Standardised Expanded Nutrition Survey (SENS)

FINAL REPORT

(Doro, Gendrassa, Kaya, Yusuf Batil refugee camps, Upper Nile State, Maban County, Bunj, South Sudan)

Survey conducted: October/November 2016

Report Finalised: February 2017

UNHCR
The UN Refugee Agency

IN COLLABORATION WITH

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

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ACKNOWLEDGMENTS

UNHCR commissioned and coordinated the nutrition surveys in Maban camps (Doro, Gendrassa, Kaya and Yusuf Batil) surveys with the support of **WFP, UNICEF, IMC, MEDAIR, SP, MSFB, RI, and CHD.** We particularly acknowledge the valuable contributions made by those who dedicated their time and energy to preparation, training facilitation, and data collection supervision: **Mella Taban** (WFP), **Ester Vincent Mogga** (UNICEF), **Alice Kiplangat**, **Rose Jelly, Ladu Michael**, **Michael Muki Gordon** (IMC), **Everlyne OWII and Isaac Kabazzi** (SP), **Ella GLASS**, (MEDAIR), and **Katrien Jenssen** (MSFB). Thanks to RI and the Country Health Department for their remote support.

We would also extend our sincere thanks and appreciation to **UNHCR Sub Office in Bunj,** specifically to **John Abe Kiri** (Senior Nutrition Associate) and **Joseph John Chol JOSEPH** (Senior Health Associate) for their key roles in co-organizing and field supervision of this survey; **Mathias NTAWIHA** (WASH Officer), **Joseph WANI** (WASH Assistant) and Dr**. Fikru LAMU** (Public Health Officer) for their technical inputs. **Antonius KAMERIKA** Programme Officer), **Joseph Okony AJANG** (Assistant Programme Officer), **Juwah KOFFI TETEH** (Admin Officer), **Miller REINECKE** (Admin/Finance Officer and **Robert INYANI (Senior Admin / Finance Assistant)** for operational support. Our thanks also goes to **Whycliffe SONGWA,** Head of Sub Office Bunj, for his overall guidance and support.

We would also thank **Etel Godwill FAGBOHOUN,** UNHCR Nutrition and Food Security Officer-Bunj for leading, supervising the survey, and drafting the report; **Dr Gebrewold Petros Yohannes,** UNHCR Senior Public Health Officer- Juba and **Terry Theuri,** UNHCR Nutrition and Food Security Officer- Juba for their technical input, overall guidance, and reviewing the report. Thanks to **Mustapha Sebit** (HIS Officer-Juba) for HIS data support. Our appreciation also goes to the UNHCR Senior Management in Juba for the overall guidance and support.

Finally, we thank members of the **refugee population** for consenting to participate in the survey.

ACRONYMS AND ABBREVIATIONS

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

EXECUTIVE SUMMARY

Maban County is located in Upper Nile State in the North East of the Republic of South Sudan (RoSS). The refugee caseload is composed of Sudanese fleeing from the conflict in Blue Nile State, residing in four camps: Doro, Gendrassa, Kaya (previously Jamam) and Yusuf Batil. 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 31st October to November 19th 2016. United Nations High Commissioner for Refugees (UNHCR) coordinanted the survey in collaboration with the World Food Programme (WFP), The United Nation Children's Fund (UNICEF), International Medical Corps (IMC), Samaritan's Purse (SP), MEDAIR and Relief International (RI). Medecin sans Frontiere –Belgium (MSFB) provided support in terms of logistics and nutrition supplies.

Objectives:

- To determine the prevalence of acute malnutrition in children aged 6-59 months.
- To determine the prevalence of stunting in children aged 6-59 months.
- To determine the coverage of measles vaccination among children aged 9-59 months.
- To determine the coverage of PENTA 3 vaccination
- To determine the coverage of vitamin A supplementation in the last 6 months among children aged 6-59 months.
- To assess the two-week period prevalence of diarrhoea among children aged 6- 59 months.
- To measure the prevalence of anaemia in children aged 6-59 months and in women of reproductive age between 15-49 years (non-pregnant).
- To investigate IYCF practices among children aged 0-23 months.
- To determine the population's access to, and use of, improved water, sanitation and hygiene facilities.
- To determine the ownership of mosquito nets (all types and LLINs) in households.
- To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women.

- To establish recommendations on actions to be taken to address the nutrition situation in Maban refugee locations.

- To determine the coverage of therapeutic feeding and targeted supplementary feeding programmes for children 6-59 months

- To determine enrolment into Antenatal Care and coverage of iron-folic acid supplementation in pregnant women

- To determine the household coverage of Indoor Residual Spraying

Methodology

The survey was conducted according to the UNHCR Standardised Expanded Nutrition Survey (SENS) version 2, 2013 guidelines and the Standardised Monitoring and Assessments of Relief and Transitions (SMART) guidelines, see www.sens.unhcr.org . 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 version July 9, 2015 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, average household size, estimated Global Acute Malnutrition (GAM) prevalence, desired precision, design effect. As a result, 462 households in Doro, 357 households in Gendrassa, 557 households in Kaya and 389 households in Yusuf Batil 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 households;
- Infant and Young Child Feeding (IYCF); targeting all children 0 to 23 months in all the sampled households;
- Anaemia; targeting all children 6 to 59 months in all sampled households and all non-pregnant women 15 to 49 years in every other sampled households;
- Mosquito net coverage; targeting every other sampled households; and
- Water Sanitation and Hygiene (WASH) promotion; targeting all sampled households

Data was collected using Open Data Kit (ODK) mobile phone technology by ten teams of four members each. Data collection was carried out concurrently in two camps at a time.

RESULTS

Table 2: Summary of Key Findings

SURVEYED CAMPS	DORO	YUSUF BATIL	GENDRASSA	KAYA	Classification of public health significance or target (where applicable)
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	
CHILDREN 6-59 months % (95% CI)					
Acute Malnutrition (WHO 2006 Growth Standards)					
Global Acute Malnutrition (GAM)	**12.5 (10.0 - 15.3)**	**9.6 (7.0-13.0)**	**7.5 (5.3-10.6)**	**12.5 (10.0 – 15.5)**	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	**10.1 (7.8 - 13.1)**	**8.8 (6.6-11.8)**	**6.5 (4.2-9.9)**	**10.8 (8.5 – 13.7)**	
Severe Acute Malnutrition (SAM)	**2.3 (1.3 - 4.3)**	**0.8 (0.3-2.0)**	**1.0 (0.4-2.9)**	**1.7 (0.9 – 3.0)**	
Oedema	**0.0**	**0.0**	**0.0**	**0.0**	
Mid Upper Arm Circumference (MUAC)					
MUAC <125mm and/or oedema	**4.1 (2.4-7.0)**	**3.8 (2.5-5.7)**	**4.3 (2.6-7.1)**	**4.6 (2.8-7.3)**	
MUAC 115-124 mm	**3.8 (2.2-6.4)**	**3.4 (2.1 -5.3)**	**4.1 (2.5-6.8)**	**4.4 (2.7-7.1)**	
MUAC <115 mm and/or oedema	**0.4 (0.1 - 1.5)**	**0.4 (0.1 -1.5)**	**0.2 (0.0-1.6)**	**0.2 (0.0 - 1.4)**	

Stunting (WHO 2006 Growth Standards)					
Total Stunting	**41.7 (36.4-47.2)**	**63.8 (56.9-70.2)**	**50.6 (46.2-55.1)**	**65.0 (61.4 – 68.5)**	Critical if ≥ 40%
Severe Stunting	**15.9 (12.7-19.7)**	**33.3 (26.8-40.4)**	**20.7 (16.6-25.6)**	**29.3 (24.5 – 34.5)**	
Programme coverage					
Measles vaccination with card or recall (9-59 months)	**96.3 (93.8-98.7)**	**96.4 (94.2-98.5)**	**93.7 (94.1-99.2)**	**96.4 (94.4-98.3)**	Target of ≥ 95%
Vitamin A supplementation within past 6 months with card or recall	**97.3 (95.0-99.6)**	**91.3 (86.8-96.8)**	**97.3 (95.5-99.1)**	**96.5 (94.3-98.6)**	Target of ≥ 90%
Programme coverage TFP (enrolment of SAM)	**4.5 (0-14.0)**	**10.0 (0– 34.7)**	**33.3 (12.5-79.2)**	**7.1 (8.5-22.8)**	Targetof >90%
Programme coverage TSFP (enrolment of MAM)	**5.0 (0-10.6)**	**16.0 (5.0 -27.1)**	**23.3 (6.7-39.7)**	**16.4 (5.7-27.1)**	Target of >90%
Diarrhoea					
Diarrhoea in last 2 weeks	**20.1 (12.6-27.6)**	**5.3 (1.8-8.6)**	**14.0 (7.3-20.6)**	**16.7 (9.7-23.5)**	
Anaemia Children 6-59 months					
Total Anaemia (Hb <11 g/dl)	**48.7 (41.4-55.9)**	**48.0 (44.0-52.0)**	**51.8 (45.8-57.8)**	**54.0 (47.9.-60.2)**	High if ≥ 40%
Mild (Hb 10-10.9 g/dl)	**28.5 (23.2-33.8)**	**28.3 (25.5-32.1)**	**26.5 (22.1-30.9)**	**29.7 (25.4-33.8)**	
Moderate (Hb 7-9.9 g/dl)	**19.9 (15.2-24.6)**	**18.9 (15.0-22.8)**	**24.5 (19.2-29.7)**	**23.4 (19.7-27.6)**	
Severe (Hb<7 g/dl)	**0.2 (0.0-0.5)**	**0.7 (0.0-1.4)**	**0.8 (0.0-1.7)**	**0.9 (0.0-1.8)**	
CHILDREN 0-23 months					
IYCF indicators					

Timely Initiation of Breastfeeding	**93.4 (89.2-97.6)**	**89.0(80.6-97.4)**	**96.7 (94.4-98.9)**	**93.7 (89.7-97.6)**	
Exclusive Breastfeeding under 6 months	**93.0 (84.5-100)**	**91.9 (82.3-100)**	**86.7 (72.7-100)**	**88.0 (77.3-98.6)**	
Continued breastfeeding at 1 year	**94.2(86.1-100.0)**	**100 (100-100)**	**97.2(91.8-100)**	**100(100-100)**	
Continued breastfeeding at 2 years	**79.3(62.0-96.6)**	**96.5(89.3-100)**	**76.1(54.9-97.4)**	**90.9(82.8-98.9)**	
Introduction of solid, semi-solid or soft foods	**46.8(24.1-69.4)**	**31.4(11.4-51.4)**	**35.3(13.5-57.0)**	**33.3(11.5-55.1)**	
Consumption of iron- rich or iron -fortified foods	**17.3 (9.9-24.7)**	**53.4 (36.4-77.5)**	**1.1 (0.0-2.7)**	**41.3 (28.4-54.1)**	
Bottle feeding	**0.7 (0.0-1.7)**	**11.8 (2.2-21.2)**	**3.3 (0.1-6.7)**	**8.0 (2.4-13.5)**	
WOMEN 15-49 years					
Anaemia (non-pregnant)					
Total Anaemia (Hb <12 g/dl)	**17.4 (11.0-23.6)**	**22.9 (14.8-31.0)**	**25.6 (16.0-35.1)**	**22.6 (17.5-27.6)**	High if ≥ 40%
Mild (Hb 11-11.9)	**9.5 (5.4-13.4)**	**14.2 (8.7-19.6)**	**14.6 (8.7-20.4)**	**14.3 (10.3-18.2)**	
Moderate (Hb 8-10.9)	**7.9 (3.5-12.7)**	**7.6 (3.6-11.4)**	**9.7 (4.6-14.8)**	**7.7 (3.8-11.2)**	
Severe (Hb <8)	**0.0 (0.0-0.0)**	**1.0 (0.0-2.6)**	**0.8 (0.0-2.9)**	**0.7 (0.0-2.4)**	
WASH					
Water quality					
Proportion of households using improved drinking water source	**100 (100-100)**	**100 (100-100)**	**100 (100-100)**	**100 (100-100)**	
Water quantity					
Proportion of households that use:					
≥ 20 lpppd	**57.3 (46.6-67.9)**	**56.4 (46.1-66.7)**	**64.0 (53.4-74.6)**	**65.8 (54.9-76.6)**	Average quantity of water available per
15 - <20 lpppd	**11.9 (8.5-15.2)**	**19.7 (15.2-24.1)**	**15.7 (10.3-20.9)**	**14.3 (10.7-18.0)**	

<15 lpppd	**30.8 (18.5-42.9)**	**23.8 (16.0-31.6)**	**20.2 (10.2-30.2)**	**19.8 (10.9-28.5)**	person / day
Average water usage in litres/person/day	**26.7 (22.6-30.9)**	**25.7 (21.4-30.0)**	**33.3 (25.1-41.6)**	**31.1 (26.3-35.8)**	≥ 20 litres
Safe excreta disposal					
Proportion of households that use:					
An improved excreta disposal facility (improved toilet facility, 1 household)	**21.9 (14.1-29.7)**	**19.7 (11.1-28.2)**	**34.9 (24.5-45.3)**	**43.9 (32.5-55.2)**	
A shared family toilet (improved toilet facility, 2 households)	**12.2 (6.9-17.4)**	**24.0 (15.4-32.7)**	**20.5 (12.8-28.1)**	**14.7 (10.0-19.4)**	
A communal toilet (improved toilet facility, 3 households or more)	**19.2 (12.2-26.1)**	**19.2 (10.2-28.1)**	**9.4 (3.3-15.3)**	**8.6 (4.4-12.6)**	
An unimproved toilet (unimproved toilet facility or public toilet)	**46.6 (34.2-58.9)**	**37.0 (18.2-55.6)**	**35.1 (19.7-50.5)**	**32.8 (19.3-46.1)**	
MOSQUITO NET COVERAGE					
Mosquito net ownership					
Proportion of households owning at least one LLIN	**81.6 (74.5-88.6)**	**96.1 (92.6-99.5)**	**92.5 (87.8-97.1)**	**89.7 (84.7-94.8)**	Target of >80%
Average number of persons per LLIN (Mean)	**3.8**	**2.3**	**2.9**	**2.8**	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	**61.3**	**85.2**	**75.6**	**76.6**	

Proportion of children 0-59 months who slept under an LLIN	**77.2**	**79.4**	**91.6**	**89.0**	
Proportion of pregnant women who slept under an LLIN	**61.1**	**88.0**	**82.1**	**81.8**	
Indoor Residual Spraying (IRS)					
Proportion of Household covered by IRS	**92.8 (88.4-97.2)**	**99.5 (98.5-100)**	**38.0 (23.5-52.4)**	**98.3 (96.8-99.7)**	

Result Interpretation

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

Table 1: Classification of Public Health Significance for Children Under 5 Years of Age

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

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

Table 2: Anaemia Classification of Public Health Significance for Children Under 5 Years of Age

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

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

Table 3: Simplified Classification of the Severity of GAM, Anaemia and Stunting in Refugee Setting (UNHCR operational guidance)

PREVALENCE%	HIGH		MEDUIM	LOW
GAM	≥15 Critical	10-14 Serious	5-9	<5
ANAEMIA U5	≥40		20-39	5-19
STUNTING	≥30		20-29	<20

Source: UNHCR operational guidance

- The GAM prevalence in Doro and Kaya is above the UNHCR acceptable target of <10%. In Gendrassa and Yusuf Batil the GAM prevalence is within the UNHCR acceptable standard but the higher confidence intervals are above 10%. According to the World Health Organisation (WHO) classification, the GAM prevalence in Doro and Kaya is serious while that in Gendrassa and Yusuf Batil is poor (WHO, 2000). A comparison of the 2016 results to those of 2015 showed GAM prevalences were lower in Doro, Batil and Gendrassa and higher in Kaya but the changes were not significant ($p>0.05$). This means that the nutrition situation in the Maban refugee camps remained the same in 2016. This indicates that the interventions in 2016 were able to curb the deteroriation of the nutrition situation but more effort is required to gain further gains especially in Doro and Kaya refugee camps.

- The stunting prevalence in all the maban refugee camps is critical as it is above the public health significance threshold of ≥40%. The stunting prevalence increased in 2016 as compared to 2015 in Yusuf Batil and Kaya and remained the same in Doro and Gendrassa.However the changes were not significant. Stunting results should however be interpreted with caution due to the low proportion of children that had credible age determination documents in the camps (50%). Age determination of the rest of the lot relied on age recall via an events calendar.

- Measles coverage was within the required standard of ≥ 95% in all the refugee camps except in Gendrassa where coverage was slightly lower (93.7%).

- Vitamin A coverage in the last 6 months was within the acceptable standard of ≥ 90% in all the refugee camps except Kaya where the coverage was very low (58.3%).The last campaigns were done in June and July in all Maban camps .

- Enrolment in the MAM and SAM treatment programmes is very low below 35% from the survey findings. These results are however not sufficient to draw conclusions on programme coverage enrolment as the sample size is small. however, these results might flag issues with enrolement that should be followed-up on.

- The anaemia prevalence in children 6-59 months old is critical as it is above the 40% of public health significance (WHO) in all the refugee camps in Maban . Children aged 6-23 months were the most affected. The anaemia prevalence in Doro, Gendrassa and Kaya remained the same in 2016 compared to that in 2015 as the changes noted were not significant. In Yusuf Batil the anaemia prevalence in 2016 reduced significantly compared to 2015 ($p<0.05$). Anaemia prevalence among women of reproductive age is of low to medium public health significance (17.4% – 25.6%).

- Timely initiation of breast feeding, exclusive breastfeeding rates, continued breast feeding at one and two years was above 75% in all the camps indicating improving breastfeeding practices. Timely introduction of solid, semi solid or soft food practice is low <50%. This is also the case for the consumption of iron rich or iron fortified foods indicating to create more awareness in this area including the provision of options that allow for the realisation of it. Bottle feeding was low in Doro and Gendrassa but high in Yusuf Batil (11.8%) and Kaya (8%). Attention to reduce the proportion in the latter camps should be put in place in 2017.

- All the sampled households had access to improved drinking water sources in all the refugee camps. The average water consumption is above the SPHERE standard of 15lpppd and the UNHCR standard of ≥20lpppd. Effort to ensure equitability is however required as a range of 19.8% to 30.8% reported to have used <15 lppd.

- Over 50% of the households in Maban refugee camps do not have access to an improved toilet facility. This could be attributed to the slow uptake of the community ownership model of latrine construction being promoted. The high proportion of households without improved toilet facilities might have contributed to the high diarrhea prevalences of 20.1%, 14.0 % and 16.7% in Doro, Gendrassa and Kaya respectively.Households are expected to build their own household latrines to ensure sustainability.

- The proportion of households that own at least one Long Lasting Insecticide-treated Mosquito Net (LLIN) is > 80% target in all the refugee camps. The average number of

persons sharing a mosquito net is more than the recommendation of 2 people per net. This shows that although households have mosquito nets, there are not enough to be used by all household members.

- Indoor Residual Spraying coverage is above 90% in the refugee camps except in Gendrassa which was still being sprayed during the survey exercise.

RECOMMENDATIONS AND PRIORITIES

Nutrition related

- UNHCR and partners to maintain and strengthen the implementation of CMAM program providing both therapeutic and supplementary feeding programs including the community outreach aspect to facilitate the rehabilitation of the identified malnourished children (UNHCR, WFP, UNICEF, Partners).

- WFP and UNHCR to resume the implementation of blanket supplementary feeding programme all year round for children 6-23months and pregnant and lactating women to prevent malnutrition and to cover the nutrient gap these vulnerable groups have in light of a predominant grain based general food diet. This is to be implemented in a timely and integrated fashion with the other maternal and child health and nutrition interventions (UNHCR, WFP, Partners).

- Conduct the two step MUAC and WHZ scores (for children with MUAC at risk) screening monthly at the BSFP sites in all camps to ensure both high MUAC and WHZ score coverage (Partners).

- Strengthen the capacity of established nutrition facilities in terms of staff training to facilitate quality provision of both curative and preventative components of nutrition (UNHCR, WFP and UNICEF).

- Expand and strengthen preventative nutrition components including Infant and Young Child Feeding (IYCF) and community outreach education aspects to stop malnutrition from occurring in the first place. IYCF partners in Maban to prioritise the creation of awareness on appropriate complementary feeding from six months an area that requires significant improvement (UNHCR, UNICEF and Partners).

- Finalize and implement the anaemia reduction strategy focussing on the multiple interventions (supplementation,BSFP U2, Kitchen gardening for micronutrient dense foods, WASH/water nanagement/control,mosquito net distribution,larviciding etc) that need to be in place to reduce micronutrient deficiencies (UNHCR, UNHCR, WFP and Partners).

- Ensure regular monitoring, quarterly joint monitoring and yearly nutrition programme (CMAM) performance evaluations in all camps to assess performance progress and

formulate recommendations for any identified gaps (UNHCR, WFP, UNICEF, and Partners).

- Carry out nutrition surveillance through quarterly mass MUAC screening. The screening exercise to also be used to ascertain coverage and to refer any malnourished children identified (Partners).

- Undertake annual joint nutrition surveys in all camps to analyse trends, assess nutrition program impact and facilitate evidence based recommendations for nutrition programming (UNHCR, WFP, UNICEF and Partners).

Food security related

- Increase from 70% to 100% food assistance providing the minimum dietary requirements of 2100kcal/person/day to facilitate basic nutrition provision at household level (UNHCR and WFP).

- Continue the routine monthly food basket monitoring (FBM) on site and ensure joint post distribution monitoring (PDM) at the household level in all camps to ensure that refugees receive their entitlement in addition to ensuring identified gaps are addressed in a timely manner (UNHCR, WFP and Food security partners).

- Expand the coverage of sustainable food security and livelihood solutions (kitchen gardening, etc) in the refugee context in all camps that promote diet diversity and complement the general food ration (UNHCR, WFP and Partners).

Health related

- Maintain and strengthen the provision of comprehensive primary health care programme providing both curative and preventative community outreach services to reduce the disease burden among the refugees in Maban (UNHCR and Partners).

- Ensure Vitamin A supplementation is maintained in all the refugee camps including the periodic campaigns at least two times in the year. Kaya to particularly pay attention to increasing the coverage to acceptable standards (UNHCR and Partners).

- UNICEF, UNHCR and Partners to ensure the EPI program continues to maintain the acceptable standards (UNHCR, UNICEF and Partners).

- Strengthen reproductive health interventions including healthy timing and spacing of pregnancies to improve birth outcomes and allow for continued breastfeeding until at least 24 months, reduce the risk of iron deficiency anaemia and maternal mortality thus improved nutrition for both the mothers and their children. (UNHCR and Partners).

- Mosquito net distribution (LLIN) to be continued targeting households not owning enough to allow for <2 people to sleep under one net (UNHCR and Partners).

Wash related

- To curb water inequity issues noted by the households using < 15LPPD, it is necessary to ensure adequate equitable water collection points (UNHCR, UNICEF, WASH Partners).
- To reinforce the promotion of improved toilet facility ownership as well as well as closer monitoring safe WASH practices (tap stands with water and soap) coupled with health/hygiene promotion to decrease diarrhea episodes in the camps.

1. INTRODUCTION

1.1. Background

Maban County is located in Upper Nile State in the North East of the Republic of South Sudan (RSS). The refugee caseload is composed of Sudanese fleeing from the conflict in Blue Nile State, residing in four camps: Doro, Yusuf Batil, Gendrassa and Kaya (previously Jamam). The region is a semi-arid desert with sparse vegetation and no surface water. The climate is harsh with extreme temperatures during the dry season and flooding at the rainy season. The survey was conducted during the beginning of the dry season from end October to November 2016.

The total registered refugee population in the four camps as of November 2016 was 135,121. The refugees have limited access to additional sources of income, the environment is not suitable for agricultural activities, and very few manage to keep livestock. The majority of the refugees is largely dependent on the general food ration from World Food Programme (WFP).

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

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

Description of the population

During the survey period in November 2016, a total of 135,121 refugees were registered in the four camps of Doro camp; 51,929, Gendrassa camp; 17,374, Kaya camp; 24941, and Yusuf Batil camp; 40,877 (Source; UNHCR ProGres). The main ethnic groups in the four camps are Ingassana, Uduk, jumjum, Nuba, Dafur, and magaja. Islam and Christianity are the two dominant religions practiced in the camps. At the country of origin, the refugees are agriculturalist and keep some herds of livestock such as; goat, sheep, and cattle. Sorghum, simsim, and maize are some main staple foods grown by the refugees.

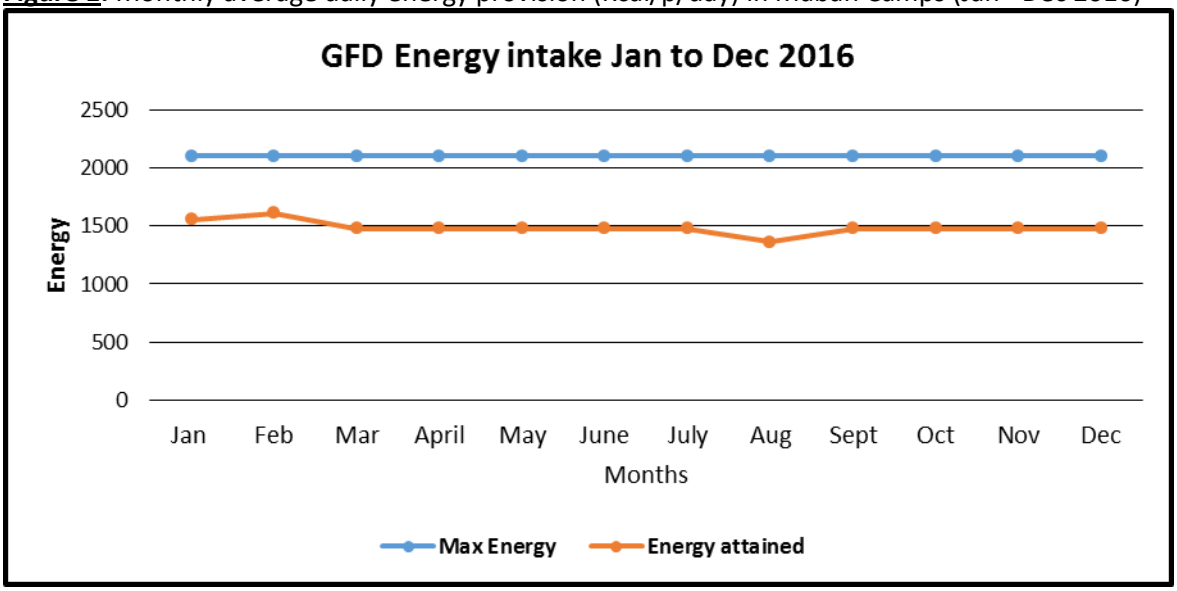
Food security situation

The registered persons of concern in Maban camps are highly dependent on general food ration provided by WFP through General Food Distribution (GFD) by partners. In Maban, WFP has two GFD partners each serving two camps (Samaritan Purse in Doro and Batil camps and ACTED in Kaya and Gendrassa camps). Throughout the year (2016), all registered persons of concerns in the four camps received general food rations at a 70% scale following the 30% reduction since August 2015 due to funding constraints. An inadequate food basket with only three food items; cereals (350grams/person/day), pulses (35grams/person/day), and cooking oil (21grams/person/day) was provided (table 4). Salt (from September 2015) and CSB+ (has never ben part of GFD ration in South Sudan) essential commodities in the food baskets were missing in the food basket. The average daily energy intake from the ration provided was 1476 Kcal which is below the acceptable daily energy intake of 2100 kcal/p/day (see Table 4 and Figure 1 below**)**

Table 4: General Food distribution Rations (factoring the 30 % réduction)

Food Item	Grams/person/day	Kilo Calories	% Energy
Sorghum	350	1173	79.5%
Pulses	35	117	7.9
Vegetable oil	21	186	12.6
Salt	3.5	0	0
Total	409.5	1476	70.2

Figure 1: Monthly average daily energy provision (Kcal/p/day) in Maban Camps (Jan –Dec 2016)



Post Distribution Monitoring (PDM) was conducted twice in Maban refugee camps by WFP with support from GFD partners and UNHCR. In addition, food basket monitoring (FBM) is conducted every month during GFD in all Maban camps. Outcome of this monitoring (FBM) suggests that refugees use a portion of their GFD food items in exchange of milling services and to meet some basic needs (buying salt, sugar, and other food items). This means that the calories available for consumption are likely to reduce further. Food assistance for the Maban refugee camps does not

provide milling assistance from March 2015. Milling vouchers had been introduced in the camps in December 2013. The vouchers covered milling of 70 % of the cereal in 2014. This reduced to 50 % in January 2015 through to March 2015 when the assistance stopped.

Livelihood activities likely to contribute to food security in Maban refugee camps included basic agriculture. Some households planted crops at a small scale Kitchen garden level. Main crops grown included sorghum, simsim, cow peas, amaranth, tomatoes, eggplant and Kale.

In Maban camps, all the foods and non-food items (NFI) brought to the persons of concern are sourced from either Juba or Sudan (GFD food items provided by WFP). Transportation of goods by road to Maban has been a challenge which has meant that at times the GFD has to be airlifted which is very expensive. In addition, there was pipeline break of some nutrition supplies which included pulses and salt.

A number of markets do exist either within or nearby of the respective camps. Majority of both the persons of concern and host communities rely also on Bunj Market which is the biggest in Maban County. Most of the food items sold are partly from the GFD and others brought by dealers/traders from Sudan, Ethiopia and Blue Nile State in Sudan. Main food items sold are cereals, pulses, and limited varieties of vegetables, cooking oil, seeds, and some non-food items.

Health situation

Health care services providers/partners vary from one camp to the other. There are four main health partners in Maban camps delivering health and nutrition services at either Primary Health Care Centres (PHCC) or health posts. Health care services are delivered by the following organizations: Doro camp; IMC and MSF-B, Batil camp; MEDAIR, Gendrassa and Kaya camps; IMC. Each camp also has a community outreach structure. This team provides a linkage between the community and the health facilities. In addition to this, there are two main referral hospitals (Gentil and Bunj) serving both the refugees and the host community managed by RI and SP respectively. The presence of these hospitals has significantly reduced on the number of referrals to Juba.

The Crude Mortality Rate (CMR) and Under Five Mortality Rate (U5 MR) remained within the standard threshold of 0.75/1000/month and 1.5/1000/month respectively. Crude Mortality Rate was 0.45/1000 and Under Five Mortality rate was 0.77/1000 population/month (Source; UNHCR HIS Jan to Dec 2016). The mortality trends are illustrated in Figures 2, 3, 4, and 5 below.

In 2016, the main morbidities were: Upper Respiratory Tract Infection (URTI); 31%, Lower Respiratory Tract Infection (LRTI); 20%, malaria; 17%, watery diarrhoea; 16%, skin disease; 4%, eye disease; 4%, and intestinal worms; 2% (Source; UNHCR HIS Jan to Dec 2016). The top five causes of morbidity are illustrated in figures 6, 7, 8 and 9 below.

