerators
The general level of the enumerators was poorer than that of last survey's enumerators. This requested very thought supervision. However the data quality and plausibility check might be still impacted

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 prevalences has decreased in all Maban camps in 2014 as compared with 2013.In Doro, the GAM prevalence was found to be **8.1 %** (6.2-10.7 95% CI) and the SAM prevalence was 0.8% (0.4-1.9 95% CI) . In Yusuf Batil camp, the GAM prevalence was found to be **7.6 %** (5.9 – 9.7 95% CI) while the SAM prevalence was 0.8% (0.4-1.6 95% CI). In Gendrassa the GAM prevalence was found to be **6.7%** (5.3-8.5 95% CI) and the SAM prevalence was 1.6 % (0.9-3.0 95 % CI) . In Kaya

the GAM prevalence was found to be **7.6** % (6.1-10.2 95 % CI) and the SAM prevalence is 1.3 % (0.7-2.4 95% CI). In comparison, the last nutrition survey result showed a GAM rate of 10.0% (8.1-12.2 CI) in Doro, 15.3% (13.1-17.8 CI) in Batil, 12.1% (9.8-14.7 CI) in Gendrassa and 17.8% (9.5-30.8 CI) in Jamam (whose refugees have made Kaya Camp).The dicrease is not significant in Doro (p>0.05) while it is significant in Batil, Kaya and Gendrassa (p<0.05).
Note that the SAM prevalences in 2014 are all within standards (<2%) and the trends are showing also a decrease since as compared with 2013 nutrition survey, the SAM rates were much higher and especially Yusuf Batil and Jamam camps had SAM rates over the threshold .
According to the November/December 2014 Food Security and Nutrition Monitoring System (FSNMS) survey, the national GAM was 12.5% and SAM 3.2%. (FSNMS Round 14, 2014). This shows that the nutrition situation in the camps is much better than that at national levels.

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 (**Figure 8**). Also there is no big number gap between the Weight-For –Height results and the MUAC as the survey MUAC results lie similarly in the same range a part from Doro MUAC being twice lower than the Weight For Height GAM . The MUAC malnutrition GAM range from 4.1% (3.0-3.7 95% CI) in Doro to 7.9 (6.1-10.3 95% CI) in Kaya

The two surveys were conducted at slightly different times of the year. The current survey was conducted at the beginning of the dry season where some foods were still being harvested while the 2013 survey was performed at the peak of the dry season where basically very limited food sources remain. The reason why seasonality could be one of the causes of this difference between two surveys is that even though Refugees depend almost entirely on food aid (GFD), at the period of the survey, they were not given full ration as the Energy intake was fluctuating between 1000Kcal/p/day in October, 2000 Kcal/p/day in November and 1500 Kcal/p/day in December. But that has not had much impact on the GAM rates as compared with 2013 since they apparently could have referred to some greens, maize and tubers/roots as alternative as the dry season was just starting.
Consequently, in terms of changes between the 2 survey periods, the main cause of the improvement of the nutrition situation in Maban is most likely due to the lesser impact of diseases and morbidity as compared with 2013 were the peak of Hepatitis E was situated at the period of the survey (February-March-April 2013) in all camps a part from Doro (which had the lowest GAM rate). Also, according to health graphs, the incidence of LRTI, and URTI was much higher in February-March 2013 than in November-December 2014. Watery Diarrhoea was also extremely high particularly in Doro and Jamam/Kaya in 2013 as compared with 2014. The mortality rates are also all far below the emergency critical threshold.
Consequently, the occurrence of morbidity could be considered playing an important role towards the malnutrition in 2014. The vicious cycle malnutrition-Infections is well know as Morbidities and Infections decreases the nutrients absorption and proteins quantities in the body with high risks of malnutrition while malnutrition at the same time reduces the immunity of the body, renring it prone to infection (Latham,1997) . In Doro which has the highest rate, the prevalence of diarrhoea is 20 % doubling those of the 3 other camps. URTI, followed by URTI are also contributing to the acute malnutrition as leading morbidities followed by diarrhoea, particularly in Kaya and Gendrassa. Note that the age group of 6-17 months is the most concerned by the wasting. This could be explained by the particular fragility of this group in terms of inadequate practices, particularly the weaning period. The disturbances also caused by irregular frequencies of both food and nutrition supplies deliveries are also part of the problem as deliveries have been many times over-spaced and rations have been reduced . If those three causes are mitigated, the prevalences would even drop further.

The prevalence of stunting in Doro and Gendrassa were respectively **36.4%** (32.5-40.4 95% CI) and **33.5%** (28.7-38.6 95% CI). In Batil   **44.0%** (40.4-47.8 95% CI) were found stunted while they were **50.9%** (47.4-54.4 95% CI) in Kaya.. One-third of children 6 to 59 months in the camps are stunted in Doro and Gendrassa and nearly half of them are short for their age in Kaya and Yusuf Batil where the prevalences overcome the critical threshold (>=40%).   The prevalence has increased in all camps as compared with 2013 survey results and the increase is marked particularly in Kaya and Gendrassa. Age determination being a challenge, the stunting rates should interpreted with caution.

The increase in stunting might be expected as 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). Definitely food practices are of concern regarding stunting. Also, the composition of the GFD food basket lacks animal proteins as well as energy. 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. As compared with some other operations in the region and considering the full dependence on GFD, the refugee nutrition programme lacks a BSFP 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, The overall nutrition situation profile looks stable, and under control thanks to sustained efforts of all partners involved in nutrition in the Maban refugee operation. From 2013, the services have been decentralized to increase coverage, integration of nutrition with health and WASH services has become a reality and even further, nutrition partners are looking forward to collaborate hand in hand with food security and livelihoods partners for food diversity and more sustainable alternatives to food aid.

4.2. Programme Coverage

Measles vaccination coverage is acceptable throughout the camps. The coverage is **90%** (86.5-93.5 95 CI) in Doro, **75.5%** (71.1-79.9 95 CI) In Batil, **87.3%** (83.6-91.0 95 CI)in Gendrassa and **85.1 %(**79.7-90.5 95 CI) in Kaya. The target is at least 95% coverage. The situation is acceptable and has not changed that much as compared with 2013 survey when the coverage in measles was about a similar range. 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, and around 50 % percentage in other camps a part from Doro where the coverage with card is 81 %. Measles vaccination campaigns happened in November and December starting just before and throughout the survey period, contributing to some extent to the current coverage. This means that in terms of routine immunization in Maban, more needs to be done.

Vitamin A coverage in Yusuf Batil is **60 %** (52.8-68.4) while Doro, Kaya and Gendrassa with respectively **88.2%** (83.3-93.0) **88.9%** (85.2-92.6) and **84.3%** (78.8-89.9) are closer to the target of 90 %. This might be due to the outreach component confronted with distance issues. Yusuf Batil is the biggest camp in terms of surface and children and some of the children not confronted with the nutrition programmes might be difficult to be reached as compared with other camps.

Doro camps Diarrhoea rate is 20.1 % (15.6-24.7) is the double those of other camps ranging from 9 to 10 %. This might be expected as Doro has always been the camps with most recurrent WASH issues due to the congestion. However, the diarrhea incidence has not had a significant impact on the malnutrition rate in terms of inter-camp difference as the GAM rates are close to each other.

102

A part from vaccination campaigns, routine immunization was ongoing. During the last quarter of 2014, In Maban immunization shifted from trivalent vaccines (diphtheria, pertussis and Tetanus) to pentavalent vaccines (Meningitis, pertussis, Tetanus, Hepatitis B and Diphteria) . This is reflected in the routine pentavalent vaccine rates being 82.5% (76.8-88.2 95% CI) with card/health document proof and 93.0% (90.0-96.0 95% CI) with either proof of oral assumption by the respondent.

In terms of Feeding programme coverage results it looks like the camps are far to reach the target of 90 % and three-fourth (3/4) of malnourished children are not yet included in the programmes as Doro, Batil, Gendrassa and Kaya 's programme coverage results were respectively 22.5% (14.6-30.3) 34.4% (23.5-45.3 95% CI) 27.9% (17.5-38.2 95% CI) and 27.1% (14.6-39.7 95% CI) for TSFP coverage with all admission criteria and 25% (-1.9-51.9 95% CI) 36.4% (.7-71.095% CI) 14.6 %(2.3-27.095% CI) and 12.0%(1.6-22.495% 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 44.4% (27.6-61.395% CI) 52.0%(37.6-66.495% CI) 47.6(29.6-65.7 95% CI) 45.9% (27.5-64.395% CI) for Supplementary Feeding Programme while they are 33.3% (-110.0-176.7 95% CI) 40.0% (-114.9-194.9 95% CI) 18.7% (0.0-36.9 95% CI) 12.8% (2.0-23.6 95% CI) for Theurapeutic Feeding Programmes. However, those results needs to be considered with precaution as the sample sizes are very small (N <=100). Also, frequent coverage calculation based on programme admissions versus total number of children under 5 of the camps always show a 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.

Ante Natal Care (ANC) enrolment and iron-folic acid coverage were respectively 62.4% (49.6-75.0 95% CI) and 37.6% (24.9-50.495% CI) in Doro, 85.0% (70.0-99.995% CI) and100% (100-100 95% CI) in Batil , 82.0% (69.4-94.6 95% CI) and 90.9 %(81.0-100.7 95% CI) in Gendrassa and 84.5% (73.5-95.4 95% CI) and 92.3% (83.8-100.8 95% CI) in Kaya . Doro has the lowest rates. This must be due to partly to the population size but also to issues on referrals as nutrition programmes is being run by two partners of which one is without clinic. By background, before, the referral system was not satisfactory between the two partners . Currently, both partners ha simproved the system by contant sharing of information

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 anaemia prevalence in Doro was found to be **53.2**% (46.5-59.9 95% CI)**,** followed by Yusuf Batil with **52.9%** (47.5-58.3 95% CI). Kaya was **46.9%** (41.3-52.5 95% CI) and Gendrassa was **46.1%** (40.1-52.2 95% CI) . Gendrassa experienced the most important deterioration as in 2013 the anaemia rate in this camp was 32.6% (28.5 – 37.0 95% CI) and the difference is significant (p <0.05). Doro camp experienced also a deterioration as the former anaemia prevalence was 47.9% (43.4 – 52.4 95% CI) but the increase in prevalence is not significant (p> 0.05). Batil and Kaya situations have improved as from 2013 results the 2 camps anaemia 6-59 months rate were respectively 57.3% (53.6 – 60.9 95% CI) and 54.8% (50.3 – 59.3 95% CI) but the increase is not significant in Batil (P>0.05) while it is significant in Kaya (p<0.05).

The current prevalence are all of high public health significance (WHO, 2000). This is predictable because since 2013 where the rates were already alarming, no structured and comprehensive anaemia strategy has been put in place to reverse the trends. Even though they are parallels 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 make that strategy a reality. Those activities are pilot seeds distributions (for kitchen gardening on vegetables as micronutrient sources) to 40 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 could be put in place, reinforced and coordinated. Some key aspects such as Blanket Supplementary Feeding Programmes under 2 and Blanket Supplementary Feeding Programmes for PLW, even though agreed by UNHCR, WFP and partners are still on hold due to recurrent nutrition products pipeline breaks

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 25.6% (19.2-32.0 95% CI), Batil was 22.1% (15.3-28.8 95% CI) Gendrassa was 28.3% (23.9-32.7 95% CI) and Kaya was 19.9% (14.7-25.1 95% CI). 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 20% and 30 %.