Figure 2 : crude and under-5 mortality rates – Doro Camp

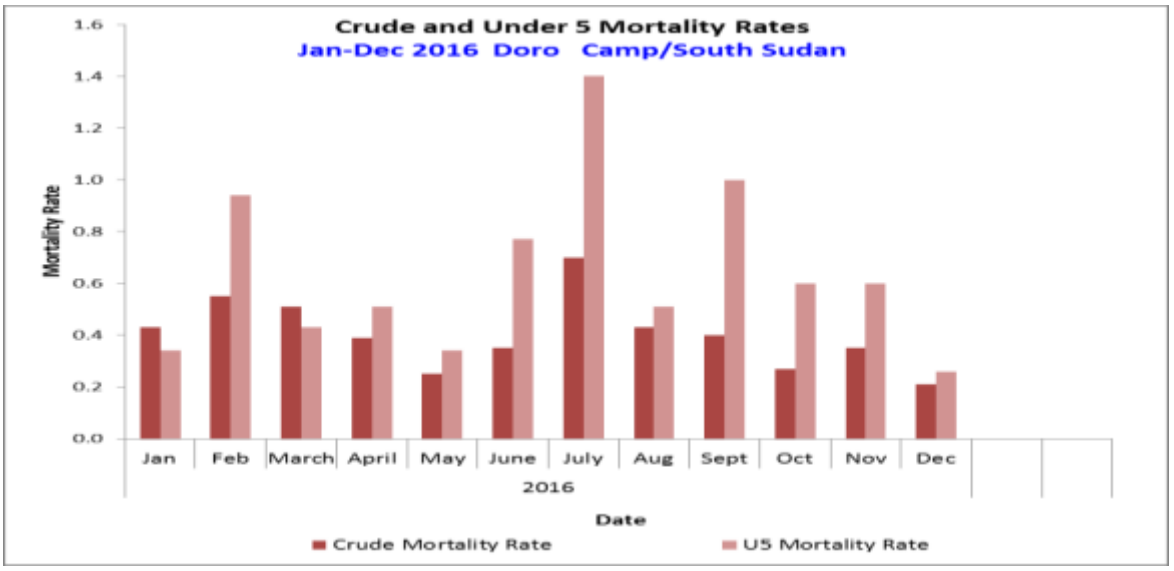


Figure 3: crude and under-5 mortality rates – Batil

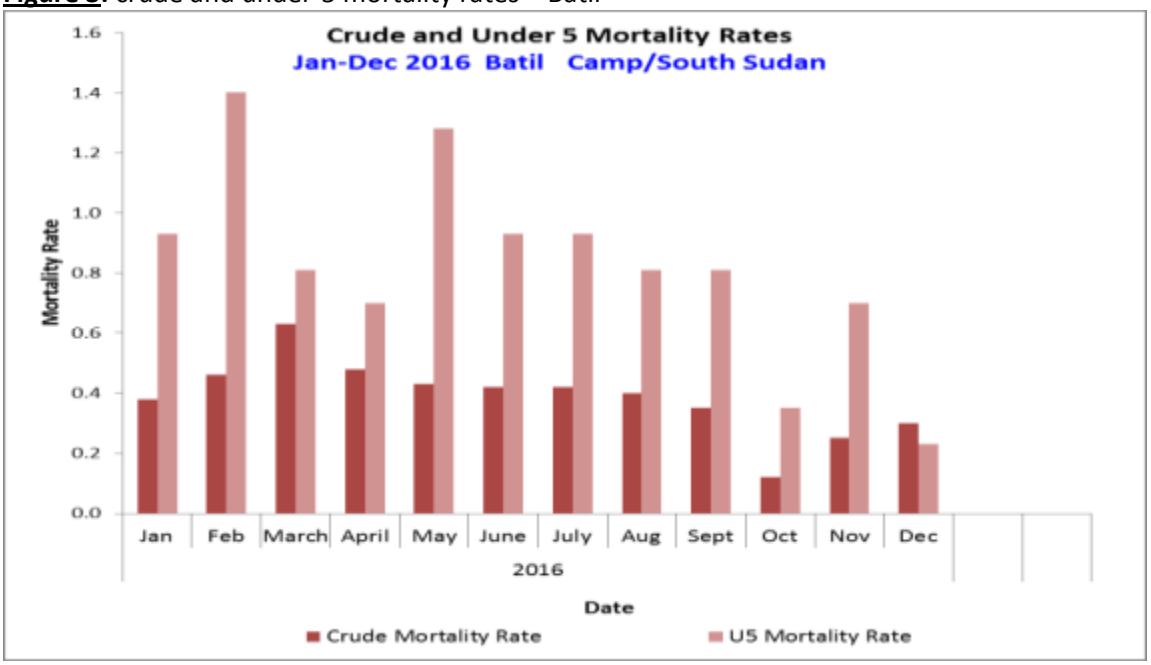


Figure 4: Crude and under-5 mortality rates – Gendrassa

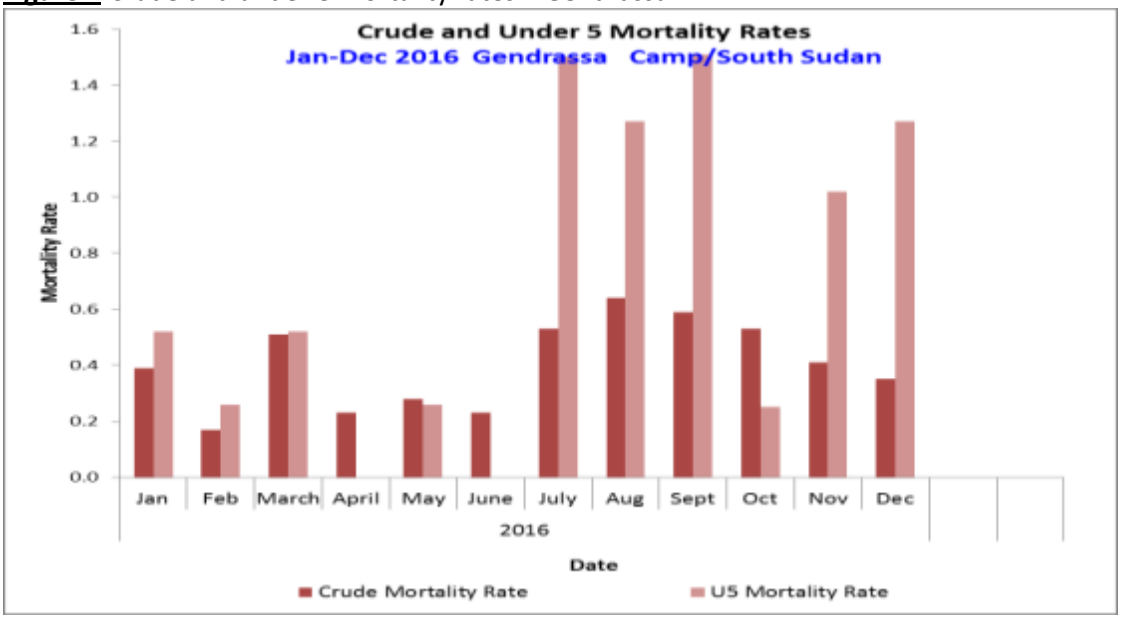


Figure 5: Crude and under-5 mortality rates – Kaya

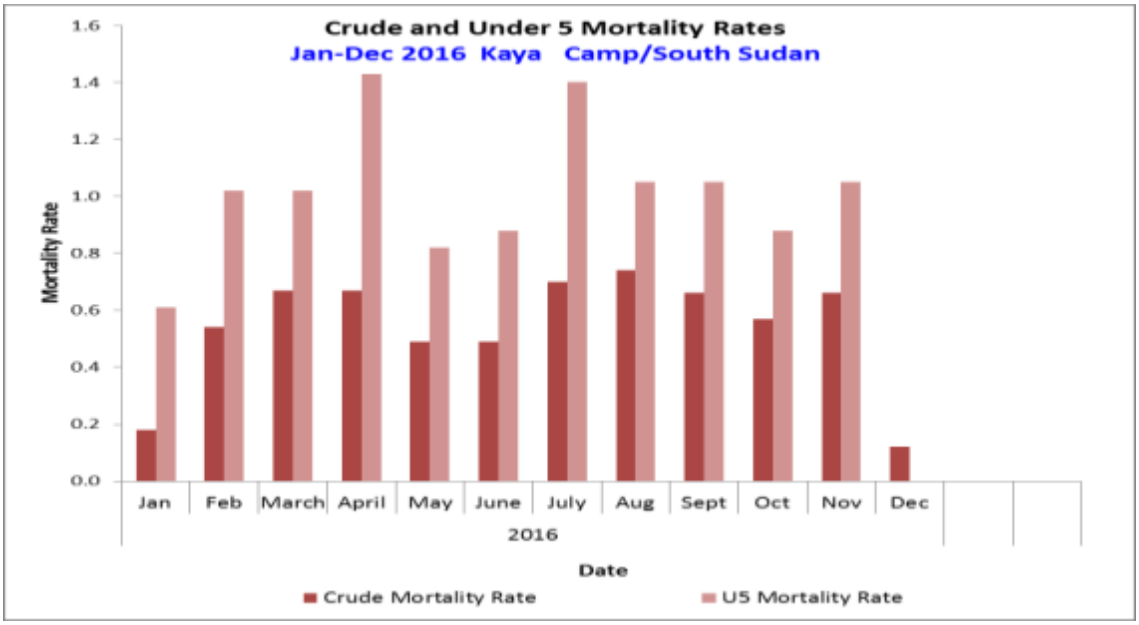


Figure 6: Top five causes of morbidity in children under-5; Doro

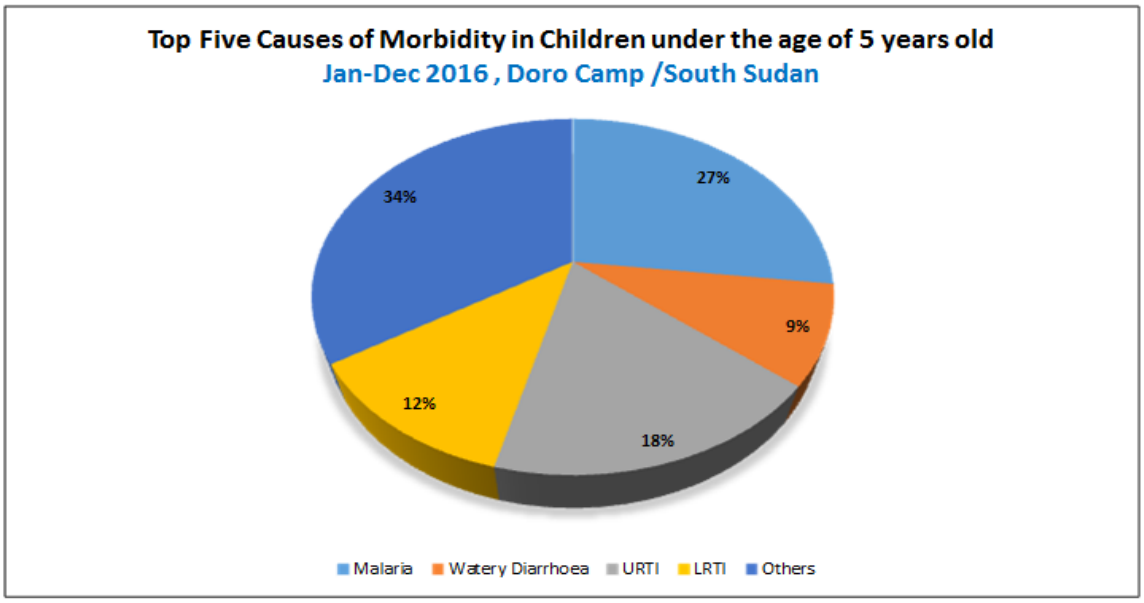


Figure 7: Top five causes of morbidity in children under-5; Yusuf Batil

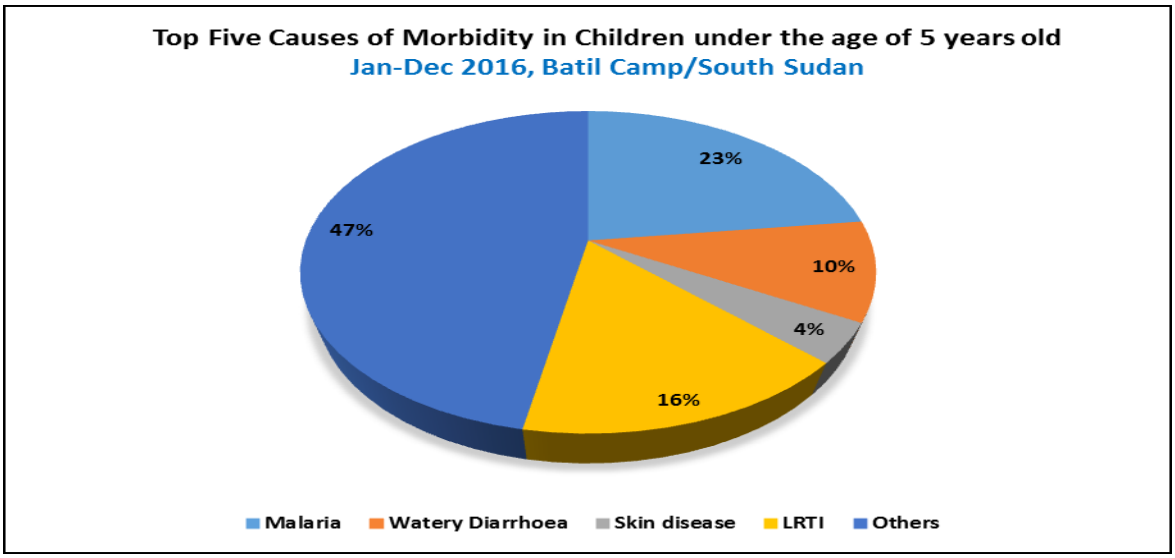


Figure 8: Top five causes of morbidity in children under-5; Gendrassa

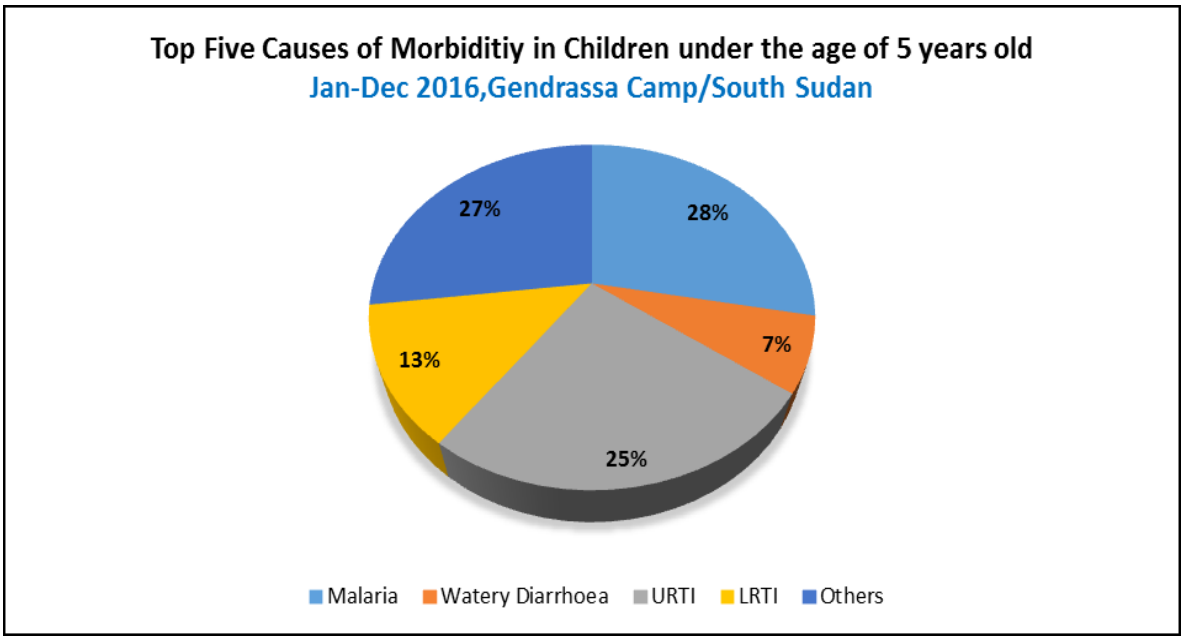
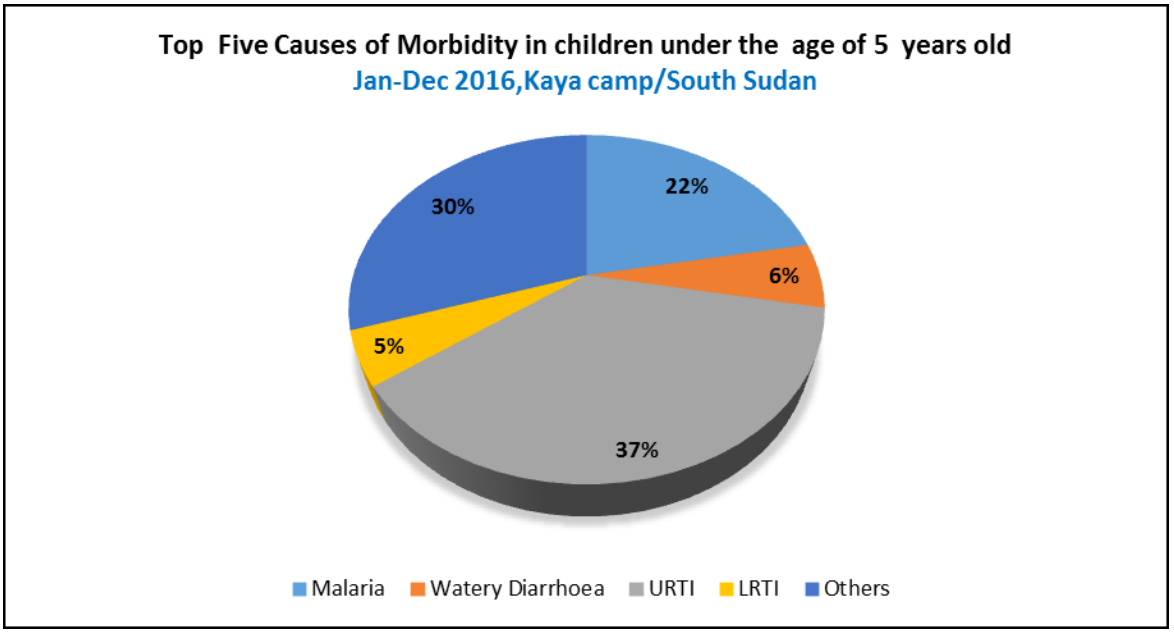


Figure 9: Top five causes of morbidity in children under-5; Kaya



Nutrition situation

Curative Services

The malnutrition situation in the four camps remained serious in 2016. Curative nutrition interventions were provided in all the respective camps. These included; Stabilisation Centres (SC) for severely acute malnourished children with major medical complications, Outpatient Therapeutic Feeding Program (OTP) for severely acute malnourished children, Targeted

Supplementary Feeding Program (TSFP) for moderately malnourished children 6 to 59 months and pregnant and lactating women.
These interventions were offered in eight OTP centres (two in Batil by Medair, three in Doro, two in Kaya, and one in Gendrassa by IMC), eight TSFP centres (two in Batil by Medair, two in Doro, two in Kaya, and two in Gendrassa by IMC) and three SCs managed by SP in Bunj hospital, RI in Gentil hospital, and MSF-B in Doro clinic. All interventions follow the South Sudan guidelines for management of acute malnutrition and the UNHCR Nutrition and Food Security strategy

In the four camps in 2016, a total of 5718 children 6 to 59 months were admitted into Targeted Supplementary Feeding Programs (TSFP). While in Outpatient Therapeutic Program (OTP), 3589 children 6 to 59 months were admitted. As shown on the graphs, there were higher admissions in the first half of the year compared to the second half. The OTP admissions where the peak is high could be attributed to episodes of malaria and watery diarrhoea experienced during that period. Strengthened early identification of cases within the communities by the respective outreach teams facilitated the reduction of the caseload going forward into the year. See below under figures 10,11,12 and 13, the admission trends of children under five years.

Figure 10: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months – Doro

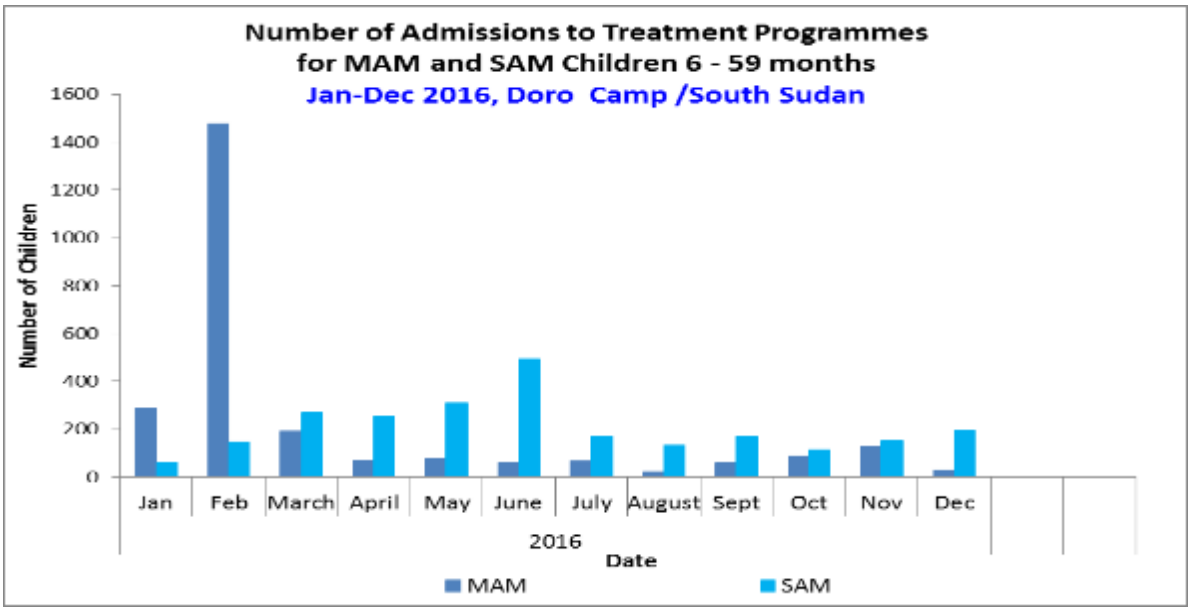


Figure 11: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months – Batil

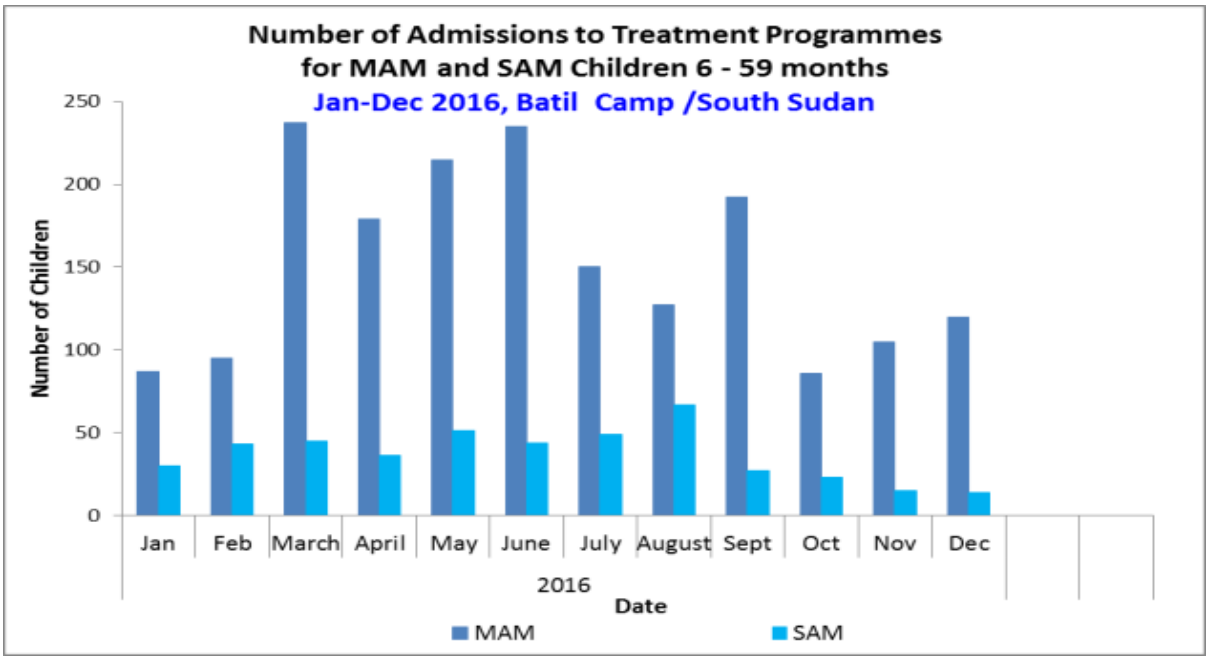


Figure 12: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months – Gendrassa

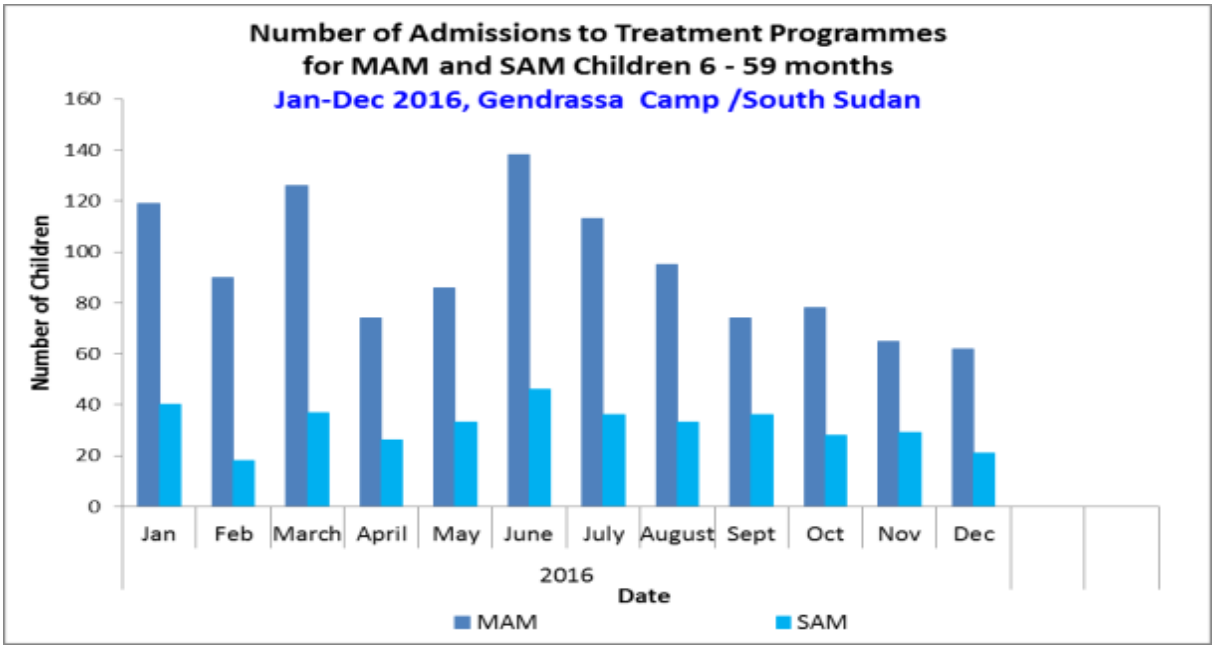
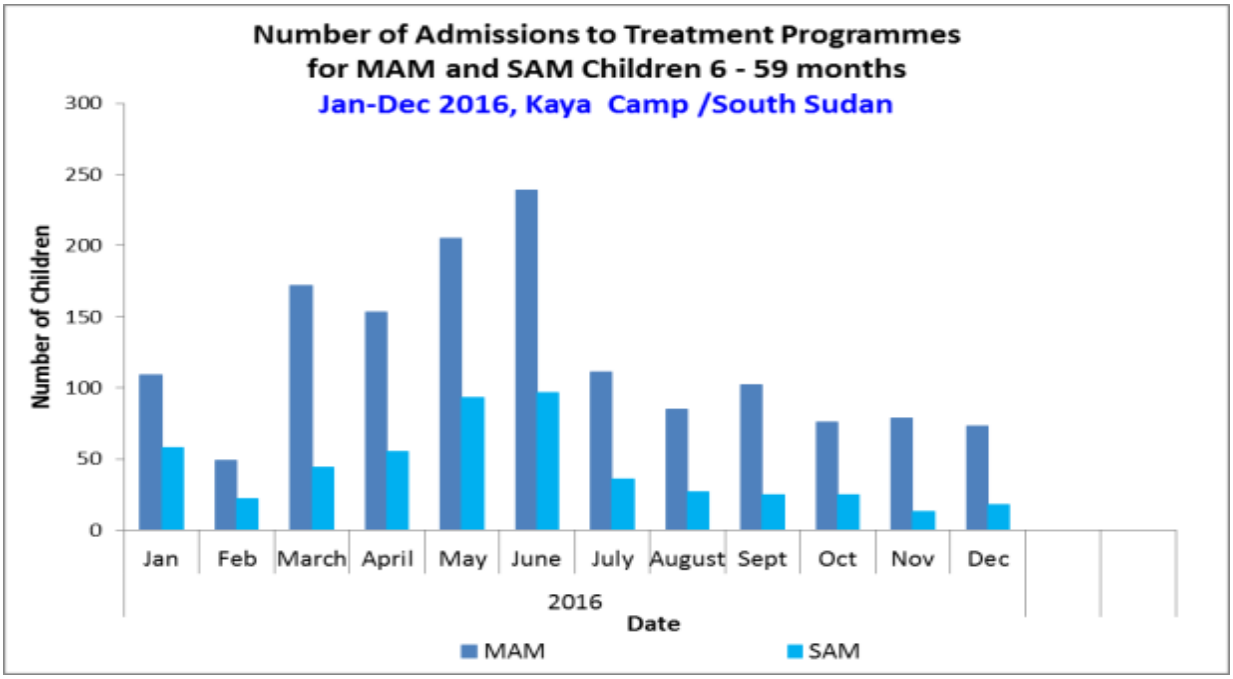


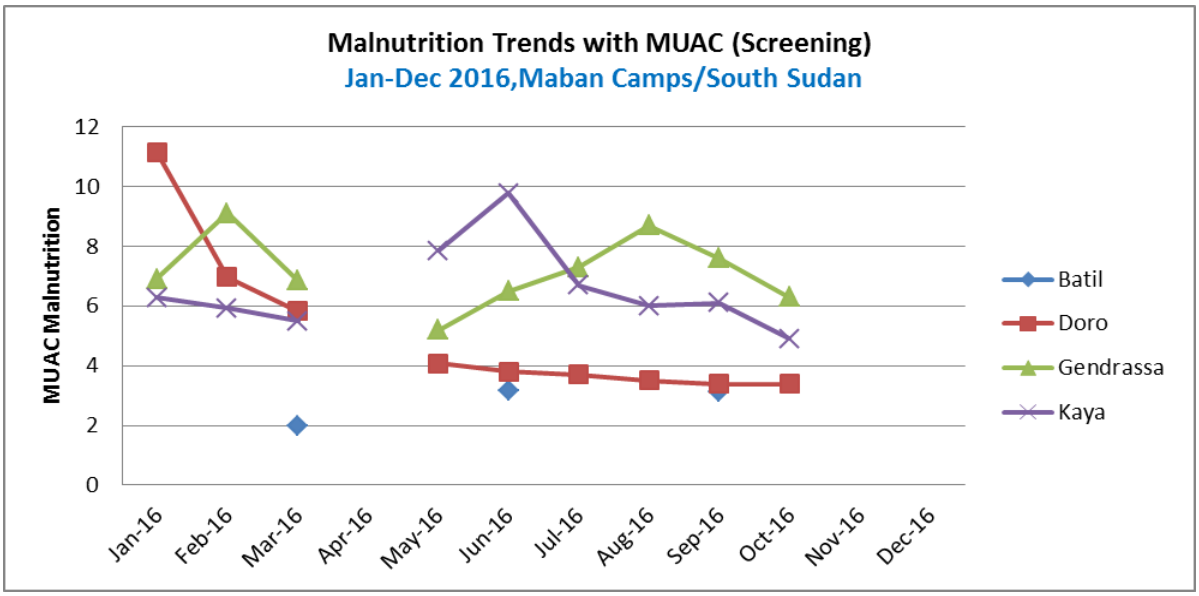
Figure 13: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months – Kaya



In Doro, Gendrassa, and Kaya camps, nutrition monitoring using Mid Upper Arm Circumference (MUAC) screening was conducted on monthly basis by IMC. While in Batil camp, it has been conducted quarterly. The average MUAC malnutrition prevalence from the monthly surveillance data from the four camps is <7% (Figure 14).

According to 2015 nutrition survey, the prevalence of stunting and anaemia situation among children 6 to 59 months was of public health significance (>=40%)

Figure 14: Mass MUAC screening trends Maban; Jan-Dec 2016

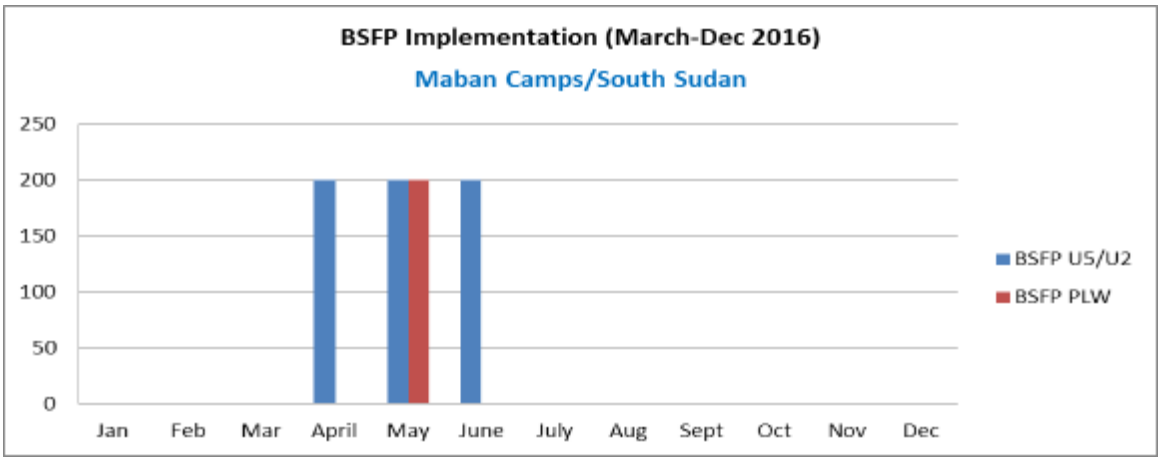


Preventive Services

Routine and monthly mass MUAC screening of children 6 to 59 months and PLWs was conducted in all the camps. This was carried out monthly in Doro, Gendrassa, and Kaya by IMC and quarterly in Batil by Medair. In addition to this active case finding by community health promoters (Doro, Gendrassa, Kaya) and care groups (Batil) continues on a daily basis.

Following the 2015 survey recommendations for BSFP to be implemented, all children 6 to 59 months in Doro Camp were enrolled into the BSFP program (based on the >15% GAM in this camp) while in other three camps of Kaya, Batil, and Gendrassa, children 6 to 23 months were enrolled. These interventions were implemented only for three months across all four camps because of pipeline breaks and conflict and related looting of WFP rubhalls in Juba . For Pregnant and lactating women, distribution was conducted for only one month due to supplies stock out. The commodity used for the BSFP implementation for children 6-59 months and PLWs was CSB++.

Figure 15: BSFP implementation (March-Dec 2016)



Infant and Young Child Feeding (IYCF) support and promotion program was implemented in all camps. Each camp had IYCF counsellors trained to roll out the IYCF program. Training was conducted by two trainers who attended Training of Trainers (ToT) training in Juba organized by UNICEF and Ministry of Health in coordination with UNHCR. At camp level, there are mother to Mother Support Groups (MSGs). In Doro there are 50 MSGs, 100 MSGs in Gendrassa, 100 MSGs in Kaya and 401 care groups in Yusuf Batil. Community health workers in all camps aid in the implementation of IYCF also. Antenatal Care (ANC) and Post Natal Care (PNC) services have IYCF care practices promotion services integrated.

A key intervention to be included in the anaemia reduction strategy is vegetable gardening aimed at increasing diet diversity. In coordination with food security and livelihood partners the nutrition program advocated for the inclusion of MSGs in the respective camps as beneficiaries of the vegetable seeds distribution. These were used to establish kitchen gardens. In addition to this cooking demonstrations were organized to equip mothers with knowledge on the importance of vegetables in their family diets. Evaluation of the extent to which this was implemented and likely impact is yet to be carried out

1.2. Survey Objectives

Primary objectives:

Objectives:

Primary objectives:

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

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 5: Anthropometry and Health Sample Size Calculation

Location	% population under 5	Estimated GAM prevalence	Desired Precision	Design Effect	Non response rate	Average household size	Number of Children (ENA)	Number of Households
CLUSTER SURVEYS								
Kaya *	**22.1 %**	**11.4 %**	**2.9**	**1.3**	**5%**	**6.2**	**653**	**557**
Doro	**30.1 %**	**15.2 %**	**3.4**	**1.3**	**5%**	**5.1**	**606**	**462**
Gendrassa*	**24.6 %**	**9.1%**	**3.1**	**1.3**	**5%**	**5.5**	**468**	**405**
Yusuf Batil	**25.8 %**	**11.1 %**	**3.2**	**1.3**	**5%**	**6.1**	**524**	**389**

* *No correction fo small population size*

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

For the purposes of this survey, household size was defined as the number of people who regularly stay together and eat from the same pot. The household size used in the survey was obtained from community health worker reports. The refugee total population and the proportion of children under the age of 5 years were obtained from the UNHCR ProGres database. The estimated GAM prevalence was obtained from the previous 2015 survey in Maban camps.

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

2.2. Sampling Procedure

Sampling procedure: selecting clusters

The UNHCR ProGres database was used to obtain camp population statistics. The data used was as of September 31st 2016. To assign clusters, the probability proportion to sample size (PPS) was employed using the ENA software Version November 10th, 2014. As a result, 26 clusters of 18 households each in Doro, 25 clusters of 16 households each in Batil, 25 clusters of 16 households each in Gendrassa and 33 clusters of 17 households each in Kaya were surveyed.

Sampling procedure: selecting households and individuals

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

All the eligible household members were included in the survey, that is all children 0 to 59 months and women 15 to 49 years in a sampled were included in the survey as appropriate. The interview was conducted in most cases with the mother in the household or in her absence with an adult member of the household who was knowledgeable with the everyday running of the household.

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

2.3. Questionnaire and measurement methods

Questionnaire

Mobile phone technology and questionnaires were used. The English language was set for the soft version of the questionnaires in the phone used to administrate the questionnaire to respondents. Both English and Arabic languages was set in the paper version used both with the phones during training to train and review the translations and master the questions.While using mobile phone for the interview, the teams had the paper forms with both English and Arabic languages to refer to if needed.The questionnaires were set with ranges for age, height, haemoglobin as a way of minimising mistakes when collecting data. In addition skip options were provided as necessary. Piloting was conducted before the survey.

Measurement methods

Household level indicators

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

Individual-level indicators

- **Sex of children:** Gender was recorded as male or female.

- **Birth date or age in months for children 0-59 months:** The exact date of birth (day, month and year) was recorded from either a child health card or birth notification if available. If no reliable proof of age was available, as was with most children age was estimated in months using a local event calendar or by comparing the selected child with a sibling whose age was known, and was recorded in months on the questionnaire. If the child's age could absolutely not be determined by using a local events calendar or by probing, the child's length/height was measured and a cut off between 65.0 and 110.0 cm was used for inclusion. The UNHCR Manifest was not used for recording age.

- **Age of women 15-49 years**: Reported age was recorded in years.

- **Weight of children 6-59 months:** Measurements were taken to the nearest 100 grams using an electronic scale (SECA scale). The scale was placed on firm flat ground before measurements were taken. The double-weighing technique was used to weigh young children unable to stand on their own or unable to understand instructions not to move while on the scale. Clothes were removed during weighing although where necessary, light undergarments were allowed.

- **Height/Length of children 6-59 months:** Children's height or length was taken to the closest millimetre using a wooden height board. Height was used to decide on whether a child should be measured lying down (length) or standing up (height). Children less than 87cm were measured lying down, while children ≥ 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 (if not already enrolled in a nutrition programme), 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.

2.4. Case definitions, inclusion criteria and calculations

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 6: 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 oedema	--
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 (%) =

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

Therapeutic feeding programme

Coverage of OTP programme (%) =

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

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

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

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

$$\frac{\text{Children 0-23 months of age who were put to the breast within one hour of birth}}{}$$

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 7: 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%. (UNHCR Nutrition and Food Security strategy and WHO, 2000).

Table 8 below shows the classification of public health significance of the anthropometric results for children under-5 years of age.

Table 8: Classification of public health significance for children under 5 years of age (WHO 1995)

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

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

* Also meet SPHERE standards for performance

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

Table 10: 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 11: 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 12: 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 fibre. 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 13: UNHCR Mosquito Net Programme Standards

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

2.6. Training, coordination and supervision

Survey teams and supervision

The surveys in Maban were conducted by 5 teams in each camp. Two camps were run concurrently. From the third day of the survey data collection, some survey coordinators worked full time with 2 of the teams after 2 enumerators left and the reserve ones were not available. Each team had 4 to 5 members; 2 anthropometric measurers, 1 responsible for anaemia measurements, a fourth member responsible for conducting the interview and filling the responses on the mobile phone and the team leader. A total of 45 enumerators (which including reserve ones in case of some drop out) participated in data collection. Originally it was planned to provide phones to two team members (individual interview and household interview) but this proved a challenge in terms of the enumerators' mastery of the use of the mobile phones. One enumerator thus filled both the individual and household interview.

Team leaders were national staff from SP, MEDAIR, IMC, and RI. The rest of the team members were a mix of partner staff. The minimum requirements to participate in the survey were the ability speak, read and write in both English and Arabic. There were twelve survey supervisors (including the survey coordinator) who supervised the teams during data collection on a permanent basis. The survey coordinator roved between the teams on a daily basis. The supervision team included UNHCR Senior Nutrition Associate , WFP Nutritionist based in Juba , the WFP Nutrition field monitor/Maban, the UNICEF Nutritionist from Malakal Office, the IMC Nutrition Programme Manager, the IMC outreach manager , the IMC nurse , the IMC nutrition programme focal point in Kaya camp, the IMC nutrition programme focal point in Gendrassa camp the SP Nutrition Programme Manager, the UNHCR Senior Nutrition Associate, the SP Deputy Nutrition Programme Manager and the UNHCR Senior Health Associate. The Survey Coordinator was the UNHCR Nutrition and Food Security Officer based Maban.

Training

The training lasted for seven days from 31st October to 8 November 2016 (Sunday 6 November excluded). A total of 50 participants attended the training. Training topics were provided to the survey supervisors by the survey coordinator. The topics covered were general survey objectives, overview of survey design, household selection procedures, anthropometric measurements, signs and symptoms of malnutrition, data collection and interview skills, mortality interview, WASH interview, IYCF interview, mosquito net coverage interview and anaemia assessment skills. The training had to be given extra-day to allow for more training on the mobile phone use and language interpretation.English to Arabic translation was also thoroughly discussed.

To ensure high quality data was collected, standardisation and field test were carried out twice because the first test was 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 not sampled to participate in the survey. A feedback session was conducted after the teams returned from the exercise to address challenges encountered.

2.7. Data collection

Data collection

Data collection was conducted from 8 to 19 November 2016 (11 days). Two days (Sundays) were taken as breaks to allow enumerators to rest. Data collection was conducted in Doro and Batil concurrently from 8 to 12 November, in Kaya from 14 to 16 November and in Gendrassa from 17 to 19 November. Interviews were conducted with the mobile phones.On visiting each household the team leader introduced the team and the survey to the households and asked for consent. The standard introduction and consent message was attached to every questionnaire, see **Appendix 5.**

2.8. Data analysis

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

The ODK exports data in csv format was saved in Microsoft Excel 1997 to 2003. Anthropometric data was cleaned using flexible cleaning criterion (+/- 3 SD from the observed mean; also known as SMART flags in the ENA for SMART software). SMART flags were excluded in the analysis. Anthropometry indices were analysed using the ENA for SMART August 2015 version. Epi Info version 7 was used to analyse all the other data.

3. RESULTS

DORO CAMP

The demographic characteristics are illustrated in table 14 below.

Table 14: Demographic Characteristics of the Doro Survey Population-Doro Camp

Total households surveyed	445
Total population surveyed	2362
Total U5 surveyed	536
Average household size	4.4
% of U5	22.7

Table 15: Target and Actual Number Captured-Doro Camp

	Target (No.)	**Total surveyed (No.)**	**% of the target**
Children 6-59 months	606	536	88.4%
Clusters (where applicable)	25	25	100%

3.1. Anthropometric results (based on WHO standards 2006)-Doro Camp

Table 16: Distribution of age and sex of sample-Doro Camp

	Boys		**Girls**		**Total**		**Ratio**
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	78	48.1	84	51.9	162	30.5	0.9
18-29	75	60.5	49	39.5	124	23.3	1.5
30-41	85	50.6	83	49.4	168	31.6	1.0
42-53	40	63.5	23	36.5	63	11.8	1.7
54-59	7	46.7	8	53.3	15	2.8	0.9
Total	285	53.6	247	46.4	532	100.0	1.2

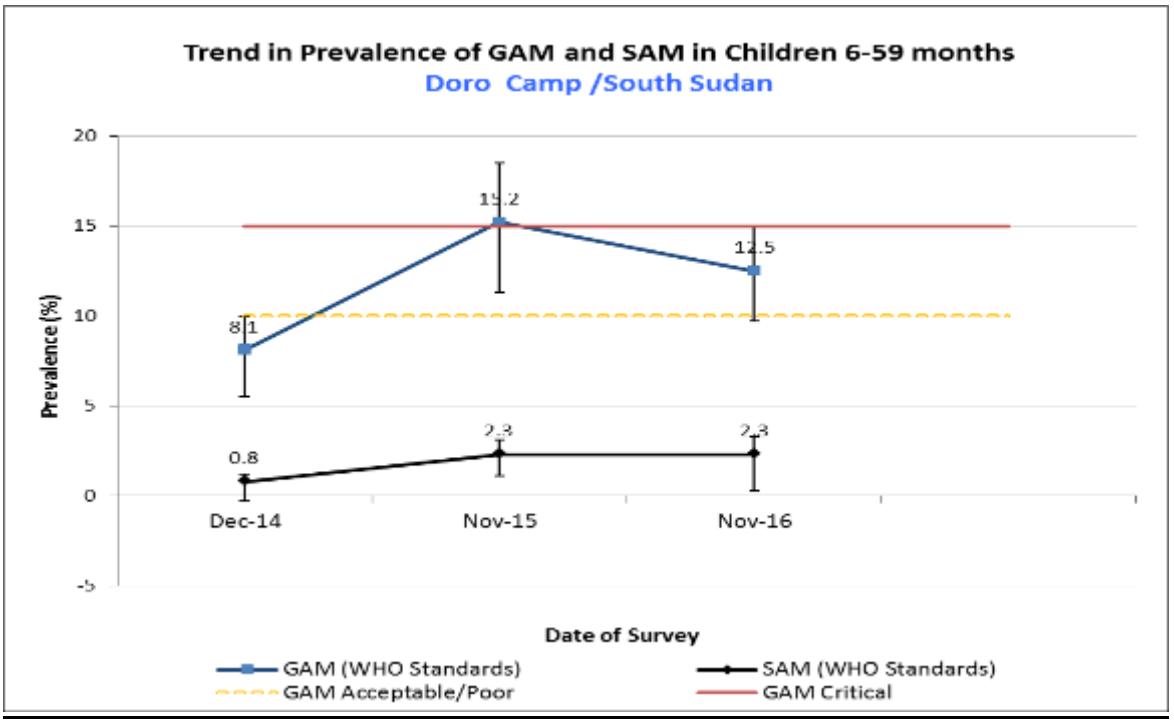
The overall ration of boys: girls is equally represented

Table 17: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Doro Camp

	All n = 514	Boys n = 274	Girls n = 240
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(64) 12.5 % (10.0 - 15.3 95% C.I.)	(40) 14.6 % (11.3 - 18.6 95% C.I.)	(24) 10.0 % (6.9 - 14.3 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(52) 10.1 % (7.8 - 13.1 95% C.I.)	(29) 10.6 % (7.9 - 14.0 95% C.I.)	(23) 9.6 % (6.6 - 13.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(12) 2.3 % (1.3 - 4.3 95% C.I.)	(11) 4.0 % (2.2 - 7.2 95% C.I.)	(1) 0.4 % (0.1 - 3.3 95% C.I.)

The prevalence of oedema is 0.0 %

Figure 16: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards In Children 6-59 Months From 2014 to 2016-Doro Camp

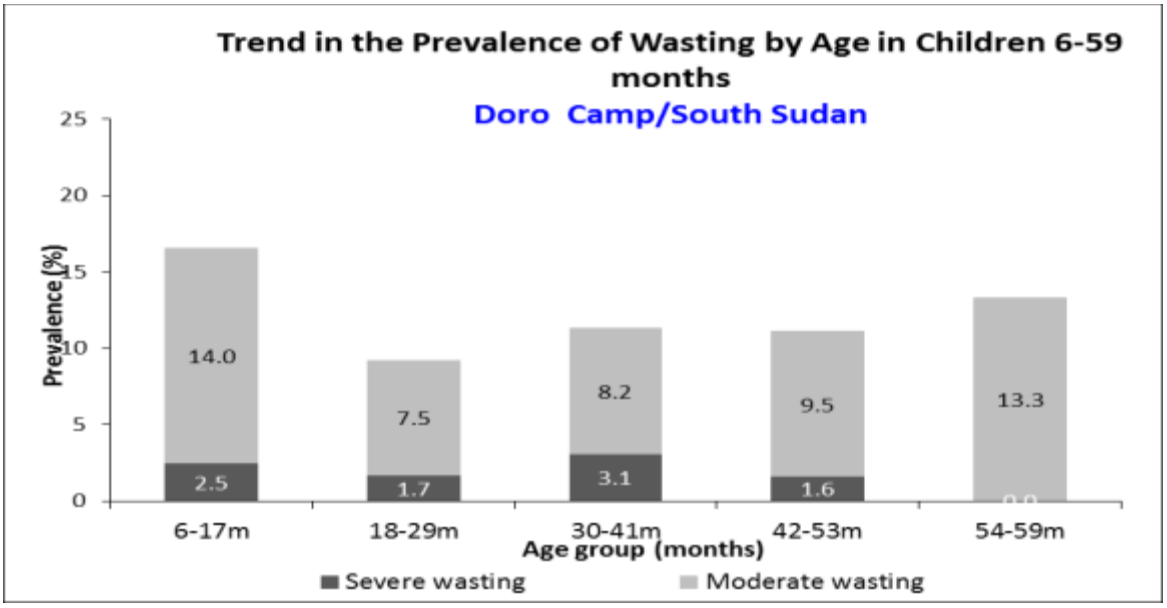


The nutrition situation remained the same in 2016 compared to 2015 as the change was not significant (p>0.05).

Table 18: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema-Doro Camp

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	157	4	2.5	22	14.0	131	83.4	0	0.0
18-29	120	2	1.7	9	7.5	109	90.8	0	0.0
30-41	159	5	3.1	13	8.2	141	88.7	0	0.0
42-53	63	1	1.6	6	9.5	56	88.9	0	0.0
54-59	15	0	0.0	2	13.3	13	86.7	0	0.0
Total	514	12	2.3	52	10.1	450	87.5	0	0.0

Figure 17: Trend in the Prevalence of Wasting By Age in Children 6-59 Months



The 6-17 months age group was the most affected by wasting indicating higher vulnerability at this age

Table 19: 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. 26 (4.9 %)	Not severely malnourished No. 505 (95.1 %)

Figure 18: 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. 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.