  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 and the 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 de 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 2013 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 **67.8%** (59.3-79.3 95% CI) **46.4%** (30.5-62.3 95% CI). **74.1%** (57.9-90.2 95% CI) and **76.1%** (63.8-88.3 95% CI). By comparing with 2013 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 this 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 **87.6 %**(83.6-91.7 95%CI) of the mothers in Doro, **77.9%** (71.8-84.0 95%CI) in Batil, **94.6%** (91.7-97.6 95%CI) in Gendrassa **92.5%** (88.6-96.4 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. This is not surprising the Kaya is the leading camp since it is the camp where the coverage of Mother Support Groups is the highest (150 MSGs).

Half of the children did not consumed iron-rich or iron fortified foods. That is not surprising as the iron rich foods are lacking. Even though the pulses ration of the GFD contains iron, its bioavailability might undermine the uptake of this nutrient, leaving very little opportunity to catch up on 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. Related to that, 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 continuity of Breastfeeding up to one and two year results showed good trends with respectively a variation from 98.2 % to 98.4 % for the first indicator and 73.2% to 100% for the second. However, the small sample size of IYCF would suggest some caution for interpretation.

FBF(CSB+) and FBF+ (CSB++) intake rates were low, ranging from 3 % to 16.7% for the first and 1.4% to 12.6 % for the second. It is to be noticed that they have not been CSB+ since more than one year and consequently it is suspected that the FBF+ could have been confounded with CSB++ by the respondents. Due to nutrition MAM product breakdown CSB++ has been used alternatively with plumpy sup to treat Moderate Acute Malnutrition (MAM) cases in under 5 and is the product that has been used so far to treat MAM PLWs

Bottle feeding rates were reported being low in the camps, looking at the rates. Yusuf Batil has the highest rate with 13 % (9.9-16.8 95% CI) while other camps were almost third times lower. This confirmed oral and observational report of inappropriate behaviours in Batil camp as compared with others. However, nutrition partners are addressing that issue. Infant formula intakes are within acceptable ranges since 1% (-0.2-2.1, 95% CI) of the 6-23 months in Doro took infant formula while it was 6.6% (2,2-10.9, 95% CI) in Batil, 3.7% (0.1-6.5 , 95% CI) in Gendrassa and 3.0% (0.4-5.7, 95% CI) in Kaya. Related to that, Maban camps has been confronted to alternative feeding cases and UNHCR and partners has collectively responded to such issues, leading to successful case studies.

The Launching of UNHCR Friendly IYCF Friendly framework would be of great support to improve the IYCF interventions. One programmatic gap to be filled would be the monitoring and follow up of the MSGs in some camps, where the frequency of sessions is not as expected. This might entail human resources. It has been decided at Maban level not to create anymore additional groups but to focus on improve the quality of the sessions and follow up.

4.5. Water Sanitation and Hygiene (WASH)

Even though they were no SENS baseline survey on WASH before, it can be admitted with confidence that the WASH situation has drastically improved in the camps in two years. Nearly all households interviewed acknowledged the access and usage of improved drinking water sources as Doro, Batil and Kaya scored 100 % (100-100 95% CI) and Gendrassa scored 99.8% (99.4-100 95% CI). The average water usage in Doro in Litre Per Person Per Day (lpppd) is **19.0%** (37.9-50.9 95 % CI), **18.8%** (16.2-21.4 95%CI) in Batil, **20.6%** (18.0-23.2 95%CI) in Gendrassa and **20.5%** (18.0-23.0 95% CI) in Kaya**.** 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 . However, looking at individual camp levels, the proportion of households achieving a daily usage of at least 20 Ipppd is lower as in Doro, 41.7% (35.2-48.3 95% CI) ,34.3% (27.9-40.7 95% CI) in Batil, 39.3% (32.7-45.9 95% CI)in Gendrassa and 37.7 %(31.0-44.4 95% CI) in Kaya were able to use 20 lpppd. A similar percentage of households afford 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 satisfaction of the water supply in Doro was 58.6 %(48.0-69.2 95% CI) in Doro and increased to 78.6 % (71.5-85.7 95% CI) in Kaya, 79 %

(72.2-85.8 95% CI) in Gendrassa and 84.6% (78.0-91.7 95% CI) in Kaya. The main reason for dissatisfaction was neither about the quality, nor the distance to the water points but the waiting time.

In terms of latrine facilities, more needs to be achieved as less than 50 % of the households had access to improved excreta disposal   facilities (improved toilet facility, 1 household). In Doro, 36.9% (28.7-45.0 95%CI) of the surveyed households were using an improved toilet facility while they were 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. Kaya and Gendrassa camps, particularly were behind with less than 25 % of the households having their own latrines. However, on this matter, it is important to contextualize the results as in some camps having lower rates like Gendrassa , 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, 95.8% (92.8-98.9 95% CI)in Batil , 97.8% (95.9-99.7 95% CI) in Gendrassa   and 97.5% (95.6-99.5 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 all camps, the rates were over the 80 % target. The percentage of households owning at least one LLIN mosquito net in Doro was found to be 84.5% (79.3-89.6 95% CI) ,92.0% (88.6-95.5 95% CI) in Batil, 90.1% (85.0-95.4 95%CI) in Gendrassa and 89.3%(84.1-94.5 95% CI) in Kaya . 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. This achievement is the result of sustaining efforts on yearly bednet distributions in each camp from UNHCR by UNHCR. In 2014, the mosquito net distribution was held in June.

The positive trend is also confirmed by the average number of person per LLIN which is 3.2 in Doro,2.2 in Batil, 2.6 in Gendrassa and 2.6 in Kaya . The UNHCR target stipulates that not more than 2 person should sleep under an LLIN.

The percentage of household member who sleeping varies under an LLIN in Doro was 73.5% and increased to 81.0% in Kaya, 82.1% in Gendrassa and 82.7% in Batil. Regarding 0 to 59 months, 85.4% in Doro, 86.3% in Kaya, 88.6% in Gendrassa and 96% in Batil used the recommended LLIN net. On the side of Pregnant and Lactating Women, Doro is still the last with a worrying percentage of 35.2% of PLWs using the LLIN followed by Kaya with 67.7% of PLWs, Gendrassa with 72.7% of PLWS and Batil scoring 73.3%.

It is also worth mentioning that all camps have undergone in 2014 an Indoor Residual Spraying (IRS) as confirmed by the respondents.

This achievements could explain why Malaria does not appear in 3 three camps among the top five morbidities during the period of 2013-2014.

4.7. Mortality

The Crude Mortality Rate and the Under 5 Mortality Rate are both within standards (CMR<1.0 deaths/10000/day and UMR <2.0 deaths/10000/day) crude mortality rate, Doro was 0.14%(0.05-0.38 95%CI), Batil is 0.14%(0.05-0.40 95%CI) , Gendrassa is 0.16%(0.06-0.39 95%CI) and Kaya is 0.05% (0.01-0.22 95%CI). For Under 5 mortality rates, Doro is 0.21%(0.05-0.87 95%CI)

0.09%(0.01-0.71 95%CI) 0.09%(0.01-0.71 95%CI) 0.11%(0.01-0.83 95%CI). Despite challenging health issues and eruptions of outbreaks, the mortality has been controlled, particularly after the hepatitis E outbreak period . This is due to the constant efforts of partners and UNHCR to improve health, nutrition and WASH services.

5. CONCLUSION

The results of the survey undertook in October-November 2014 results showed a significant improvement of the nutrition situation as compared with the last survey undertook February – March 2013. The Global Acute Malnutrition prevalence dropped down from emergency thresholds in some camps to lie within UNHCR standards (GAM prevalence < 10 %). Key IYCF indicators have also shown an improvement of the situation as compared with 2013. The nutrition profile of the refugee population is conclusively stable despite the crisis that has erupted in South Sudan in 2013 and the August 2014 violences that has happened in Maban. This achievement is at first due to the concerted efforts of all partners and UNHCR. From 2013 to 2014 , the nutrition services have been decentralized to increase coverage and nutrition activities are integrated with health and WASH to have a better impact and curative nutrition activities are being run smoothly , even despite challenging security situation happening at times.
Health indicators are also satisfactory as routine vitamin A and measles supplementation are almost close to the recommended targets. Mosquito net coverage indicators are also up to standards as around 90 % of the households have access and used the recommended type of mosquito nets.
In terms of WASH, All households have access to drinkable water and an average of at least 70% was satisfied with the water services. Close to 40 % of household 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.
 All this achievements has contributed to keep the Morbidity and mortality under control as crude and under 5 mortality rates are up to standards below the threshold of respectively less than 1.0 death /10000/day and less than 2.0 deaths /10000/day
However, there is still a lot to achieve as half of the children in the camps are anaemic , one-third are stunted , one-fifth of the non-pregnant women at reproductive age of 15-49 months are anaemic health and nutrition surveillance data also revealed that Pregnant and Lactating women are malnourished . No structured anaemia strategy has been put in place since 2013 knowing that the rates were already alarming. Nutrition interventions have not yet really integrated to food security and livelihoods strategies to their activities despite a pilot project in Kaya and Gendrassa where mother Support Groups receive seeds. Food aid Preventive interventions (BSFP under 2, BSFP PLW or introduction of Fortified Blended Food in the GFD) to cater for anaemia and stunting deficiencies advocated and agreed by UNHCR, WFP and partners are still on hold because of pipeline break issues.

6. RECOMMENDATION AND PRIORITIES

IMMEDIATE TERM

- UNHCR and Nutrition partners to draft an anaemia reduction strategy document and implement the strategy
- 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)
- UNHCR, WFP and Partners to maintain the efforts in collaboration with WFP to bring the required products (CSB++) in country , to the field and before the rainy season to implement as soon as possible the preventive interventions agreed such as Blanket Supplementary Feeding for children under 2 PLWS for 6 months
- UNHCR and UNICEF to bring in SAM nutrition supplies (RUTF, RUSF) and anthropometric material and medicines before the rainy season .