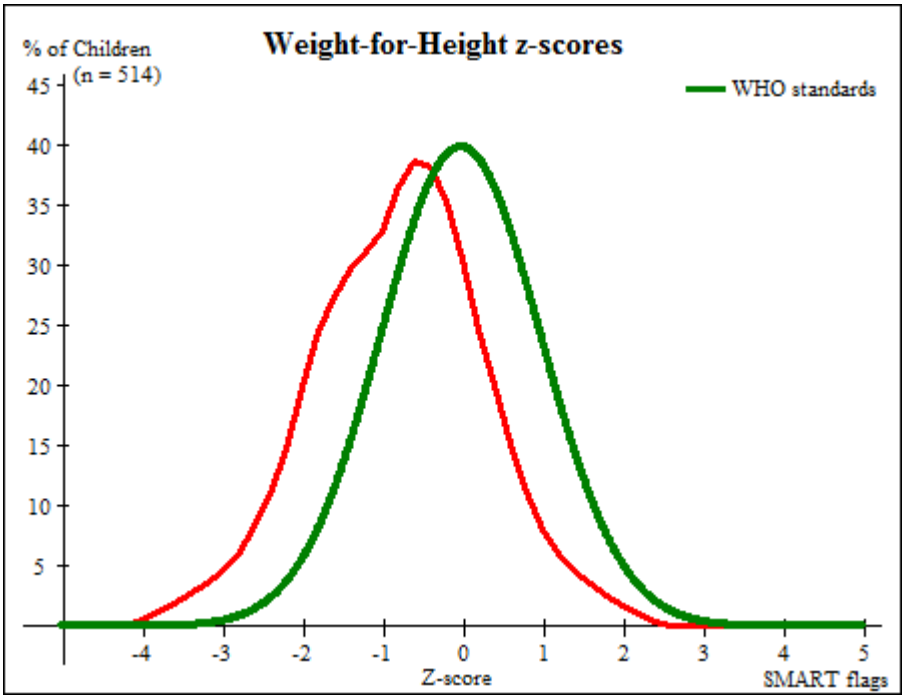


Table 20: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Doro Camp

	All n = 532	**Boys** n = 285	**Girls** n = 247
Prevalence of global malnutrition (< 125 mm and/or oedema)	(22) 4.1 % (2.4 - 7.0 95% C.I.)	(8) 2.8 % (1.2 - 6.2 95% C.I.)	(14) 5.7 % (2.9 - 10.7 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(20) 3.8 % (2.2 - 6.4 95% C.I.)	(7) 2.5 % (1.1 - 5.4 95% C.I.)	(13) 5.3 % (2.7 - 10.1 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.4 % (0.1 - 1.5 95% C.I.)	(1) 0.4 % (0.0 - 2.7 95% C.I.)	(1) 0.4 % (0.1 - 3.1 95% C.I.)

Table 21: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema-Doro Camp

		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	162	0	0.0	15	9.3	147	90.7	0	0.0
18-29	124	1	0.8	1	0.8	122	98.4	0	0.0
30-41	168	1	0.6	2	1.2	165	98.2	0	0.0
42-53	63	0	0.0	1	1.6	62	98.4	0	0.0
54-59	15	0	0.0	1	6.7	14	93.3	0	0.0
Total	532	2	0.4	20	3.8	510	95.9	0	0.0

Table 22: Prevalence of underweight based on weight-for-age z-scores by sex-Doro Camp

	All n = 523	**Boys** n = 280	**Girls** n = 243
Prevalence of underweight (<-2 z-score)	(162) 31.0 % (25.9 - 36.6 95% C.I.)	(97) 34.6 % (28.7 - 41.1 95% C.I.)	(65) 26.7 % (20.7 - 33.8 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(119) 22.8 % (18.9 - 27.1 95% C.I.)	(67) 23.9 % (19.3 - 29.2 95% C.I.)	(52) 21.4 % (16.0 - 28.0 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(43) 8.2 % (5.9 - 11.4 95% C.I.)	(30) 10.7 % (7.4 - 15.2 95% C.I.)	(13) 5.3 % (3.0 - 9.5 95% C.I.)

Table 23: Prevalence of underweight by age, based on weight-for-age z-scores-Doro Camp

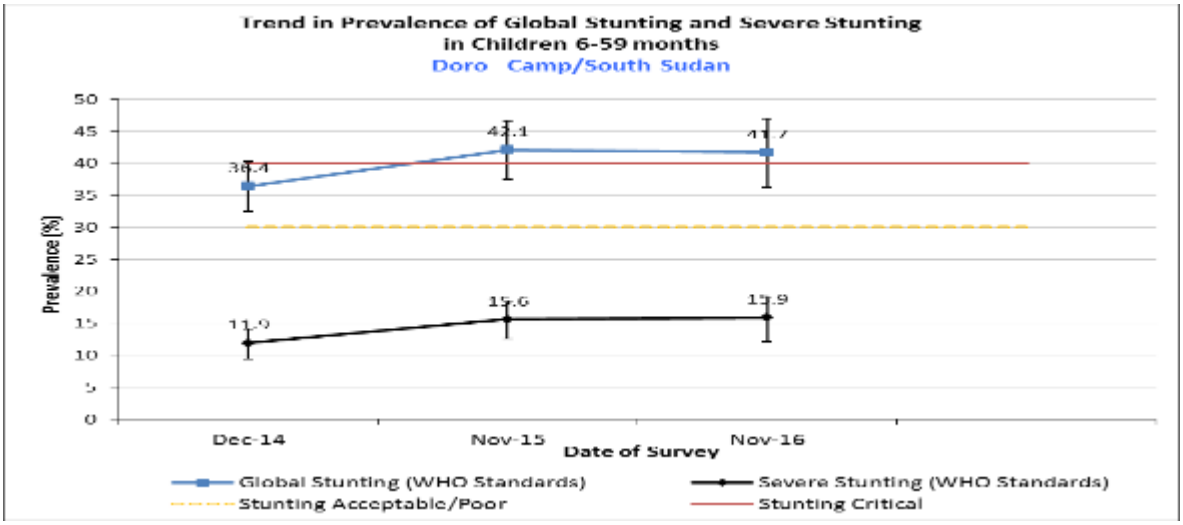
		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	162	7	4.3	36	22.2	119	73.5	0	0.0
18-29	122	11	9.0	30	24.6	81	66.4	0	0.0
30-41	162	17	10.5	31	19.1	114	70.4	0	0.0
42-53	63	6	9.5	16	25.4	41	65.1	0	0.0
54-59	14	2	14.3	6	42.9	6	42.9	0	0.0
Total	523	43	8.2	119	22.8	361	69.0	0	0.0

Table 24: Prevalence of stunting based on height-for-age z-scores and by sex-Doro Camp

	All n = 504	**Boys** n = 270	**Girls** n = 234
Prevalence of stunting (<-2 z-score)	(210) 41.7 % (36.4 - 47.2 95% C.I.)	(121) 44.8 % (38.6 - 51.2 95% C.I.)	(89) 38.0 % (29.5 - 47.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(130) 25.8 % (21.5 - 30.6 95% C.I.)	(80) 29.6 % (24.0 - 36.0 95% C.I.)	(50) 21.4 % (16.0 - 27.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(80) 15.9 % (12.7 - 19.7 95% C.I.)	(41) 15.2 % (10.7 - 21.1 95% C.I.)	(39) 16.7 % (12.2 - 22.4 95% C.I.)

Stunting prevalence is of high public health significance

Figure 19: Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards In Children 6-59 Months From 2014 to 2016-Doro Camp

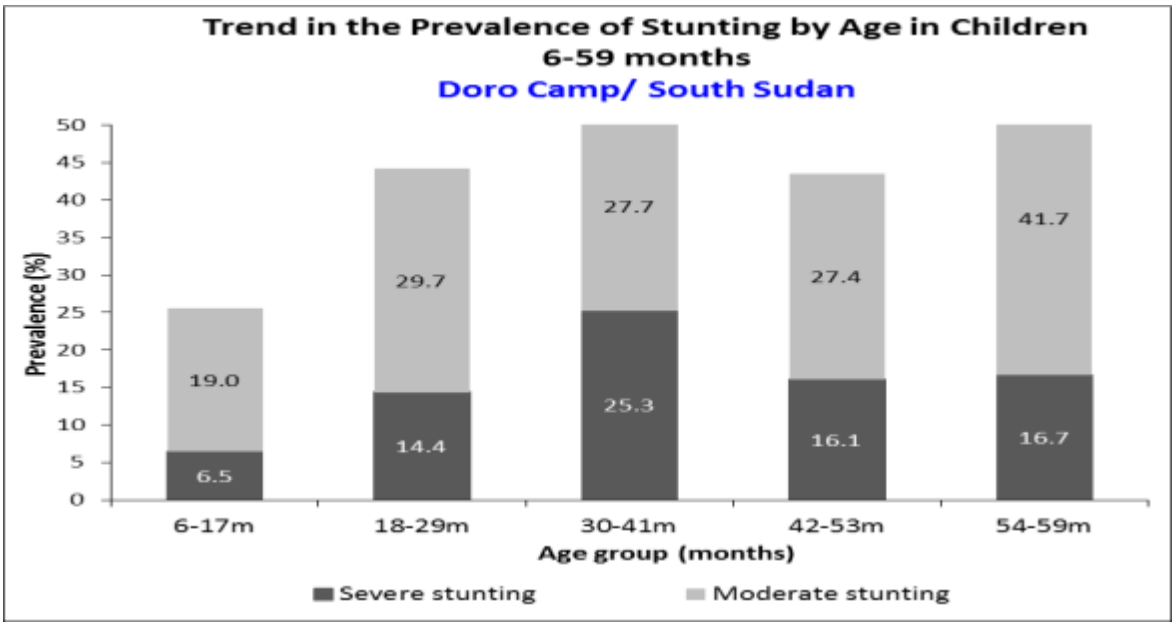


Stunting prevalence remained the same in 2016 as compared to 2015 (p>0.05)

Table 25: Prevalence of stunting by age based on height-for-age z-scores-Doro Camp

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	153	10	6.5	29	19.0	114	74.5
18-29	111	16	14.4	33	29.7	62	55.9
30-41	166	42	25.3	46	27.7	78	47.0
42-53	62	10	16.1	17	27.4	35	56.5
54-59	12	2	16.7	5	41.7	5	41.7
Total	504	80	15.9	130	25.8	294	58.3

Figure 20: Trends in the Prevalence of Stunting By Age in Children 6-59 Months



The age group of 30-41 months was the most affected by stunting in Doro Camp

Table 26: 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	514	-0.78±1.05	1.00	1	17
Weight-for-Age	523	-1.50±1.07	1.67	0	9
Height-for-Age	504	-1.73±1.21	1.44	1	27

* contains for WHZ and WAZ the children with edema.

3.2. Health/Feeding Programme Coverage-Doro Camp

Feeding Programme Coverage Results

Table 27: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ-Doro Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	3/59	5.0 (0-10.6)
Therapeutic feeding programme coverage	1/22	4.5 (0-14.0)

Table 28: Programme coverage for acutely malnourished children based on MUAC and oedema-Doro Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	3/20	15.0 (0-38.9)
Therapeutic feeding programme coverage	0/2	0.0(0-0)

Feeding program coverage very low. This to be interpreted with caution due to the low sample

Measles vaccination coverage results

Table 29: Measles Vaccination Coverage for Children Aged 9-59 Months (N=485)-Doro Camp

	Measles (with card) n= 327	**Measles (with card or confirmation from mother) n= 467**
YES	67.4% (58.2 -76.5 % CI)	96.3 % (93.8 -98.7 95 % CI)

Vitamin A supplementation coverage results

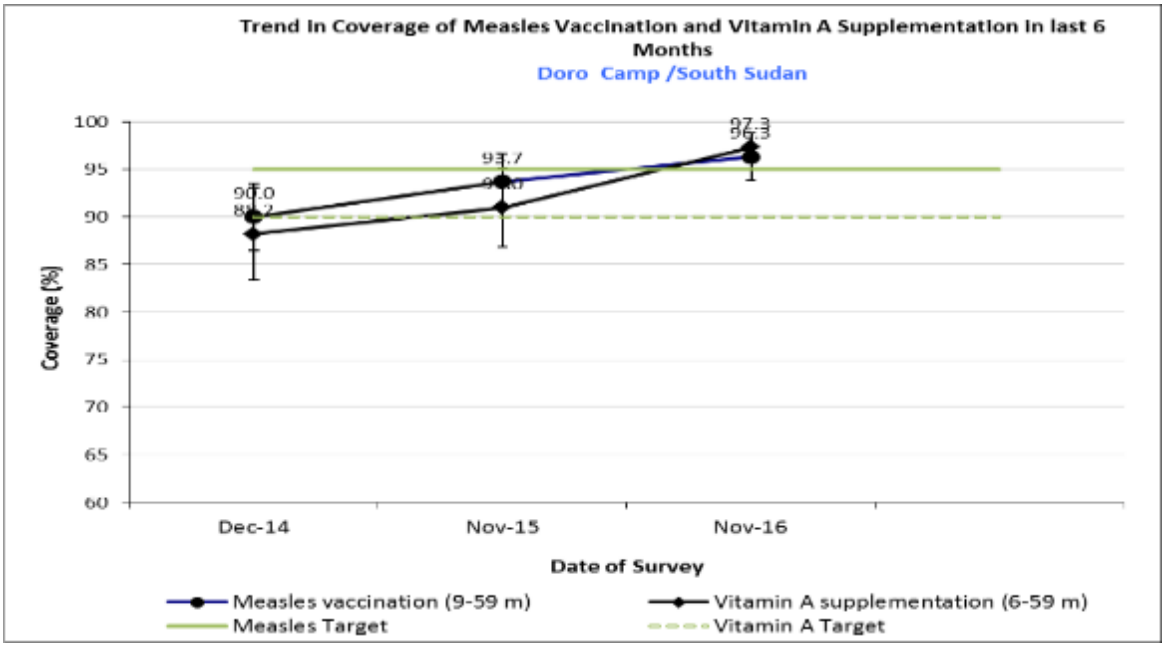
Table 30: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 532)-Doro Camp

	Vitamin A capsule (with card) n=298	**Vitamin A capsule (with card or confirmation from mother) n=518**
YES	56.0% (42.9-69.0 95% CI)	97.3% (95.0-99.6 95% CI)

Table 31: PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N= 532)-Doro Camp

	DPT3/PENTA3 (with card) n= 331	**DPT3/PENTA3 (with card or confirmation from mother) n= 522**
YES	62.2% (50.0-74.3)	98.1% (96.3-99.8)

Figure 21: Trends In the Coverage of Measles Vaccination and Vitamin A Supplementation in Last 6 Months in Children 6-59 Months from 2014 to 2016-Doro Camp



Vitamin A and Measles coverage met the required standards.

Diarrhoea Results

Table 32: Period Prevalence of Diarrhea-Doro Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	107/532	20.1 (12.6-27.6)

3.3. Anaemia Children 6 – 59 months-Doro Camp

The total anaemia prevalence among children 6 to 59 months is 48.7 % (41.4-55.9, 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 70.5 % (61.5-79.3 , 95% CI). This age group is much more affected by anaemia compared to the 24-59 months agegroup.

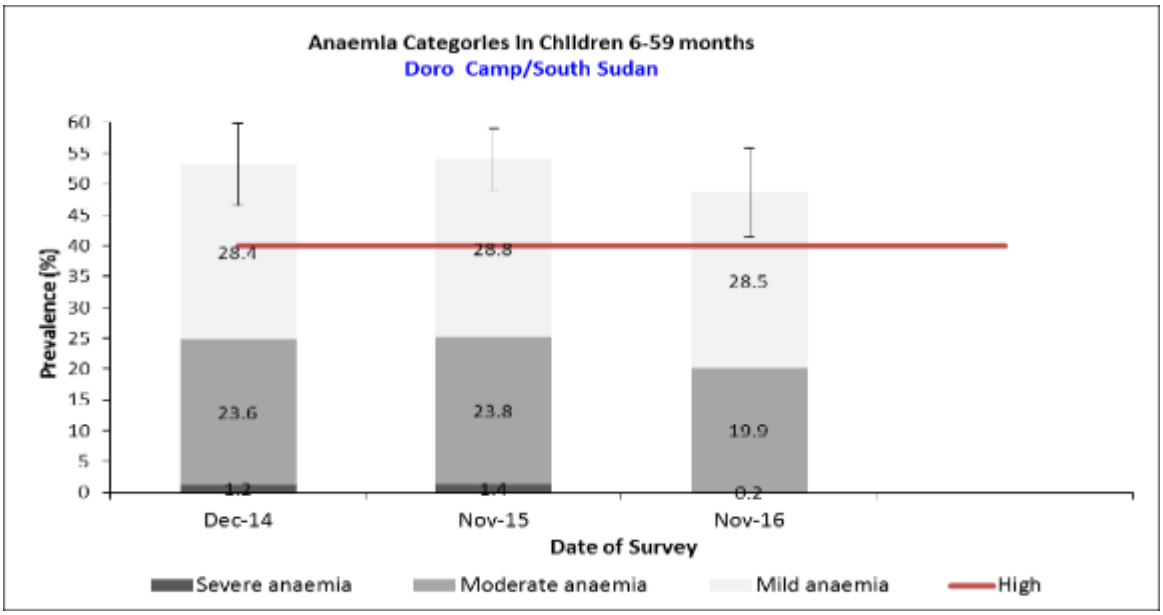
Table 33: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin

	6-59 months n = 532	**6-23 months** n=217	**24-59 months** n=315
Total Anaemia (Hb<11.0 g/dL)	(259) 48.7 % (41.4-55.9 , 95% CI)	(153) 70.5% (61.5-79.3 , 95% CI)	(106) 33.6% (27.1-40.1 , 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(152) 28.5 % (23.2 -33.8, 95% CI)	(79) 36.4% (28.9-43.8 , 95% CI)	(73) 23.2% (17.5-28.7, 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(106) 19.9% (15.2-24.6, 95% CI)	(74) 34.1% (25.7-42.4 , 95% CI)	(32) 10.1% (5.9-14.3 , 95% CI)
Severe Anaemia (<7.0 g/dL)	(1) 0.2% (0.0-0.5, 95% CI)	(0) 0% (0-0 , 95% CI)	(1) 0.3 (-0.3-0.9 , 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	10.9 g/dL (10.1-11.1 , 95% CI) [6.1-14.3]	10.4 g/dL (10.1-10.6 , 95% CI) [7.3-13.4]	11.3 g/dL (11.1-11.5 , 95% CI) [6.1-14.3]

Table 34: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Doro Camp

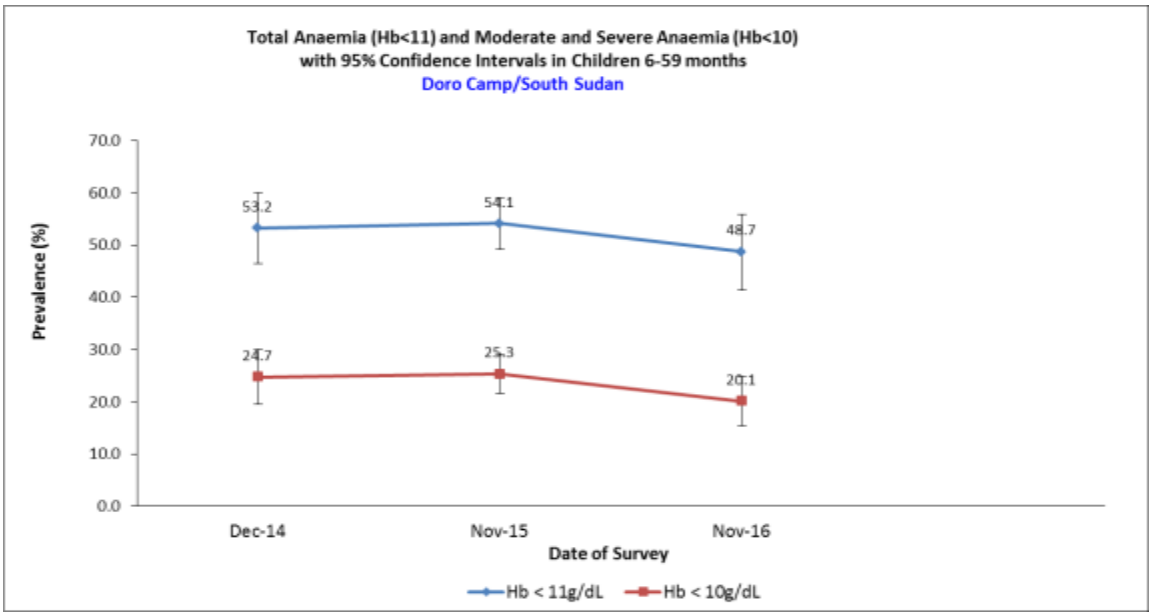
	6-59 months n = 532	**6-23 months** n= 217	**24-59 months** n= 315
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(107) 20.1% (15.4-24.8 , 95% CI)	(74) 34.1% (25.7-42.4 , 95% CI)	(33) 10.5 % (6.3-14.6 , 95% CI)

Figure 22: Trends in Anaemia Categories in Children 6-59 Months from 2014 to 2016-Doro Camp



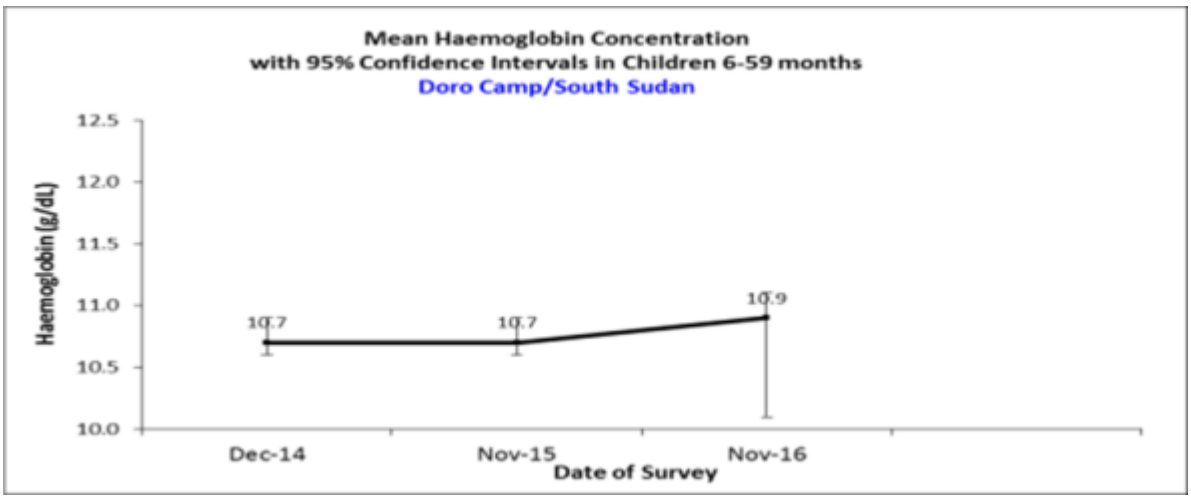
The anaemia prevalence reduced but not significantly between 2015 and 2016 (P>0.05).

Figure 23: Trend in Total Anaemia (<11 G/Dl), and Moderate and Severe Anaemia (<10 G/Dl) With 95% CI in Children 6-59 Months from 2014 to 2016-Doro Camp



The decrease in Anaemia prevalence in Doro from 2015 to 2016 was not significant (p>0.05)

Figure 24: Trend in Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2014 to 2016-Doro Camp

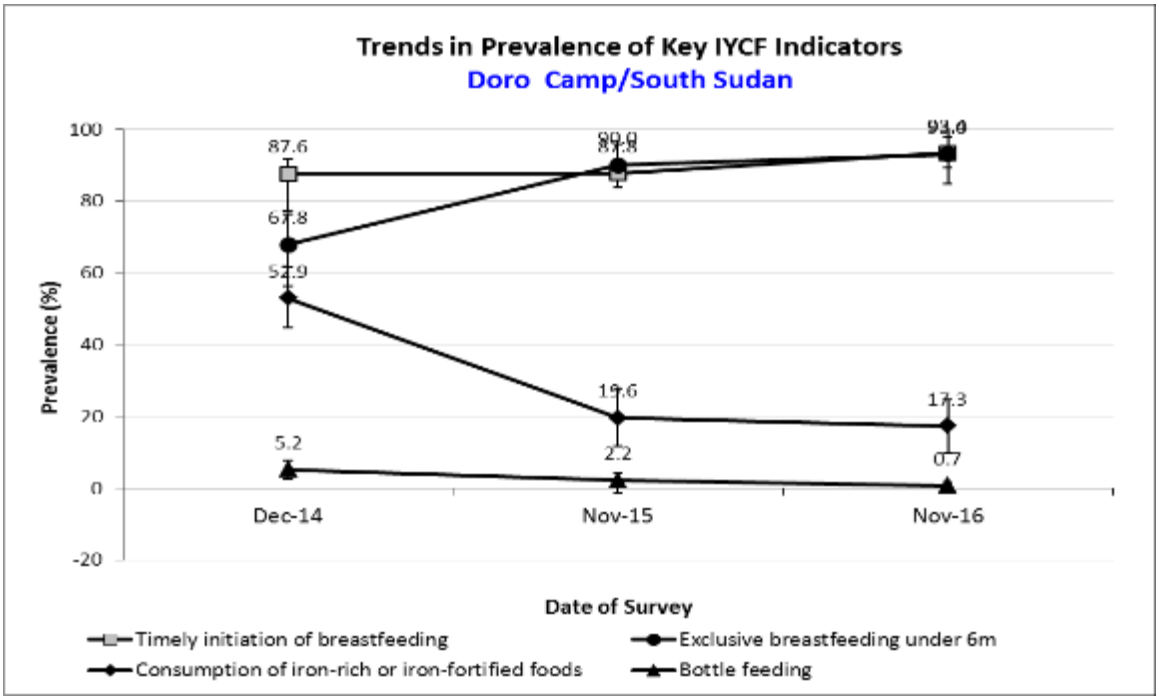


3.4. IYCF Children 0-23 Months-Doro Camp

Table 35: 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**	258/276	93.4	89.2-97.6
Exclusive breastfeeding under 6 months	**0-5 months**	53/57	93.0	84.5-100.0
Continued breastfeeding at 1 year	**12-15 months**	49/52	94.2	86.1-100.0
Continued breastfeeding at 2 years	**20-23 months**	23/29	79.3	62.0-96.6
Introduction of solid, semi-solid or soft foods	**6-8 months**	22/47	46.8	24.1-69.4
Consumption of iron-rich or iron-fortified foods	**6-23 months**	37/214	17.3	9.9-24.7
Bottle feeding	**0-23 months**	2/273	0.7	0.0-1.7

Figure 25: Key IYCF Indicators from 2014 to 2016-Doro Camp



The IYCF indicators remained the same in 2016 compared to 2015.

Prevalence of Intake

Infant Formula

Table 36: 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)	3/274	1.0 (0-2.3)

Fortified Blended Foods

Table 37: CSB+ Intake in Children Aged 6-23 Months-Doro Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	11/216	5.0(0-10.3)

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

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	11/216	5.0 (0-10.3)

3.5. Anaemia Women 15-49 Years Results-Doro Camp

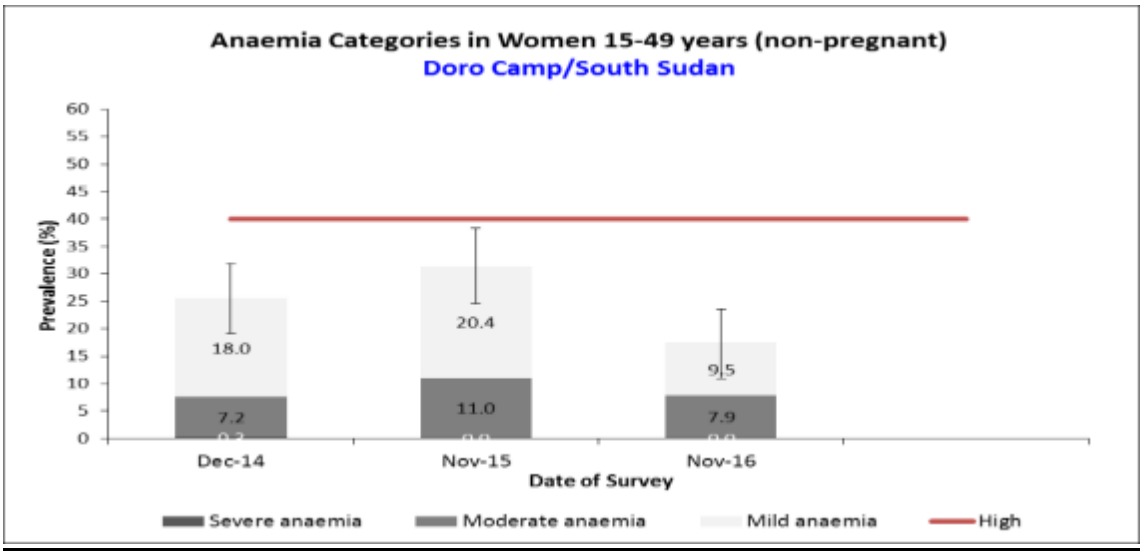
Table 39: Women Physiological Status and Age-Doro Camp

Physiological status	Number/total	% of sample
Non-pregnant	192/212	90.6
Pregnant	19/212	9
Don't Know	1/212	0.4
Mean age (range)	26.7(15-49)	

Table 40: 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 = 190**
Total Anaemia (<12.0 g/dL)	(33) 17.4% (11.0-23.6 , 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(18) 9.5% (5.4-13.4 , 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(15) 7.9 % (3.5-12.27 , 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0.0 (0.0-0.0, 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.9 g/dL (12.7-13.1, 95% CI) [9.3-15.4]

Figure 26: Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2014 to 2016-Doro Camp



Anaemia among women of reproductive age reduced significantly in 2016 compared to that in 2015 ($p<0.05$).

Table 41: 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	18/19	94.7 (82.9-100)
Currently receiving iron-folic acid pills	17/19	89.5 (73.8-100)

3.6. Water Sanitation and Hygiene (WASH)-Doro Camp

Table 42: WASH Sampling Information-Doro Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	462	445	96.3

Table 43: Water Quality-Doro Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	445/445	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	220/445	49.4 (36.8-62.0)

Table 44: 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	255/445	57.3 (46.6-67.9)
15 – <20 lpppd	53/445	11.9 (8.5-15.2)
<15 lpppd	137/445	30.8 (18.5-42.9)

Add the average water usage in lpppd:_____26.7 lpppd_____

Table 45: Satisfaction with Water Supply-Doro Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	**301/445**	**67.6 (56.4-78.8)**

Figure 27: Proportion of Households That Say They Are Satisfied With the Water Supply

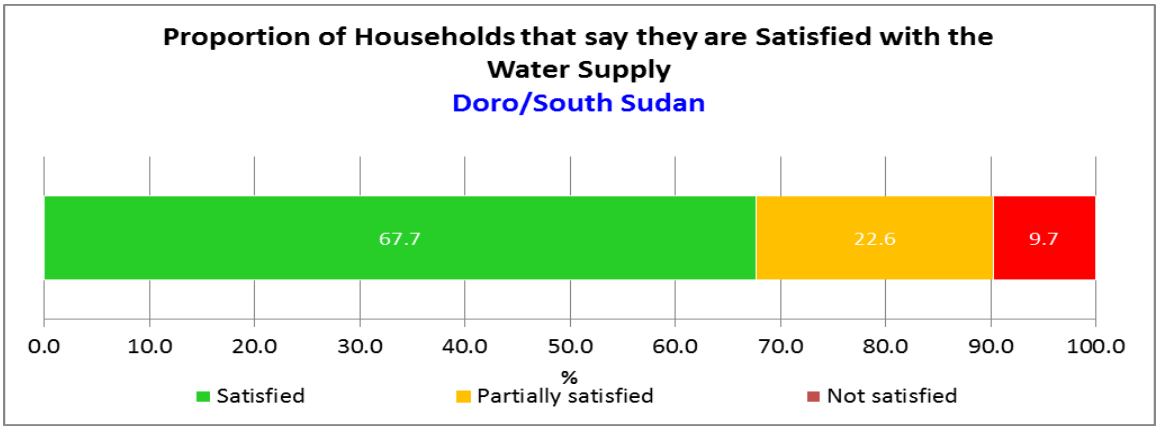


Figure 28: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

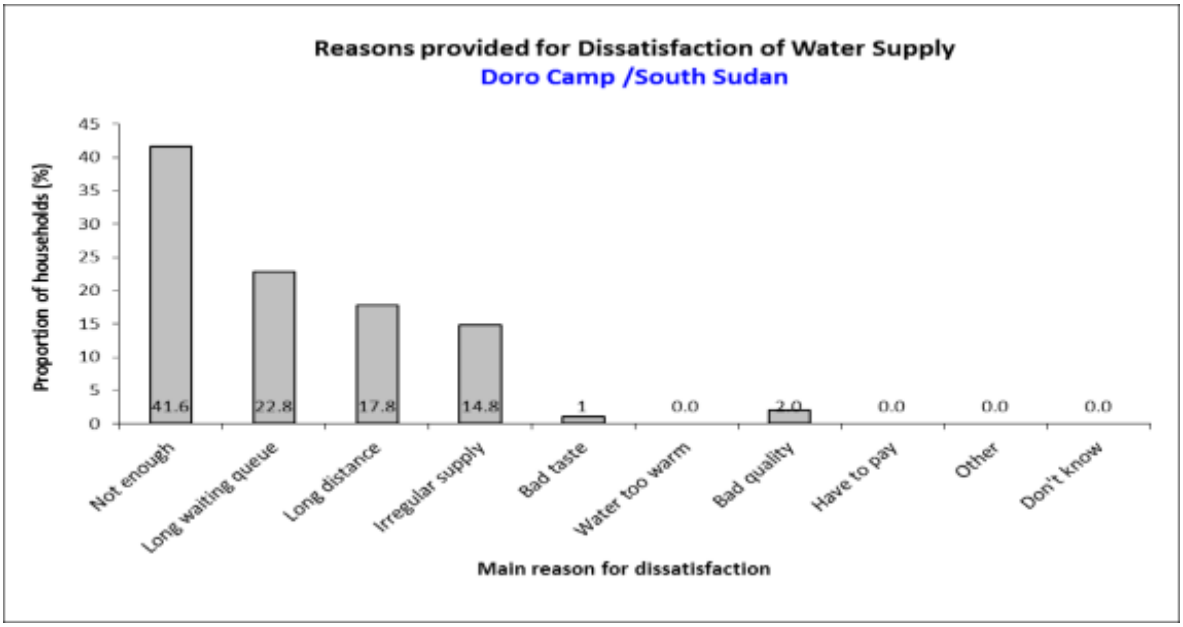


Table 46: Safe excreta disposal-Doro Camp

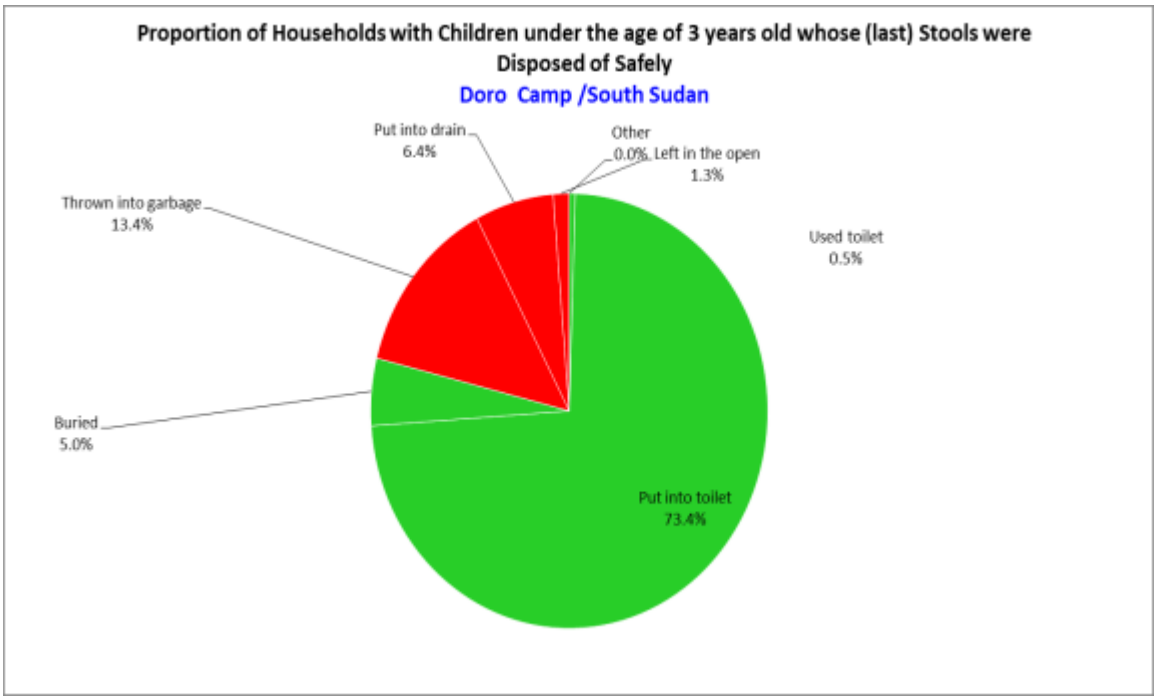
	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,**	97/442	21.9(14.1-29.7)
A shared family toilet (improved toilet facility, 2 households)**	54/442	12.2 (6.9-17.4)
A communal toilet (improved toilet facility, 3 households or more)	85/442	19.2 (12.2-26.1)
An unimproved toilet (unimproved toilet facility or public toilet)	26/442	46.6 (34.2-58.9)
Proportion of households with children under three years old that dispose of faeces safely	284/360	78.9 (69.8-87.9)

***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 29: Proportion of Households with Children under the Age of 3 Years whose (last) stools were disposed off safely



3.7. Mosquito Net Coverage-Doro Camp

Table 47: Mosquito Net Coverage Sampling Information-Doro Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	231	223	96.5

Table 48: Household Mosquito Net Ownership-Doro Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	199/223	89.2 (82.8-95.6)
Proportion of total households owning at least one LLIN	182/223	81.6 (74.5-88.6)

Figure 30: Household Ownership of At Least One Mosquito Net (Any Type)

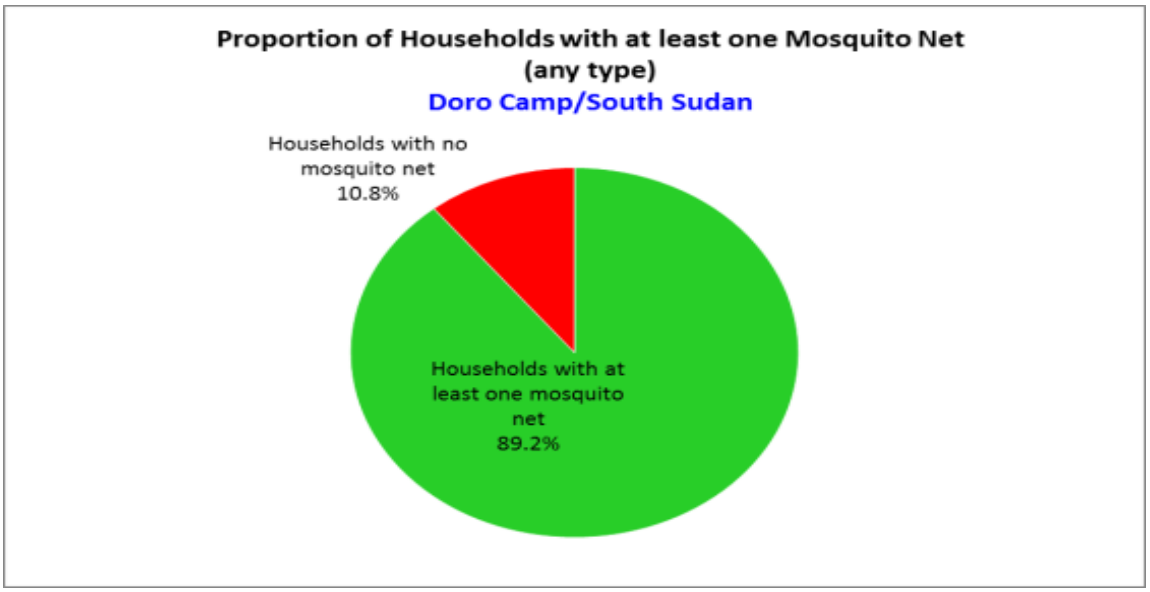


Figure 31: Household Ownership of At Least One LLIN

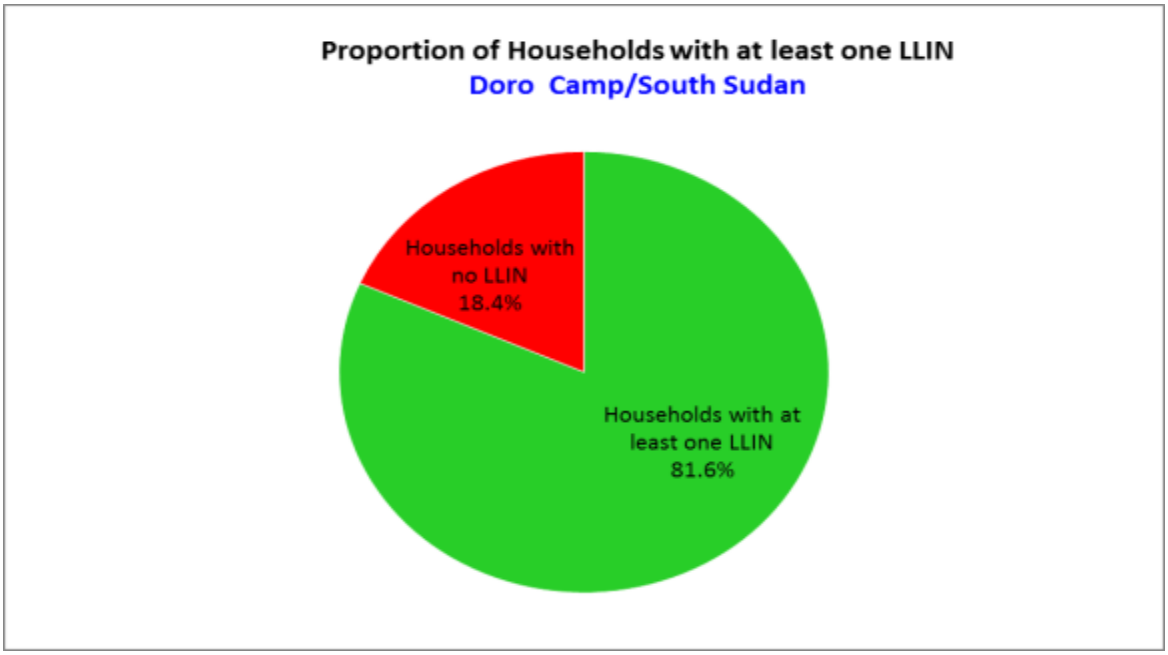


Table 49: Number of Nets-Doro Camp

Average number of LLINs per household	Average number of persons per LLIN
1.7	3.8

Table 50: Mosquito Net Utilization-Doro Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1187	%	Total No= 289	%	Total No= 21	%
Slept under net of any type	824	69.4	256	88.6	18	85.7
Slept under LLIN	728	61.3	223	77.2	11	61.1

Figure 32: **Mosquito Net Utilization by Sub-Group**

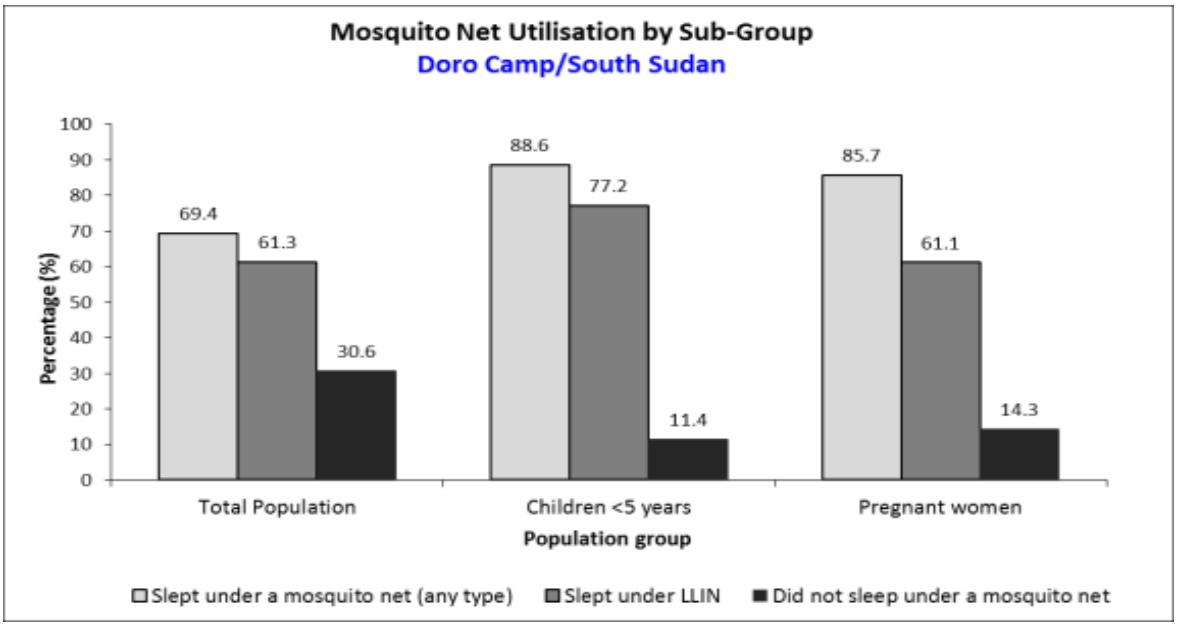


Table 51: Indoor Residual Spraying -Doro Camp

	Number/total	% (95% CI)
Proportion of total households with Indoor Residual Spraying (IRS)	207/223	92.8 (88.4-97.2)

YUSUF BATIL CAMP

The demographic characteristics are illustrated in table 12 below.

Table 52: Demographic Characteristics of the Batil Survey Population-Batil Camp

Total households surveyed	*411*
Total population surveyed	*2417*
Total U5 surveyed	*520*
Average household size	*5.9*
% of U5	*20.8*

Table 53: Target and Actual Number Captured-Batil Camp

	Target (No.)	**Total surveyed (No.)**	**% of the target**
Children 6-59 months	524	520	99.2%
Clusters (where applicable)	26	26	100%

3.8. Anthropometric results (based on WHO standards 2006)-Batil Camp

Table 54: Distribution of age and sex of sample-Batil Camp

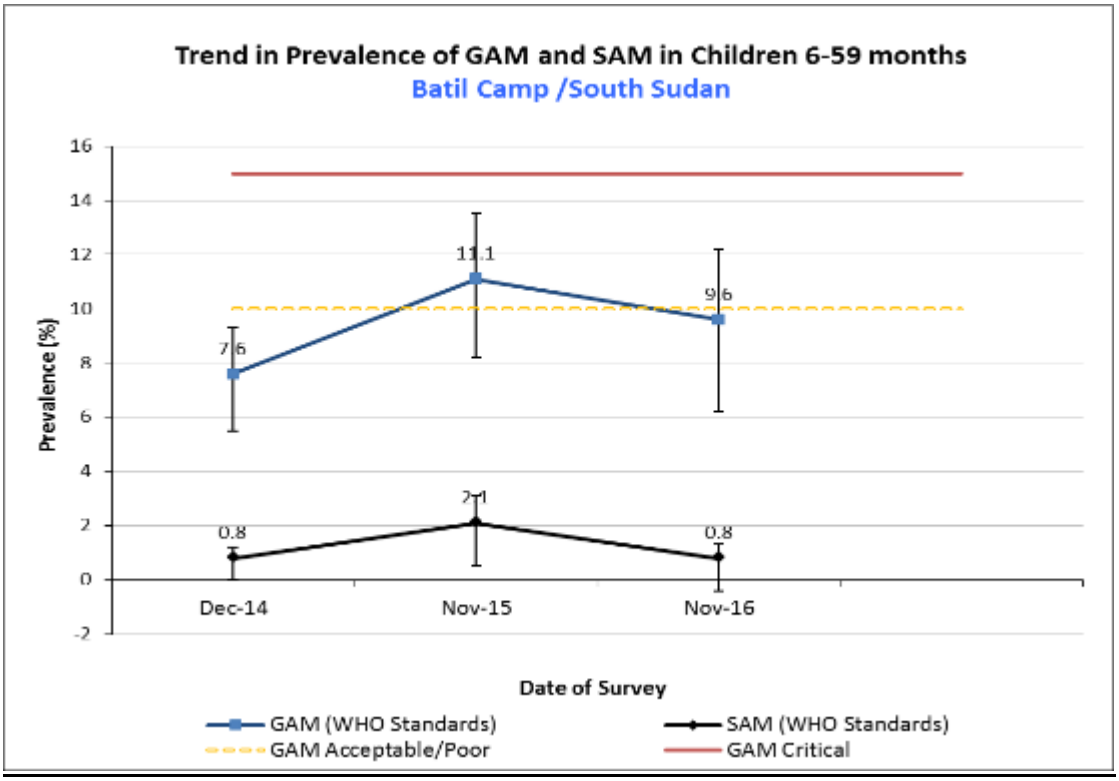
	Boys		**Girls**		**Total**		**Ratio**
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	74	55.2	60	44.8	134	25.1	1.2
18-29	71	51.4	67	48.6	138	25.9	1.1
30-41	82	52.2	75	47.8	157	29.5	1.1
42-53	42	51.2	40	48.8	82	15.4	1.0
54-59	14	63.6	8	36.4	22	4.1	1.8
Total	283	53.1	250	46.9	533	100.0	1.1

Table 55: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Batil Camp

	All n = 520	**Boys** n = 276	**Girls** n = 244
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(50) 9.6 % (7.0 - 13.0 95% C.I.)	(31) 11.2 % (7.3 - 16.8 95% C.I.)	(19) 7.8 % (5.4 - 11.2 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(46) 8.8 % (6.6 - 11.8 95% C.I.)	(30) 10.9 % (7.0 - 16.5 95% C.I.)	(16) 6.6 % (4.3 - 9.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(4) 0.8 % (0.3 - 2.0 95% C.I.)	(1) 0.4 % (0.0 - 2.8 95% C.I.)	(3) 1.2 % (0.4 - 3.9 95% C.I.)

The prevalence of oedema is 0.1 %

Figure 33: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards In Children 6-59 Months From 2014 to 2016 –Batil Camp



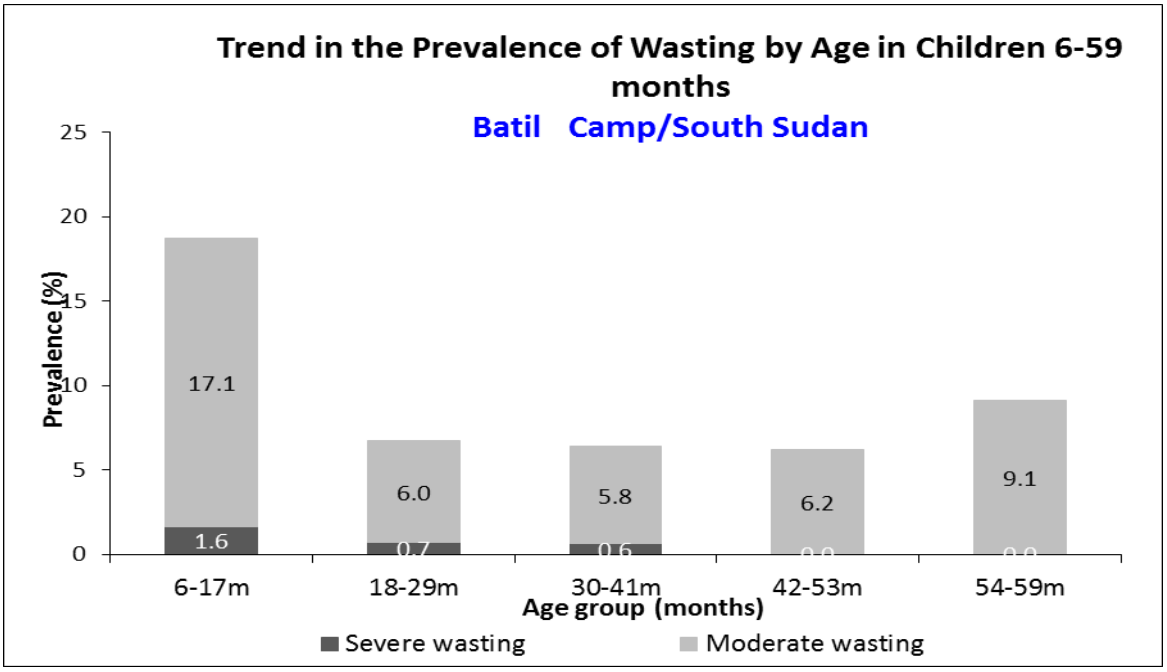
The nutrition situation remained the same in 2016 compared to 2015 as the change was not significant (p>0.05)

Table 56: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema-Batil Camp

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	129	2	1.6	22	17.1	105	81.4	0	0.0
18-29	134	1	0.7	8	6.0	125	93.3	0	0.0
30-41	154	1	0.6	9	5.8	144	93.5	0	0.0
42-53	81	0	0.0	5	6.2	76	93.8	0	0.0
54-59	22	0	0.0	2	9.1	20	90.9	0	0.0
Total	520	4	0.8	46	8.8	470	90.4	0	0.0

The 6-17 age group was more severely wasted compared to the other age groups

Figure 34: Trend in the Prevalence of Wasting By Age in Children 6-59 Months



The 6-17 months age group was the most affected by wasting indicating higher vulnerability at this age

Table 57: 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. 0 (0.0 %)
Oedema absent	Marasmic No. 9 (1.7 %)	Not severely malnourished No. 521 (98.3 %)

Figure 35: 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). 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.

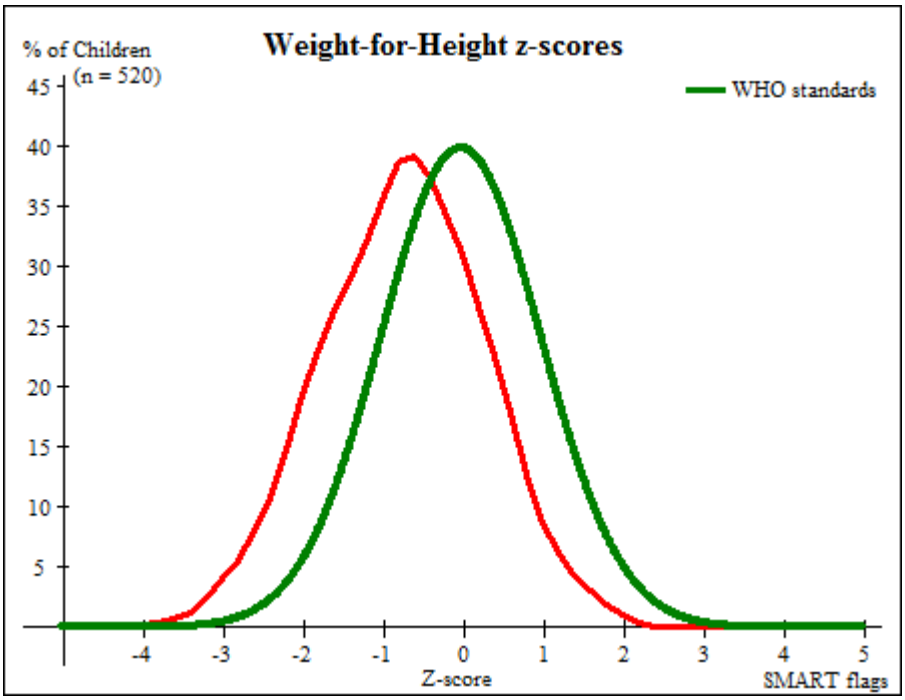


Table 58: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Batil Camp

	All n = 531	**Boys** n = 283	**Girls** n = 248
Prevalence of global malnutrition (< 125 mm and/or oedema)	(20) 3.8 % (2.5 - 5.7 95% C.I.)	(7) 2.5 % (1.1 - 5.3 95% C.I.)	(13) 5.2 % (3.3 - 8.2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(18) 3.4 % (2.1 - 5.3 95% C.I.)	(5) 1.8 % (0.6 - 4.8 95% C.I.)	(13) 5.2 % (3.3 - 8.2 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.4 % (0.1 - 1.5 95% C.I.)	(2) 0.7 % (0.2 - 2.8 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 59 : Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema-Batil Camp

		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	133	2	1.5	14	10.5	117	88.0	0	0.0
18-29	137	0	0.0	3	2.2	134	97.8	0	0.0
30-41	157	0	0.0	0	0.0	157	100.0	0	0.0
42-53	82	0	0.0	1	1.2	81	98.8	0	0.0
54-59	22	0	0.0	0	0.0	22	100.0	0	0.0
Total	531	2	0.4	18	3.4	511	96.2	0	0.0

Table 60 : Prevalence of underweight based on weight-for-age z-scores by sex-Batil Camp

	All n = 526	Boys n = 279	Girls n = 247
Prevalence of underweight (<-2 z-score)	(230) 43.7 % (37.4 - 50.3 95% C.I.)	(124) 44.4 % (37.6 - 51.5 95% C.I.)	(106) 42.9 % (35.0 - 51.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(155) 29.5 % (25.6 - 33.7 95% C.I.)	(83) 29.7 % (24.4 - 35.7 95% C.I.)	(72) 29.1 % (24.7 - 34.0 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(75) 14.3 % (10.6 - 18.9 95% C.I.)	(41) 14.7 % (10.6 - 20.0 95% C.I.)	(34) 13.8 % (9.1 - 20.3 95% C.I.)

Table 61: Prevalence of underweight by age, based on weight-for-age z-scores-Batil Camp

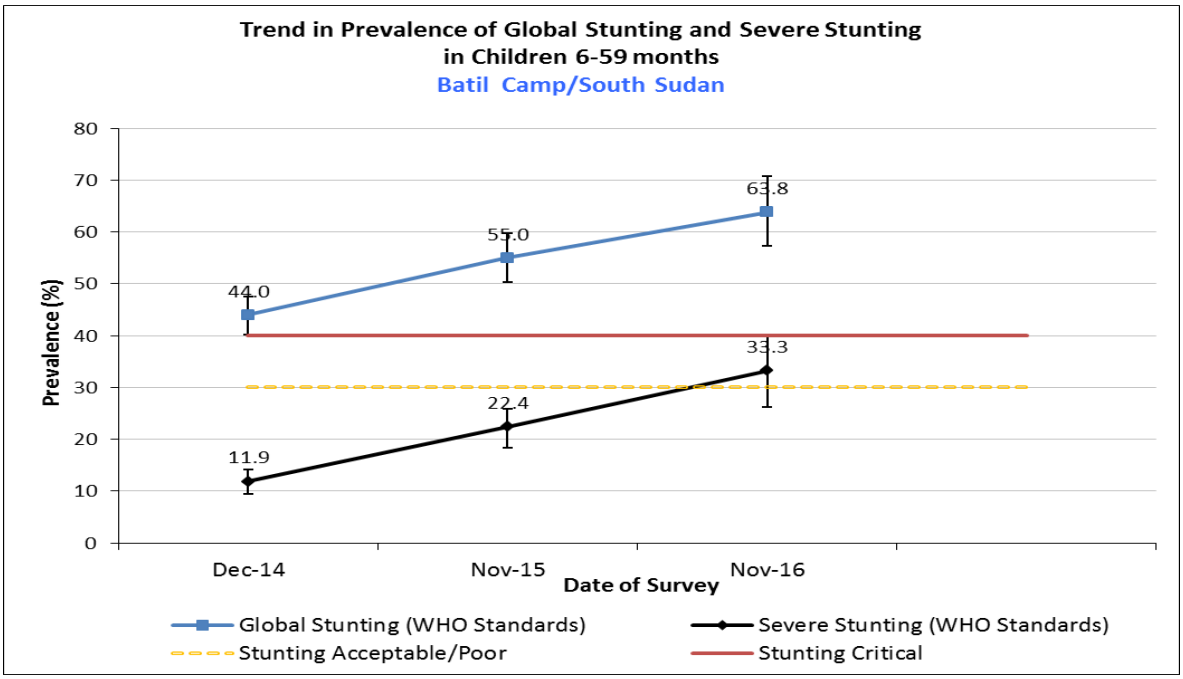
		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	130	22	16.9	33	25.4	75	57.7	0	0.0
18-29	137	22	16.1	38	27.7	77	56.2	0	0.0
30-41	157	20	12.7	49	31.2	88	56.1	0	0.0
42-53	80	7	8.8	30	37.5	43	53.8	0	0.0
54-59	22	4	18.2	5	22.7	13	59.1	0	0.0
Total	526	75	14.3	155	29.5	296	56.3	0	0.0

Table 62: Prevalence of stunting based on height-for-age z-scores and by sex-Batil Camp

	All n = 511	Boys n = 273	Girls n = 238
Prevalence of stunting (<-2 z-score)	(326) 63.8 % (56.9 - 70.2 95% C.I.)	(182) 66.7 % (58.7 - 73.8 95% C.I.)	(144) 60.5 % (53.2 - 67.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(156) 30.5 % (26.3 - 35.1 95% C.I.)	(82) 30.0 % (24.3 - 36.5 95% C.I.)	(74) 31.1 % (25.9 - 36.8 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(170) 33.3 % (26.8 - 40.4 95% C.I.)	(100) 36.6 % (28.0 - 46.2 95% C.I.)	(70) 29.4 % (23.0 - 36.8 95% C.I.)

Stunting prevalence is of high public health significance

Figure 36: Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards In Children 6-59 Months From 2014 to 2016-Batil Camp

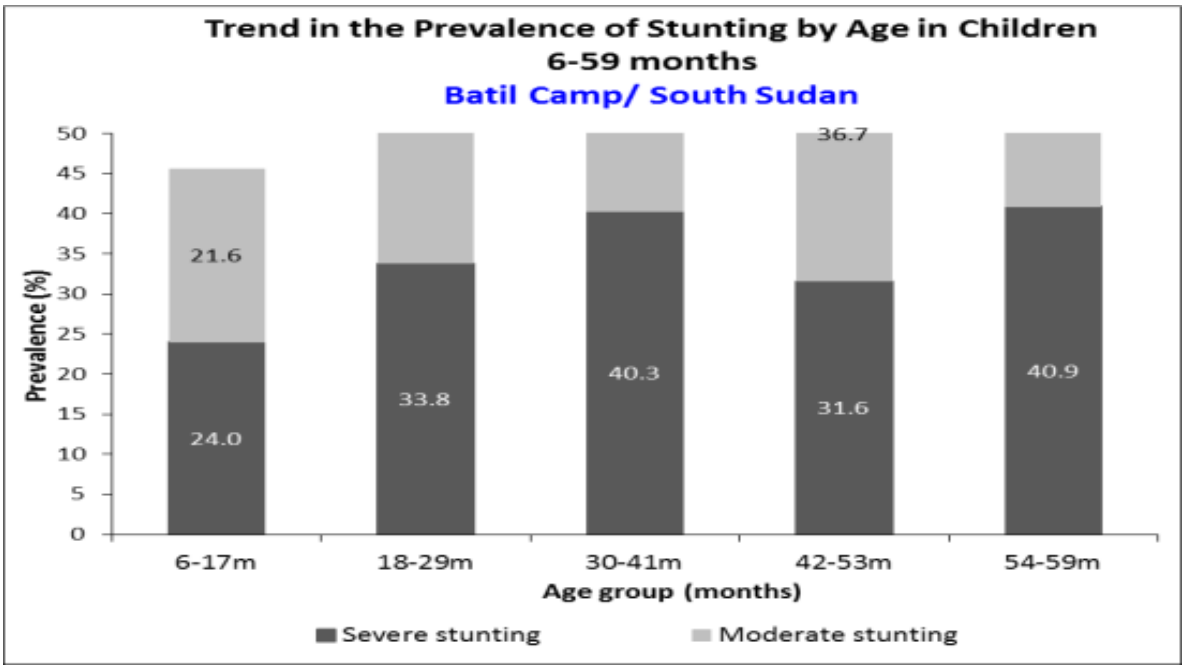


The increase in stunting from 2015 to 2016 was not significant in Batil (p>0.05)

Table 63: Prevalence of stunting by age based on height-for-age z-scores-Batil Camp

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	125	30	24.0	27	21.6	68	54.4
18-29	136	46	33.8	47	34.6	43	31.6
30-41	149	60	40.3	46	30.9	43	28.9
42-53	79	25	31.6	29	36.7	25	31.6
54-59	22	9	40.9	7	31.8	6	27.3
Total	511	170	33.3	156	30.5	185	36.2

Figure 37 : Trends in the Prevalence of Stunting By Age in Children 6-59 Months



The stunting vulnerability was equally distributed within the age groups of 18-29, 30-41,42-53 and 54-59 months

Table 64: 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	520	-0.73±0.99	1.24	3	10
Weight-for-Age	526	-1.87±1.03	2.11	1	6
Height-for-Age	511	-2.45±1.19	2.32	2	20

* contains for WHZ and WAZ the children with edema.

3.9. Health/Feeding Programme Coverage-Batil Camp

Feeding Programme Coverage Results

Table 65: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ-Batil Camp

	Number/total	**% (95% CI)**
Supplementary feeding programme coverage	9/56	16.0(5.0-27.1)
Therapeutic feeding programme coverage	1/10	10.0(0-34.7)

Table 66: Programme coverage for acutely malnourished children based on MUAC and oedema-Batil Camp

	Number/total	**% (95% CI)**
Supplementary feeding programme coverage	9/18	50.0(25.0-74.9)
Therapeutic feeding programme coverage	1/2	50.00-141.8)

Measles vaccination coverage results

Table 67: Measles Vaccination Coverage for Children Aged 9-59 Months (N=398)-Batil Camp

	Measles (with card) n= 389	**Measles (with card or confirmation from mother) n= 480**
YES	78.1% (71.5-84.7; 95% CI)	96.4 % (94.2-98.5; 95% CI)

Vitamin A supplementation coverage results

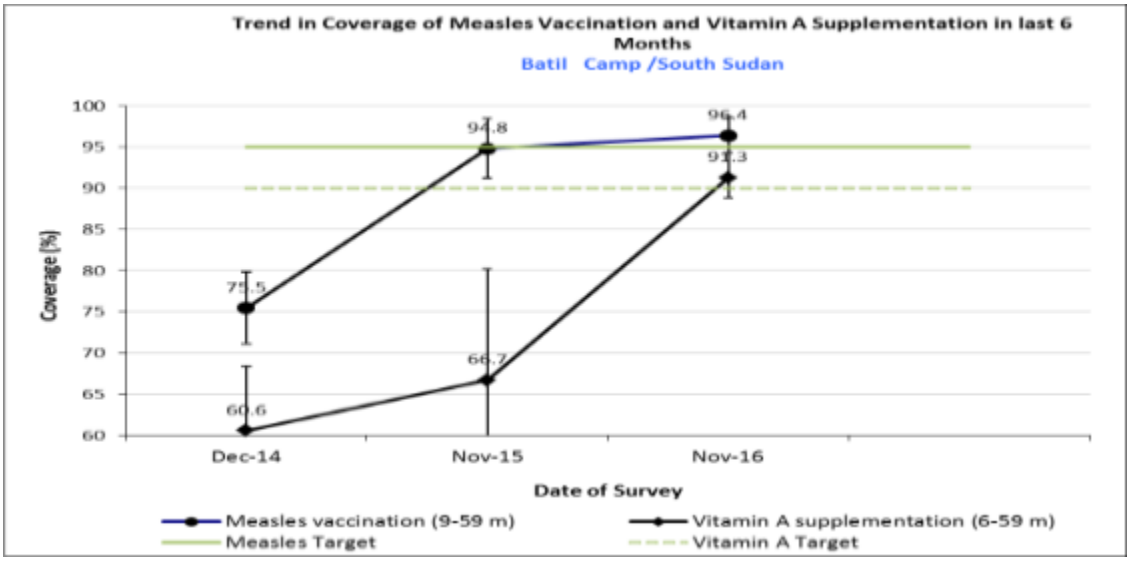
Table 68: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 532)-Batil Camp

	Vitamin A capsule (with card) n=280	**Vitamin A capsule (with card or confirmation from mother) n=486**
YES	52.60% (38.9-66.3; 95% CI)	91.3 % (86.8-96.8 95% CI)

Table 69: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=533-Batil Camp)-Batil Camp

	DPT3 / PENTA3 (with card) n=367	**DPT3 / PENTA3 (with card or confirmation from mother) n=509**
YES	68.9% (55.9-81.7; 95% CI)	95.4 % (93.0-97.9 95% CI)

Figure 38: Trends In the Coverage of Measles Vaccination and Vitamin A Supplementation in Last 6 Months in Children 6-59 Months from 2014 to 2016-Batil Camp



Diarrhoea Results

Table 70: Period Prevalence of Diarrhea-Batil Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	28/533	5.3 (1.8-8.6)

3.10. Anaemia Results Children 6 – 59 months-Batil Camp

The total anaemia prevalence among children 6 to 59 months is of high health significance at 48.0% (44.0-52.0; 95% CI). Prevalence of anaemia among children 6 to 23 months is also of high public health significance at 63.5 % (56.6-70.4 95% CI).

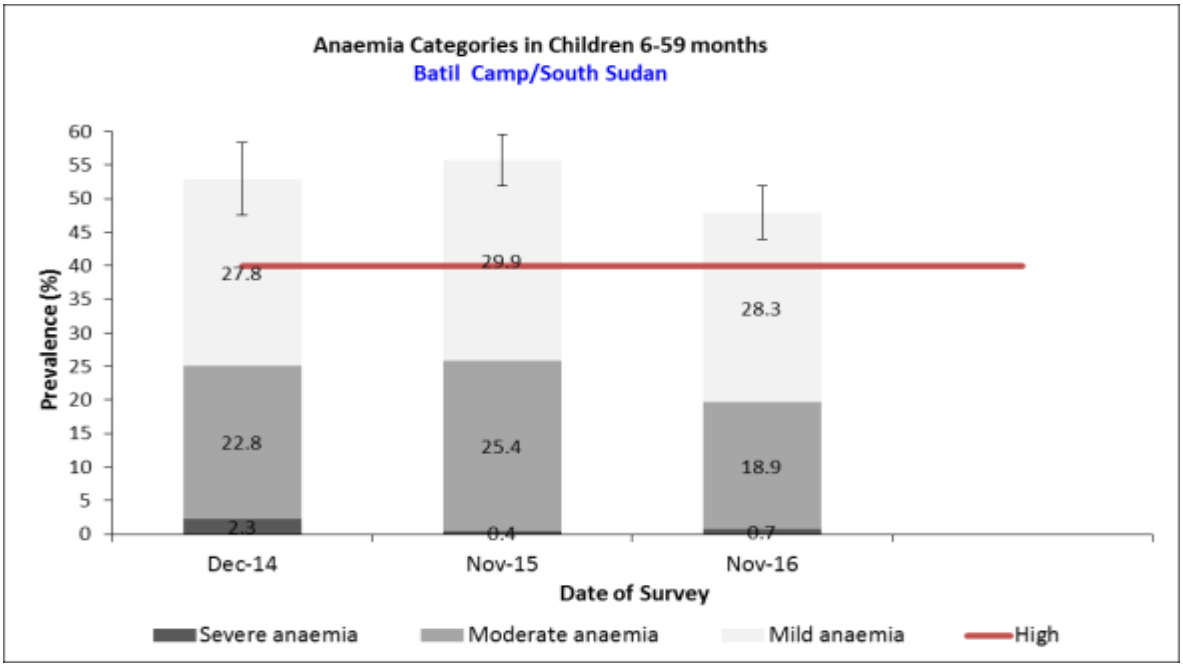
Table 71: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group-Batil Camp

	6-59 months n = 533	**6-23 months** n=192	**24-59 months** n=341
Total Anaemia (Hb<11.0 g/dL)	(256) 48.0% (44.0-52.0 ; 95% CI)	(122) 63.5 % (56.6-70.4 95% CI)	(134) 39.3% (34.3-44.2 ; 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(151) 28.3 % (25.5-32.1 ; 95% CI)	(69) 35.9% (30.0-41.8 ; 95% CI)	(82) 24.0 % (19.6-28.4 ; 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(101) 18.9 % (15.0-22.8 ; 95% CI)	(52) 27.0% (20.3-33.8 ; 95% CI)	(49) 14.3 % (10.4-18.2 ; 95% CI)
Severe Anaemia (<7.0 g/dL)	(4) 0.7 % (0.0-1.4 ; 95% CI)	(1) 0.5% (0-1.6 ; 95% CI)	(3) 0.9 (0-0.8 ; 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.9 g/dL (10.7-11.0 ; 95% CI) [6.5-15.6]	10.4 g/dL (10.3-10.6 ; 95% CI) [6.5-13.4]	11.1 g/dL (10.9-11.3 ; 95% CI) [6.5-15.6]

Table 72: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group-Batil Camp

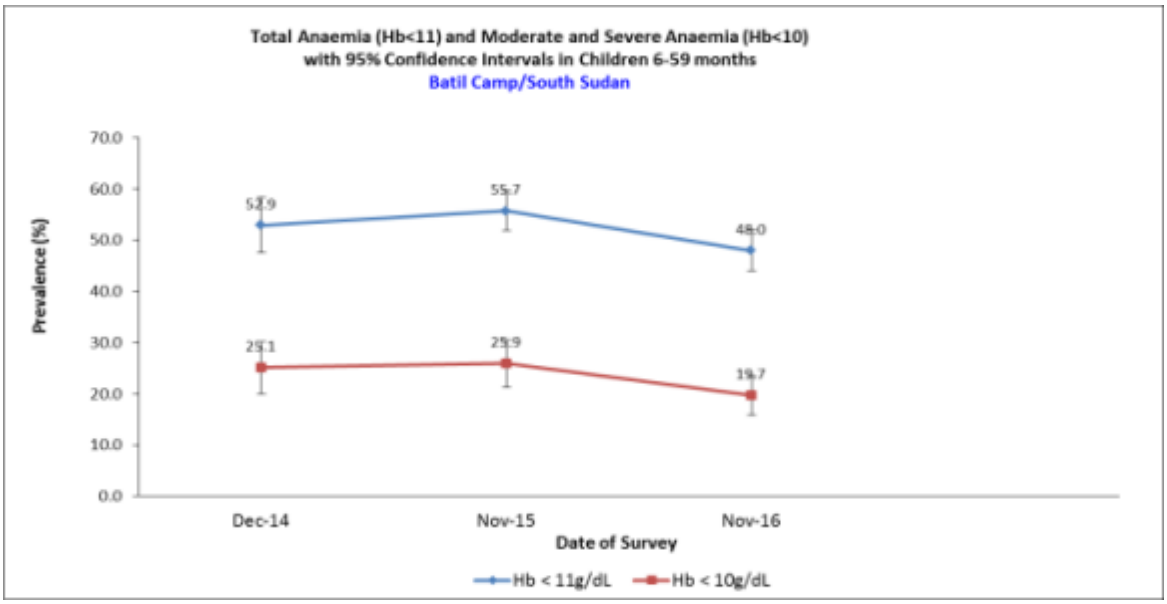
	6-59 months n = 533	**6-23 months** n= 192	**24-59 months** n= 341
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(105) 19.7 % (15.8-23.5 ; 95% CI)	(53) 27.6 % (20.9-34.2; 95% CI)	(52) 15.2 % (11.2-19.2 ; 95% CI)

Figure 39: Trends in Anaemia Categories in Children 6-59 Months from 2014 to 2016-Batil Camp



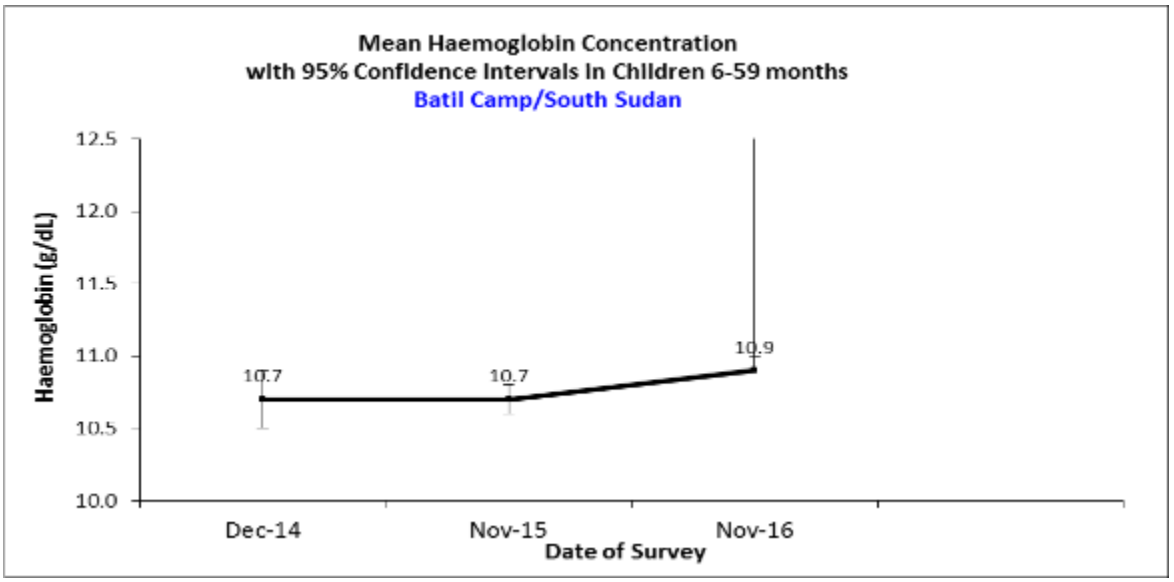
The change on anaemia in Batil from 2015 to 2016 was not significant (p>0.05)

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



The decrease on anaemia in Batil from 2015 to 2016 was not significant (p <0.05)

Figure 41 : Trend in Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2014 to 2016-Batil Camp

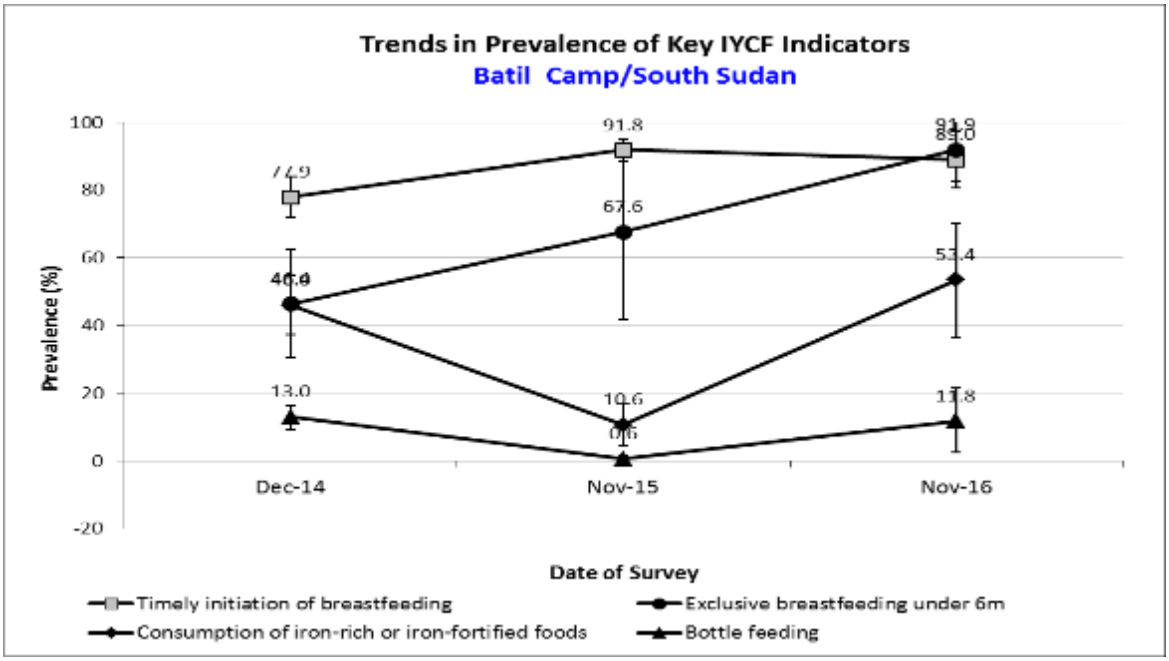


3.11. IYCF Children 0-23 months-Batil Camp

Table 73: Prevalence of Infant and Young Child Feeding Practices Indicators-Batil Camp

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	**0-23 months**	203/228	89.0	80.6-97.4
Exclusive breastfeeding under 6 months	**0-5 months**	34/37	91.9	82.3-100
Continued breastfeeding at 1 year	**12-15 months**	36/36	100.0	100.0-100.0
Continued breastfeeding at 2 years	**20-23 months**	28/29	96.5	89.3-100
Introduction of solid, semi-solid or soft foods	**6-8 months**	11/35	31.4	11.4-51.4
Consumption of iron-rich or iron-fortified foods	**6-23 months**	100/187	53.4	36.4-70.5
Bottle feeding	**0-23 months**	27/229	11.8	2.2-21.2

Figure 42: Key IYCF Indicators from 2014 to 2016-Batil Camp



Exclusive breastfeeding and timely initiation situation remain the same in 2016

Prevalence of intake

Infant formula

Table 74: 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)	10/229	4.4(1.2-7.4)

Fortified blended foods

Table 75: Infant Formula Intake in Children Aged 0-23 Months-Batil Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	25/192	13.0 (0.8-25.1)

Table 76: FSB++ Intake in Children Aged 6-23 Months-Batil Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	25/192	13.0 (0.8-25.1)

3.12. Anaemia Women 15-49 years-Batil Camp

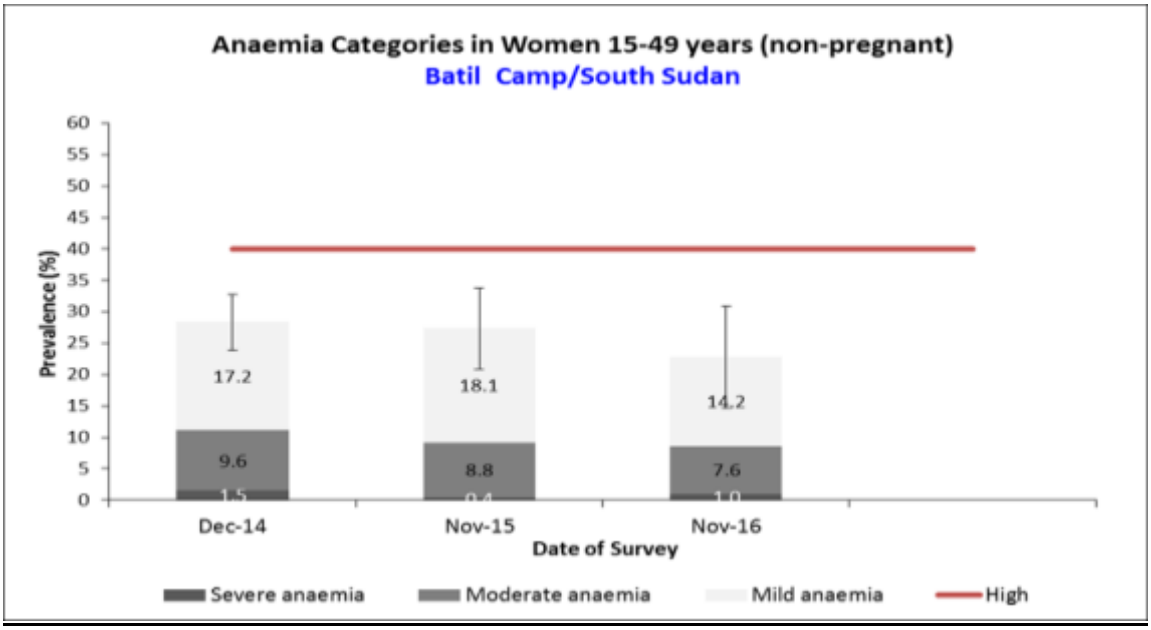
Table 77: Women Physiological Status and Age-Batil Camp

Physiological status	Number/total	% of sample
Non-pregnant	185/230	80.4
Pregnant	45/230	19.6
Don't know	0/230	0
Mean age (range)	26.5 (15-49)	