MEDIUM TERM
- UNHCR, UNICEF and Nutrition partners to eview the Infant and Young Child Feeding Interventions, especially the monitoring and follow up as well as aspect to improve the IYCF indicators.
- WFP to resume the Post Distribution Monitoring (PDM)
- Partners and UNHCR to carry out a coverage survey
- UNHCR,WFP and partners to perform the Joint Assessment Mission (JAM)
- WFP to carry out a food security assessment
- UNHCR and partner to conduct the SENS nutrition survey planned in Sept-October 2014
- UNHCR, Nutrition and Livelihood partners to expand the intervention consisting on providing kitchen gardening seeds to other Mother Support Groups , not only in Kaya and Gendrassa but in all the camps

LONG TERM
- UNHCR and Nutrition partners to strengthen the integration aspects of health, nutrition , WASH and Food Security
- UNHCR and livelihood partners to start making use of available land for cropping

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8. SURVEY TEAM

Survey coordination, team supervision and technical team		
UNHCR		
Etel Godwill FAGBOHOUN	Nutrition and Food Security Officer	Bunj
UNICEF		
Rober AKUA	Nutrition Officer	Malakal
SP		
Mus ARAMAN	Nutrition Program Manager	Maban
MEDAIR		
Evelyne BOILLAT	Health Manager	Juba
Judith	Nutrition/IYCF Assistant	Maban
IMC		
Jacinta MANYARA	Nutrition Program Manager	Maban
Otto Stephen	Nutriton Programme Assistant	Maban

Data Analysis and Report writing		
Etel Godwill FAGBOHOUN	Nutrition and Food Security Officert	UNHCR - Bunj

Report Review		
Anne Marie DEFRAYE	Regional Nutrition and Food.Sec Officer	UNHCR - Nairobi
Blessing MUREVERWI	Regional Nutrition and Food.Sec Officer	UNHCR- Nairobi
Dr. Petros GEBREWOLD	Public Health Officer - PH Coordinator	UNHCR-Juba
Dr. Fikru LAMU	Public Health Officer	UNHCR-Bunj
Mathias NTAWIHA	WASH Officer	UNHCR-Bunj

Data entry Clerks	
Taban Champlain	Bunj (Maban)
Amira Ibrahim Doka	Bunj (Maban)
Ballam Peter Juma	Bunj (Maban)
Jacob Gany Titus	Bunj (Maban)
Santino Jalal	Bunj (Maban)

Survey Enumerators			
1	Yope Alex Nicholas	19	PhilimonSimon Wolo
2	Taban Chaplain Ephraim	20	Stephan Tenyan Billal
3	Andrew Sila Ali	21	Wilson Nethen Surru
4	Hamedanil Nicholas	22	Abud Shawal
5	Titus Jima Nyang	23	Anouv Hassan
6	James Adam Malla	24	Mustafa Jorda
7	Michael Muki	25	Mohamed Alamin
8	Otto Sesto Stephen	26	Kumudan Serdal
		27	Abulila Damsav

9	Benjamin Barnaba Tallan		28	Khamis Ateib
10	Joel Juda Wode		29	Sebeit Hangug
11	Bulis John Bol		30	Abdraman Tumisa
12	Michael Wana Kalko		31	Ahamed Shadin
13	Munya Butrus Latta		32	Leman Abdalla
14	Musa Maran Lienya		33	Gassim Berfa
15	John Khalifa Weshe		34	Hessein Soon
16	Ismael Abdu Wabko		35	Markos Nathan Balla
17	Liazar Haran Taballa		36	Nibson Dawud Chuyko
18	Wilson Nethan			

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

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 (0.1 %)

Overall Sex ratio     Incl   p    >0.1  >0.05    >0.001   <=0.001
(Significant chi square)              0     2        4       10        0 (p=0.398)

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 (11)

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 (1.03)

Skewness  WHZ         Excl   #    <±0.2 <±0.4    <±0.6    >=±0.6
                                      0     1        3        5        0 (0.07)

Kurtosis  WHZ         Excl   #    <±0.2 <±0.4    <±0.6    >=±0.6
                                      0     1        3        5        0 (-0.02)

Poisson dist WHZ-2    Excl   p    >0.05 >0.01    >0.001   <=0.001
                                      0     1        3        5        0 (p=0.200)

OVERALL SCORE WHZ =               0-9   10-14    15-24     >25       12 %
```

The overall score of this survey is 12 %, 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

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 (0.5 %)

Overall Sex ratio     Incl    p    >0.1  >0.05    >0.001   <=0.001
(Significant chi square)              0      2       4        10       0 (p=0.520)

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 (12)

Dig pref score - MUAC  Incl    #   0-7    8-12    13-20     > 20
                                      0      2       4        10       2 (11)

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 (1.00)

Skewness   WHZ        Excl    #    <±0.2 <±0.4    <±0.6    >=±0.6
                                      0      1       3        5        0 (0.05)

Kurtosis   WHZ        Excl    #    <±0.2 <±0.4    <±0.6    >=±0.6
                                      0      1       3        5        0 (-0.07)

Poisson dist WHZ-2    Excl    p    >0.05 >0.01    >0.001   <=0.001
                                      0      1       3        5        0 (p=0.175)

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

The overall score of this survey is 14 %, 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

```
Criteria             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 (2.2 %)

Overall Sex ratio    Incl    p     >0.1  >0.05    >0.001   <=0.001
(Significant chi square)              0     2         4        10      4 (p=0.009)

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      0 (7)

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 (1.03)

Skewness   WHZ       Excl    #     <±0.2 <±0.4    <±0.6    >=±0.6
                                      0     1         3        5       0 (0.02)

Kurtosis   WHZ       Excl    #     <±0.2 <±0.4    <±0.6    >=±0.6
                                      0     1         3        5       0 (0.12)

Poisson dist WHZ-2   Excl    p     >0.05 >0.01    >0.001   <=0.001
                                      0     1         3        5       0 (p=0.295)

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

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

SMART Plausibility Check Report – Kaya
Standard/Reference used for z-score calculation: WHO standards 2006
(Flagged data is included in the evaluation)
Overall data quality

```
Criteria             Flags* Unit  Excel. Good    Accept  Problematic  Score

Flagged data         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=0.603)

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 (2)

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

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 (1.00)

Skewness  WHZ        Excl   #     <±0.2 <±0.4   <±0.6    >=±0.6
                                      0     1        3        5      0 (-0.02)

Kurtosis  WHZ        Excl   #     <±0.2 <±0.4   <±0.6    >=±0.6
                                      0     1        3        5      0 (0.13)

Poisson dist WHZ-2   Excl   p     >0.05 >0.01   >0.001   <=0.001
                                      0     1        3        5      0 (p=0.299)

OVERALL SCORE WHZ =                0-9   10-14   15-24    >25     12 %
```

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

9.2. Appendix 2 Assignment of Clusters

Doro Cluster Allocation

Geographical unit	Population size	Cluster
Agadi	134	
Balila	2001	1.2
Balila Dawala	482	3
Dereng	367	
Dendiro	57	
Jabel Morufa	616	
Jeigo	234	4
Kilgo	872	
Kukuli	488	5
Mugum	205	
Tongo	385	
Wadaga	2729	6,7,8
Wego	93	
Yabus	995	9
Belatuma	4645	10,11,12,13
Anyile	2137	14
Borfa	2059	15.16
Jindi	3978	17,RC,18,19
Kolnugura	2054	20
Soda	1098	21
Baldugu	1192	22
Darfur 1	156	23
Darfur 2	532	
Gabanite	2091	24.25
Mayak 1	1524	26
Mayak 2	1410	27
Mayak 3	862	28
Nuba	323	
Surkum	785	29
Zariba	815	30
Bee	2983	31.32
Benamayu 1	1930	33,RC
Benamayu 2	1039	34
Chali 1	2748	35.36
Chali 2	2184	RC,37
Kernkan	438	RC
Samari 1	943	
Samari 2	732	38
Samari 3	359	
Samari 4	1000	39

Batil Cluster Allocation

Umda	Sheik	Population size	Cluster
Ahmed Mahajoub Adam	Agabalabun Hamadanil	183	
	Ahmed Shukri	96	1
	Bade Kambal Albay	14	
	Elyas Ajabon	171	
Ali Jakalo	Abdalla Mohammed Adam	174	
	Aburas Abdalla Turmbal	450	
	Ali Jakolo Suliman	962	RC
	Jadain Meaida Alemin	188	RC
	Jader Galmo Eta	241	
	Juma Bilel	999	2
	Khamis Abulang	167	
	Mohammed Godor Male	318	
	Musa Bagar	491	3
	Osman Mohammed Makawi	566	4
	Sarduk Dol Ahmed	1457	5
Almak Mufatish Meleh	Abduli Gulous	55	
	Abdulmajid Tom	905	6
	Abusitta Suliman Lol	685	7
	Albashir Saad Lol	1227	8
	Albut Hussein Adam	729	9
	Asadig Tayog Som	1358	10.11
	Bashir Komondan Lol	465	
	Mufatish Hamid Kon	949	12
	Osman Karab Asheikh	1099	13
	Ramadhan Safa John	862	14
	Sabun Mugort Jor	1093	15
	Sadig Malad Alnur	485	16
	Saraf Aljundi Sadig	1322	17
Anumeri Maki	Aburizig Hangug	1312	18,RC
	Alfaki Tifil	89	
	Khalifa Gasim	842	19
	Khalifa Nasir	689	
Gedem Sil Sil	Alnil Alkheir Aseemut	629	20
	Asad Matar Margan	157	
	Babikir Bungut Toksuma	429	21
	Bakhit Berfa Dor	331	
	Bashir Eissa Leyam	266	
	Bungut Bata Jabvir	526	22
	Bunzuga Bonj Rafar	180	
	Darwish Shawish Waifa	513	23
	Erfa Kheiralla Tirgel	443	

	Fadalmula Som	413	24
	Hassen Ratina Hussein	346	
	Hussein Batel Kalfa	397	
	Jor Mahadi Aljundi	150	25
	Khames Kurmuk Yok	474	
	Lagot Daso Eda	368	
	Mohammed Tongut Kadamas	245	RC
	Mohammed Umran Idris	309	
	Suliman Air Lay	583	26
Hamid Joda	Abbud Hassen Haroun	376	
	Abdullahi Yousif Alwali	230	
	Alamin Kotom Gogain	304	27
	Aldew Altom Abdalla	450	
	Alnazir Joda Altom	356	28
	Altom Rajab Saed	507	
	Bakhit Munsour Alamin	424	29
	Idris Mohammed Saad	316	
	Maduk Mus Moi	769	30
	Nuri Abdalla Jaifa	604	
	Omer Maida Abdalla	747	31
Ibrahim Adam	Abdalla Dikam Abas	79	
	Abdulazim Baduri	62	
	Abdulgadir Hamda Alyam	120	
	Ahmed Ageed Jalal	52	32
	Albey Suliman Taga	30	
	Ali Hano Salim	23	
	Asaad Alnair	97	
	Awadalla Almudir Barakat	16	
	Babikir Humdan	58	
	Garum Mahamoud Bashir	10	
	Ibrahim Idres Turok	59	
	Kawaja Omer Abdalla/Adalil Ramadan	99	
	Nasradein Badawi Balol	48	
	Tumsha Adlan Suat	35	
Jakalo Adam	Ali Matar Makana	166	
	Jahala Kassala Omer	156	
	Jakolo Adam	456	33
	Osman Siliman	182	
Mistirbis Abushok	Adam Jurfa Hamid	427	34
	Ibrahim Alfil Alabyat	203	
	Ibrahim Bade Falah	341	
	Ismaeil Meleh Hussein	195	
	Musa Mufatish Abdalla	190	35
	Nile Yassin Sanduk	217	

	Abjal Gumfa Suldak	599	
	Alshaieb Asyak Koi	303	36
	Awad Doka Konzar	370	
	Eissa Semat Belfa	300	
Rejab Serdal	Juma Megas Kol	394	37
	Moon Jumada Shanfa	396	
	Sebit Alum	449	38
	Umbasha Alamin Leyam	1330	39

Gendrassa Cluster Allocation

Community/Vil	Sheik	Population size	Cluster
Bau	Abdagadir Karam	150	
	Alsir Telyan	516	1
	Hessen Bagar	1718	RC,2,3,4
Fademia	About Jamum	144	5
	Almasy Khamis	481	6
	Bade Altom	94	
	Bakhit Masam	498	7
	Matar Yasin	162	8
	Sibit Balla	722	9.1
JumJum	Adam Abdallah	26	
Kukurs	Abass Abdallaziz	445	11
	Alhadi Semen	1633	12,13,14,15
	Alhaj Alfadi	492	16
	Ali Aljudi	1423	17,18,19
	Azaki Sead	804	20.21
	Bashir Hessen	334	22
	Eid Atom	1460	RC,23,24,25
	Khalifa Bakhit	1212	26,27,RC
	Mohammed Doka	396	28
	Nimir Siliman	604	29
	Ramadan Yacob	208	30
	Sidik Aldut	463	31
Magaja	Abdallah Isa	219	
	Abdallah Osman	121	32
	Nimiri Alamin	78	
	Rajab Alhaj	348	RC
Soda North	Alfaki Bata	342	
	Homeda Ahmed Musa	1087	33,34,35
	Mohamed Atom	335	36
	Ibrahim Siliman	483	37
	Tifil Sead	236	38
	Tisar Ali	412	39

Kaya Cluster Allocation

Community/Vil	Sheik	Population size	Cluster
Armau	Abdallah Bashir	350	1
Asilik	Fetish Kol	575	2
Baldugu	Almak Farna	42	
Belmet	Alfaki Baras	851	3.4
Bindisi	Siliman Abdarahaman	22	
Bofe	Hassan Hussein Rahma	318	
Fuguluk	Mahmud Deen Issa	399	5
Gabanite	Balla Albe	625	6
Godor	Mohamed Yousif Bashir	661	7.8
Guren	Rajab Seid	736	9
Joda	Abdallazim Ahmed Turuk	90	10
JumJm	Adam Abdallah	377	
Kaltuma	Ramadan Said	95	
Kamer	Osman Alemin	1054	11,12,13
Kamerol Garib	Mohammed Musa Wangi	651	14
Kamerol Sharig	Wadbes Nimer	607	RC
Kurba	Ateib Kojeli	413	15
Lifir	Osman Som	767	16.17
Mada	Alhaj Diar Jubara	107	
Magaja	Abdalla Dikam Abas	20	
	Abdulgadir Hamdan Alyam	99	
	Agabalabun Hamadanil	30	
	Ahmed Ageed Jalal	31	
	Ahmed Shukri	4	
	Albay Suliman Taga	26	
	Ali Hano Salim	132	18
	Asaad Alnair	13	
	Awadalla Almudir Barakat	97	
	Garum Mahamoud Bashir	1	
	Ibrahim Idres Turok	17	
	Kawaja Omer Abdalla /Adalol	75	
	Nasradein Badawi Balol	50	
	Saad Shelbi	528	RC
	Tumsah Adlan Suat	112	
Mak	Abdallah Nimer	1026	19.2
Malifa	Abdrahaman Gumfut	403	21
Mayak	Hajer Abomina	143	22
Medelik	Atom Tayuk	617	23
Mifol	Daeeb Bagar Adam	1364	24,25,26
Mol	Mordien Awad	850	27
Mose	Monjil Mol Nassir	380	28

Mufu	Almina Jarum	398	29
	Gisisz Ataib	57	
	Limam Mobruk	152	
Purdubel Garib	Ortha Adow	390	30
Purdubel Sharig	Hassan Rabi	745	31.32
Sabunabut	Mohamed Yousif Joda	592	33
Soda	Madani Bafe	485	34
Soda Amol	Abas Allbe	288	35
Tomfona	Maki Seid	242	
Tormile	Nasrideen Abdallah Adam	426	36
Wadabok	Alhadi Adam	131	
Wadaga	Mohandis Shawish	322	37
	Hassan Abdalgelil	429	RC
	Isaac Abdarahaman	1582	38,RC,39

9.3. Appendix 3: Result Tables for NCHS growth reference 1977

Results Tables for NCHS growth reference 1977-Doro Camp

Table 165: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 942	Boys n = 485	Girls n = 457
Prevalence of global malnutrition **(<-2 z-score and/or oedema)**	(78) 8.3 % (6.4 - 10.6 95% C.I.)	(43) 8.9 % (6.3 - 12.3 95% C.I.)	(35) 7.7 % (5.3 - 11.0 95% C.I.)
Prevalence of moderate malnutrition **(<-2 z-score and >=-3 z-score, no** **oedema)**	(76) 8.1 % (6.2 - 10.4 95% C.I.)	(42) 8.7 % (6.1 - 12.2 95% C.I.)	(34) 7.4 % (5.1 - 10.8 95% C.I.)
Prevalence of severe malnutrition **(<-3 z-score and/or oedema)**	(2) 0.2 % (0.1 - 0.9 95% C.I.)	(1) 0.2 % (0.0 - 1.5 95% C.I.)	(1) 0.2 % (0.0 - 1.7 95% C.I.)

The prevalence of oedema is 0.0 %

Table 166: 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	278	1	0.4	31	11.2	246	88.5	0	0.0
18-29	180	1	0.6	18	10.0	161	89.4	0	0.0
30-41	254	0	0.0	18	7.1	236	92.9	0	0.0
42-53	166	0	0.0	7	4.2	159	95.8	0	0.0
54-59	64	0	0.0	2	3.1	62	96.9	0	0.0
Total	942	2	0.2	76	8.1	864	91.7	0	0.0

Table 167: 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. 3 (0.3 %)	Not severely malnourished No. 943 (99.7 %)

Table 3.5: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 946	Boys n = 486	Girls n = 460
Prevalence of global malnutrition **(< 125 mm and/or oedema)**	(39) 4.1 % (3.0 - 5.7 95% C.I.)	(12) 2.5 % (1.5 - 4.1 95% C.I.)	(27) 5.9 % (4.0 - 8.6 95% C.I.)
Prevalence of moderate malnutrition **(< 125 mm and >= 115 mm, no** **oedema)**	(36) 3.8 % (2.7 - 5.3 95% C.I.)	(12) 2.5 % (1.5 - 4.1 95% C.I.)	(24) 5.2 % (3.6 - 7.6 95% C.I.)
Prevalence of severe malnutrition **(< 115 mm and/or oedema)**	(3) 0.3 % (0.1 - 1.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(3) 0.7 % (0.2 - 2.1 95% C.I.)

Table 168: 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	281	3	1.1	23	8.2	255	90.7	0	0.0
18-29	181	0	0.0	10	5.5	171	94.5	0	0.0
30-41	254	0	0.0	2	0.8	252	99.2	0	0.0
42-53	166	0	0.0	1	0.6	165	99.4	0	0.0
54-59	64	0	0.0	0	0.0	64	100.0	0	0.0
Total	946	3	0.3	36	3.8	907	95.9	0	0.0

Table 169: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 942
Prevalence of global acute malnutrition (<80% and/or oedema)	(35) 3.7 % (2.3 - 5.9 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(35) 3.7 % (2.3 - 5.9 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 170:   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	278	0	0.0	17	6.1	261	93.9	0	0.0
18-29	180	0	0.0	5	2.8	175	97.2	0	0.0
30-41	254	0	0.0	8	3.1	246	96.9	0	0.0
42-53	166	0	0.0	5	3.0	161	97.0	0	0.0
54-59	64	0	0.0	0	0.0	64	100.0	0	0.0
Total	942	0	0.0	35	3.7	907	96.3	0	0.0

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

	All n = 938	Boys n = 484	Girls n = 454
Prevalence of underweight **(<-2 z-score)**	(297) 31.7 % (28.3 - 35.2 95% C.I.)	(149) 30.8 % (26.0 - 36.0 95% C.I.)	(148) 32.6 % (28.7 - 36.7 95% C.I.)
Prevalence of moderate underweight **(<-2 z-score and >=-3 z-score)**	(251) 26.8 % (23.9 - 29.8 95% C.I.)	(124) 25.6 % (21.5 - 30.3 95% C.I.)	(127) 28.0 % (24.8 - 31.4 95% C.I.)
Prevalence of severe underweight **(<-3 z-score)**	(46) 4.9 % (3.3 - 7.1 95% C.I.)	(25) 5.2 % (3.3 - 8.1 95% C.I.)	(21) 4.6 % (2.5 - 8.4 95% C.I.)

Table 172: 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	277	15	5.4	71	25.6	191	69.0	0	0.0
18-29	181	10	5.5	65	35.9	106	58.6	0	0.0
30-41	251	11	4.4	70	27.9	170	67.7	0	0.0
42-53	165	7	4.2	31	18.8	127	77.0	0	0.0
54-59	64	3	4.7	14	21.9	47	73.4	0	0.0
Total	938	46	4.9	251	26.8	641	68.3	0	0.0

Results Tables for NCHS growth reference 1977-Batil Camp

Table 173: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 872	Boys n = 446	Girls n = 426
Prevalence of global malnutrition **(<-2 z-score and/or oedema)**	(64) 7.3 % (5.5 - 9.7 95% C.I.)	(29) 6.5 % (4.4 - 9.6 95% C.I.)	(35) 8.2 % (6.0 - 11.2 95% C.I.)
Prevalence of moderate malnutrition **(<-2 z-score and >=-3 z-score, no oedema)**	(60) 6.9 % (5.1 - 9.3 95% C.I.)	(26) 5.8 % (3.7 - 9.0 95% C.I.)	(34) 8.0 % (5.7 - 11.1 95% C.I.)
Prevalence of severe malnutrition **(<-3 z-score and/or oedema)**	(4) 0.5 % (0.2 - 1.2 95% C.I.)	(3) 0.7 % (0.2 - 2.1 95% C.I.)	(1) 0.2 % (0.0 - 1.7 95% C.I.)

The prevalence of oedema is 0.1 %

Table 174: 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	292	2	0.7	25	8.6	265	90.8	0	0.0
18-29	133	1	0.8	15	11.3	116	87.2	1	0.8
30-41	240	0	0.0	13	5.4	227	94.6	0	0.0
42-53	156	0	0.0	7	4.5	149	95.5	0	0.0
54-59	51	0	0.0	0	0.0	51	100.0	0	0.0
Total	872	3	0.3	60	6.9	808	92.7	1	0.1

Table 175: 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. 3 (0.3 %)	Not severely malnourished No. 869 (99.5 %)

Table 176: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 873	Boys n = 446	Girls n = 427
Prevalence of global malnutrition (< 125 mm and/or oedema)	(55) 6.3 % (4.6 - 8.5 95% C.I.)	(18) 4.0 % (2.5 - 6.4 95% C.I.)	(37) 8.7 % (6.0 - 12.4 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(50) 5.7 % (4.2 - 7.8 95% C.I.)	(17) 3.8 % (2.4 - 6.0 95% C.I.)	(33) 7.7 % (5.4 - 10.9 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(5) 0.6 % (0.2 - 2.1 95% C.I.)	(1) 0.2 % (0.0 - 1.7 95% C.I.)	(4) 0.9 % (0.2 - 4.5 95% C.I.)

Table 177: 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	293	4	1.4	41	14.0	248	84.6	0	0.0
18-29	133	0	0.0	5	3.8	128	96.2	1	0.8
30-41	240	0	0.0	4	1.7	236	98.3	0	0.0
42-53	156	0	0.0	0	0.0	156	100.0	0	0.0
54-59	51	0	0.0	0	0.0	51	100.0	0	0.0
Total	873	4	0.5	50	5.7	819	93.8	1	0.1

Table 178: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 872
Prevalence of global acute malnutrition (<80% and/or oedema)	(35) 4.0 % (3.0 - 5.4 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(33) 3.8 % (2.8 - 5.2 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(2) 0.2 % (0.1 - 0.9 95% C.I.)