Table 78: 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 = 183**
Total Anaemia (<12.0 g/dL)	(42) 22.9% (14.8-31.0 ; 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(26) 14.2 % (8.7-19.6 ; 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(14) 7.6 % (3.6-11.4; 95% CI)
Severe Anaemia (<8.0 g/dL)	(2) 1.0 (0.0-2.6 ; 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.7 g/dL (12.4-12.9 95% CI) [6.0-16.2]

Figure 43: Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2014 to 2015-Batil Camp



The change in Batil from 2015 to 2016 was not significant (P>0.05)

Table 79: 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	41/45	91.0 (82.4-99.7)
Currently receiving iron-folic acid pills	41/44	93.1 (85.3-100)

3.13. Water Sanitation and Hygiene (WASH)-Batil Camp

Table 80: WASH Sampling Information-Batil Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	389	411	105

Table 81: Water Quality-Batil Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	411/411	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	219/411	53.3 (41.4-65.1)

Table 82 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	232/411	56.4 (46.1-66.7)
15 – <20 lpppd	81/411	19.7 (15.2-24.1)
<15 lpppd	98/411	23.8 (16.0-31.6

Add the average water usage in lpppd:_____25.7 lpppd_____

Table 83: Satisfaction with Water Supply-Batil Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	383/411	93.4 (88.7-98.0)

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

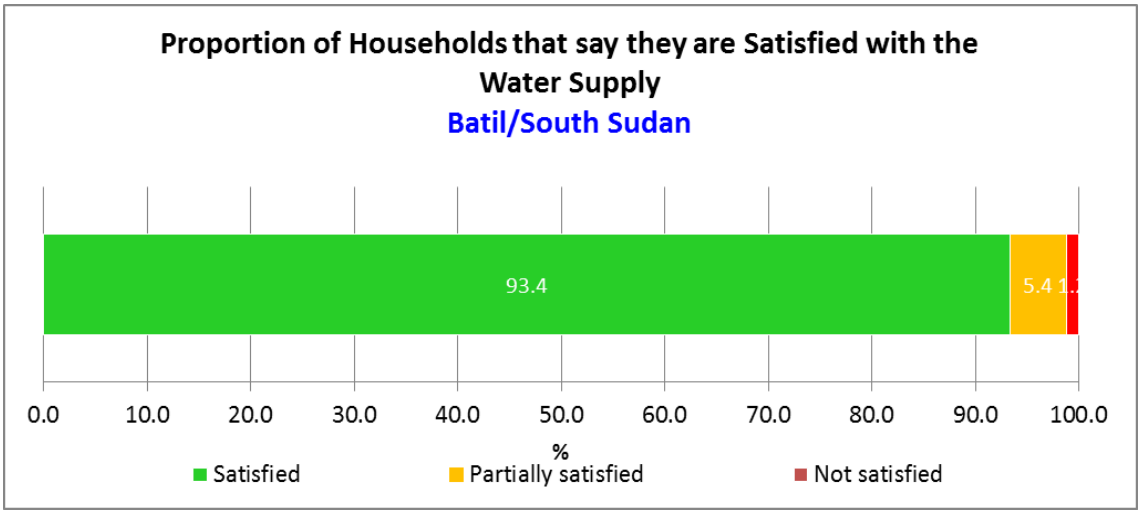


Figure 45: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

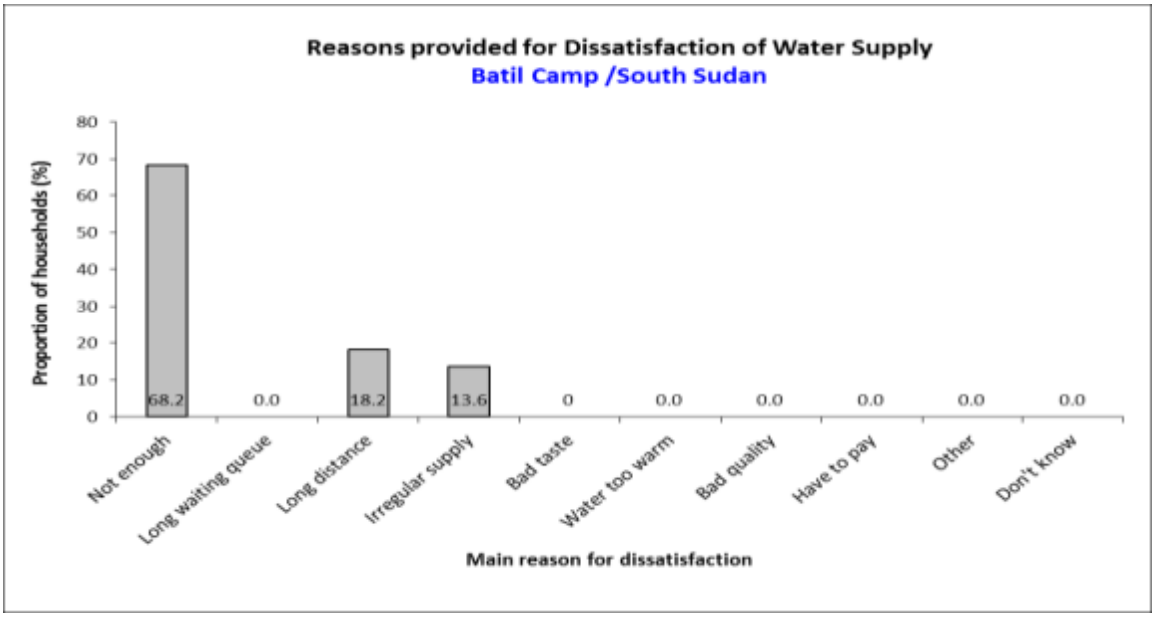


Table 84: safe excreta disposal-Batil Camp

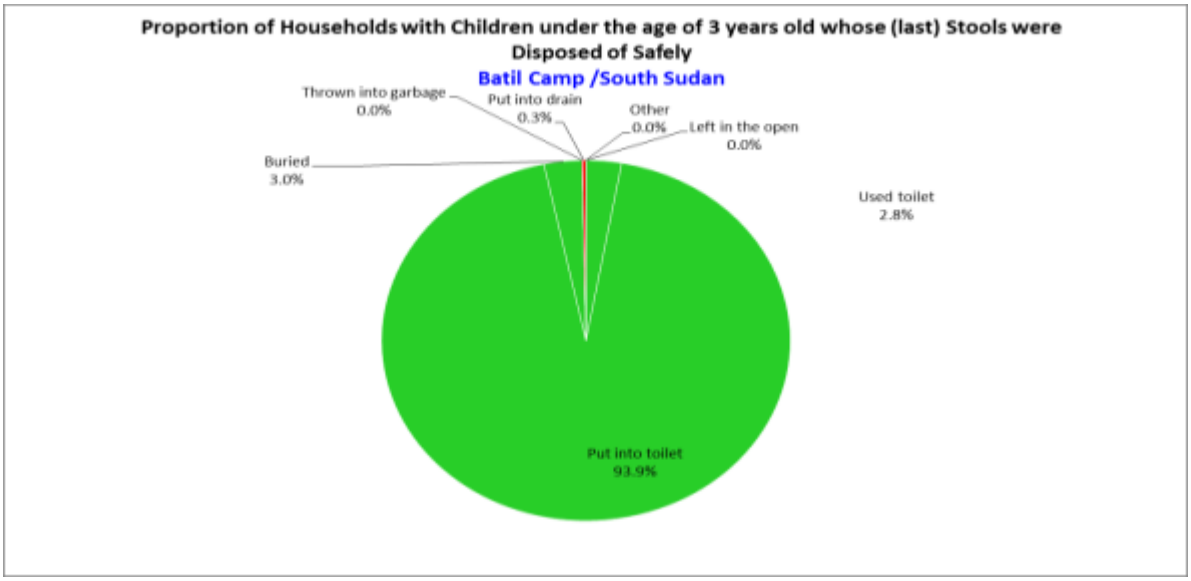
	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improve toilet facility, 1 household)*,**	81/411	19.7 (11.1-28.2)
A shared family toilet (improved toilet facility, 2 households)**	99/411	24.0 (15.4-32.7)
A communal toilet (improved toilet facility, 3 households or more)	79/411	19.2 (10.2-28.1)
An unimproved toilet (unimproved toilet facility or public toilet)	152/411	37.0 (18.2-55.6)
Proportion of households with children under three years old that dispose of faeces safely	362/364	99.7 (99.1-100)

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



3.14. Mosquito Net Coverage-Batil Camp

Table 85: Mosquito Net Coverage Sampling Information- Batil Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	195	207	106.1%

Table 86: Household Mosquito Net Ownership- Batil Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	205/207	99.0 (97.6-100)
Proportion of total households owning at least one LLIN	199/207	96.1 (92.6-99.5)

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

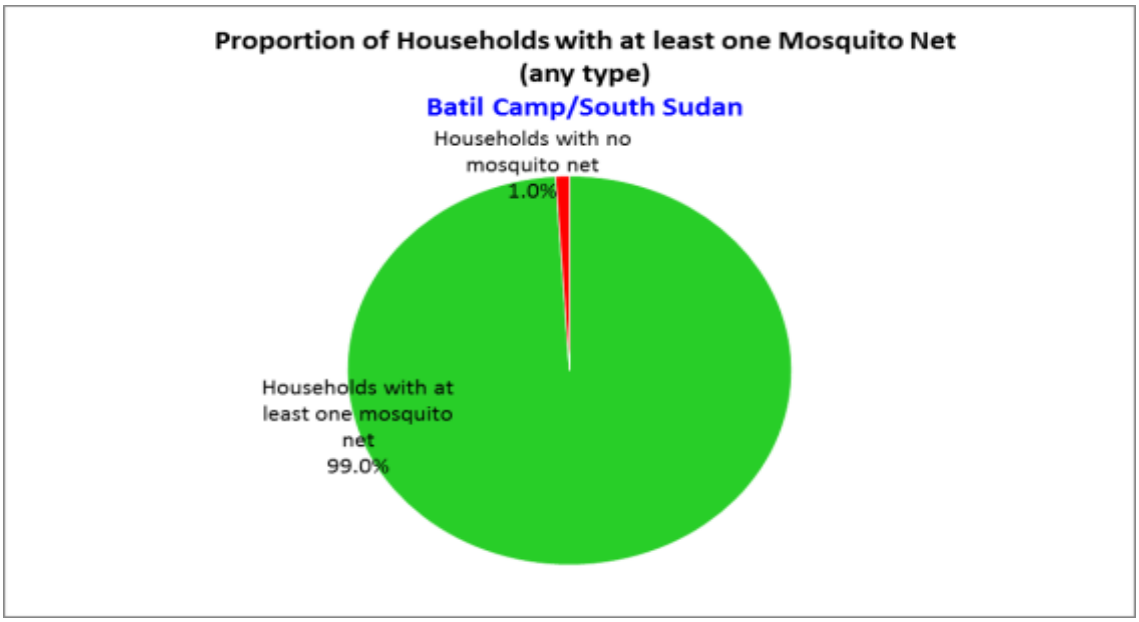


Figure 48: Household Ownership Of At Least One LLIN

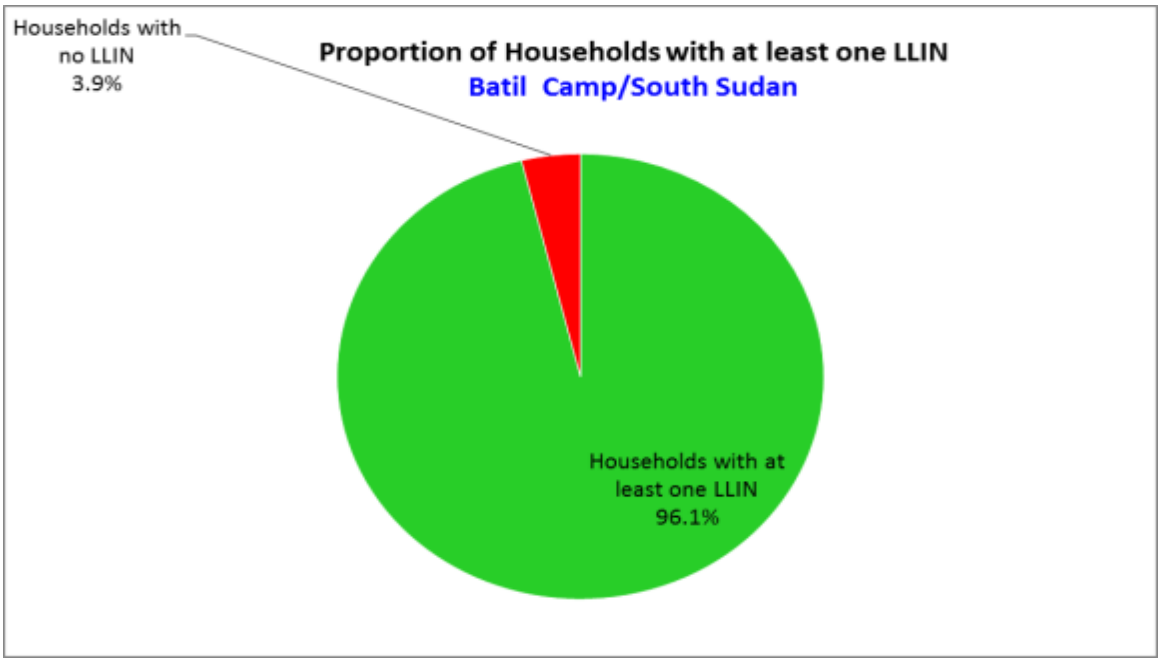


Table 87: Number of Nets-Batil Camp

Average number of LLINs per household	Average number of persons per LLIN
2.5	2.3

Table 88: Mosquito Net Utilization- Batil Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1211	%	Total No= 302	%	Total No= 42	%
Slept under net of any type	**1117**	**93.0**	**254**	**84.1**	**39**	**92.8**
Slept under LLIN	**1024**	**85.2**	**240**	**79.4**	**37**	**88.0**

Figure 49: Mosquito Net Utilization by Sub-Group

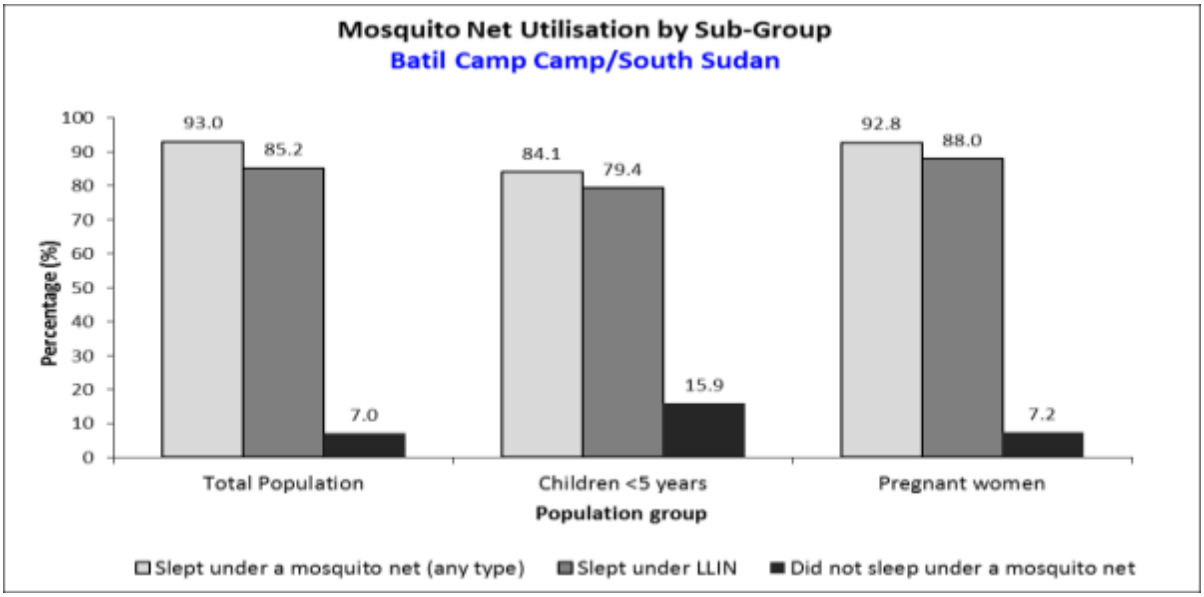


Table 89: Indoor Residual Spraying -Batil Camp

	Number/total	% (95% CI)
Proportion of total households with Indoor Residual Spraying (IRS)	206/207	99.5 (98.5-100)

Gendrassa Camp

The demographic characteristics are illustrated in table 88 below.

Table 90: Demographic Characteristics of the Gendrassa Survey Population-Gendrassa Camp

Total households surveyed	*395*
Total population surveyed	*2177*
Total U5 surveyed	*478*
Average household size	*4.6*
% of U5	*22*

Table 91: Target and Actual Number Captured-Gendrassa Camp

	Target (No.)	**Total surveyed (No.)**	**% of the target**
Children 6-59 months	468	478	102.1 %
Clusters (where applicable)	25	25	100 %

3.15. Anthropometric results (based on WHO standards 2006)-Gendrassa Camp

Table 92: Distribution of age and sex of sample- Gendrassa Camp

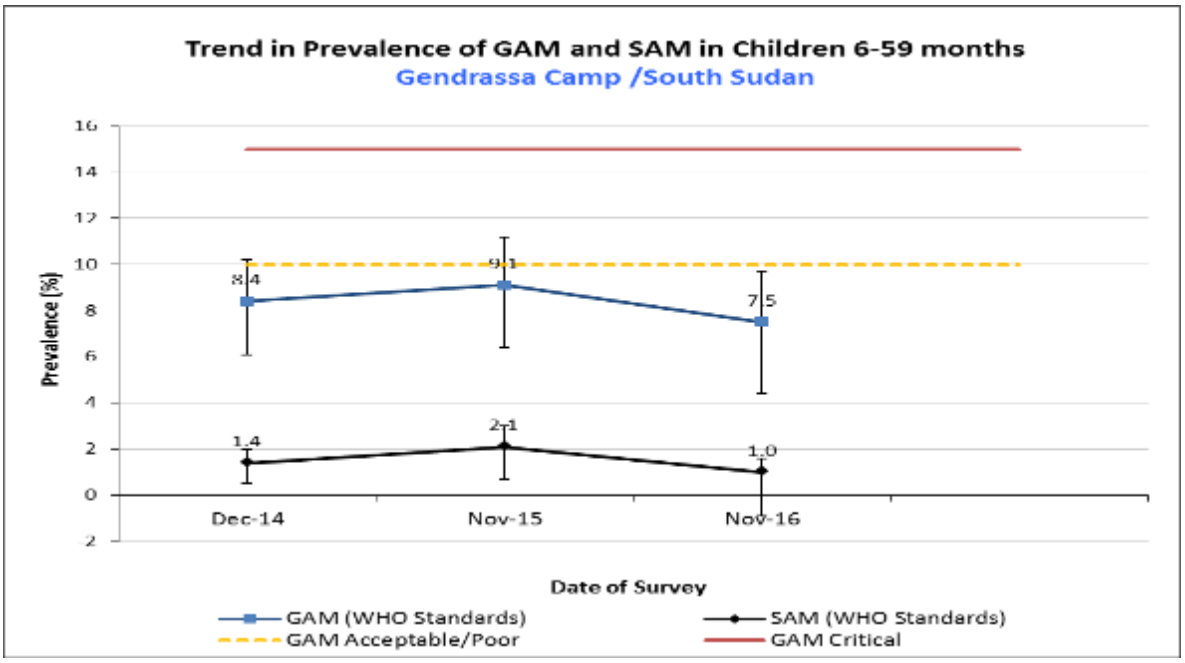
	Boys		**Girls**		**Total**		**Ratio**
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	56	43.4	73	56.6	129	26.5	0.8
18-29	43	43.4	56	56.6	99	20.3	0.8
30-41	92	48.4	98	51.6	190	39.0	0.9
42-53	33	62.3	20	37.7	53	10.9	1.6
54-59	12	75.0	4	25.0	16	3.3	3.0
Total	236	48.5	251	51.5	487	100.0	0.9

Table 93: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Gendrassa Camp

	All n = 478	**Boys** n = 231	**Girls** n = 247
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(36) 7.5 % (5.3 - 10.6 95% C.I.)	(19) 8.2 % (5.6 - 11.9 95% C.I.)	(17) 6.9 % (4.1 - 11.2 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(31) 6.5 % (4.2 - 9.9 95% C.I.)	(17) 7.4 % (4.7 - 11.4 95% C.I.)	(14) 5.7 % (3.0 - 10.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(5) 1.0 % (0.4 - 2.9 95% C.I.)	(2) 0.9 % (0.2 - 3.5 95% C.I.)	(3) 1.2 % (0.4 - 3.8 95% C.I.)

The prevalence of oedema is 0.0

Figure 50: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards in Children 6-59 Months from 2014 to 2016 – Gendrassa Camp



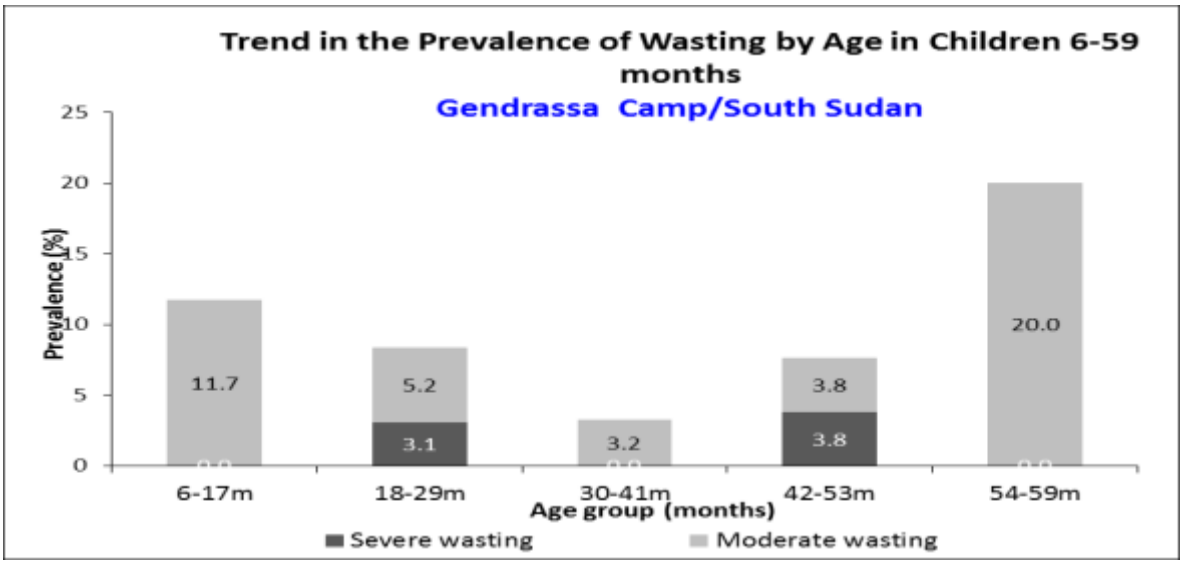
The decrease in GAM prevalence from 2015 to 2016 in Gendrassa was not significant (p>0.05)

Table 94: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema-Gendrassa Camp

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	128	0	0.0	15	11.7	113	88.3	0	0.0
18-29	96	3	3.1	5	5.2	88	91.7	0	0.0
30-41	187	0	0.0	6	3.2	181	96.8	0	0.0
42-53	52	2	3.8	2	3.8	48	92.3	0	0.0
54-59	15	0	0.0	3	20.0	12	80.0	0	0.0
Total	478	5	1.0	31	6.5	442	92.5	0	0.0

The 6-17 and the 54-59 age groups were more wasted compared to the other age groups

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



The 54-59 months age group was the most affected by wasting indicating higher vulnerability at this age

Table 95: 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. 8 (1.7 %)	Not severely malnourished No. 476 (98.3 %)

Figure 52: Distribution of Weight-For-Height Z-Scores (Based On WHO Growth Standards)
The Reference Population Is Shown In Green and the Surveyed Population Is Shown In Red). 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.

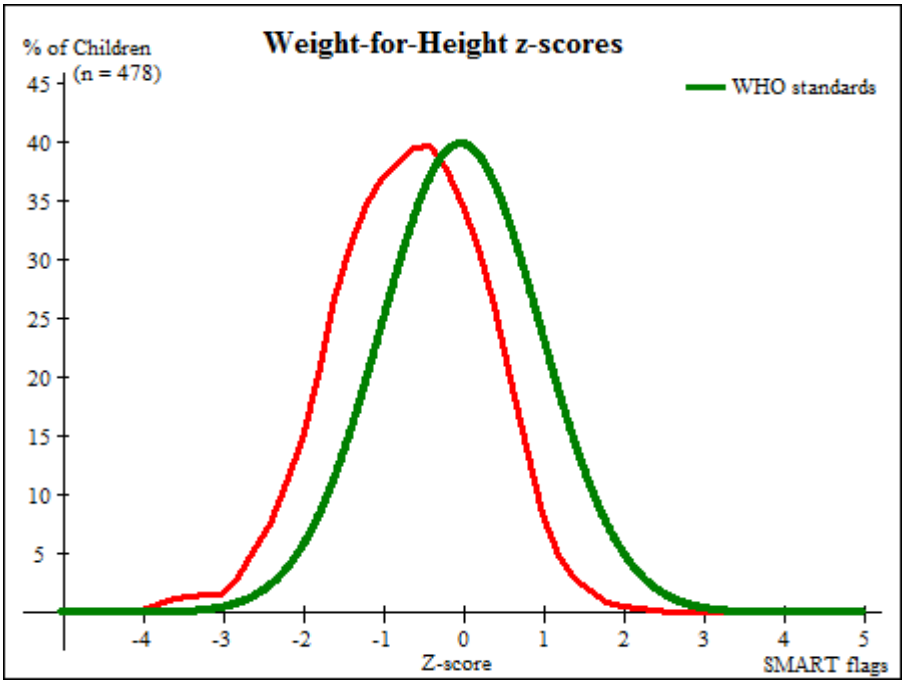


Table 96: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Gendrassa Camp

	All n = 486	**Boys** n = 235	**Girls** n = 251
Prevalence of global malnutrition (< 125 mm and/or oedema)	(21) 4.3 % (2.6 - 7.1 95% C.I.)	(9) 3.8 % (2.0 - 7.3 95% C.I.)	(12) 4.8 % (2.1 - 10.3 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(20) 4.1 % (2.5 - 6.8 95% C.I.)	(9) 3.8 % (2.0 - 7.3 95% C.I.)	(11) 4.4 % (2.0 - 9.3 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(1) 0.2 % (0.0 - 1.6 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.4 % (0.1 - 3.0 95% C.I.)

Table 2: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Gendrassa Camp

		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	129	0	0.0	13	10.1	116	89.9	0	0.0
18-29	99	0	0.0	5	5.1	94	94.9	0	0.0
30-41	190	1	0.5	2	1.1	187	98.4	0	0.0
42-53	53	0	0.0	0	0.0	53	100.0	0	0.0
54-59	15	0	0.0	0	0.0	15	100.0	0	0.0
Total	486	1	0.2	20	4.1	465	95.7	0	0.0

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

	All n = 486	**Boys** n = 236	**Girls** n = 250
Prevalence of underweight (<-2 z-score)	(167) 34.4 % (29.6 - 39.4 95% C.I.)	(87) 36.9 % (30.0 - 44.3 95% C.I.)	(80) 32.0 % (26.0 - 38.6 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(125) 25.7 % (21.5 - 30.4 95% C.I.)	(64) 27.1 % (20.9 - 34.3 95% C.I.)	(61) 24.4 % (19.5 - 30.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(42) 8.6 % (6.4 - 11.6 95% C.I.)	(23) 9.7 % (6.9 - 13.7 95% C.I.)	(19) 7.6 % (5.2 - 11.0 95% C.I.)

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

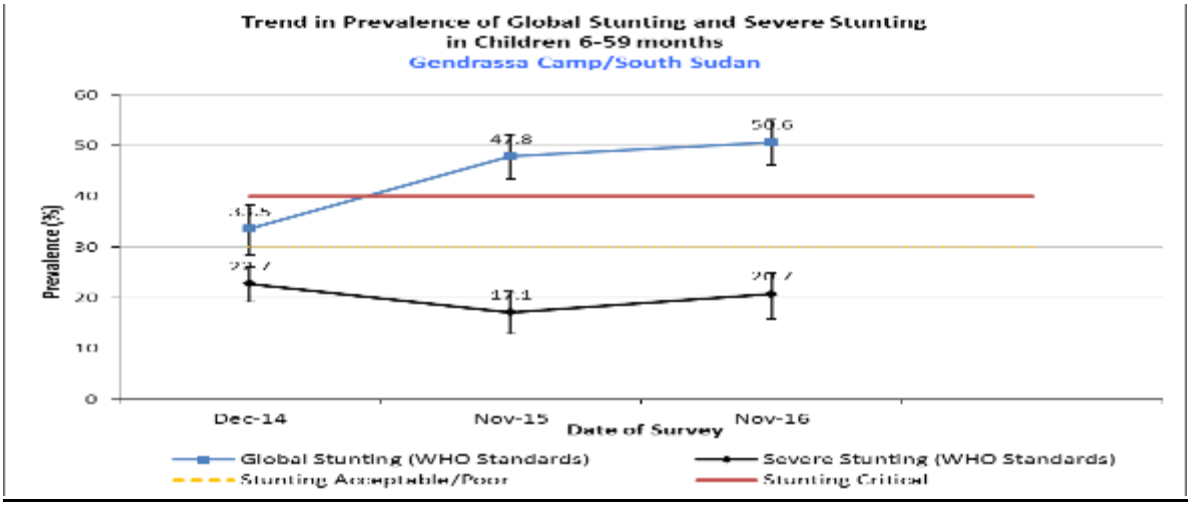
		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	129	6	4.7	25	19.4	98	76.0	0	0.0
18-29	98	9	9.2	20	20.4	69	70.4	0	0.0
30-41	190	17	8.9	58	30.5	115	60.5	0	0.0
42-53	53	6	11.3	16	30.2	31	58.5	0	0.0
54-59	16	4	25.0	6	37.5	6	37.5	0	0.0
Total	486	42	8.6	125	25.7	319	65.6	0	0.0

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

	All n = 468	Boys n = 226	Girls n = 242
Prevalence of stunting (<-2 z-score)	(237) 50.6 % (46.2 - 55.1 95% C.I.)	(129) 57.1 % (48.9 - 64.9 95% C.I.)	(108) 44.6 % (37.5 - 52.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(140) 29.9 % (25.4 - 34.9 95% C.I.)	(71) 31.4 % (24.4 - 39.4 95% C.I.)	(69) 28.5 % (21.5 - 36.8 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(97) 20.7 % (16.6 - 25.6 95% C.I.)	(58) 25.7 % (19.1 - 33.6 95% C.I.)	(39) 16.1 % (11.5 - 22.2 95% C.I.)

Stunting prevalence is of high public health significance

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

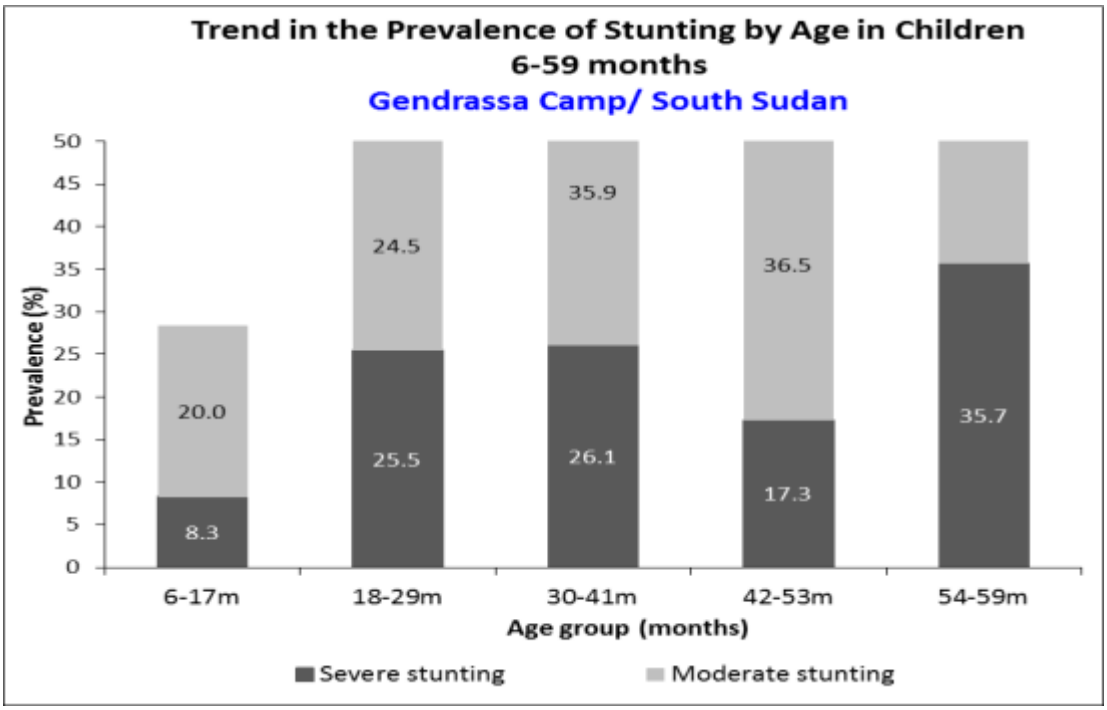


The increase in stunting in Gendrassa from 2015 to 2016 was not significant (p>0.05)

Table 101: Prevalence of stunting by age based on height-for-age z-scores-Gendrassa Camp

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	120	10	8.3	24	20.0	86	71.7
18-29	98	25	25.5	24	24.5	49	50.0
30-41	184	48	26.1	66	35.9	70	38.0
42-53	52	9	17.3	19	36.5	24	46.2
54-59	14	5	35.7	7	50.0	2	14.3
Total	468	97	20.7	140	29.9	231	49.4

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



The stunting vulnerability was equally distributed within the age groups of 18-29, 30-41,42-53 and 54-59 months

Table 102: 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	478	-0.66±0.93	1.09	3	6
Weight-for-Age	486	-1.60±1.01	1.22	1	0
Height-for-Age	468	-2.04±1.16	1.00	1	18

* contains for WHZ and WAZ the children with edema.

3.16. Health/Feeding programme coverage-Gendrassa Camp

Table 103: Programme Coverage for Acutely Malnourished Children Based on MUAC, Oedema and WHZ-Gendrassa camp

	Number/total	**% (95% CI)**
Supplementary feeding programme coverage	10/43	23.3(6.7-39.7)
Therapeutic feeding programme coverage	3/9	33.3(12.5-79.2)

Table 104: Programme coverage for acutely malnourished children based on MUAC and oedema-Gendrassa Camp

	Number/total	**% (95% CI)**
Supplementary feeding programme coverage	7/9	35.0 (5.9-64.0)
Therapeutic feeding programme coverage	0/1	0.0 (0-0)

Measles vaccination coverage results

Table 105: Measles Vaccination Coverage for Children Aged 9-59 Months (N=646)-Gendrassa Camp

	Measles (with card) n= 355	**Measles (with card or confirmation from mother) N=537**
YES	78.5% (73.1-83.995% CI)	93.7 % (94.1-99.2 95% CI)

Vitamin A supplementation coverage results

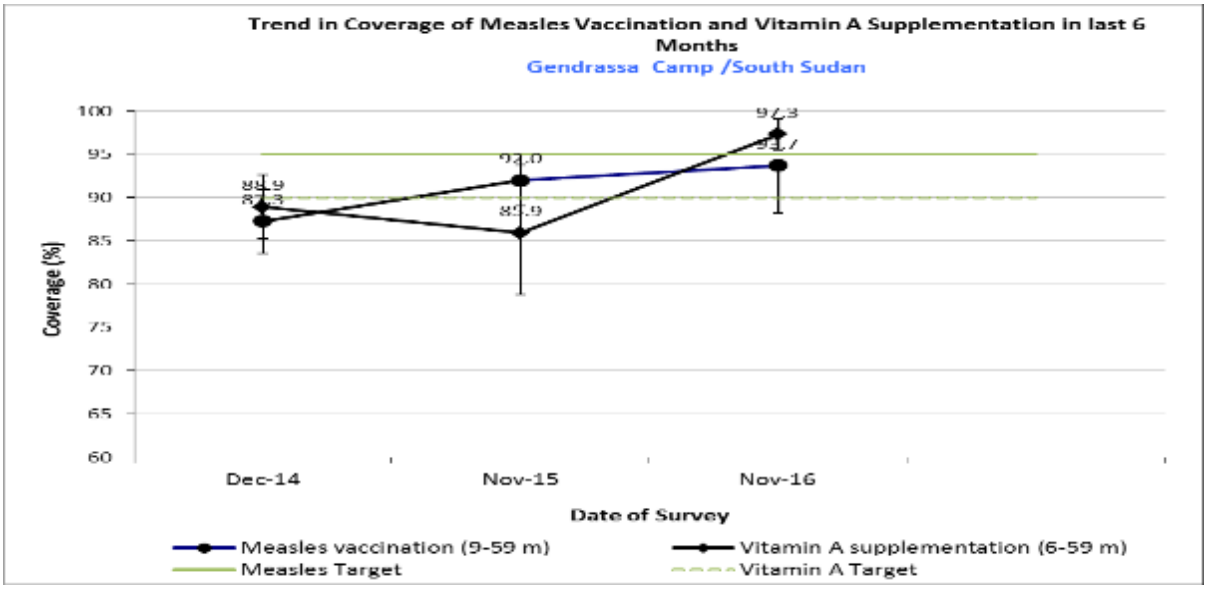
Table 106: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 851)-Gendrassa Camp

	Vitamin A capsule (with card) n=263	**Vitamin A capsule (with card or confirmation from mother) n=473**
YES	54.1% (41.0-67.1 95% CI)	97.3 % (95.5-99.1 95% CI)

Table 107: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=487)-Gendrassa Camp

	DPT3 / PENTA3 (with card) n=343	**DPT3 / PENTA3 (with card or confirmation from mother) n=476**
YES	78.4 % (60.7 -80.0; 95% CI)	97.8 % (96.0-99.4; 95% CI)

Figure 55: Trends in the Coverage of Measles Vaccination and Vitamin a Supplementation in Last 6 Months in Children 6-59 Months from 2014 to 2016-Gendrassa Camp



Diarrhoea Results

Table 108: Period Prevalence of Diarrhoea-Gendrassa Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	68/387	14.0 (7.3-20.6)

3.17. Anaemia Children 6 – 59 months-Gendrassa Camp

The total anaemia prevalence among children 6 to 59 months is of high public health significance 51.8 % (45.8-57.8 95% CI). This is very high in Young children of 6 to 23 months with an anaemia prevalence of 63.7% (56.7-70.6 95% CI)

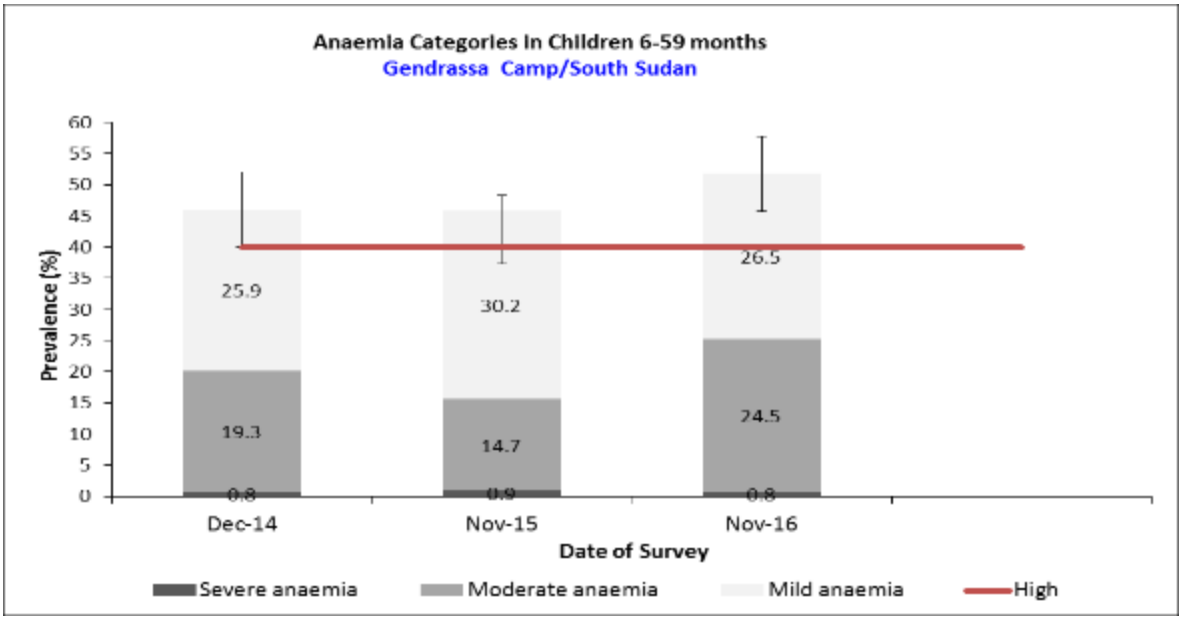
Table 109: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group-Gendrassa Camp

	6-59 months n = 486	**6-23 months** n=179	**24-59 months** n=307
Total Anaemia (Hb<11.0 g/dL)	(252) 51.8% (45.8-57.8 95% CI)	(114) 63.7% (56.7-70.6 95% CI)	(138) 44.9 % (37.7-52.2 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(129) 26.5% (22.1-30.9 95% CI)	(56) 31.3% (24.6-37.9 95% CI)	(73) 23.8% (18.0-29.5 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(119) 24.5% (19.2-29.7 95% CI)	(55) 30.7% (20.5-40.8 95% CI)	(64) 20.8% (16.2-25.4 95% CI)
Severe Anaemia (<7.0 g/dL)	(4) 0.8% (0.0-1.7 95% CI)	(3) 1.6% 0.0-3.5 95% CI)	(1) 0.3 0-0.9 95% CI)
Mean Hb (g/dL) **(SD / 95% CI)** **[range]**	10.7 g/dL (10.5-10.9 95% CI) [6.1-17.4]	10.3 g/dL (10.1-10.6 95% CI) [6.3-17.4]	10.9 g/dL (10.7-11.1 95% CI) [6.1-14.6]