Table 179: 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	292	1	0.3	14	4.8	277	94.9	0	0.0
18-29	133	0	0.0	10	7.5	122	91.7	1	0.8
30-41	240	0	0.0	8	3.3	232	96.7	0	0.0
42-53	156	0	0.0	1	0.6	155	99.4	0	0.0
54-59	51	0	0.0	0	0.0	51	100.0	0	0.0
Total	872	1	0.1	33	3.8	837	96.0	1	0.1

Table 180: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 866	Boys n = 446	Girls n = 420
Prevalence of underweight **(<-2 z-score)**	(300) 34.6 % (30.8 - 38.7 95% C.I.)	(161) 36.1 % (30.8 - 41.8 95% C.I.)	(139) 33.1 % (28.0 - 38.7 95% C.I.)
Prevalence of moderate underweight **(<-2 z-score and >=-3 z-score)**	(254) 29.3 % (25.8 - 33.2 95% C.I.)	(137) 30.7 % (25.3 - 36.8 95% C.I.)	(117) 27.9 % (22.9 - 33.5 95% C.I.)
Prevalence of severe underweight **(<-3 z-score)**	(46) 5.3 % (3.9 - 7.2 95% C.I.)	(24) 5.4 % (3.4 - 8.4 95% C.I.)	(22) 5.2 % (3.3 - 8.1 95% C.I.)

Table 181: Prevalence of underweight by age, based on weight-for-age z-scores

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	289	18	6.2	84	29.1	187	64.7	0	0.0
18-29	130	12	9.2	39	30.0	79	60.8	1	0.8
30-41	240	13	5.4	71	29.6	156	65.0	0	0.0
42-53	156	3	1.9	42	26.9	111	71.2	0	0.0
54-59	51	0	0.0	18	35.3	33	64.7	0	0.0
Total	866	46	5.3	254	29.3	566	65.4	1	0.1

Table 182: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 845	Boys n = 430	Girls n = 415
Prevalence of stunting **(<-2 z-score)**	(311) 36.8 % (33.3 - 40.4 95% C.I.)	(163) 37.9 % (33.3 - 42.8 95% C.I.)	(148) 35.7 % (30.7 - 40.9 95% C.I.)
Prevalence of moderate stunting **(<-2 z-score and >=-3 z-score)**	(205) 24.3 % (21.7 - 27.0 95% C.I.)	(108) 25.1 % (21.3 - 29.4 95% C.I.)	(97) 23.4 % (19.7 - 27.5 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(106) 12.5 % (10.1 - 15.5 95% C.I.)	(55) 12.8 % (9.7 - 16.8 95% C.I.)	(51) 12.3 % (9.2 - 16.3 95% C.I.)

Table 183: 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	284	16	5.6	59	20.8	209	73.6
18-29	126	20	15.9	31	24.6	75	59.5
30-41	236	35	14.8	66	28.0	135	57.2
42-53	148	26	17.6	33	22.3	89	60.1
54-59	51	9	17.6	16	31.4	26	51.0
Total	845	106	12.5	205	24.3	534	63.2

Table 184: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z- scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	871	-0.76±0.89	1.40	1	1
Weight-for-Age	866	-1.56±0.95	1.44	1	6
Height-for-Age	845	-1.57±1.19	1.12	0	28

* contains for WHZ and WAZ the children with edema.

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

	All n = 899	Boys n = 463	Girls n = 436
Prevalence of stunting (<-2 z-score)	(266) 29.6 % (26.0 - 33.4 95% C.I.)	(137) 29.6 % (24.8 - 34.8 95% C.I.)	(129) 29.6 % (24.9 - 34.7 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(193) 21.5 % (18.4 - 24.8 95% C.I.)	(99) 21.4 % (16.9 - 26.7 95% C.I.)	(94) 21.6 % (18.5 - 25.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(73) 8.1 % (6.3 - 10.4 95% C.I.)	(38) 8.2 % (5.9 - 11.3 95% C.I.)	(35) 8.0 % (5.3 - 12.0 95% C.I.)

Table 186: 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	266	6	2.3	54	20.3	206	77.4
18-29	172	23	13.4	43	25.0	106	61.6
30-41	240	20	8.3	55	22.9	165	68.8
42-53	159	16	10.1	28	17.6	115	72.3
54-59	62	8	12.9	13	21.0	41	66.1
Total	899	73	8.1	193	21.5	633	70.4

Table 187: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z- scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	942	-0.79±0.89	1.30	0	4
Weight-for-Age	938	-1.43±1.03	1.26	0	8
Height-for-Age	899	-1.33±1.19	1.43	0	47

* contains for WHZ and WAZ the children with edema.

131

Results Tables for NCHS growth reference 1977-Gendrassa Camp

Table 188: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 859	Boys n = 466	Girls n = 393
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(84) 9.8 % (7.9 - 12.1 95% C.I.)	(48) 10.3 % (8.3 - 12.7 95% C.I.)	(36) 9.2 % (6.1 - 13.4 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(77) 9.0 % (7.2 - 11.1 95% C.I.)	(44) 9.4 % (7.5 - 11.9 95% C.I.)	(33) 8.4 % (5.7 - 12.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(7) 0.8 % (0.4 - 1.6 95% C.I.)	(4) 0.9 % (0.3 - 2.2 95% C.I.)	(3) 0.8 % (0.2 - 2.4 95% C.I.)

The prevalence of oedema is 0.0 %

Table 189: 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	281	3	1.1	31	11.0	247	87.9	0	0.0
18-29	175	2	1.1	21	12.0	152	86.9	0	0.0
30-41	224	0	0.0	14	6.3	210	93.8	0	0.0
42-53	128	2	1.6	8	6.3	118	92.2	0	0.0
54-59	51	0	0.0	3	5.9	48	94.1	0	0.0
Total	859	7	0.8	77	9.0	775	90.2	0	0.0

Table 190: 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. 12 (1.4 %)	Not severely malnourished No. 863 (98.6 %)

Table 191: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 875	Boys n = 476	Girls n = 399
Prevalence of global malnutrition (< 125 mm and/or oedema)	(59) 6.7 % (5.3 - 8.5 95% C.I.)	(23) 4.8 % (3.3 - 7.0 95% C.I.)	(36) 9.0 % (6.4 - 12.6 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(45) 5.1 % (3.9 - 6.7 95% C.I.)	(18) 3.8 % (2.4 - 5.8 95% C.I.)	(27) 6.8 % (4.8 - 9.5 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(14) 1.6 % (0.9 - 3.0 95% C.I.)	(5) 1.1 % (0.4 - 2.9 95% C.I.)	(9) 2.3 % (1.1 - 4.8 95% C.I.)

Table 192: 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	292	5	1.7	37	12.7	250	85.6	0	0.0
18-29	180	4	2.2	3	1.7	173	96.1	0	0.0
30-41	224	4	1.8	3	1.3	217	96.9	0	0.0
42-53	128	0	0.0	2	1.6	126	98.4	0	0.0
54-59	51	1	2.0	0	0.0	50	98.0	0	0.0
Total	875	14	1.6	45	5.1	816	93.3	0	0.0

Table 193: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 859
Prevalence of global acute malnutrition (<80% and/or oedema)	(46) 5.4 % (3.9 - 7.3 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(43) 5.0 % (3.7 - 6.7 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(3) 0.3 % (0.1 - 1.1 95% C.I.)

Table 194:   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	281	1	0.4	15	5.3	265	94.3	0	0.0
18-29	175	0	0.0	11	6.3	164	93.7	0	0.0
30-41	224	0	0.0	10	4.5	214	95.5	0	0.0
42-53	128	2	1.6	6	4.7	120	93.8	0	0.0
54-59	51	0	0.0	1	2.0	50	98.0	0	0.0
Total	859	3	0.3	43	5.0	813	94.6	0	0.0

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

	All n = 857	Boys n = 469	Girls n = 388
Prevalence of underweight	(258) 30.1 %	(138) 29.4 %	(120) 30.9 %

(<-2 z-score)	(26.1 - 34.4 95% C.I.)	(25.0 - 34.2 95% C.I.)	(25.0 - 37.5 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(213) 24.9 % (21.3 - 28.7 95% C.I.)	(113) 24.1 % (19.7 - 29.1 95% C.I.)	(100) 25.8 % (20.7 - 31.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(45) 5.3 % (3.8 - 7.3 95% C.I.)	(25) 5.3 % (3.7 - 7.6 95% C.I.)	(20) 5.2 % (3.3 - 8.0 95% C.I.)

Table 196: Prevalence of underweight by age, based on weight-for-age z-scores

Age (mo)	Total no.	Severe underweight (<-3 z-score) No.	%	Moderate underweight (>= -3 and <-2 z-score) No.	%	Normal (> = -2 z score) No.	%	Oedema No.	%
6-17	278	14	5.0	66	23.7	198	71.2	0	0.0
18-29	177	17	9.6	38	21.5	122	68.9	0	0.0
30-41	223	7	3.1	54	24.2	162	72.6	0	0.0
42-53	128	6	4.7	33	25.8	89	69.5	0	0.0
54-59	51	1	2.0	22	43.1	28	54.9	0	0.0
Total	857	45	5.3	213	24.9	599	69.9	0	0.0

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

	All n = 811	Boys n = 444	Girls n = 367
Prevalence of stunting **(<-2 z-score)**	(222) 27.4 % (23.2 - 32.0 95% C.I.)	(128) 28.8 % (23.8 - 34.4 95% C.I.)	(94) 25.6 % (20.7 - 31.3 95% C.I.)
Prevalence of moderate stunting **(<-2 z-score and >=-3 z-score)**	(158) 19.5 % (16.5 - 22.8 95% C.I.)	(92) 20.7 % (16.4 - 25.8 95% C.I.)	(66) 18.0 % (14.4 - 22.2 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(64) 7.9 % (5.7 - 10.9 95% C.I.)	(36) 8.1 % (5.7 - 11.4 95% C.I.)	(28) 7.6 % (4.7 - 12.2 95% C.I.)

Table 198: 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	268	12	4.5	43	16.0	213	79.5
18-29	162	8	4.9	28	17.3	126	77.8
30-41	209	23	11.0	42	20.1	144	68.9
42-53	122	9	7.4	30	24.6	83	68.0
54-59	50	12	24.0	15	30.0	23	46.0
Total	811	64	7.9	158	19.5	589	72.6

Table 199: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z- scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	859	-0.81±0.91	1.05	0	16
Weight-for-Age	857	-1.39±1.08	1.70	0	18
Height-for-Age	811	-1.22±1.27	1.91	0	64

* contains for WHZ and WAZ the children with edema.

Results Tables for NCHS growth reference 1977-Kaya Camp

Table 200: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 935	Boys n = 462	Girls n = 473
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(77) 8.2 % (6.6 - 10.2 95% C.I.)	(38) 8.2 % (6.4 - 10.6 95% C.I.)	(39) 8.2 % (5.6 - 11.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(67) 7.2 % (5.6 - 9.1 95% C.I.)	(32) 6.9 % (5.1 - 9.4 95% C.I.)	(35) 7.4 % (5.1 - 10.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(10) 1.1 % (0.6 - 2.0 95% C.I.)	(6) 1.3 % (0.5 - 3.1 95% C.I.)	(4) 0.8 % (0.3 - 2.3 95% C.I.)

The prevalence of oedema is 0.1 %

Table 201: 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	272	2	0.7	18	6.6	252	92.6	0	0.0
18-29	150	2	1.3	18	12.0	130	86.7	0	0.0
30-41	237	4	1.7	20	8.4	212	89.5	1	0.4
42-53	160	1	0.6	7	4.4	152	95.0	0	0.0
54-59	116	0	0.0	4	3.4	112	96.6	0	0.0
Total	935	9	1.0	67	7.2	858	91.8	1	0.1

Table 202: 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 (1.4 %)	Not severely malnourished No. 932 (98.5 %)

Table 203: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 946	Boys n = 465	Girls n = 481
Prevalence of global malnutrition (< 125 mm and/or oedema)	(75) 7.9 % (6.1 - 10.2 95% C.I.)	(26) 5.6 % (3.8 - 8.1 95% C.I.)	(49) 10.2 % (7.1 - 14.4 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(36) 3.8 % (2.8 - 5.2 95% C.I.)	(11) 2.4 % (1.4 - 4.1 95% C.I.)	(25) 5.2 % (3.4 - 7.9 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(39) 4.1 % (2.9 - 5.9 95% C.I.)	(15) 3.2 % (1.9 - 5.4 95% C.I.)	(24) 5.0 % (2.8 - 8.6 95% C.I.)

Table 204: 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	281	13	4.6	24	8.5	244	86.8	0	0.0
18-29	152	7	4.6	7	4.6	138	90.8	0	0.0
30-41	237	10	4.2	6	2.5	221	93.2	1	0.4
42-53	160	4	2.5	0	0.0	156	97.5	0	0.0
54-59	116	4	3.4	0	0.0	112	96.6	0	0.0
Total	946	38	4.0	37	3.9	871	92.1	1	0.1

Table 205: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 935
Prevalence of global acute malnutrition (<80% and/or oedema)	(48) 5.1 % (3.8 - 6.9 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(43) 4.6 % (3.4 - 6.3 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(5) 0.5 % (0.2 - 1.2 95% C.I.)

Table 206:   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	272	1	0.4	9	3.3	262	96.3	0	0.0
18-29	150	0	0.0	11	7.3	139	92.7	0	0.0
30-41	237	2	0.8	18	7.6	216	91.1	1	0.4
42-53	160	1	0.6	3	1.9	156	97.5	0	0.0
54-59	116	0	0.0	2	1.7	114	98.3	0	0.0
Total	935	4	0.4	43	4.6	887	94.9	1	0.1

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

	All n = 932	Boys n = 463	Girls n = 469
Prevalence of underweight **(<-2 z-score)**	(386) 41.4 % (37.1 - 45.9 95% C.I.)	(196) 42.3 % (37.8 - 46.9 95% C.I.)	(190) 40.5 % (35.0 - 46.2 95% C.I.)
Prevalence of moderate underweight **(<-2 z-score and >=-3 z-score)**	(309) 33.2 % (29.6 - 36.9 95% C.I.)	(159) 34.3 % (30.6 - 38.3 95% C.I.)	(150) 32.0 % (27.3 - 37.1 95% C.I.)
Prevalence of severe underweight **(<-3 z-score)**	(77) 8.3 % (6.2 - 10.9 95% C.I.)	(37) 8.0 % (5.8 - 11.0 95% C.I.)	(40) 8.5 % (6.1 - 11.8 95% C.I.)

Table 208: Prevalence of underweight by age, based on weight-for-age z-scores

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z- score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	272	19	7.0	83	30.5	170	62.5	0	0.0
18-29	151	19	12.6	60	39.7	72	47.7	0	0.0
30-41	234	23	9.8	84	35.9	127	54.3	1	0.4
42-53	159	5	3.1	53	33.3	101	63.5	0	0.0
54-59	116	11	9.5	29	25.0	76	65.5	0	0.0
Total	932	77	8.3	309	33.2	546	58.6	1	0.1

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

	All n = 903	Boys n = 446	Girls n = 457
Prevalence of stunting **(<-2 z-score)**	(396) 43.9 % (40.5 - 47.3 95% C.I.)	(206) 46.2 % (41.8 - 50.6 95% C.I.)	(190) 41.6 % (37.1 - 46.1 95% C.I.)
Prevalence of moderate stunting **(<-2 z-score and >=-3 z-score)**	(253) 28.0 % (25.4 - 30.8 95% C.I.)	(133) 29.8 % (26.1 - 33.9 95% C.I.)	(120) 26.3 % (22.0 - 31.0 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(143) 15.8 % (13.3 - 18.7 95% C.I.)	(73) 16.4 % (12.9 - 20.6 95% C.I.)	(70) 15.3 % (12.4 - 18.8 95% C.I.)

Table 210: 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	270	14	5.2	60	22.2	196	72.6
18-29	142	25	17.6	47	33.1	70	49.3
30-41	227	45	19.8	73	32.2	109	48.0
42-53	154	27	17.5	44	28.6	83	53.9
54-59	110	32	29.1	29	26.4	49	44.5
Total	903	143	15.8	253	28.0	507	56.1

Table 211: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	934	-0.80±0.89	1.00	1	11
Weight-for-Age	932	-1.75±0.99	1.84	1	13
Height-for-Age	903	-1.80±1.20	1.02	0	43

* contains for WHZ and WAZ the children with edema.

9.4. Appendix 4: Map Of the area
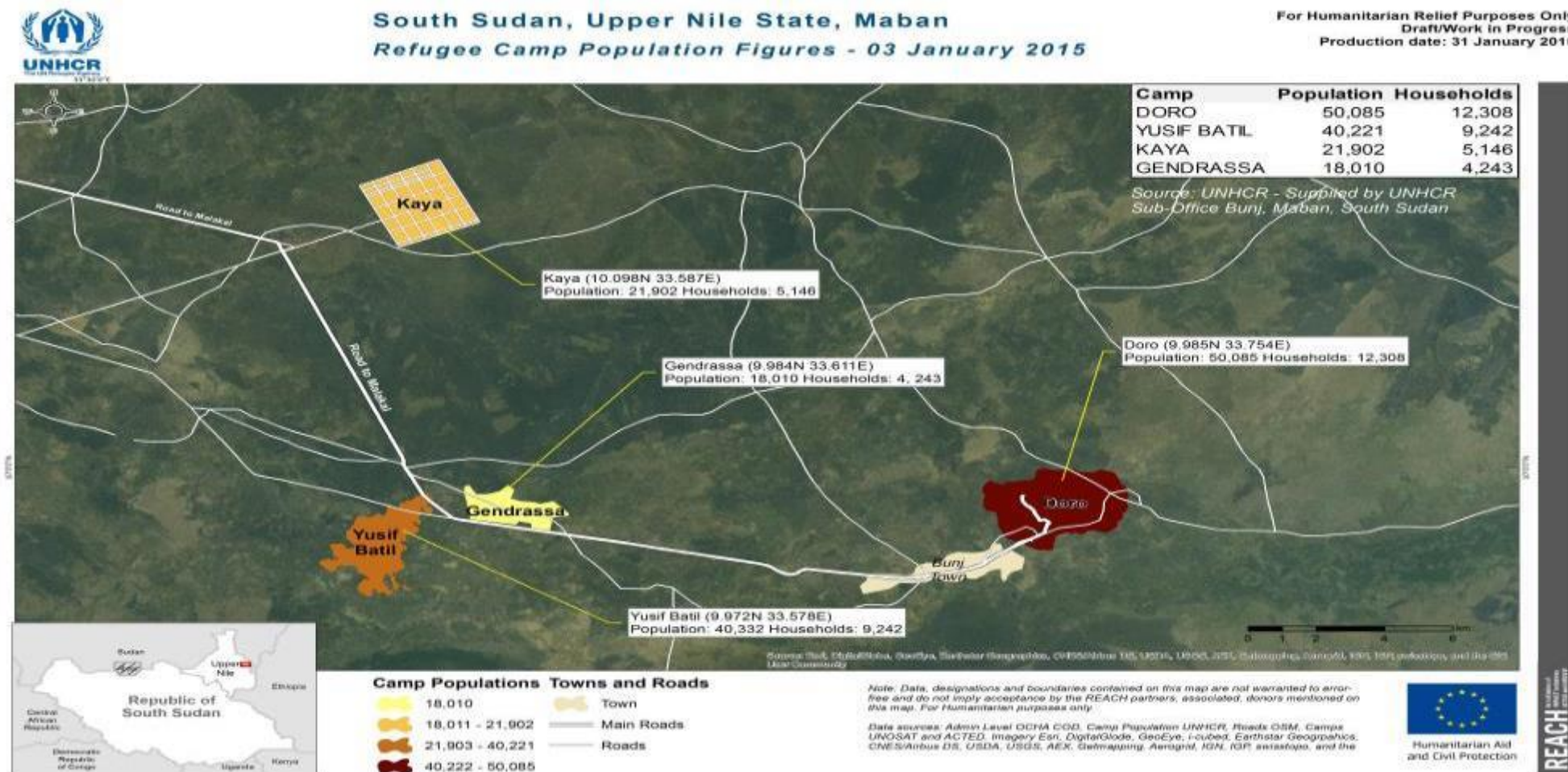
9.5. Appendix 5: UNHCR Standardised Expanded Nutrition Survey (SENS) Questionnaire	المفوضية الموحد مسح التغذية الموسعة (SENS) استبيان

Greeting and reading of rights: THIS STATEMENT IS TO BE READ TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSE BEFORE THE INTERVIEW. DEFINE A HOUSEHOLD AS A GROUP OF PEOPLE WHO LIVE TOGETHER AND ROUTINELY EAT OUT OF SAME POT. DEFINE HEAD OF HOUSEHOLD AS MEMBER OF THE FAMILY WHO MANAGES THE FAMILY RESOURCES AND IS THE FINAL DECISION MAKER IN THE HOUSE.	**تحية وقراءة من الحقوق** هذا البيان هو أن تقرا قبل المقابلة لربة الاسرة أو إذا ما غاب أو عضو آخر البالغين من البيت.تعريف سكان لبيت مجموعة من الناس الذين يعيشون معا ويأكلون بشكل روتيني فى قدر او (هال) واحد تعريف مسؤول اوربة البيت فرد من أفراد الأسرة الذي يدير موارد الأسرة وهو صانع القرار النهائي فى البيت:

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

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

Thank you.