Table 110: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Gendrassa Camp

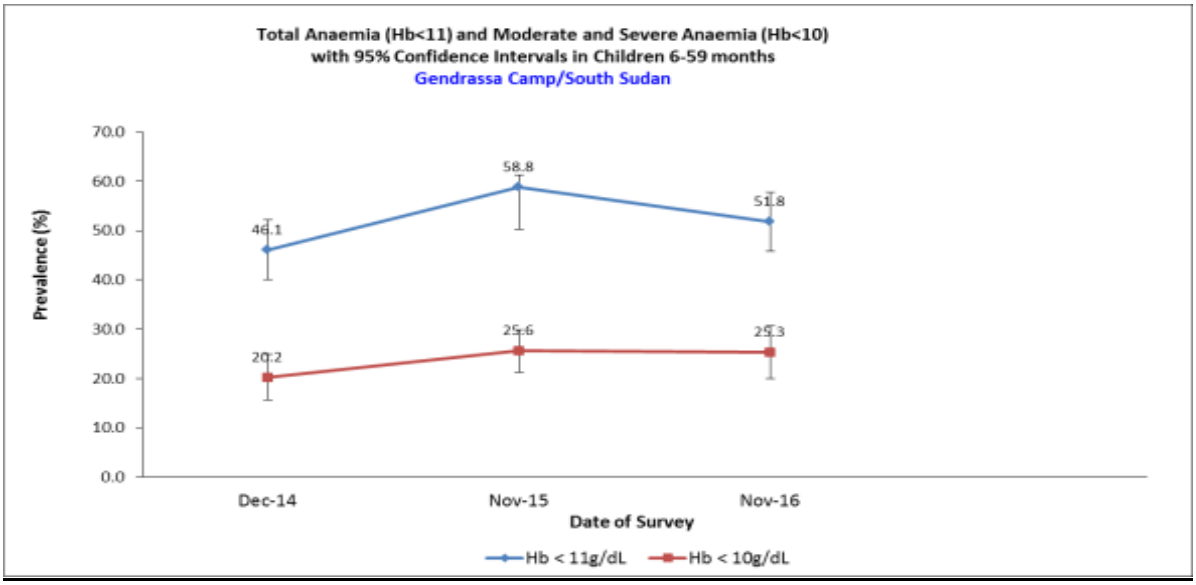
	6-59 months n = 486	6-23 months n= 179	24-59 months n= 307
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(123) 25.3% (19.9-30.6 95% CI)	(58) 32.4% (22.2-42.5 95% CI)	(65) 21.2% (16.3-25.9 95% CI)

Figure 56: Trends in Anaemia Categories in Children 6-59 Months from 2014 to 2016-Gendrassa Camp



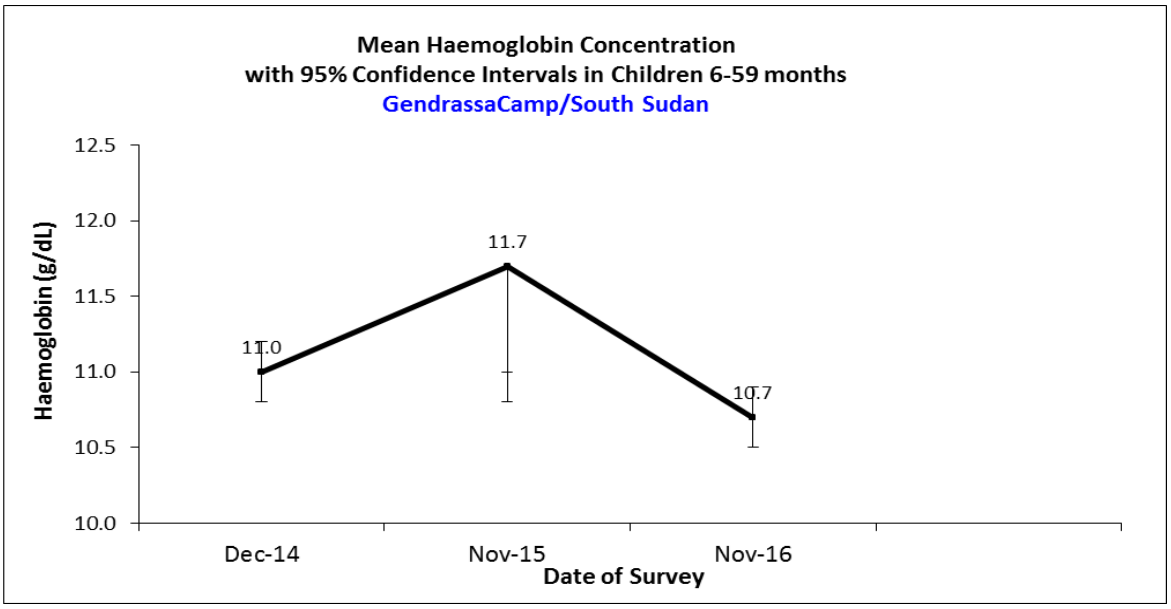
The change in anaemia in Gendrassa camp from 2015 to 2016 was not significant (p>0.05)

Figure 57: Trend in Total Anaemia (<11 G/Dl), and Moderate and Severe Anaemia (<10 G/Dl) With 95% CI in Children 6-59 Months from 2014 to 2016-Gendrassa Camp



The decrease in anaemia in Gendrassa from 2015 to 2016 was not significant (p>0.05)

Figure 58: Trend in Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2014 to 2016-Gendrassa Camp

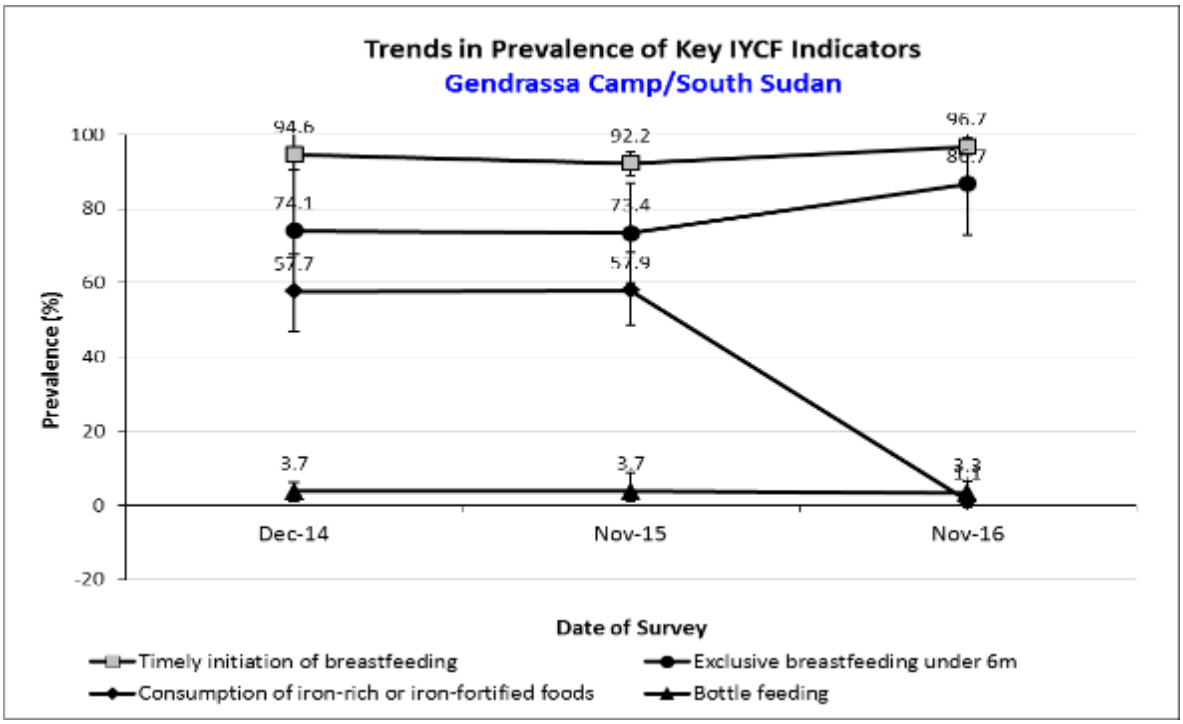


3.18. IYCF Children 0-23 months-Gendrassa Camp

Table 111: 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**	203/210	96.7	94.4-98.9
Exclusive breastfeeding under 6 months	**0-5 months**	26/30	86.7	72.7-100.5
Continued breastfeeding at 1 year	**12-15 months**	35/36	97.2	91.8-102.5
Continued breastfeeding at 2 years	**20-23 months**	16/21	76.1	54.9-97.4
Introduction of solid, semi-solid or soft foods	**6-8 months**	12/34	35.3	13.5-57.0
Consumption of iron-rich or iron-fortified foods	**6-23 months**	2/178	1.1	0.0-2.7
Bottle feeding	**0-23 months**	7/210	3.3	0.1-6.7

Figure 59: Key IYCF Indicators from 2014 to 2016-Gendrassa Camp



Exclusive breastfeeding and timely initiation situation remain the same in 2016

Prevalence of intake

Infant formula

Table 112: 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)	5/210	2.4 0-4.8)

Fortified blended foods

Table 113: CSB+ Intake in Children Aged 6-23 Months-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	21/180	11.7 (0.2-23.1)

Table 114: FSB++ Intake in Children Aged 6-23 Months-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	23/180	12.7(1.1-24.3)

3.19. Anaemia Women 15-49 years-Gendrassa Camp

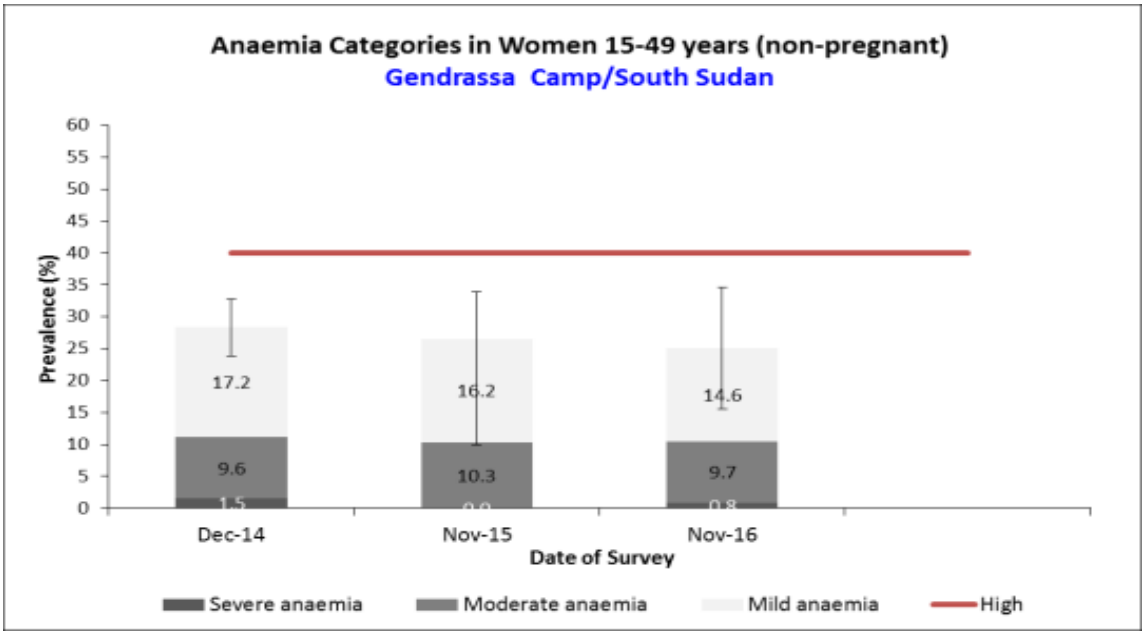
Table 115: Women Physiological Status and Age-Gendrassa Camp

Physiological status	Number/total	% of sample
Non-pregnant	164/196	83.6
Pregnant	31/196	15.8
Don't know	0/196	0
Mean age (range)	25.8(15-49)	

Table 116: 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 = 164**
Total Anaemia (<12.0 g/dL)	(42) 25.6% (16.0-35.1 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(24) 14.6% (8.7-20.4 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(16) 9.7% (4.6-14.8 95% CI)
Severe Anaemia (<8.0 g/dL)	(2) 0.8 (0-2.9 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.6 g/dL (12.3-12.9) [7.0-15.3]

Figure 60: Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2013 to 2015-Gendrassa Camp



The change in anaemia prevalence from 2015 to 2016 was not significant (p>0.05)

Table 117: 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	30/31	96.8 (89.6-103.9)
Currently receiving iron-folic acid pills	29/31	93.5 (83.6-103.4)

3.20. Water Sanitation and Hygiene (WASH)-Gendrassa Camp

Table 118: WASH Sampling Information-Gendrassa Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	405	395	97.5

Table 119: Water Quality-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	395/395	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	264/395	66.8 (55.4-78.2)

Table 120: 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	254/395	64.0 (53.4-74.6)
15 – <20 lpppd	62/395	15.7 (10.3-20.9)
<15 lpppd	80/395	20.2 (10.2-30.2)

Add the average water usage in lpppd:_____33.3 lpppd_____

Table 121: Satisfaction with Water Supply-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	280/395	70.9 (58.4-83.3)

Figure 61: Proportion of Households That Say They Are Satisfied With the Water Supply

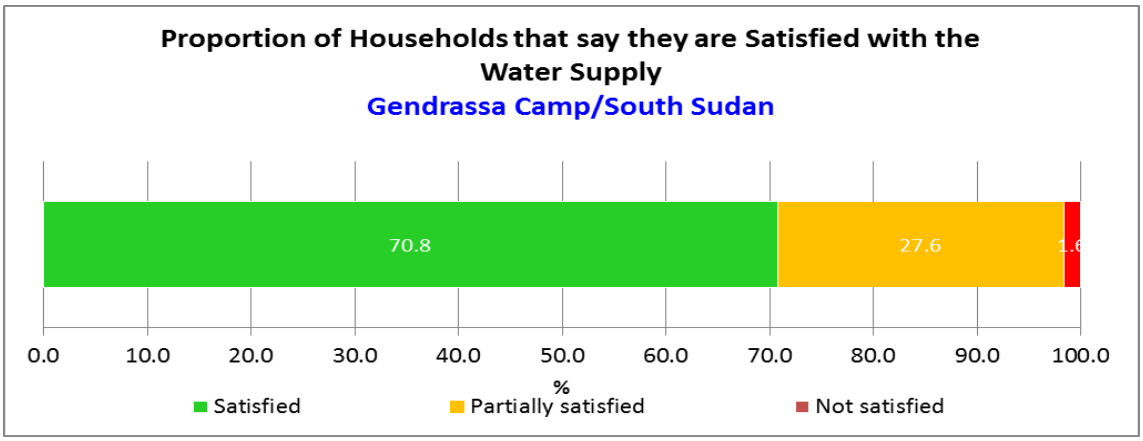


Figure 62: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

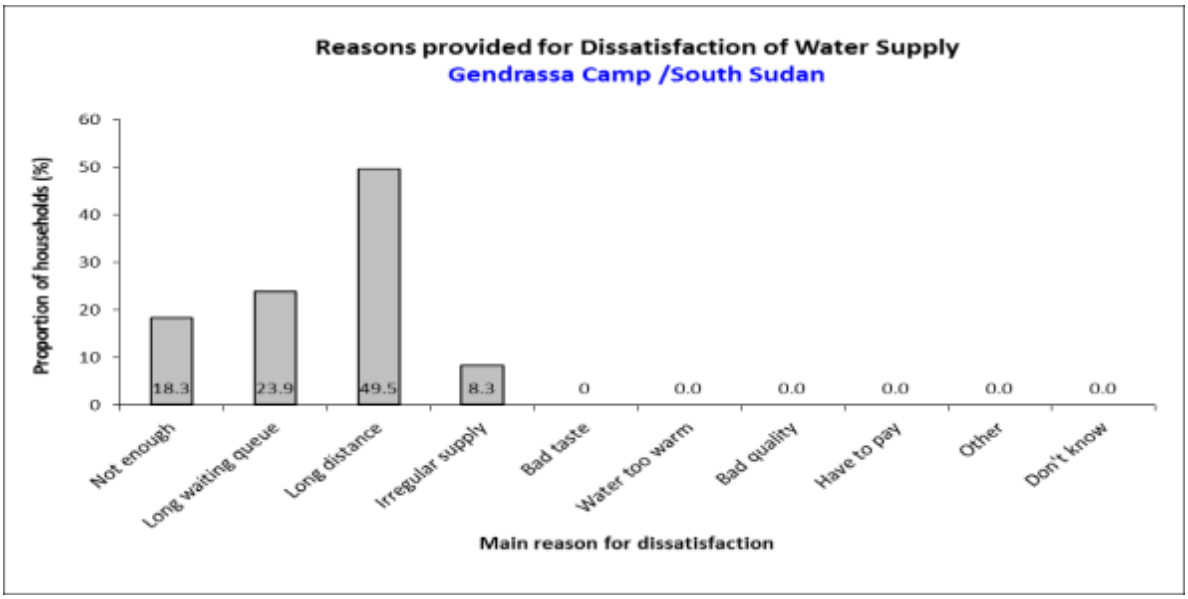


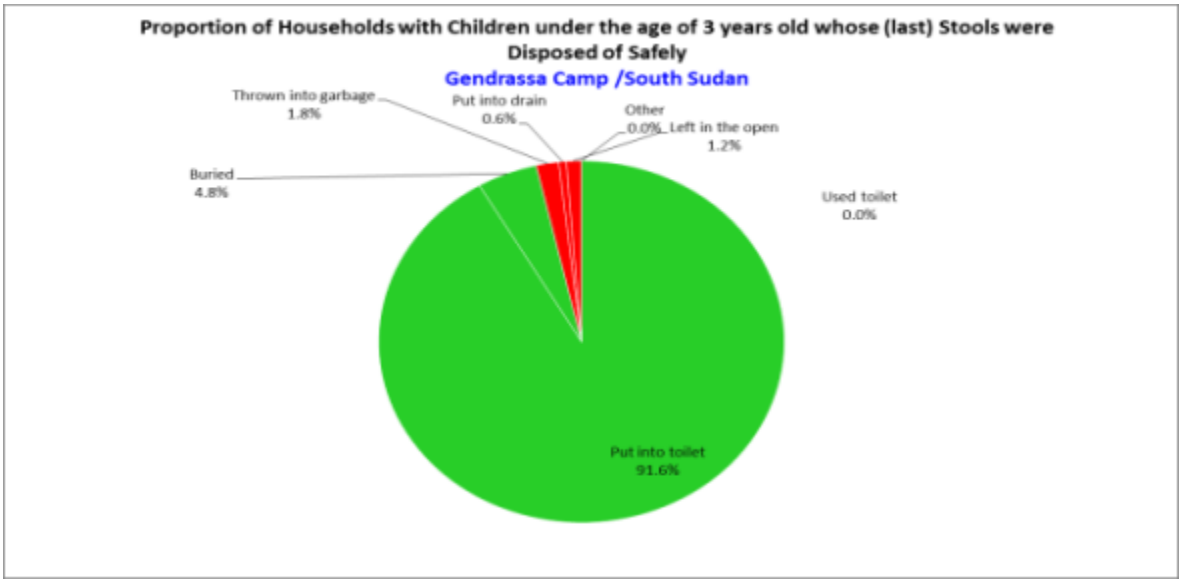
Table 122: Safe excreta disposal-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,**	138/395	34.9 (24.5-45.3)
A shared family toilet (improved toilet facility, 2 households)**	85/395	20.5 (12.8-28.1)
A communal toilet (improved toilet facility, 3 households or more)	37/395	9.4 (3.3-15.3)
An unimproved toilet (unimproved toilet facility or public toilet)	139/395	35.1 (19.7-50.5)
Proportion of households with children under three years old that dispose of faeces safely	319/331	96.4 (92.0-100)

***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 63: Proportion of Households with Children under the Age of 3 Years whose (Last) Stools were Disposed of Safely



3.21. Mosquito Net Coverage-Gendrassa Camp

Table 123: Mosquito Net Coverage Sampling Information-Gendrassa Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	179	200	111%

Table 124: Household Mosquito Net Ownership-Gendrassa Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	194/200	97.0 (93.9-100.0)
Proportion of total households owning at least one LLIN	185/200	92.5 (87.8-97.1)

Figure 64: Household Ownership of At Least One Mosquito Net (Any Type)

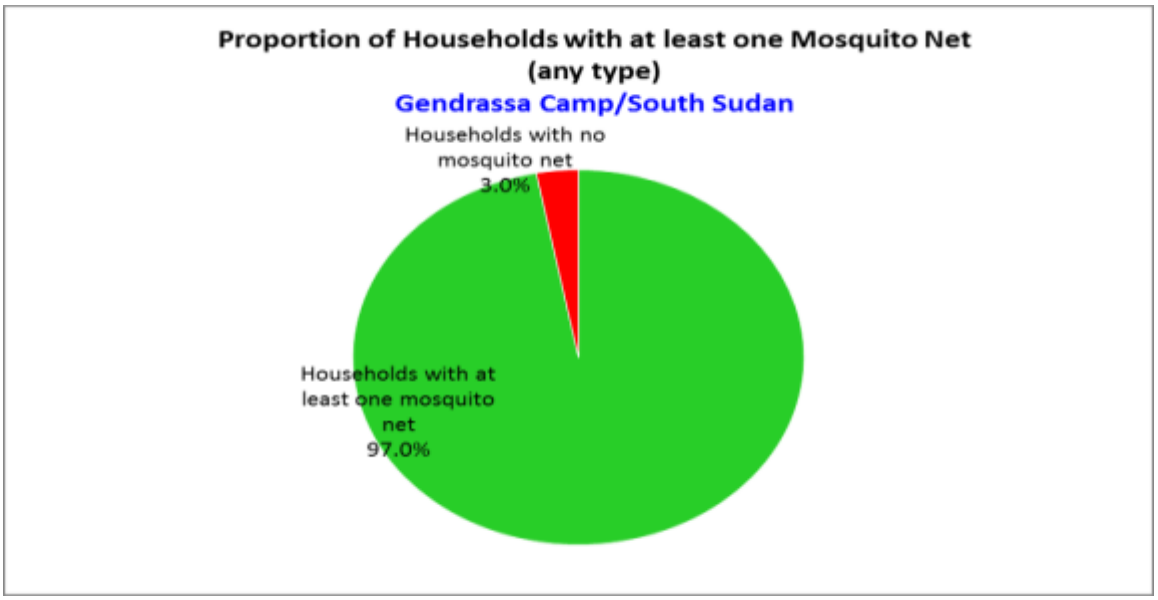


Figure 65: Household Ownership Of At Least One LLIN

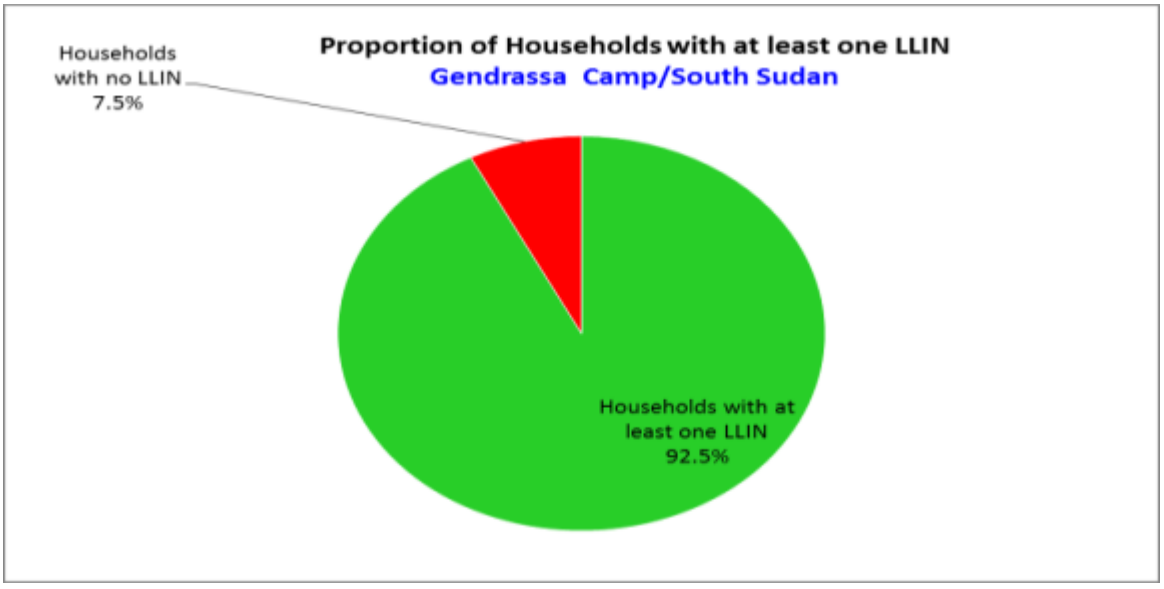


Table 125: Number of Nets-Gendrassa Camp

Average number of LLINs per household	Average number of persons per LLIN
1.9	2.9

Table 126: Mosquito Net Utilisation-Gendrassa Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1100	%	Total No= 276	%	Total No= 28	%
Slept under net of any type	913	83.0	274	99.2	26	92.8
Slept under LLIN	832	75.6	253	91.6	23	82.1

Figure 66: Mosquito Net Utilization by Sub-Group

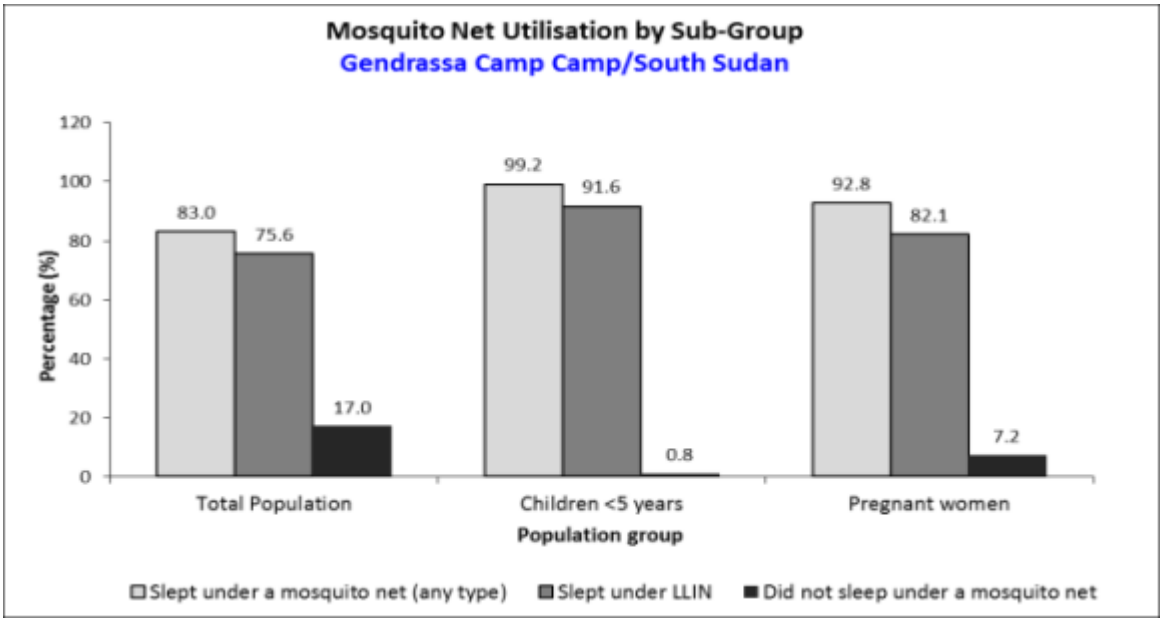


Table 127: Indoor Residual Spraying -Gendrassa Camp

	Number/total	% (95% CI)
Proportion of total households with Indoor Residual Spraying (IRS)	76/200	38.0 (23.5-52.4)

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

Total households surveyed	*555*
Total population surveyed	*2876*
Total U5 surveyed	*537*
Average household size	*5.1*
% of U5	*18.7*

Table 129: Target and Actual Number Captured-Kaya Camp

		Total surveyed (No.)	**% of the target**
Children 6-59 months	653	537	82.2%
Clusters (where applicable)	33	33	100 %

3.22. Anthropometric results (based on WHO standards 2006)-Kaya Camp

Table 130: Distribution of age and sex of sample-Kaya Camp

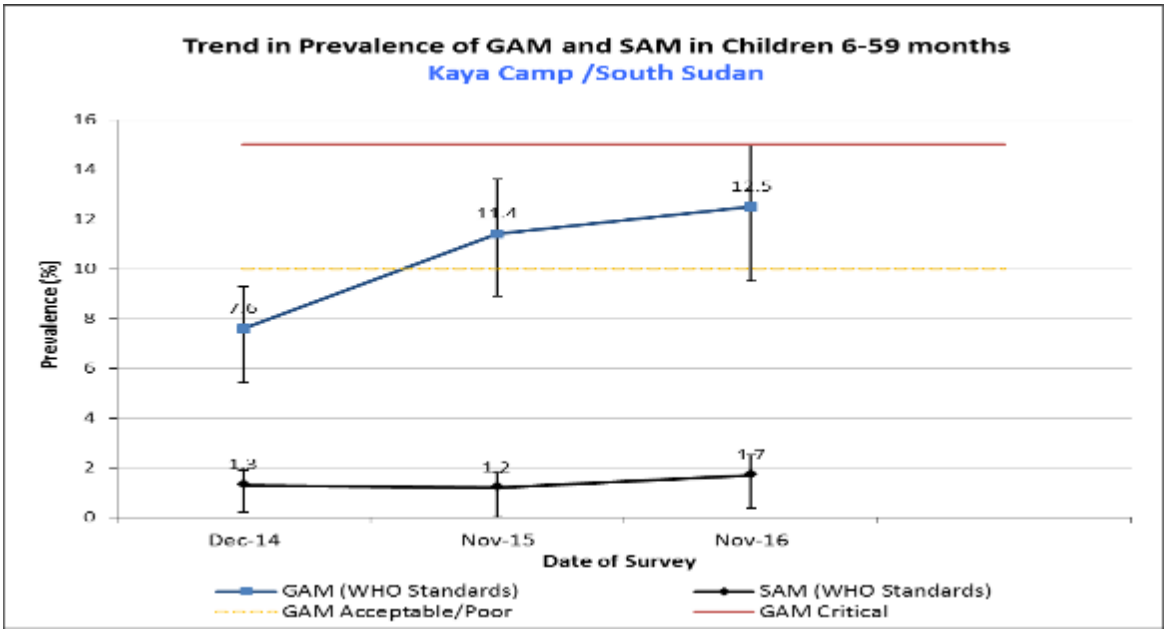
	Boys		**Girls**		**Total**		**Ratio**
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	74	50.0	74	50.0	148	27.0	1.0
18-29	80	51.6	75	48.4	155	28.2	1.1
30-41	85	53.8	73	46.2	158	28.8	1.2
42-53	25	36.8	43	63.2	68	12.4	0.6
54-59	10	50.0	10	50.0	20	3.6	1.0
Total	274	49.9	275	50.1	549	100.0	1.0

Table 131: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex-Kaya Camp

	All n = 537	Boys n = 268	Girls n = 269
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(67) 12.5 % (10.0 - 15.5 95% C.I.)	(33) 12.3 % (8.3 - 17.8 95% C.I.)	(34) 12.6 % (9.4 - 16.7 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(58) 10.8 % (8.5 - 13.7 95% C.I.)	(29) 10.8 % (7.4 - 15.5 95% C.I.)	(29) 10.8 % (7.6 - 15.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(9) 1.7 % (0.9 - 3.0 95% C.I.)	(4) 1.5 % (0.6 - 3.8 95% C.I.)	(5) 1.9 % (0.8 - 4.1 95% C.I.)

The prevalence of oedema is 0.1 %

Figure 67: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards in Children 6-59 Months from 2014 to 2016 – Kaya Camp



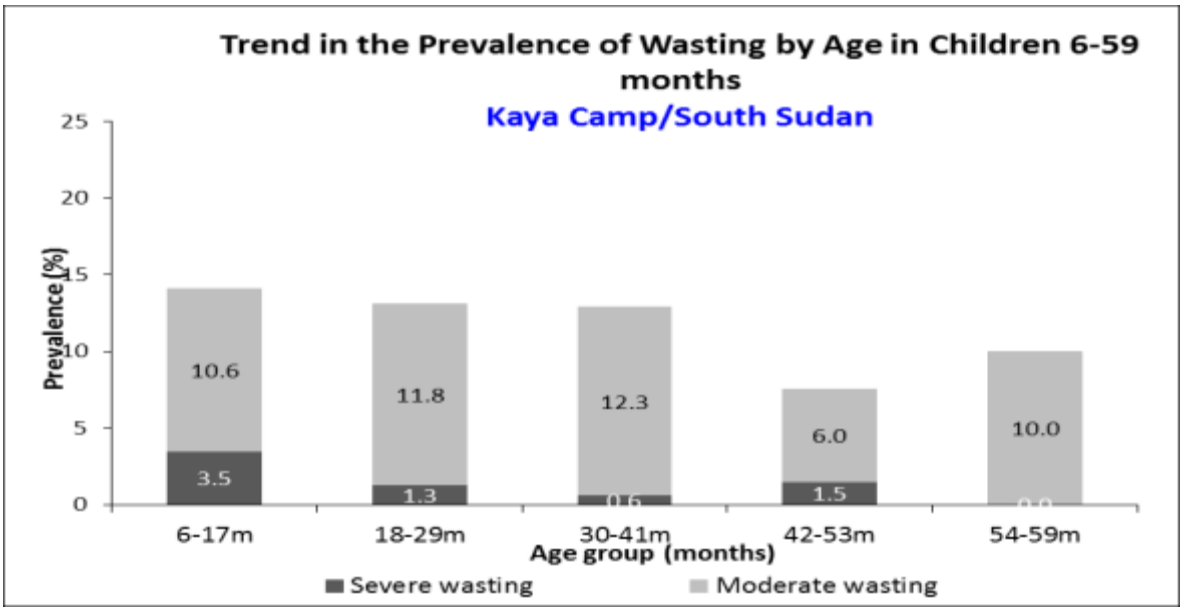
The situation remained the same in Kaya camp as the change from 2015 to 2016 in GAM prevalence was not significant (p>0.05)

Table 132: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema-Kaya Camp

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	142	5	3.5	15	10.6	122	85.9	0	0.0
18-29	153	2	1.3	18	11.8	133	86.9	0	0.0
30-41	155	1	0.6	19	12.3	135	87.1	0	0.0
42-53	67	1	1.5	4	6.0	62	92.5	0	0.0
54-59	20	0	0.0	2	10.0	18	90.0	0	0.0
Total	537	9	1.7	58	10.8	470	87.5	0	0.0

The 6-17 age group was more severely wasted compared to the other age groups

Figure 68: Trend in the Prevalence of Wasting By Age in Children 6-59 Months



The 6-17 months age group was the most affected by wasting indicating higher vulnerability at this age

Table 133: 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. 0 (0.0 %)
Oedema absent	Marasmic No. 13 (2.4 %)	Not severely malnourished No. 533 (97.6 %)

Figure 69: 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).
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.

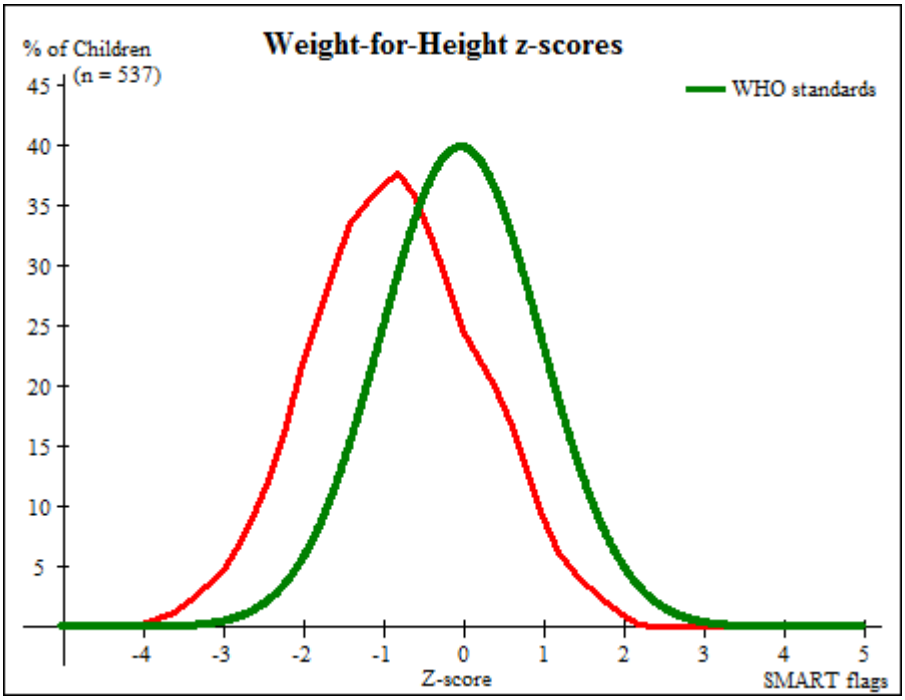


Table 134: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex-Kaya Camp

	All n = 549	**Boys** n = 274	**Girls** n = 275
Prevalence of global malnutrition (< 125 mm and/or oedema)	(25) 4.6 % (2.8 - 7.3 95% C.I.)	(9) 3.3 % (1.5 - 6.9 95% C.I.)	(16) 5.8 % (3.1 - 10.8 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(24) 4.4 % (2.7 - 7.1 95% C.I.)	(8) 2.9 % (1.4 - 6.1 95% C.I.)	(16) 5.8 % (3.1 - 10.8 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(1) 0.2 % (0.0 - 1.4 95% C.I.)	(1) 0.4 % (0.0 - 2.8 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 135: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema-Kaya Camp

	All n = 549	Boys n = 274	Girls n = 275
Prevalence of global malnutrition (< 125 mm and/or oedema)	(25) 4.6 % (2.8 - 7.3 95% C.I.)	(9) 3.3 % (1.5 - 6.9 95% C.I.)	(16) 5.8 % (3.1 - 10.8 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(24) 4.4 % (2.7 - 7.1 95% C.I.)	(8) 2.9 % (1.4 - 6.1 95% C.I.)	(16) 5.8 % (3.1 - 10.8 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(1) 0.2 % (0.0 - 1.4 95% C.I.)	(1) 0.4 % (0.0 - 2.8 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 136: Prevalence of underweight based on weight-for-age z-scores by sex-Kaya Camp

	All n = 546	Boys n = 272	Girls n = 274
Prevalence of underweight (<-2 z-score)	(243) 44.5 % (39.9 - 49.3 95% C.I.)	(121) 44.5 % (38.1 - 51.1 95% C.I.)	(122) 44.5 % (38.0 - 51.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(166) 30.4 % (25.8 - 35.4 95% C.I.)	(83) 30.5 % (24.3 - 37.5 95% C.I.)	(83) 30.3 % (25.0 - 36.2 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(77) 14.1 % (11.4 - 17.3 95% C.I.)	(38) 14.0 % (10.1 - 18.9 95% C.I.)	(39) 14.2 % (10.5 - 19.0 95% C.I.)

Table 137 : Prevalence of underweight by age, based on weight-for-age z-scores-Kaya Camp

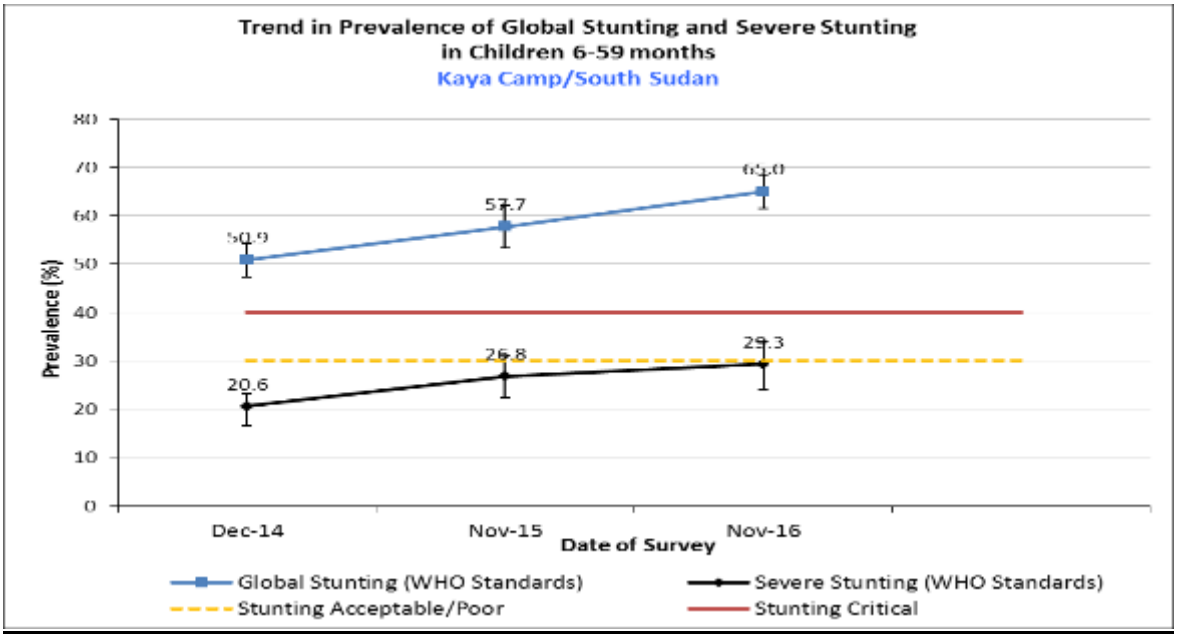
		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	146	16	11.0	38	26.0	92	63.0	0	0.0
18-29	155	24	15.5	48	31.0	83	53.5	0	0.0
30-41	158	22	13.9	51	32.3	85	53.8	0	0.0
42-53	67	12	17.9	20	29.9	35	52.2	0	0.0
54-59	20	3	15.0	9	45.0	8	40.0	0	0.0
Total	546	77	14.1	166	30.4	303	55.5	0	0.0

Table 138: Prevalence of stunting based on height-for-age z-scores and by sex-Kaya Camp

	All n = 526	Boys n = 263	Girls n = 263
Prevalence of stunting (<-2 z-score)	(342) 65.0 % (61.4 - 68.5 95% C.I.)	(177) 67.3 % (61.5 - 72.6 95% C.I.)	(165) 62.7 % (55.9 - 69.1 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(188) 35.7 % (32.1 - 39.5 95% C.I.)	(96) 36.5 % (30.3 - 43.2 95% C.I.)	(92) 35.0 % (28.5 - 42.1 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(154) 29.3 % (24.5 - 34.5 95% C.I.)	(81) 30.8 % (24.0 - 38.6 95% C.I.)	(73) 27.8 % (23.0 - 33.1 95% C.I.)