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

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

شكرا لك

SENS- MORTALITY QUESTIONNAIRE (One questionnaire per HH)

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

#	COL11مربع	COL2	COL3	COL4	COL5	COL6
	NAME اسم	SEX نوع /زكر/انثى **M/F**	AGE IF ≥5 YRS سنة5> **UNIT:** وحدة **YRS**	AGE IF < 5 YRS سنة5>ازا سنة **SPECIFY UNIT:** حدد الوحدة **DAYS / MONTHS / YRS** يوم /شهر/سنة	BORN BETWEEN **LAST 3 MONTHS** AND TODAY تم ميلاد فى بين واليوم (ازكر اليوم) **(Y/N)**	JOINED HOUSEHOLD BETWEEN END **(3 MONTHS)** AND TODAY **بيت مزدوزة بين اخر و اليوم(Y/N)**
A.	**LIST ALL MEMBERS WHO ARE CURRENTLY LIVING IN THIS HOUSEHOLD AND EATING FROM THE SAME POT**(قدر)سجل كل اعضاء الزين يسكنون الان فى هزى البيت وياكلون فى نفس هلا					
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
B.	**DID ANY MEMBERS OF THE HOUSEHOLD LEAVE BETWEEN LAST 3 MONTHS AND TODAY? IF SO LIST THEM**هل اعضاء البيت يسكن بين نهياية (ازكر اليوم) و اليوم ازا نعم سجلهم					
01						
02						
03						

144

C.	**DID ANY MEMBERS OF THE HOUSEHOLD DIE BETWEEN LAST 3 MONTHS AND TODAY? IF SO LIST THEM** هل العضاء البيت يموتون بين نهاية(ازكر اليوم)واليوم؟ازا نعم سجلهم						
01							
02							

MORTALITY SUMMARY (for supervisor only) (خلاصة الوفيات (خاص لمشرف

			TOTAL الجملة		Under 5 تحت 5	
1.	*Members present now* يقدم الاعضاء الان	**A.** COL 1				
2.	*Joined household between last 3 months) and today* بين الانضمام الى العائلة قبل 3 شهور و اليوم	**A.** COL 6				
3.	*Members that left the household between last 3 months) and today* الاعضاء الذين تركوا العائلة قبل 3 شهور و اليوم	**B.** COL 1				
4.	*Births between last 3 months) and today* بين المواليد قبل 3 شهور و اليوم	**A, B.** COL 5				
5.	*Deaths between last 3 months) and today* بين الاموات قبل 3 شهور و اليوم	**C.** COL 1				

NB:

- Household members are defined as members who are living together *in the camp* and who are eating from the same cooking الاعضاء البيت هم الزين يسكنون فى معسكرة وياكلون فى نفس اكل
- Members of the household present now are the members who slept in the household last night. Members of the الاعضاء البيت الموجدين الان و نامو فى البيت فى الليل الماضى وايضا الاضاء household who slept here last night but who are away today to the market/elsewhere and will البيت الزين نامو فى البيت فى ليل الماضى وزهبوا الى شوق وسوف يعودون قبل نهية اليوم يمكن تسجيل ايضا 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 الزى تم ميلادة و مات خلال فترة زكر يمكن تسجلة كلا ميت

145

SENS CHILDREN 6-59 QUESTIONNAIRE

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

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

Date of interview (dd/mm/yyyy) :التاريخ المقابلة يوم/شهر/سنة			Cluster Number (*in cluster survey only*) رقم المجموع		Team numberرقم الفريق
|___|___|/|___|___|/|___|___|			|___|___|		|___|

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11	CH12	CH13	CH14	CH 15	CH16
ID البطاقة	**HH** ربة البيت	**Consent** الموفقة **given** 1=yes نعم 2=no لا 3=absent غأب	**Sex** نوع (m/f) زكر/انثى	**Birthdate** * تاريخ الميلاد dd/mm/yyyy يوم/شهر/سنة	**Age*** سنة (شهور) (months)	**Weight** وزن(kg) ±100g 100جرام- +	**Height** طول (سنتمتر) cm) ±0.1cm	**Oedema** وزمة الامعاء (y/n)	**MUAC** مقياس يد الاعلى (mm)	**Child enrolled** الطفل المسجل 1=SFP الكل الاضافى 2=TFP اللعلاج 3=None لاثيمئ	**Measles** الحصبة 1=yes card نعم لى بطاقة 2=yes recall نعم ازكر 3=no or don't know لا عرف	**Vit. A in past 6** فيتامين ا فى **months** فتر 6شهور أ (show capsule) 1=yes card نعم لى بطاقة 2=yes recall نعم ازكر 3=no or don't knowلا اعرف	**Diarrhoea in past 2 weeks** اسهلات خلال فترة 2اسبوع الماضية 1=yes نعم 2=no لا 8=DK لا اعرف	**DPT3/ Penta 3** 1=yes card ذ عم بـ طاقة لـ ى 2=yes recallذ عم ازكر 3=no or don't know لا عرف	**Hb** (*g/dL*)
01				/ /											
02				/ /											
03				/ /											
04				/ /											
05				/ /											
06				/ /											
07				/ /											

146

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.

الالوائائق فية التاريخ/شهر/سنة الميلاد ازا يوجد سجل الوائائق الرسمية ولا تسجل حتى لوالام يتزكر التاريغ الميلاد اترك خالية ازا الوئائق رسمية غير موجود.وازا لا توجد وثائق الميلاد خمن حسب حواديث المحلى. وازا سجل موجود

التاريغ ا سجل

Annex -SENS IYCF questionnaire

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

	7I. Any other water-based liquids (kastar), Serilak): for example sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual fluids ازكر بعض من السوائل مثل مشروبات غازية و مشرونبات الشاى خالى من لين مشروبات الحلوة مشروبات عشبية	7I…………………….…………1 2 8	
IF8	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? امس خلال اليوم او اليل هل (اسم) اكلت اكل صلب ام شبة صلب (لين عصبى)	Yesنعم………………..….…1 No لا ………………………....…2 DK… لا اعرف……………………....8	|___|

SECTION IF3

IF9	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night? هل (اسم) شرب اى شئ من زجاج لة حلمةا امس خلال النها او اليل	Yesنعم................................1 No لا ………………………….2 لا اعرف DK ………………………....8	|___|

SECTION IF4

IF10	Is child aged 6-23 months? هل طفلك عمره 6-23 شهر REFER TO IF2	Yes نعم ……………….…....……1 Noلا …………………………2	|___| **IF ANSWER IS 2 STOP NOW** ازا اللجا بة 2 قف الان
IF11	Now I would like to ask you about some particular foods [NAME] may eat. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] consume any of the following? الان اريد عن اسا ل بعض غزاء ت (اسم)توكل طفلك لة هزى المواد حتى لو مخلوت مع اغزية اخرى خلال امس اليل او نهار (اسم) يا كل التا لي: ASK ABOUT EVERY ITEM. IF ITEM WAS GIVEN,CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE. اسا ل كل المواد ازا المواد قد ضع دائرة (1)ازا المواداعطى دائرة (2)و ازا لم تعرف ضع دائرة (8) كل خطوط عن تكن لة رمز Yes No DK		
---	---	---
IF12	11A. **Flesh foods** for example: beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart غزاء لحمى (سجل كل لحم العا مة مثل سمك دجاج وكبد)على سبيل مثا ل لحم بقر ضا ن بط ارنب لحم خنزير كبد كلية 11B CSB+ الغزاء المخلوتة وقوى وسجل الموجود فى المنطقة Premix 11C. **FBF++** : for example CSB++ ا غزاء ال قوى م تل زرة وف ول صويا 11D. **RUTF** : for example Plumpy'Nut® (SHOW SACHET) ا لجاهةوة ي س تعامل ف ى ال علاج سجل هةى ال غزذ ية المحلى ال غزاء 11E. **RUSF** : for example Plumpy'Sup® (SHOW SACHET) كل الموجو ال محلى دالا ضاف ى سجل هةة ال ال جاهةة 11G. Infant formula: for example Libto Mama . ازكر ب عض من هةة ا سماء ااا قوى ل و صد فة ال ط فل ال ر ضى ال غزذ ية ال حدي دى 11H. **List any *iron fortified* solid, semi-solid or soft foods designed specifically for infants and young children available in the local setting that are different than distributed commodities. سجل ل ين ال م صنع ل لاط فال والاط فال ي ر ضى ال موجون ف ى ال م نط قة ولة ف رق من ال غزي ب عض ال غزذ ي ش بة صلب و صلب او**	11A…………………………1 2 8 11B…………………………1 2 8 11C……………………….....1 2 8 11D…………………………1 2 8 11E…………………………1 2 8 11F……………………………1 2 8 11G…..………………………1 2 8 11H…………………….....1 2 8	

SENS QUESTIONNAIRE Women 15-49 years
15-49 النـ ساء

Date of interview (dd/mm/yyyy): تاريـ غ الـمـ قابـ ل |____|____|/|____|____|/|____|____|____|____|		Cluster Number (*in cluster survey only*) ذمرة الـمجموع |___|___|		Team number الـ فريـ ق رغم |___|الـ

WM1	WM2	WM3	WM4	WM5	WM6	WM7	WM8
ID الـ بطا قـ ة	**HH** ربـ ة الـ بـ يت	**Consent given** الـ قـ بول اعطى 1=yes نعم 2=no لا 3=absent الغائب	**Age** العمر (السنة) (years)	**Are you pregnant?** هل انـ ت حامل؟ 1=yes نـ عم 2=no لا (GO TO WM 8) 8=DK لااعـرف (GO TO WM 8)	**Are you currently** **enrolled** **in the ANC programme?** هل سجلت فى برنامج المؤتمر الوطنى الافريقى 1=yes 2=no (If no, STOP) 8=DK (If DK, STOP)	**Are you currently** **receiving** **iron-folate pills (*SHOW PILL*)?** تستلم حبوب حامض الفوليك الحديدية حاليا 1=yes (STOP NOW) قف الان 2=no (STOP NOW) قف الان 8=DK (STOP NOW) قف الان	**Hbقر الـدم فـ** (g/L or g/dL) **(Only for non-pregnant women)** فقط للنساء غير الحبلى
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							

150

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

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

الرقم السرى .... رقم المربع: ....

الرقم المتسلسل Cluster Number (*in cluster survey only*)	تاريخ المعاينة Date of interview (dd/mm/yyyy)
|___|___|	|___|___|/|___|___|/|___|___||___|___|
HH Number عدد الاسرة	**Team Number** رقم الفريق
|___|___|___|	|___|

No	QUESTION السؤال	ANSWER CODES رمز الاجابة	
SECTION WS1 القسم			
WS1	How many people live in this household and slept here last night? كم عدد الافراد الذين قضوا هذه الليلة هنا ؟		|___|___|
WS2	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 هى مصادر مياه الشرب لافراد لاسرنك ؟ DO NOT READ THE ANSWERS لا تقرأ الأجابة ؟ SELECT ONE ONLY أختر ا	Piped water .... 01 الماء المزمر Public tap/standpipe .... 02 الحنفية العامة Tubewell/borehole (& pump) .... 03 Protected dug well ....04 الحلمة المحمية Protected spring .... 05 الربيع المحمى Rain water collection............06 مياه الامطار UNHCR Tanker ....07 ناقلة الماء Unprotected spring ...... 08 الحلمة الغير محمية Unprotected dug well.09 الربيعى غير المحمى Small water vendor .... 10 ناقلة الماء الصغير Tanker truck ....11 ناقلة الماء الكبير Bottled water .... 12 الماء المعبا Surface water (e.g. river, pond) 13 الماء السطحى Other .... 96 اشياء اخرى Don't know ....98 لا اعلم	|___|___|
WS3	Are you satisfied with the water supply? هل انت مستفيد من خدمات المياه ؟ THIS RELATES TO THE DRINKING WATER SUPPLY هذا طريقة لاستخدام تجهيز المياه الصالحة للشرب	Yes .... 1 نعم No .... 2 لا Partially... 3 جزئيا Don't know ....8 لا اعلم	|___| **IF ANSWER IS 1, 3 OR 8 GO TO WS5**
WS4	What is the *main* reason you are not satisfied with the water supply? ما هى الاسباب ؟	Not enough................................01 لا يكفى Long waiting queue ......02 انتظار طويل للصف Long distance.........................03المسافة بعيدة Irregular supply ....04 التجهيز شاذ	