Stunting prevalence is of high public health significance

Figure 70: Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards in Children 6-59 Months from 2014 to 2016- Kaya Camp

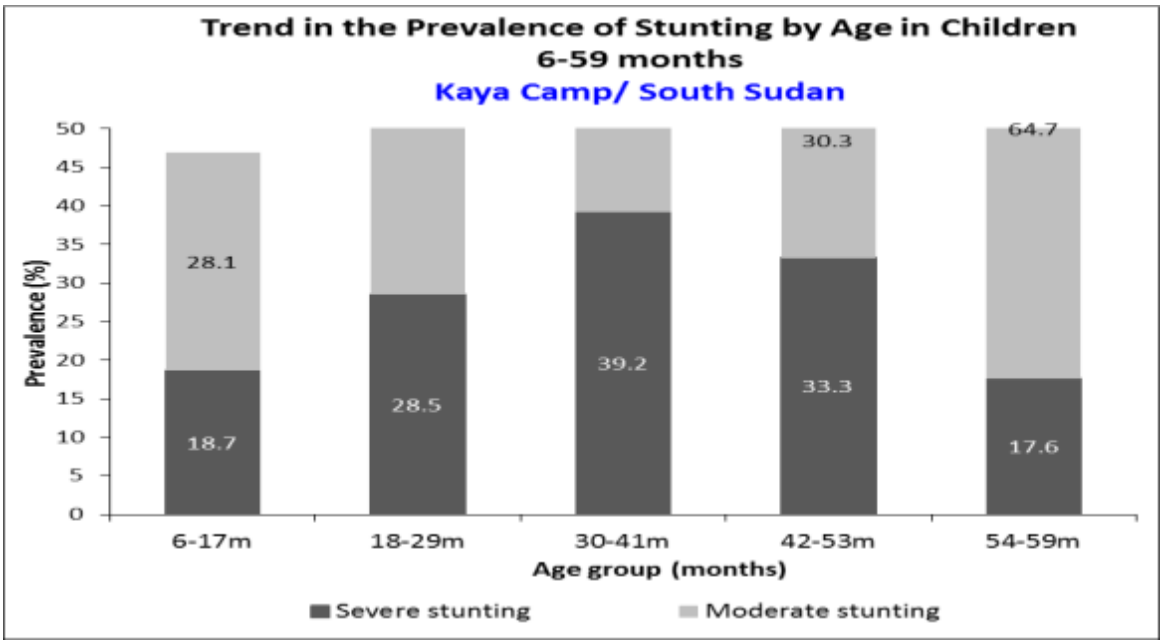


The increase in stunting from 2015 to 2016 in Kaya camp was not significant (p>0.05)

Table 139: Prevalence of stunting by age based on height-for-age z-scores-Kaya camp

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	139	26	18.7	39	28.1	74	53.2
18-29	151	43	28.5	70	46.4	38	25.2
30-41	153	60	39.2	48	31.4	45	29.4
42-53	66	22	33.3	20	30.3	24	36.4
54-59	17	3	17.6	11	64.7	3	17.6
Total	526	154	29.3	188	35.7	184	35.0

Figure 71: Trends in the Prevalence of Stunting By Age in Children 6-59 Months



The stunting vulnerability was equally distributed within the age groups of 18-29, 30-41,42-53 and 54-59 months

Table 140: 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	537	-0.83±1.03	1.00	3	9
Weight-for-Age	546	-1.90±1.03	1.18	0	3
Height-for-Age	526	-2.40±1.15	1.00	3	20

* contains for WHZ and WAZ the children with edema.

3.23. Health/Feeding programme coverage-Kaya Camp

Table 141: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ-Kaya Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	13/79	16.4(5.7-27.1)
Therapeutic feeding programme coverage	1/14	7.1(8.5-22.8)

Table 142: Programme coverage for acutely malnourished children based on MUAC and oedema-Kaya Camp

	Number/total	% (95% CI)
Supplementary feeding programme coverage	11/26	42.3 (17.8-66.7)
Therapeutic feeding programme coverage	0/1	0.0 (0-0)

Measles vaccination coverage results

Table 143: Measles Vaccination Coverage for Children Aged 9-59 Months (N=588)-Kaya Camp

	Measles (with card) n= 443	**Measles (with card or confirmation from mother) N=567**
YES	75.3% (69.5-81.095% CI)	96.4 % (94.4-98.3 95% CI)

Vitamin A supplementation coverage results

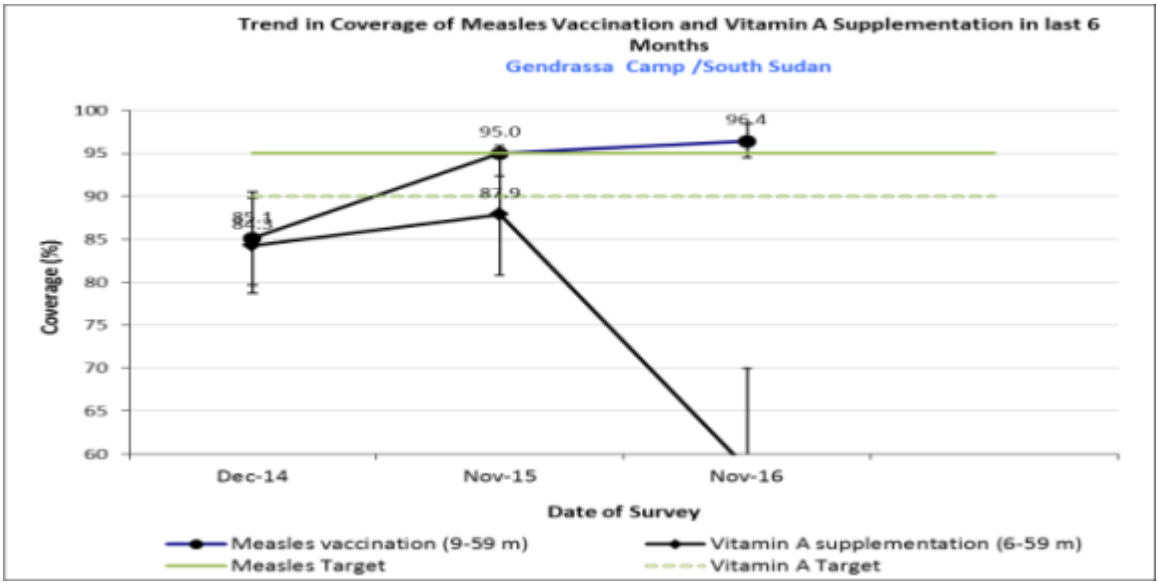
Table 144: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 486)-Kaya Camp

	Vitamin A capsule (with card) n=263	**Vitamin A capsule (with card or confirmation from mother) n=364**
YES	**54.1% (41.0-67.1 95% CI)**	**96.5 % (94.4-98.6 95% CI)**

Table 145: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=624)-Kaya Camp

	DPT3 / PENTA3 (with card) n=454	**DPT3 / PENTA3 (with card or confirmation from mother) n=611**
YES	72.7% (64.9-80.5 95% CI)	97.9 % (96.3-99.4 95% CI)

Figure 72: Trends in the Coverage of Measles Vaccination and Vitamin a Supplementation in Last 6 Months in Children 6-59 Months from 2014 to 2016-Kaya Camp



Diarrhoea Results

Table 146: Period Prevalence of Diarrhea-Kaya Camp

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	104/624	16.7 (9.7-23.5)

3.24. Anaemia Results Children 6 – 59 months-Kaya Camp

The total anaemia prevalence among children 6 to 59 months is of high public health significance at 54.0% (47.9-60.2 95% CI). Prevalence of anaemia among children 6 to 23 months is also of high public health significance at 72.0% (64.1-79.9 95% CI).

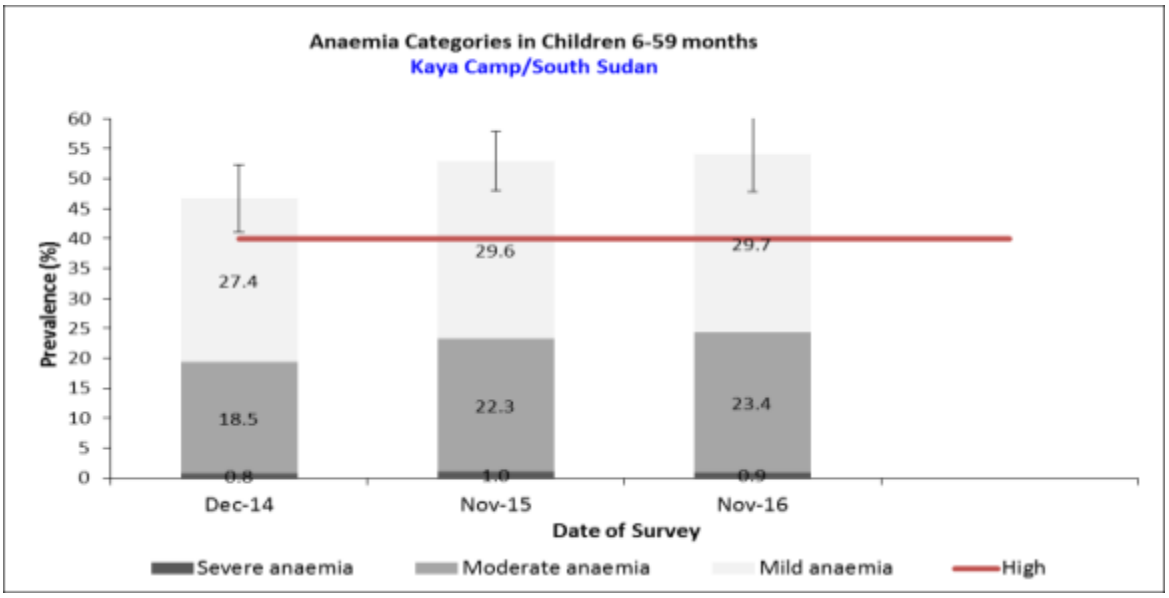
Table 147: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group-Kaya Camp

	6-59 months n = 623	**6-23 months** n=236	**24-59 months** n=387
Total Anaemia (Hb<11.0 g/dL)	(337) 54.0% (47.9-60.2 95% CI)	(170) 72.0% (64.1-79.9 95% CI)	(167) 43.1 % (37.8-48.4 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(185) 29.7% (25.4-33.8 95% CI)	(89) 37.7% (30.4-44.9 95% CI)	(96) 24.8% (20.6-29.0 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(146) 23.4% (19.7-27.6 95% CI)	(70) 33.0% (25.7-40.3 95% CI)	(68) 17.6% (13.7-21.4 95% CI)
Severe Anaemia (<7.0 g/dL)	(6) 0.9% (0.0-1.8 95% CI)	(3) 1.2% (0-2.7 95% CI)	(3) 0.7 (0-1 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	10.7 g/dL (10.5-10.9 95% CI) [4.9-15.0]	10.2 g/dL (10.0-10.4 95% CI) [6.3-17.4]	11.0 g/dL (10.9-11.2 95% CI) [5.6-15.0]

Table 148: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group-Kaya Camp

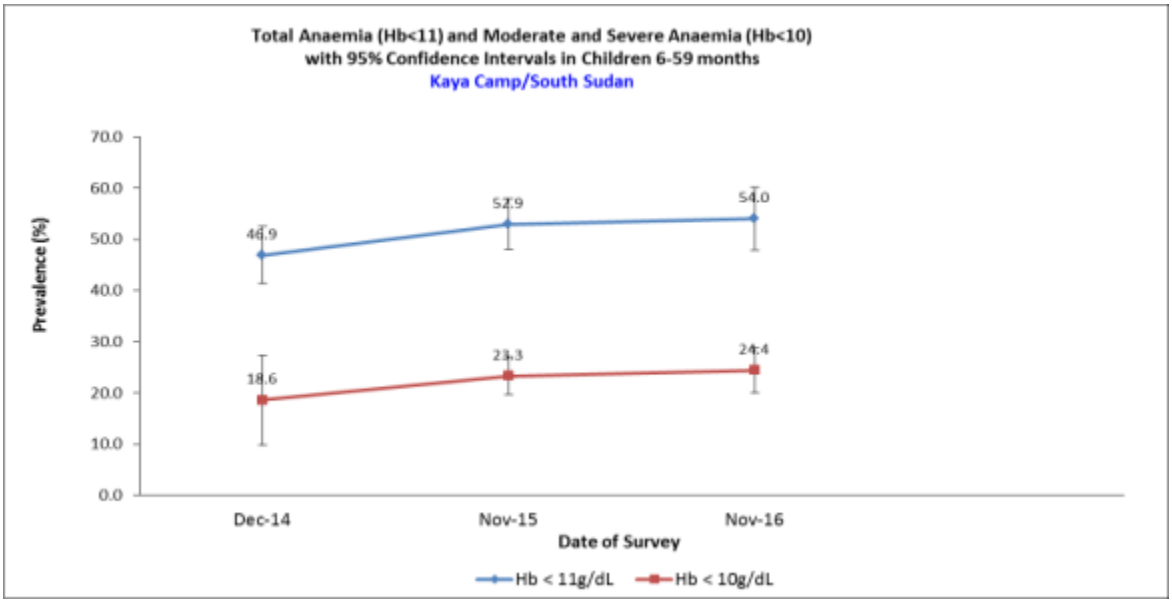
	6-59 months n = 623	6-23 months n= 236	24-59 months n= 387
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(152) 24.4% (19.9-28.7 95% CI)	(81) 34.3% (26.8-41.7 95% CI)	(71) 18.3% (14.3-22.3 95% CI)

Figure 73: Trends in Anaemia Categories in Children 6-59 Months from 2014 to 2016-Kaya Camp



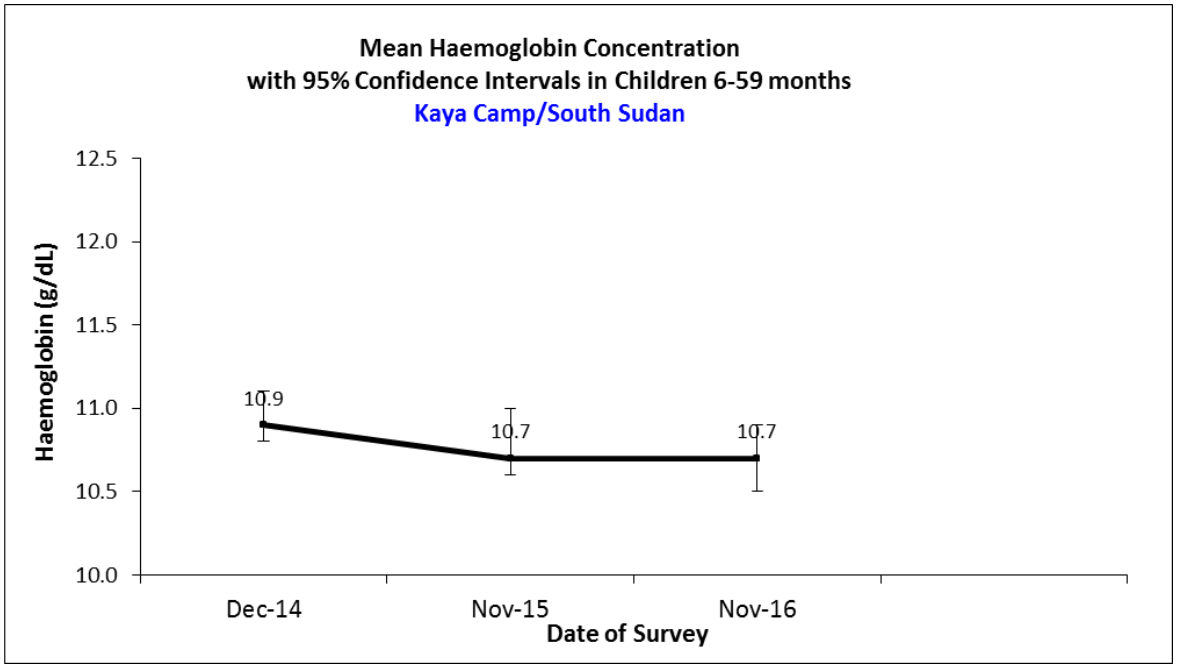
The change in anaemia situation between 2015 and 2016 in Kaya camp was not significant (p>0.05)

Figure 74: Trend in Total Anaemia (<11 G/Dl), and Moderate and Severe Anaemia (<10 G/Dl) With 95% CI in Children 6-59 Months from 2014 to 2016-Kaya Camp



The increase in anaemia prevalence from 2015 and 2016 in Kaya camp was not significant (p>0.05)

Figure 75: Trend in Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2014 to 2016-Kaya Camp

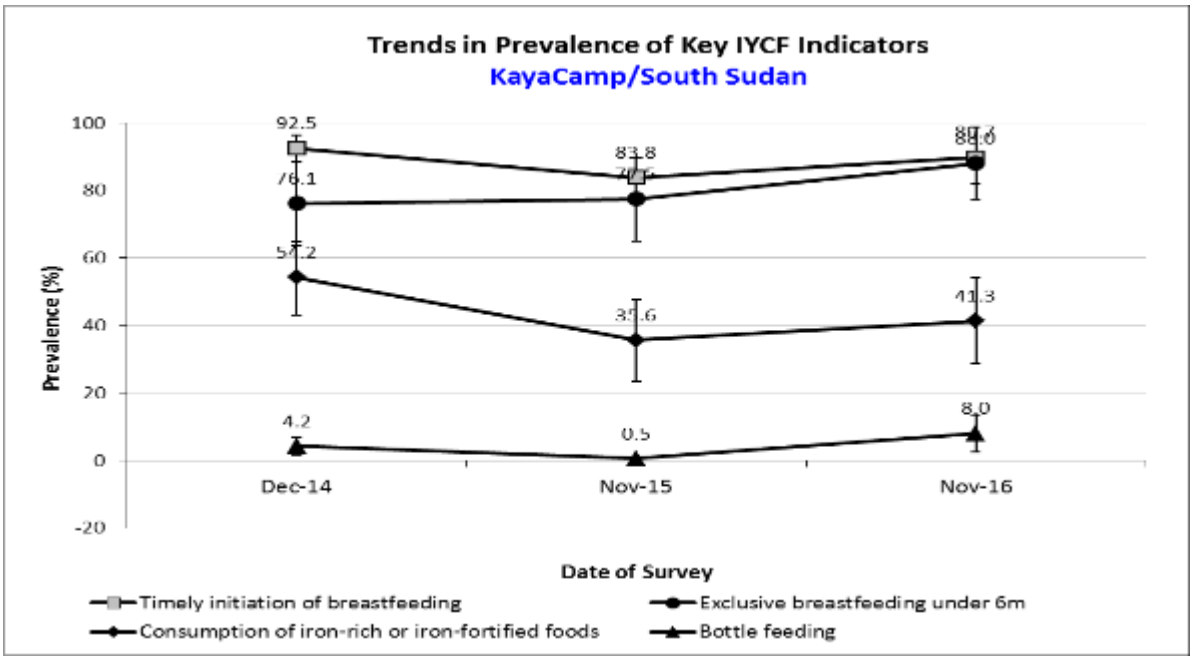


3.25. IYCF Children 0-23 months-Kaya Camp

Table 149: 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**	269/287	93.7	89.7-97.6
Exclusive breastfeeding under 6 months	**0-5 months**	44/50	88.0	77.3-98.6
Continued breastfeeding at 1 year	**12-15 months**	46/46	100	100.0-100.0
Continued breastfeeding at 2 years	**20-23 months**	50/55	90.9	82.8-98.9
Introduction of solid, semi-solid or soft foods	**6-8 months**	12/36	33.3	11.5-55.1
Consumption of iron-rich or iron-fortified foods	**6-23 months**	97/235	41.3	28.4-54.1
Bottle feeding	**0-23 months**	23/287	8.0	2.4-13.5

Figure 76: Key IYCF Indicators from 2014 to 2016-Kaya Camp



Timely initiation and exclusive breastfeeding situation remain the same in 2016

Prevalence of intake

Infant formula

Table 150: 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)	4/287	1.3 (0-3.6)

Fortified blended foods

Table 151: CSB+ Intake in Children Aged 6-23 Months –Kaya Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	27/236	11.4 (3.4-19.4)

Table 152: FSB++ Intake in Children Aged 6-23 Months-Kaya Camp

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	29/236	12.3(4.0-20.5)

3.26. Anaemia Women 15-49 years-Kaya Camp

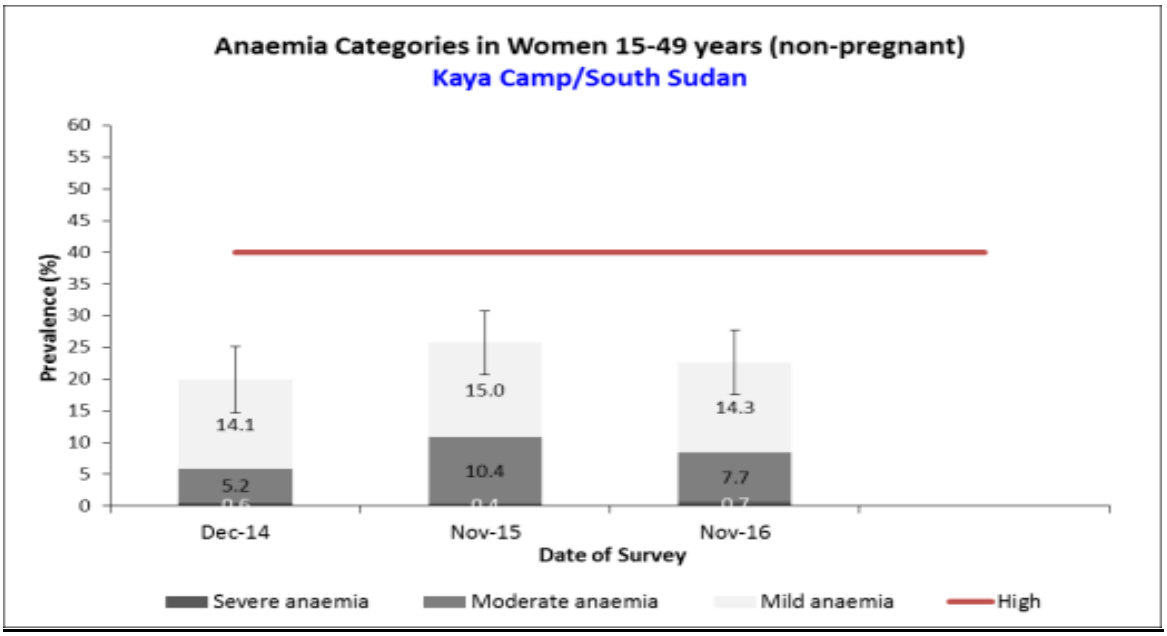
Table 153: women physiological status and age-Kaya Camp

Physiological status	Number/total	% of sample
Non-pregnant	252/299	84.2
Pregnant	44/299	14.7
Don't Know	1/299	1.1
Mean age (range)	25.9 (14-49)	

Table 154: 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 = 252**
Total Anaemia (<12.0 g/dL)	(57) 22.6% (17.5-27.6 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(36) 14.3% (10.3-18.2 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(19) 7.7% (3.8-11.2 95% CI)
Severe Anaemia (<8.0 g/dL)	(2) 0.7 (0.0-2.4 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.7 g/dL (12.5-12.9) [6.4-16.1]

Figure 77: Trends in Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2013 to 2015-Kaya Camp



The change in anaemia situation between 2015 and 2016 in Kaya camp was not significant (p>0.05)

Table 155: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	33/44	75.0 (56.8-93.1)
Currently receiving iron-folic acid pills	32/44	72.7 (54.2-91.2)

3.27. Water sanitation and hygiene (wash)-Kaya Camp

Table 156: WASH Sampling Information-Kaya Camp

Household data	Planned	Actual	% of target
Total households surveyed for WASH	557	555	99.6

Table 157: Water Quality-Kaya Camp

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	555/555	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	555/555	100 (100-100)

Table 158: 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	366/556	65.8 (54.9-76.6)
15 – <20 lpppd	80/556	14.3 (10.7-18.0)
<15 lpppd	110/556	19.8 (10.9-28.5)

Add the average water usage in lpppd:_____31.1lpppd_____

Table 159: Satisfaction with Water Supply-Kaya Camp

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	321/556	57.7 (45.8-69.9)

Figure 78: Proportion of Households That Say They Are Satisfied With the Water Supply

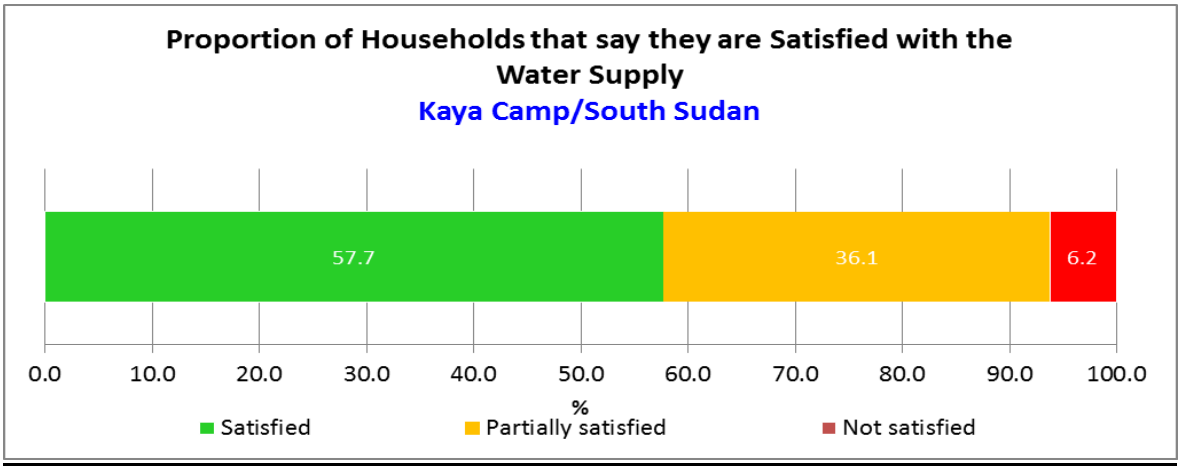


Figure 79: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

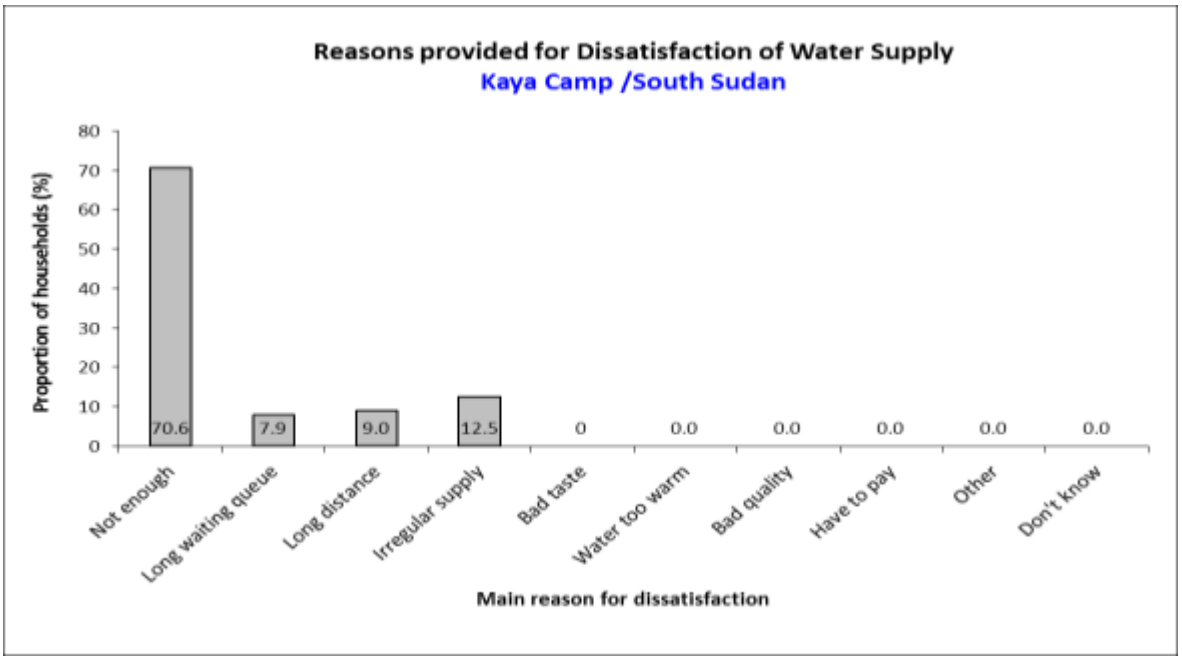


Table 160: Safe excreta disposal-Kaya Camp

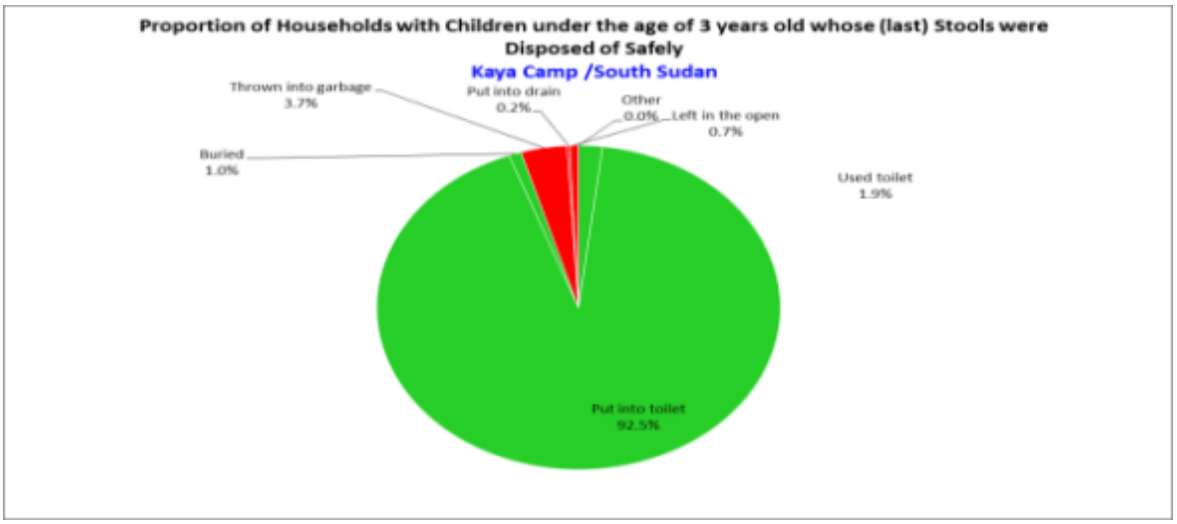
	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,**	241/549	43.9 (32.5-55.2)
A shared family toilet (improved toilet facility, 2 households)**	81/549	14.7 (10.0-19.4)
A communal toilet (improved toilet facility, 3 households or more)	47/549	8.6 (4.4-12.6)
An unimproved toilet (unimproved toilet facility or public toilet)	180/549	32.8 (19.3-46.1)
Proportion of households with children under three years old that dispose of faeces safely	441/462	95.4 (91.0-99.9)

***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 80: Proportion of Households with Children under the Age of 3 Years whose (Last) Stools were disposed of safely



3.28. Mosquito Net Coverage-Kaya Camp

Table 161: Mosquito Net Coverage Sampling Information-Kaya Camp

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	279	294	105%

Table 162: Household Mosquito Net Ownership-Kaya Camp

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	281/294	95.6 (92.2-98.8)
Proportion of total households owning at least one LLIN	264/294	89.7 (84.7-94.8)

Figure 81: Household Ownership of At Least One Mosquito Net (Any Type)

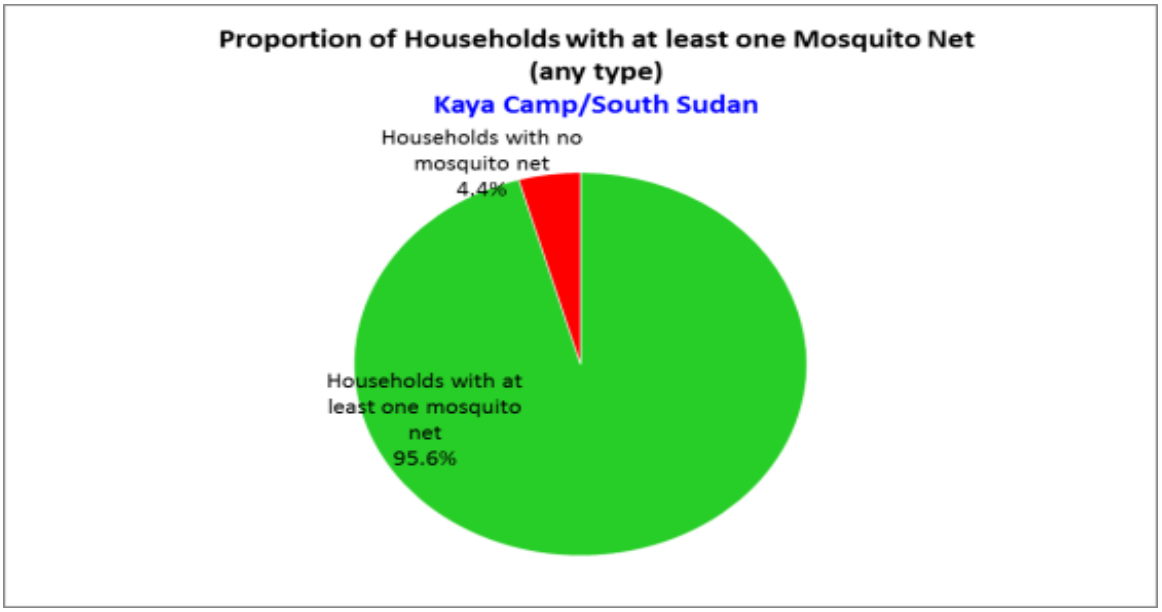


Figure 82: Household ownership of at least one LLIN

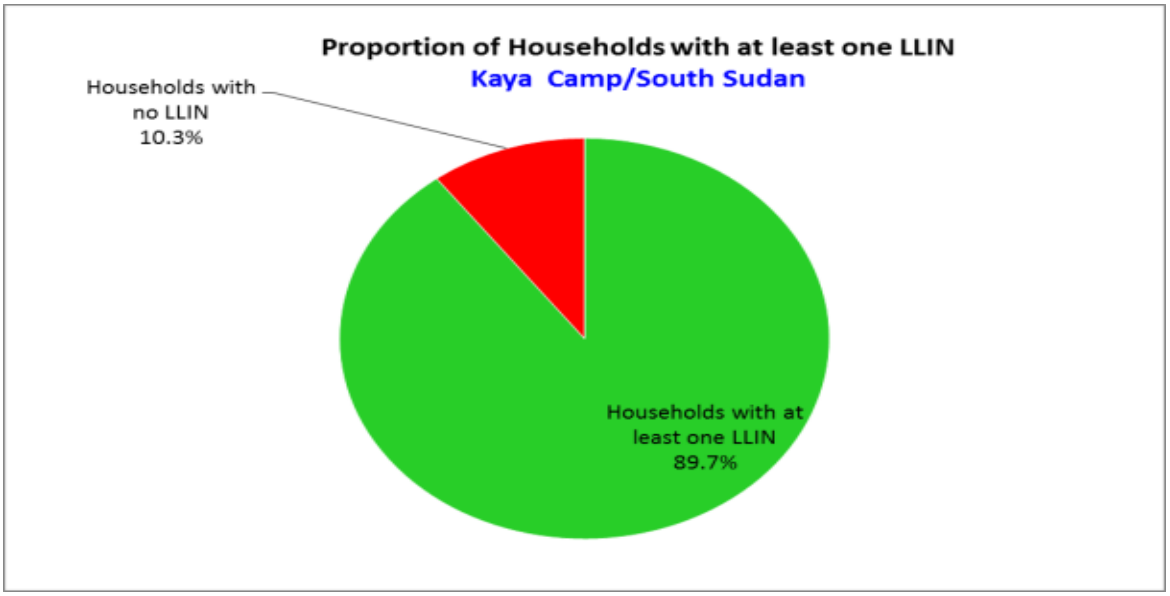


Table 163: Number of Nets-Kaya Camp

Average number of LLINs per household	Average number of persons per LLIN
1.8	2.8

Table 164: Mosquito Net Utilization-Kaya Camp

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1528	%	Total No= 376	%	Total No= 44	%
Slept under net of any type	1247	81.6	359	95.5	37	84.1
Slept under LLIN	1171	76.6	335	89.0	36	81.8

Figure 83: Mosquito Net Utilization by Sub-Group

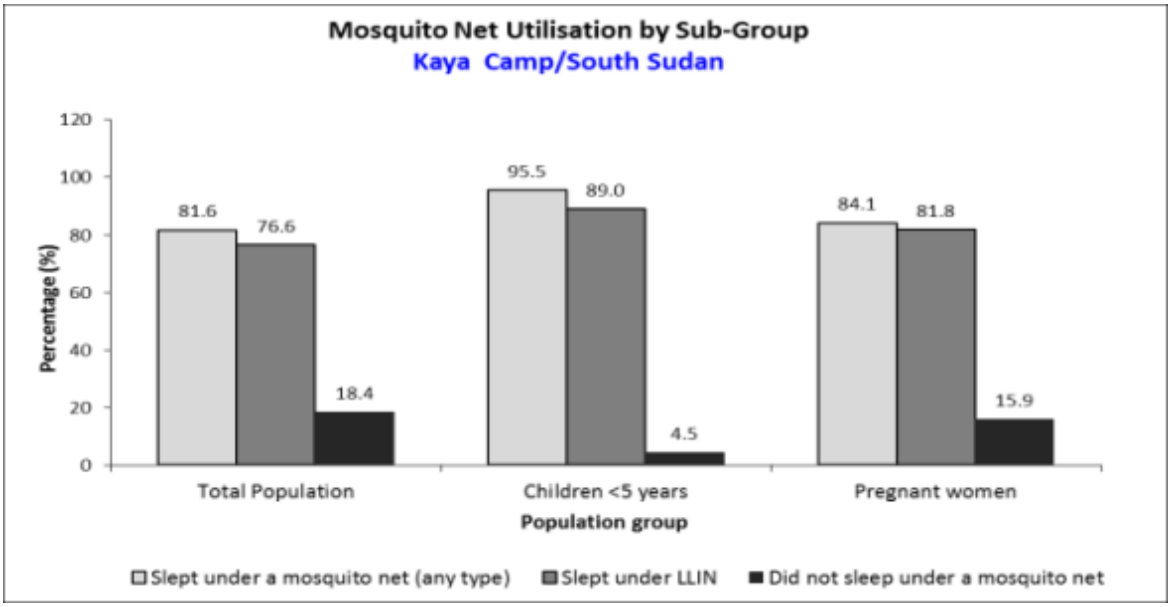


Table 165: Indoor Residual Spraying -Kaya Camp

	Number/total	% (95% CI)
Proportion of total households with Indoor Residual Spraying (IRS)	289/294	98.3 (96.8-99.7)

3.29. 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 apart from Gendrassa which had a score of 17 %. Age distribution data was generated as the main issue. This could be attributed to the low age documentation availability. Only approximately 50% of the children assessed had proper age documentation. In this light although an event calendar was used stunting results should be interpreted with caution.

Data collection Enumerators

Training took a longer time than initially planned. This was to facilitate the capacity building of the enumerators to the acceptable level. Additional sessions of standardization and field test was also put in place to ensure their preparedness. Maban experiences a high staff turnover meaning a new lot of enumerators has to be trained from scratch every year

SFP/TFP Coverage

Selective feeding data needs to be interpreted with caution due to the small number of cases that were sampled during the survey. In addition to this although the surveyors had satchets of RUTF, RUSF and CSB++ to show the respondents, assessment to the feeding program was assessed based on recall in the absence of program cards. .

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” need to also be interpreted with caution.

4.0 DISCUSSION and CONCLUSION

4.1. Nutritional Status of Young Children

The nutrition situation in Doro and Kaya refugee camps is serious (between 10-15%) and poor (between 5-9%) in Yusuf Batil and Gendrassa according to the WHO classification. The decrease in malnutrition in Doro, Yusuf Batil, Gendrassa and increase in Kaya in 2016 compared to 2015 was not statistically significant (p>0.05). This means that the nutrition situation remained the same in 2016 as it was in 2015. This pattern was also the same in reference to severe acute malnutrition. The prevalence of severe acute malnutrition remained the same in 2016 compared to that in 2015. In Doro, the GAM prevalence was **12.5%** (10.0 - 15.3 95% CI) while the SAM prevalence was **2.3%** (1.3 - 4.3 95% CI). In Yusuf Batil camp, the GAM prevalence was **9.6 %** (7.0-13.0 95% CI) while the SAM prevalence was **0.8 %** (0.3-2.0 95% CI). In Gendrassa the GAM prevalence was **7.5%** (5.3-10.6 95% CI) while the SAM prevalence was **1.0%** (0.4-2.9 95% CI) and in Kaya the GAM prevalence was 12.5% (10.0-15.5) 95% CI) while the SAM prevalence was **1.7%** (0.9-3.0 95% CI). Results from Doro and Kaya were close to the host community global acute malnutrition status. The Maban May 2016 nutrition survey's GAM prevalence was 13.0 (10.1-16.5 95%CI) and SAM prevalence was 4.0 (2.5-6.3 95% CI) indicating a serious situation.