	التى تجعلك لا تستفيد من خدمات المياه ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. كيف يتم تحضير السكن قبل المسح الميدانى DO NOT READ THE ANSWERS لا تقرا الاجابة SELECT ONE ONLY اختر اجابة واحدة فقط	Bad taste.........................05 الطعم السيئ Water too warm..................06 الماء الساخن Bad quality ....07 النوعية سيئة Have to pay.........................08 يجب ان تدفع Other ....96 اشياء اخرى Don't know ....98 لا اعلم	|__|__|
WS5	What kind of toilet facility does this household use? اى نوع من المراحيض التى يتم استخدامها فى البيت ؟ ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. WHEN ADAPTING THE LIST, KEEP THE ORIGINAL ANSWER CODES AND DO NOT CHANGE. بين قائمة السكن قبل المسح الميدانى و عندما يبين القائمة يبقى الاجابة الاصح و لا يتغير DO NOT READ THE ANSWERS لا تقرأ الاجابة SELECT ONE ONLY اختر اجابة واحدة فقط	تدفق نظام البلاعة Flush to piped sewer system01 الزمر - تدفق نظام النتك02...... Flush to septic system – صب الاحمرار التحريض03.. Pour-flush to pit الحفرة VIP/simple pit latrine with floor/slab04 فى الارض Composting/dry latrine ....05 التسميد تدفق اة صب Flush or pour-flush elsewhere06 فى مكان اخر حفرة مرحاض Pit latrine without floor/slab07 بدون ارضية صيانة سريعة Service or bucket latrine ......08 للمرحاض المرحاض معلق09......... Hanging toilet/latrine لا وسيلة , No facility, field, bush, plastic bag10 حقل , كيس بلاستيكى	|__|__| IF ANSWER IS 10 GO TO WS7
WS6	How many *households* share this toilet? كم عدد الاسر الذين يشاركون فى مرحاض واحد ؟ THIS INCLUDES THE SURVEYED HOUSEHOLD هذا من ضمن العائلة الممسوحة	RECORD NUMBER OF HOUSEHOLDS IF KNOWN (RECORD 96 IF PUBLIC TOILET OR 98 IF UNKNOWN) عدد قياسى من العوائل المعروفة (يتم تسجيل 96 للمراحيض العامة و 98 للمجهولين)	|__|__| Households
		SUPERVISOR SELECT ONE ONLY يختار المشرف واحد فقط لا اشتراك Not shared (**1 HH**)........................1 مشاركة العائلة Shared family (**2 HH**) ....2 المرحاض العام Communal toilet (**3 HH or more**)3 المرحاض Public toilet (**in market or clinic etc.**)4 العمومى لا اعلم Don't know 8	|__|
WS7	Do you have children under three years old ? هل لديك اطفال تحت الاعمار 3 سنة	نعم Yes ....1 لا No 2	|__| IF ANSWER IS 2 GO TO WS9
WS8	The last time [NAME OF YOUNGEST CHILD] passed stools, what was done to dispose of	Child used toilet/latrine .... 01 الطفل الذى استخدم	

the stools?اخيرا أسم أصغر طفل **المقاعد المعبورة ماذا عمل للتخلص من المقاعد ؟** DO NOT READ THE ANSWERSلا تقرأ الاجابات SELECT ONE ONLYاختر واحد فقط	Put/rinsed into toilet or latrine .... 02 ضع الشفط للمرحاض Buried ....المدفون03 Thrown into garbage ....04رميت الى القمامة Put/rinsed into drain or ditch................ 05 ضع شفط فى البلاعة او الخندق Left in the open ....ترك مفنوحا06 Other .... 96 اشياء اخرى Don't know ....98لا اعلم	|__|__|__|

SECTION WS2
Observation Based Questions (*done after the initial questions to ensure the flow of the interview is not broken*)
أسند الملاحظة و الاسئلة التى عملن بعد الاسئلة الاولية للناكد من نجاح المقابلة او فشلها

No	OBSERVATION / QUESTION الاسئلة / الاراء	ANSWER الاجابة			
WS9	CALCULATE THE TOTAL AMOUNT OF WATER USED BY THE HOUSEHOLD PER DAY أحسب الكمية الكلية للماء المستعملة من قبل العائلة فى اليوم THIS RELATES TO ALL SOURCES OF WATER (DRINKING WATER AND NON-DRINKING WATER SOURCES) هذا لتنقية مصادرالمياه الصالحة للشرب و الغير صالح ليكون صالح للشرب	Please show me the containers you used yesterday for collecting water من فضلك اعطينا الحفر التى يتم جمع الماء فيها ASSIGN A NUMBER TO EACH CONTAINER التى تم تخصيصها لكل حفرة	Capacity in litres سعة الحفرة للحمام	Number of journeys made with each container عدد المرات او الرحلات التى استرقها كل حفرة	Total litres جملة الحمامات **SUPERVISOR TO COMPLETE HAND CALCULATION** للمشرفين
		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 canباقة	5 L	1 x	5
		5 E.g. bucketجردل	50 L	1 x	50
		6			
		7			
		9			
		Total liters used by household الكمية التى يستخدمها الاسرة من الماء			110
WS10	Please show me where you store your drinking water. من فضلك ارشدنا للمكان الذى تخزن فيها مياه الشرب . ARE THE DRINKING WATER CONTAINERS COVERED OR NARROW NECKED? هل حاويات مياه الشرب تغطى او هى ضيقة	All are ....1 لل عامة Some are .... 2 منها بعض None are ....3شيئ لا			|___|

MOSQUITO NET COVERAGE: 1 questionnaire per household (THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER

153

تغطية ناموسية لكل عائلة : هذا الاستقناء سيدار الى رئيس العائلة او .ADULT MEMBER OF THE HOUSEHOLD)
عضو بالغ من العائلة

Section code / number:_____**Block code / number**: _____**Consent** : yes / no / absent
الرقم السرى للقسم : .... رقم الربع:.......................................

Cluster Number (*in cluster survey only*)الرقم المتسلسل	Date of interview (dd/mm/yyyy) تاريخ المعاينة
|___|___|	|___|___|/|___|___|/|___|___||___|___|
HH Numberعدد العائلة	**Team Number** رقم الفريق
|___|___|___|	|___|

No	QUESTION السؤال			ANSWER CODES الاجابات السرية	
SECTION TN1					
TN 1	How many people live in this household and slept here last night? كم عدد الافراد فى هذه العائلة و الذين نامون هنا الليلة ؟ INSERT NUMBER العدد الملحق				|___|___|
TN 2	How many children 0-59 months live in this household and slept here last night? كم عدد الاطفال الاحياء من 0 -59 شهرفى هذه العائلة و الذين ناموا هذه الليلة ؟ INSERT NUMBER العدد الملحق				|___|___|
TN 3	How many pregnant women live in this household and slept here last night? كم عدد النساء الحبلى فى هذه العائلة و نمن هذه الليلة ؟ INSERT NUMBER العدد الملحق				|___|___|
TN 4	Did you have your house sprayed with insecticide in an indoor residual spray campaign in the past |___| months? (OPTIONAL) هل تم رش منزلك بمبيد حشرات فى الحملة الماضية للرش ؟			Yes....................................1 نعم No.......................................2 لا	|___|
TN 5	Do you have mosquito nets in this household that can be used while sleeping? هل لديك ناموسيات تستعملها while sleeping? فى الليل مع العائلة ؟			Yes....................................1 نعم No.......................................2 لا	|___| **IF ANSWER IS 2 STOP NOW**
TN 6	How many of these mosquito nets that can be used while sleeping does your household have? كم عدد النامسيات التى يمكن ان تستعملها العائلة اثناء النوم فى الليل ؟ INSERT NUMBER العدد الملحق			IF MORE THAN 4 NETS, ENTER THE NUMBER AND USE ADDITIONAL NET QUESTIONNAIRE SHEETS ENTERING THE NUMBER OF THE NETS SEQUENTIALLY AT THE TOP. اذا اكثر من 4 شبكات التى تدخل فيها الشبكات عدد فى القمة	|___| Nets
TN 7	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD. IF NETS ARE NOT OBSERVED → CORRECT TN6 ANSWER اسال المستجيب لتشويفك TNصحيح الشبكة فى العائلة اذا شبكات	NET #|___|	NET #|___|	NET #|___|	NET #|___|

154

	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 شيكة على البطاقة , اذا تجد اى بطاقة او غير صالح للقراءة , لا يعرف				
TN 9	**For surveyor/supervisor only (not to be done during interview):** للمساح و المشرف فقط , اثناء المعاينة WHAT TYPE OF NET IS THIS? BASED ON THE TAG INDICATE IF THIS IS A LLIN OR OTHER TYPE OF NET OR DK. اى نوع هذه الشبكة ؟ و ما نوع المستند للبطاقة و الشبكة اوDK	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 و المشرف فقط اثناء المعاينة RECORD THE TOTAL NUMBER OF LLINs IN HOUSEHOLD BY COUNTING THE NUMBER OF '1' IN TN9. **سجل العددى الكلى ل فى العائلة بحساب 1 فى 9**				|___| LLINs

SECTION TN2

Line no	Household members افراد الاسرة	Sex النوع	Age العمر	Pregnancy status وضع الحمل	Slept under net الذين ناموا تحت الناموسية	Which net اى عينة من الشبكة	Type of net نوع الشبكة

#	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 اعطيبى اسماء افراد الاسرة الذين ناموا هنا بالامس	Sex النوع m/f ذكر/ انثى	Age العمر Years السنة	FOR WOMEN 15-49 YEARS, للنساء 15 – 45 سنة ASK: اسأل الاسم Is (NAME) currently pregnant? (CIRCLE NOT APPLICABLE OR N/A'99' IF FEMALE <15->49 YEARS OR MALE) الحبلى حاليا , دائرة لا ينطبق او انثى من 15 – 45 سنة او ذكور Yes No/DK N/A	Did (NAME) sleep under a net last night? الاسماء الذين ناموا بالناموسيات ليلة الامس Yes No/DK نعم او لا	ASK THE RESPONDENT TO PHYSICALLY IDENTIFY WHICH OF THE OBSERVED NETS THEY SLEPT UNDER. WRITE THE NUMBER CORRESPONDING TO THE NET THEY USED. أسال المسؤل شخصيا و لاحظ الذين ناموا بالناموسيات , ثم أكتب اسماء الذين استخدموا الناموسيات	**For surveyor/ supervisor only:** للمساح . و المشرف فقط BASED ON THE OBSERVED NET BRANDNAME RECORDED (TN8), INDICATE IF IT IS AN LLIN OR OTHER / DON'T KNOW (DK). مستندة يعلامة تجارية الصافية المسجل يشار اليه (TN8)بالعلامة 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 الناموسيات (للمساح المشرف فقط , ان لا يكون معمول اثناء المقابلة

	Total household members عدد افراد الاسرة		Total<5 الجملة		Total Pregnant عدد الحوامل	
Slept under a	Count the number	**TN11**	For children < 5 للاطفال اعمار 5 سنة	**TN13**	For pregnant women (COL4 is '1'), count	**TN15**

156

net of any type الذين نامو تحت الناموسيات او اى شئ	of '1' in COL5 احسب العدد من	|___|___|	(COL3 is '<5'), count the number of '1' in COL5 احسب العدد	|___|___|	the number of '1' in COL5 للامهات الحوامل من 1 الى 4 احسب العدد من 1 الى 5	|___|___|
Slept under an LLIN نام تحت	Count the number of '1' in COL7 احسب عدد من	**TN12** |___|___|	For children <5 للاطفال(COL3 is '<5'), count the number of '1' in COL7 احسب العدد من COL7	**TN14** |___|___|	For pregnant women للامهات الحوامل احسب العدد (COL4 is '1'), count the number of '1' in COL7	**TN16** |___|___|

157