MUAC results showed the same trend as the mass monthly/quarterly screenings. As with the Z scores prevalence above the MUAC results in 2016 remained the same as that in 2015. The MUAC malnutrition proportion however was much lower compared to the Z score prevalence of malnutrition. Of concern are the children that meet the WHZ score admission criteria but are not captured by the MUAC screening – the community outreach case finding tool. From the survey results only 41% of the children identified as acutely malnourished using the Z score admission criteria were captured under the MUAC proportion. Under the severe acute malnutrition category only 20% of those meeting the Z score admission criteria fell under the MUAC proportion (from the analysis malnourished children with both criteria /malnourished children with WFH). Further analysis of MUAC versus WHZ z-scores verified the above observation. In this light, a mixed criteria for admission using MUAC or WHZ scores to capture the children missed by either MUAC or the WHZ scores admission criteria is proposed. The blanket supplementary feeding centres and the health/nutrition centre triage areas to carry out a 2 stage screening monthly measurements at the facility. All children found to be at risk (125 -150mm) for the 6-23months and (125-160mm) for the 24-59 months to go through a second stage weight for height z-score measurement and any child found to meet the admission criteria using the WHZ scores to be enrolled into the appropriate program.

The non-significant change in the GAM prevalence indicates that the current interventions in Maban are able to deter further deterioration and maintain the nutrition status at the current level. To facilitate better gains however, these interventions need to be strengthened to take care of identified gaps. Key curative and preventative interventions implemented in 2016 included the implementation of the CMAM including active case finding at the community level. Identified malnourished cases were referred to the nutrition facilities for rehabilitation. Other key interventions are the promotion, protection and awareness creation on appropriate IYCF, micronutrient deficiency reduction through Vitamin A supplementation, deworming, general food ration, Blanket Supplementary Feeding Program (BSFP) and public health care provision etc.

Gaps under these interventions include low program coverage under CMAM, poor complementary feeding practices lacking diversity under IYCF, a general food ration not meeting the minimum kcal/per person/day, lack of adequate stocks for BSFP and high disease burden. Program coverage will be discussed under section 4.2 and IYCF practices will be discussed under section 4.4 below. The Maban refugee camps receive a 70 % general food ration. A 30 %

reduction in GFD ration corresponds to a reduction of the daily energy intake from 2100 Kcal/p/day to 1470 Kcal/p/day. The GFD did not provide a Fortified Blended Food (FBF) and salt in 2016 and pulses were missing in the month of August 2016. Part of the 70% GFD received is used to cover milling costs. The milling voucher programme stopped from March 2015. BSFP for children under 5 and PLW was not implemented as planned as it faced pipeline breaks. The BSFP U5/U2 was implemented for only three months instead of 9 months as originally planned. The gaps in the GFD and BSFP are likely to affect nutrition negatively thus the need to continue advocating for a ration that meets the minimum standards and provision of BSFP supplies throughout the year.

Respiratory tract infections (RTI), malaria and watery diarrhoea were the top morbidities in 2016. Diarrhoea caseload remained the same in 2016 compared to 2015 in all the Maban refugee camps in the exception of Yusuf Batil where there was a significant reduction. The vicious cycle of malnutrition and infection means that the above morbidities are bound to affect nutrition negatively and vice versa thus the need to continue providing comprehensive public health care.

The prevalence of stunting was of high public health significance (≥40%) in all the Maban refugee camps. Changes in 2016 were not significant in all the camps indicating that the situation remained the same as in 2015. Stunting reflects chronic under nutrition an outcome of poor maternal health and nutrition before, during and after pregnancy, inadequate infant and young child feeding practices (suboptimal breastfeeding and limited complementary feeding in quantity, quality and variety) and recurrent infections[1].

4.2. Programme Coverage

The measles coverage was **96.3%** (93.8-98.7 95% CI**)** in Doro, **96.4%** (94.2-98.5 95% CI) in Batil, **93.7%** (94.1-99.2 95% CI) in Gendrassa and **96.4%** (94.4-98.3 95% CI) in Kaya. This met the target of >95% in all camps except Gendrassa which was slightly below the target. Vitamin A coverage in all the camps met the recommended target (>=90%). Of note is that the results show both card and recall data. The measles vaccination coverage with card ranged from 53% to 79% while under vitamin A the range was 53% to 56%. The high measles and Vitamin A coverage results can be attributed to routine vaccination/supplementation coupled with campaigns. The last campaigns were done in June and July in all Maban camps . This should be continued to maintain the acceptable coverage in 2017.

Feeding programme coverage results were way below the >90% target and ranged between 0-33% for TFP and 15-23% for TSFP. These results however need to be interpreted with caution due to the small sample sizes. Results from the 2016 HIS showed 100% and 59% coverage respectively. To ascertain the coverage across the year the quarterly mass MUAC exercise can be used. All children identified as malnourished to have a follow up question that ascertains their enrolment status.

Ante Natal Care (ANC) enrolment and iron-folic acid coverage were **94.7%** (82.9-100.0 95% CI) and **89.5 %** (73.8-105.9 95% CI) respectively in Doro, **91.0%** (82.4-99.7 95% CI) and **93.1%** (85.3-100.0 95% CI) in Batil, **96.8%** (89.6-103.9 95% CI) and **93.5%** (83.6-103.4 95% CI) in Gendrassa and **75.0%** (56.8-93.1 95% CI) and **72.7%** (54.2-91.2 95% CI) in Kaya . Coverage is high in all the camps except in Gendrassa where more effort should be put to allow better gains.

[1] WHA Global Nutrition Targets 2025, Stunting Policy Brief, WHO 2014.

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

Anaemia is used as a proxy indicator to assess for micronutrient deficiencies[2] . Anaemia prevalence among children 6-59 month in 2016 was **54.0%** (47.9.-60.2 95% CI), **51.8%** (45.8-57.8 95% CI), **48.7%** (41.4-55.9 95% CI) and **48.0 %** (44.0-52.0 95% CI) in Kaya, Gendrassa, Doro and Batil respectively. The prevalence in all the camps is above the 40% public health significance threshold (WHO, 2000). Children 6-23 months were much more affected by anaemia (64% to 72% anaemia prevalence range) compared with the 24-59 months age category where the range was 34% to 45% across the camps. This indicates increased vulnerability among the 6-23 age group and the need to prioritise this age group in terms of anaemia prevention. The anaemia prevalence remained the same in 2016 compared to 2015 as the decreases in Doro, Yusuf Batil and Gendrassa and increase in Kaya were not statistically significant ($p>0.05$).

Although anaemia prevalence is high, the majority of the children are mildly anaemic. The prevalence of moderate and severe anaemia among children 6 to 59 in the Maban camps ranged between 20-25%. The findings show that if only moderate and severe anaemia are to be considered, the anaemia prevalence is of medium public health concern and is classified as serious regardless the age range.

Anaemia prevalence in non-pregnant women 15 to 49 months showed a decrease in all Maban camps as compared to that in 2015 but this was only significant in Doro meaning that the situation remained the same in all the other camps. Anaemia prevalence in Batil, Gendrassa and Kaya remained within the medium range of public health significance while in Doro camp is of low public health significance. In Doro the prevalence was found to be **17.4 %** (11.0-23.6 95 %), **22.9 %** (14.8-31.0 95 %) in Yusuf Batil, **25.6 %** (16.0-35.1 95 %) in Gendrassa and **22.6 %** (17.5-27.6 95 %) in Kaya. According to the WHO classification the women anaemia prevalence is of low public health significance in Doro and of medium public health significance in the other camps.

The anaemia prevalence can be attributed to a number of factors that characterise the camps' population. Refugee in Maban refugee camps rely on the general food ration as their main source of food. The micronutrient profile of the ration is inadequate. From the NutVal analysis, the diet provides 53% of iron daily energy requirements from the 70% GFD ration provision. Sorghum, which contributes the bulk of the iron in the food is high in phytates, anti-nutrients that inhibit iron absorption in the body. Vitamin C, a nutrient that plays a key role in the facilitating iron absorption is also barely available from the GFD ration. The ration provides only 2% of vitamin C. The refugee diet lacks green leafy vegetables and animal based which are good source of bioavailable iron sources. Improvement in diet diversity should be explored to avert this. 26% and 3% of the crude morbidities in the Maban refugee camps was from malaria and intestinal worms respectively. These are likely to contribute to the high anaemia prevalence. Regular deworming, intestinal worm treatment and malaria prevention are thus key to anaemia reduction. Appropriate complementary feeding practices among infants is low a likely additional contributing factor to the high anaemia levels among the 6-23 months age group during the weaning period.It also contributes to high anaemia levels for all children 6-59 months. In addition to exclusive and continued breastfeeding promotion there is a need to also prioritise actions/interventions that allow for appropriate complementary feeding. An integrated, multifactorial and multisector strategy will thus be necessary to guide anaemia reduction.

4.4. Infant and Young Child Feeding (IYCF) Indicators

Most of the children in all camps had timely initiation of breastfeeding (a range of 89% to 98%) and were exclusively breast fed (a range of 87% to 93%). The results remained the same in 2016 as in 2015. Over 94% of the mothers continued breastfeeding at 1 year and >76% further

[2] UNHCR Anaemia reduction strategy, 2011, UNHCR Strategic Plan for Nutrition and Food Security, 2012

continued into the second year. The results above indicate that breastfeeding is well accepted and appropriately practiced by the refugee community. Breastfeeding reduces infant morbidity and mortality from diarrhoea and respiratory infections. The benefits of breastfeeding increase with exclusiveness of breastfeeding. Babies who are breastfed are generally healthier and achieve optimal growth and development compared to those who are fed on formula milk. Increasing awareness and support to lactating mothers must continue being provided and include birth spacing which is one of the probable reasons for the shorter duration of continued breast feeding up to two years.

Timely introduction of solid, semi-solid or soft foods is low in all camps with a range of (31% to 47%). This was also the case in terms of the consumption of fortified blended foods and consumption of iron rich or iron fortified food 24 hours prior to the survey. Only a range of 5 to 12 % of the children had access to fortified blended food and 1.1% to 53% consumed iron or iron rich fortified food respectively, 24 hours prior to the survey. This was likely to be children enrolled in the nutrition program for the management of acute malnutrition or mothers that sourced the products from the market. BSFP in Maban was only carried out for 3 months out of 12 in 2016 due to lack of stocks at the field level. The general food ration does not provide a fortified blended food option as part of the food items and neither is milling assistance provided. This means the refugees have limited feeding options for this age group. There is a room to advocate for the resumption of the BSFP to supplement the GFD for the 6-23 age group.

Bottle feeding ranged from 0.7% to 11.8% with Yusuf Batil and Kaya having the higher proportion. Infant formula intake ranged from 1% to 4%. Bottle feeding and giving a baby breast milk substitutes such as infant formula or animal milk can threaten the baby's health and survival. Babies who do not receive breast milk do not receive protection from illnesses provided by the mother's antibodies and other components that are gained from her milk. These babies are more likely to fall ill with diarrhoea, respiratory and ear infections. Diarrhoea and respiratory infections, such as pneumonia, can be deadly in babies and young children and continue to be top morbidities in the Maban camps[3].[4] More efforts to reduce the proportion of children being bottle fed and formula fed when breast feeding is an option should be made.

4.5. Water Sanitation and Hygiene (WASH)

All the sampled households reported to have access to improved drinking water sources in all the refugee camps. The average individual water consumption was above the SPHERE standard of 15litres per person per day (lpppd) and the UNHCR standard of $\geq$20lpppd. The average water consumption was **26.7%** in Doro, **25.7%** in Batil, **33.3%** in Gendrassa and **31.1%** in Kaya while in 2015 it was 16.9%, 27.9%, 16.0% and 15.2% respectively in the same camps .This improved significantly compared to 2015 in all camps except in in Yusuf Batil where the increase in the average water consumption was not significant thus remained the same. The improvement can be attributed to the continuous water system upgrade. Water pumping is motorised and solarised in all camps. Of note though despite the average improvement is the range of 19.8% to 30.8% who reported to have used <15 lpppd. In addition to this 7% to 42% of the surveyed households reported to be dissatisfied with the water supply across the Maban refugee camps. This was attributed to lack of adequate water, irregular supply, long waiting queues and long distance to the water point. This indicates the need review the equitability of the sufficient water to ensure it is timely access to all.

[3] UNHCR health information systems
[4] http://www.factsforlifeglobal.org/resources/factsforlife-en-full.pdf

Over a third of the households in Doro, Yusuf Batil and Gendrassa did not use covered or narrow necked containers for drinking water storage. This needs to be addressed to ensure that water is not contaminated despite the households having access to an improved drinking water source.

In terms of sanitation facilities, over 50% of the households in Maban refugee camps do not have access to an improved toilet facility. This showed an increase compared to 2015 with the increase being significant in Yusuf Batil and Gendrassa. This could be attributed to the slow uptake of the community ownership model of latrine construction being promoted. Households are expected to source building materials locally followed by the building of their own household latrines to ensure sustainability.

Although a good proportion of the population are using unimproved toilet facilities, there seems to be good knowledge of child stool disposal as shown by the 79% to 98% proportion of households that safely disposed child faecal matter. This is indicative of effective community outreach message dissemination. The high proportion of households without improved toilet facilities might have contributed to the high diarrhea prevalences of 20.1%,14.0 % and 16.7% in Doro, Gendrassa and Kaya respectively.

4.6. Mosquito Net Coverage

The proportion of households that own at least one Long Lasting Insecticide-treated mosquito Net (LLIN) was > 80% in all the Maban refugee camps (UNHCR standard: ≥80%). The average number of persons sharing a mosquito net was however more than the recommended 2 people per net. In 2016, 61% to 85% of the surveyed households slept under an LLIN. A range of 77% to 92% children under five slept under an LLIN. 61% to 88% of the pregnant women also slept under an LLIN. This shows that the available mosquito nets are not enough to be used by all household members thus the need to continue targeting household and facility LLIN distributions. LLINs are used as one of the malaria control strategies.

The IRS coverage was **99.5%** (98.5-100.0 95% CI) in Batil**, 98.3%** (96.8-99.7 95% CI**)** in Kaya, **92.8%** (88.4-97.2 95%CI) in Doro and **38.0%** (23.5-52.4 95% CI) in Gendrassa. At the time of the survey Indoor Residual Spraying (IRS) had been completed in Doro, Batil and Kaya. The low coverage in Gendrassa was due to lack of insecticide which the camp was waiting for during the survey period to facilitate the completion of the exercise.

5. RECOMMENDATION AND PRIORITIES

Nutrition related

- UNHCR and partners to maintain and strengthen the implementation of CMAM program providing both therapeutic and supplementary feeding programs including the community outreach aspect to facilitate the rehabilitation of the identified malnourished children (UNHCR, WFP, UNICEF, Partners).
- WFP and UNHCR to resume the implementation of blanket supplementary feeding programme all year round for children 6-23months and pregnant and lactating women to prevent malnutrition and to cover the nutrient gap these vulnerable groups have in light of a predominant grain based general food diet. This to be implemented in a timely and

intergrated fashion with the other maternal and child health and nutrition interventions (UNHCR, WFP, Partners).

- Conduct the two step MUAC and WHZ scores (for children with MUAC at risk) screening monthly at the BSFP sites in all camps to ensure both high MUAC and WHZ score coverage (Partners).

- Strengthen the capacity of established nutrition facilities in terms of staff training to facilitate quality provision of both curative and preventative components of nutrition (UNHCR, WFP and UNICEF).

- Expand and strengthen preventative nutrition components including Infant and Young Child Feeding (IYCF) and community outreach education aspects to stop malnutrition from occurring in the first place. IYCF partners in Maban to prioritise the creation of awareness on appropriate complementary feeding from six months an area that requires significant improvement (UNHCR, UNICEF and Partners).

- Finalize and implement the anemia reduction strategy focussing on the multiple interventions (supplementation, BSFP U2, Kitchen gardening for micronutrient dense foods, WASH/water nanagement/control,mosquito net distribution,larviciding etc) need to be in place to reduce micronutrient deficiencies (UNHCR, UNHCR, WFP and Partners).

- Ensure regular monitoring, quarterly joint monitoring and yearly nutrition program perfomance evaluations in all camps to assess performance progress and formulate recommendations for any identified gaps (UNHCR, WFP, UNICEF, and Partners).

- Carry out nutrition surveillance through quarterly mass MUAC screening. The screening exercise to also be used to acertain coverage and to refer any malnourished children identified (Partners).

- Undertake annual joint nutrition surveys in all camps to analyze trends assess program impact and facilitate evidence based recommendations for nutrition programming (UNHCR, WFP, UNICEF and Partners).

Food security related

- Increase from 70% to 100% food assistance providing the minimum dietary requirements of 2100kcal/person/day to facilitate basic nutrition provision at household level (UNHCR and WFP).

- Continue the routine monthly food basket monitoring on site and ensure joing post distribution monitoring at the household level in all camps to ensure that refugees receive their entitlement in addition to ensuring identified gaps are addressed in a timely manner (UNHCR, WFP and Food security partners).

- Expand the coverage of sustainable food security and livelihood solutions (kitchen gardening, etc) in the refugee context in all camps that promote diet diversity and complement the general food ration (UNHCR, WFP and Partners).

Health related

- Maintain and strengthen the provision of comprehensiveprimary health care programme providing both curative and preventative community outreach services to reduce the disease burden among the refugees in Maban (UNHCR and Partners).

- Ensure Vitamin A supplementation is maintained in all the refugee camps including the periodic campaigns at least two times in the year. Kaya to particulary pay attention to increasing the coverage to acceptable standards (UNHCR and Partners).

- UNICEF, UNHCR and Parters to ensure the EPI program continues to maintain the acceptable standards (UNHCR, UNICEF and Partners).

- Streghthen reproductive health interventions including healthy timing and spacing of pregnancies to improve birth outcomes and allow for continued breastfeeding until at least 24 months, reduce the risk of iron deficiency anaemia and maternal mortality thus improved nutrition for both the mothers and their children. (UNHCR and Partners).

- Mosquito net distribution (LLIN) to be continued targeting households not owning enough to allow for <2 people to sleep under one net (UNHCR and Partners).

Wash related

- To curb water inequity issues noted by the households using < 15LPPD, it is necessary to ensure adequate equitable water collection points (UNHCR, UNICEF, WASH Partners).
- To reinforce the promotion of improved toilet facility ownership as well as well as closer monitoring safe WASH practices (tap stands with water and soap) coupled with health/hygiene promotion to decrease diarrhea episodes in the camps.

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7. SURVEY TEAM

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8	Awad Abraham
9	Juma Hassan
10	Elia Musa
Enumerators	
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2	Adam Kawaja
3	Abdulaziz Abdallah
4	Ateib Nicholas
5	Junubia Osman
6	Faisal Alshaib
7	Kaida Adam
8	Hassan Agoum
9	Mohammad Djbriel
10	Marcos Daud
11	Hussin Som K
12	Mohammad Yousif
13	Alimam Abdallah Omar
14	Umran Bell
15	Nuba William
16	Nada Hamid
17	Swaibu Osman
18	Musa Bagar
19	Mohammad Hassan
20	Zainub Abudikin
21	Osman Ramadan
22	Nasiya Haka

23	Mata Naja
24	Eklas Noreen
25	Hassan Wadbis
26	Ayoub Abdulwahab
27	Gisma Alamin
28	Musa Alfatur
29	Maka Ajak
30	Izadin Hassan
31	Afab Abas
32	Adow Alfeki
Supervisors	
1	Rose Jelly
2	Muki Michael
3	Ladu Michael

8. APPENDICES

9.1. Appendix 1: SMART Plausibility Check Reports

SMART Plausibility Check Report – Doro

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

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

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of in-range subjects)			0	5	10	20	**5** (3.2 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**2** (p=0.099)
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** (4)

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

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** (1.05)
Skewness WHZ Excl # <±0.2 <±0.4 <±0.6 >=±0.6
0 1 3 5 **0** (-0.08)

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=0.801)

OVERALL SCORE WHZ = 0-9 10-14 15-24 >25 **17** %

The overall score of this survey is 17 %, this is acceptable.

Appendix 2: SMART Plausibility Check Report – Yusuf Batil

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

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

Overall data quality

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

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** (1.9 %)

Overall Sex ratio Incl p >0.1 >0.05 >0.001 <=0.001
(Significant chi square) 0 2 4 10 **0** (p=0.153)

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** (6)

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** (0.99)

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 **1** (-0.24)

Poisson dist WHZ-2 Excl p >0.05 >0.01 >0.001 <=0.001
0 1 3 5 **0** (p=0.221)

OVERALL SCORE WHZ = 0-9 10-14 15-24 >25 **13** %

The overall score of this survey is 13 %, this is good.

SMART Plausibility Check Report – Gendrassa

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

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

Overall data quality

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

Flagged data Incl % 0-2.5 >2.5-5.0 >5.0-7.5 >7.5
(% of in-range subjects) 0 5 10 20 **0** (1.2 %)

Overall Sex ratio Incl p >0.1 >0.05 >0.001 <=0.001
(Significant chi square) 0 2 4 10 **0** (p=0.497)

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

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

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

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

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

Skewness WHZ Excl # <±0.2 <±0.4 <±0.6 >=±0.6
0 1 3 5 **1** (-0.22)

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

Poisson dist WHZ-2 Excl p >0.05 >0.01 >0.001 <=0.001
0 1 3 5 **0** (p=0.210)

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

The overall score of this survey is 15 %, this is acceptable.

SMART Plausibility Check Report – Kaya
Standard/Reference used for z-score calculation: WHO standards 2006
(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

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

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

Overall Sex ratio Incl p >0.1 >0.05 >0.001 <=0.001
(Significant chi square) 0 2 4 10 **0** (p=0.966)

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

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

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

Dig pref score - MUAC Incl # 0-7 8-12 13-20 > 20
0 2 4 10 **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** (0.03)

Kurtosis WHZ Excl # <±0.2 <±0.4 <±0.6 >=±0.6
0 1 3 5 **1** (-0.28)

Poisson dist WHZ-2 Excl p >0.05 >0.01 >0.001 <=0.001
0 1 3 5 **0** (p=0.567)

OVERALL SCORE WHZ = 0-9 10-14 15-24 >25 **13** %

The overall score of this survey is 13 %, this is good.

9.2. Appendix 2: Assignments of Clusters

Doro Cluster Allocation

DORO CLUSTER ALLOCATION			
Community	Geographical unit	Population size	Cluster
Abgarin	Algali Mallah	303	
Agadi	Abdallah Adarif Alum	48	
	Abtos Ahaj	38	
	Adam Karoth Ahmed	35	
	Adam Nimir Ahmed	26	
	Ali Mallah Bardos	44	
Anyile	Juma Matar	2294	1
Bagis	Rajab Yusuf	131	
Baldugu	Akos Adut	258	
	Karkab Gassim	230	2
	Khalifa Rajab	369	
	Ramadan Mohamed	169	
	Yaguk Jabir	252	
Balila	Delil Zaik	2188	3

Balila Dawala	Idris Mohamed	545	4
Bee	Bebai Bam	3270	5
Belatuma	Samual Jeka	3753	RC,6
	Talha Jebal	1226	7
	Yusif Diga	7	
Benamayu 1	Joshua Musa	2067	RC
Benamayu 2	Musa Ali Farajala	5	
	Raha Erke Ube	1094	8
Borfa	Musa Labib	2112	9
Burgo	Mahjoub Ateib	25	
Chali 1	Alnur Waya	2921	10,11
Chali 2	Abdalbakheit Luye	2245	12
Darfur 1	Ishag Abdala Abdala	7	
	Suleiman Ibrahim	123	
Darfur 2	Juma Adam	464	
Dereng	Jakam Komea Borfa	185	
	Khalifa Abdallah	204	13
Dindiro	Atom Khemis Jarom	51	
Gabanite	Abdrahman Matar	471	
	Alfil Juma Adam	249	
	Alumda Mismis Dido	378	
	Asheib Barach	353	
	Mohamed Balal Khalifa	478	14
	Rajab Ponj Alemin	143	
	Sabir Medani Tifil	164	
Gardan	Rasheed Awadala Abdala	7	
Gassen	Abdu Khalifa	13	
Gurfuk	Osman Musa	148	
Jabel Morufa	Omar Toffa Balla	679	
Jeigo	Aduma Khemis	126	
	Babu Idris	71	
	Rajab Hamad	79	
Jindi	Lemam Haris	2900	15,16
	Sila Hassan	1256	17
	Silla Hassen	58	
Kernkan	Osman Jebaroun	564	
Kilgo	Kamal Yakuaob Jaden	21	
	Mahamoud Iddris Agar	234	
	Musa Abdu	95	
Kolnugura	Lakin Dukan	2126	18
Kukuli	Abdallh Bendel	160	19
	Bahaidin Abdallah	210	
Mayak 1	Ali Shata	1572	20
Mayak 2	Alfeki Woro Lal	1403	
Mayak 3	Owles Agago	837	21

Mugum	Ardeb Jabuk	218	
Nuba	Kuku Adam	289	
Rosseris	Zannon Daud Adam	10	
Samari 1	Ismail Kanyi	952	RC
Samari 2	Ali Yanti	725	
Samari 3	Tisko Wwadaga	447	
Samari 4	Sabanai Philip	1017	22
Soda	Joseph Nota	1108	
Surkum	Sadallah Bashir	819	23
	Shateer Basher	4	
Tongo	Ahmed Debit	327	
Wadaga	Abusok Idris	666	
	Ramadan Anaim	1135	24
	Yousif Abdallah	867	25
Wego	Jubara Mohamud	105	
Yabus	Khalid Itineen	1021	
Zariba	Nureen Omar	965	26

Batil Cluster Allocation

BATIL CLUSTER ALLOCATION			
Umda	Geographical unit	Population size	Cluster
Ahmed Mahajoub Adam	agabalabun Hamadanil	2	
	Bade Kambal Albay	12	
	Elyas Ajabon	187	
Ali Jakalo	Abdalla Mohammed Adam	170	1
	Aburas Abdalla Turmbal	494	
	Ali Jakolo Suliman	966	2
	Jadain Meaida Alemin	183	
	Jader Galmo Eta	246	
	Juma Bilel	963	3
	Khamis Abulang	187	
	Mohammed Godor Male	344	
	Musa Bagar	480	
	Osman Mohammed Makawi	546	
	Sarduk Dol Ahmed	1487	4
Almak Mufatish Meleh	Abduli Gulous	232	5
	Abdulmajid Tom	921	

	Abusitta Suliman Lol	746	6
	Albashir Saad Lol	1336	7
	Albur Hussein Adam	788	
	Asadig Tayog Som	1395	8
	Bashir Komadan Lol	494	9
	Mufatish Amid Kon	1034	
	Osman Karab Asheikh	1105	RC
	Ramadan Safa John	831	10
	Sabun Mugort Jor	1137	11
	Sadig Malad Alnur	530	
	Saraf Aljundi Sadig	1344	12
Alnumeri Maki	Aburizig Hangug	1335	13
	Alfaki Tifil	82	
	Khalifa Gasim	846	
	Khalifa Nasir	701	14
Gedem SilSil	Alnil Alkheir Aseemut	630	
	Asad Matar Margan	211	15
	Babikir Bungut Toksuma	395	
	Bakhit Berfa Dor	390	
	Bashir Eissa Leyam	232	
	Bungut Bata Jabvir	527	RC
	Bunzunga Bonj Rafar	184	
	Darwish Shawish Waifa	494	
	Erfa Kheiralla Tirgel	483	
	Fadalmula Som	426	16
	Hassen Ratina Hussein	345	
	Hussein Batel Kalfa	436	
	Jor Mahadi Aljundi	142	
	Khames Kurmuk Yok	520	17
	Lagot Daso Eda	411	
	Mohammed Tongut Kadamas	262	
	Mohammed Umran Idris	376	
	Suliman Air Lay	599	18
Hamid Joda	Abbud Hassen Haroun	352	
	Abdullahi Yousif Alwali	234	
	Alamin Kotom Gogain	304	19
	Aldew Altom Abdalla	489	
	Alnazir Joda Altom	384	
	Altom Rajab Saed	556	20
	Bakhit Munsour Alamin	457	
	Idris Mohammed Saad	355	
	Maduk Musa Moi	793	21
	Nuri Abdalla Jaifa	602	
	Omer Maida Abdalla	808	22
Ibrahim Adam	Abdalla Dikam Abas	49	

	Abdulazim Baduri	68	
	Abdulgadir Hamdan Alyam	103	
	Ahmed Ageed Jalal	14	
	Albay Suliman Taga	32	
	Ali Hano Salim	17	
	Asaad Alnair	90	
	Awadalla Almudir Barakat	7	
	Babikir Humdan	65	
	Ibrahim Idres Turok	56	
	Kawaja Omer Abdalla/Adalil Ramadan	85	
	Nasradein Badawi Balol	4	
	Tumsah Adlan Suat	31	
Jakalo Adam	Ali Matar Makana	178	
	Jahala Kassala Omer	162	
	Jakolo Adam	456	23
	Osman Siliman	214	
Mistirbis Abushok	Adam Jurfa Hamid	457	
	Ibrahim Alfil Alabyat	155	
	Ibrahim Bade Falah	446	RC
	Ismaeil Meleh Hussein	192	
	Musa Mufatish Abdalla	206	
	Nile Yassin Sanduk	233	
Rajab Serdal	Abjal Gumfa Suldak	594	
	Alshaieb Asyak Koi	344	24
	Awad Doka Konzar	360	
	Eissa Semat Belfa	309	
	Juma Megas Kol	408	
	Moon Jumada Shanfa	402	25
	Sebit Alum	450	
	Umbasha Alamin Leyam	1381	26

Gendrassa Cluster Allocation

GENDRASSA CLUSTER ALLOCATION			
Community	Geographical unit	Population size	Cluster
BAU	Abdulgadir Karam	177	
	Asir Tilyan	529	1
	Hessen Bagar	1877	2,3,4
FADEMIA	About Jamum	151	
	Almansy Khamis	525	5
	Bade Altom	99	
	Bakhit Masom	541	6
	Matar Yasin	186	
	Sabit Balla	816	RC,7
JUMJUM	Adam Abdallah	14	
KUKURS	Abass Abdallaziz	473	8
	Alhadi Semat	1685	9,10
	Alhaji Afandi	504	11
	Ali Aljudi	1497	12,13
	Azaki Saad	814	14,15
	Bashir Hassan	336	
	Eid Atom	1515	16,17,18
	Khalifa Bakhit	1315	19,RC
	Mohammed Doka	398	
	Nimir Siliman	648	RC
	Ramadhani Yagub	226	20
	Sadik Adud	494	21
MAGAJA	Abdallah Isa	201	
	Abdallah Osman	123	
	Nimeri Al-amin	74	
	Rajab Alhaj	322	22
SODA-NORTH	Alfaki Bata	349	
	Homeda Ahmed Musa	23	
	Mohamud Atom	352	23
	Ibrahim Siliman	527	24
	Tifil Saad	240	
	Timsah Ali	446	25

Kaya Cluster Allocation

KAYA CLUSTER ALLOCATION			
Community	Geographical unit	Population size	Cluster
ARMAU	SHEIKH ABDALLAH BASHIR	382	1
ASILIK	SHEIKH FETISH KOL	623	2
BALDUGU	SHEIKH ALMAK FARNA	51	
BELMET	SHEIKH ALFAKI BARAS	910	3
BINDISI	SHEIKH SILIMAN ABDARAHAMAN	15	
BOFE	SHEIKH HASSAN HUSSEIN RAHMA	302	
FUGULUK	SHEIKH MAHMUD DEEN ISSA	441	4
GABANITE	SHEIKH BALLA ALBE	1135	5,RC
GODOR	SHEIKH MOHAMED YOUSIF BASHIR	683	6
GUREN	SHEIKH RAJAB SEID	761	7
JODA	SHEIKH ABDALLAZIM AHMED TURUK	77	
JUMJUM	SHEIKH ADAM ABDALLAH	601	8
KALTUMA	SHEIKH RAMADAN SAID	138	
KAMER	SHEIKH OSMAN ALEMIN	1090	9,RC
KAMEROL GARIB	SHEIKH MOHAMMED MUSA WANGI	586	10
KAMEROL SHARIG	SHEIKH WADBES NIMER	782	11
KURBA	SHEIKH ATEIB KOJELI	478	
LIFIR	SHEIKH OSMAN SOM	800	12,13
MADA	SHEIKH ALHAJ DIAR JUBARA	113	
MAGAJA	SHEIKH ABDALLA MOHAMMED ADAM	6	
	SHEIKH ABDULAZIM BADURI	2	
	SHEIKH ABDULGADIR HAMDAN ALYAM	138	
	SHEIKH ABURIZIG HANGUG	3	
	SHEIKH AGABALABUN HAMADANIL	217	
	SHEIKH AHMED AGEED JALAL	63	
	SHEIKH AHMED SHUKRI	133	14
	SHEIKH ALBASHIR SAAD LOL	2	
	SHEIKH ALBAY SULIMAN TAGA	73	
	SHEIKH ALI HANO SALIM	133	
	SHEIKH AWADALLA ALMUDIR BARAKAT	124	
	SHEIKH GARUM MAHAMOUD BASHIR	100	
	SHEIKH IBRAHIM IDRES TUROK	160	
	SHEIKH KAWAJA OMER ABDALLA/ ADALIL RAMADAN BASHIR	123	15
	SHEIKH MADUK MUSA MOI	2	
	SHEIKH NASRADEIN BADAWI BALOL	127	
	SHEIKH OMER MAIDA ABDALLA	6	
	SHEIKH SAAD SHELBI	489	RC
	SHEIKH TUMSAH ADLAN SUAT	126	

MAK	SHEIKH ABDALLAH NIMER	1093	16
MALIFA	SHEIKH ABDRAHAMAN GUMFUT	421	17
MAYAK	SHEIKH HAJER ABOMINA	159	
MEDELIK	SHEIKH ATOM TAYUK	642	18
MIFOL	SHEIKH DAEEB BAGAR ADAM	1404	19,20
MOL	SHEIKH MORDIEN AWAD	912	21,22
MOSE	SHEIKH MONJIL MOL NASSIR	386	
MUFU	SHEIKH ALMINA JARUM	476	23
	SHEIKH GISIZ ATEIB	63	
	SHEIKH LIMAM MOBRUK	95	
NULL	NULL	1438	24,25
PUDURBEL GARIB	SHEIKH ORTHA ADOW	467	26
PUDURUBEL SHARIG	SHEIKH HASSAN RABI	733	27
SABUNABUT	SHEIKH MOHAMED YOUSIF JODA	628	28
SODA	SHEIKH MADANI BAFE	486	29
SODA AMOL	SHEIKH ABAS ALBE	355	
TOMFONA	SHEIKH MAKI SEID	256	
TORMILE	SHEIKH NASRIDEEN ABDALLAH ADAM	497	30
WADABOK	SHEIKH ALHADI ADAM	175	
WADAGA	SHEIKH MOHANDIS SHAWISH	457	RC
	SHEIKH HASSAN ABDALGELIL	520	31
	SHEIKH ISAAC ABDARAHAMAN	1490	32,33

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

Results Tables for NCHS growth reference 1977-Doro Camp

Table 163: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 523	**Boys** n = 282	**Girls** n = 241
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(73) 14.0 % (11.0 - 17.5 95% C.I.)	(44) 15.6 % (12.1 - 20.0 95% C.I.)	(29) 12.0 % (8.1 - 17.5 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(59) 11.3 % (8.9 - 14.3 95% C.I.)	(31) 11.0 % (8.0 - 14.9 95% C.I.)	(28) 11.6 % (7.7 - 17.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(14) 2.7 % (1.5 - 4.6 95% C.I.)	(13) 4.6 % (2.6 - 7.9 95% C.I.)	(1) 0.4 % (0.1 - 3.3 95% C.I.)

The prevalence of oedema is 0.0 %

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

		Severe wasting (<-3 z-score)		**Moderate wasting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	159	5	3.1	20	12.6	134	84.3	0	0.0
18-29	121	4	3.3	13	10.7	104	86.0	0	0.0
30-41	165	5	3.0	18	10.9	142	86.1	0	0.0
42-53	63	0	0.0	6	9.5	57	90.5	0	0.0
54-59	15	0	0.0	2	13.3	13	86.7	0	0.0
Total	523	14	2.7	59	11.3	450	86.0	0	0.0

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

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 19 (3.6 %)	Not severely malnourished No. 512 (96.4 %)

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

	All n = 532	**Boys** n = 285	**Girls** n = 247
Prevalence of global malnutrition (< 125 mm and/or oedema)	(22) 4.1 % (2.4 - 7.0 95% C.I.)	(8) 2.8 % (1.2 - 6.2 95% C.I.)	(14) 5.7 % (2.9 - 10.7 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(20) 3.8 % (2.2 - 6.4 95% C.I.)	(7) 2.5 % (1.1 - 5.4 95% C.I.)	(13) 5.3 % (2.7 - 10.1 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.4 % (0.1 - 1.5 95% C.I.)	(1) 0.4 % (0.0 - 2.7 95% C.I.)	(1) 0.4 % (0.1 - 3.1 95% C.I.)

Table 167: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

	All n = 532	**Boys** n = 285	**Girls** n = 247
Prevalence of global malnutrition (< 125 mm and/or oedema)	(22) 4.1 % (2.4 - 7.0 95% C.I.)	(8) 2.8 % (1.2 - 6.2 95% C.I.)	(14) 5.7 % (2.9 - 10.7 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(20) 3.8 % (2.2 - 6.4 95% C.I.)	(7) 2.5 % (1.1 - 5.4 95% C.I.)	(13) 5.3 % (2.7 - 10.1 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.4 % (0.1 - 1.5 95% C.I.)	(1) 0.4 % (0.0 - 2.7 95% C.I.)	(1) 0.4 % (0.1 - 3.1 95% C.I.)

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

	n = 523
Prevalence of global acute malnutrition (<80% and/or oedema)	(44) 8.4 % (5.8 - 12.1 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(38) 7.3 % (5.2 - 10.1 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(6) 1.1 % (0.5 - 2.8 95% C.I.)

Table 169: *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	159	1	0.6	14	8.8	144	90.6	0	0.0
18-29	121	1	0.8	10	8.3	110	90.9	0	0.0
30-41	165	4	2.4	11	6.7	150	90.9	0	0.0
42-53	63	0	0.0	3	4.8	60	95.2	0	0.0
54-59	15	0	0.0	0	0.0	15	100.0	0	0.0
Total	523	6	1.1	38	7.3	479	91.6	0	0.0

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

	All n = 526	**Boys** n = 283	**Girls** n = 243
Prevalence of underweight (<-2 z-score)	(206) 39.2 % (33.9 - 44.7 95% C.I.)	(118) 41.7 % (35.4 - 48.3 95% C.I.)	(88) 36.2 % (29.5 - 43.5 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(158) 30.0 % (25.5 - 35.0 95% C.I.)	(87) 30.7 % (25.4 - 36.7 95% C.I.)	(71) 29.2 % (23.5 - 35.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(48) 9.1 % (6.8 - 12.2 95% C.I.)	(31) 11.0 % (7.7 - 15.3 95% C.I.)	(17) 7.0 % (4.3 - 11.1 95% C.I.)

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

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	162	7	4.3	57	35.2	98	60.5	0	0.0
18-29	121	15	12.4	37	30.6	69	57.0	0	0.0
30-41	165	20	12.1	38	23.0	107	64.8	0	0.0
42-53	63	3	4.8	20	31.7	40	63.5	0	0.0
54-59	15	3	20.0	6	40.0	6	40.0	0	0.0
Total	526	48	9.1	158	30.0	320	60.8	0	0.0

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

	All n = 506	**Boys** n = 272	**Girls** n = 234
Prevalence of stunting (<-2 z-score)	(166) 32.8 % (27.7 - 38.4 95% C.I.)	(92) 33.8 % (27.9 - 40.3 95% C.I.)	(74) 31.6 % (23.4 - 41.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(112) 22.1 % (18.3 - 26.5 95% C.I.)	(67) 24.6 % (19.7 - 30.3 95% C.I.)	(45) 19.2 % (12.8 - 27.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(54) 10.7 % (8.3 - 13.6 95% C.I.)	(25) 9.2 % (6.2 - 13.5 95% C.I.)	(29) 12.4 % (8.4 - 18.0 95% C.I.)

Table 173: Prevalence of stunting by age based on height-for-age z-scores

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	154	6	3.9	23	14.9	125	81.2
18-29	113	14	12.4	23	20.4	76	67.3
30-41	166	23	13.9	46	27.7	97	58.4
42-53	61	9	14.8	15	24.6	37	60.7
54-59	12	2	16.7	5	41.7	5	41.7
Total	506	54	10.7	112	22.1	340	67.2

Table 174: 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	523	-1.02±0.95	1.05	1	8
Weight-for-Age	526	-1.73±1.01	1.55	0	6
Height-for-Age	506	-1.54±1.17	1.56	1	25

* contains for WHZ and WAZ the children with edema.

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

	All n = 526	**Boys** n = 281	**Girls** n = 245
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(53) 10.1 % (7.4 - 13.5 95% C.I.)	(33) 11.7 % (8.3 - 16.4 95% C.I.)	(20) 8.2 % (5.1 - 12.7 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(49) 9.3 % (6.8 - 12.6 95% C.I.)	(31) 11.0 % (7.5 - 15.9 95% C.I.)	(18) 7.3 % (4.4 - 12.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(4) 0.8 % (0.3 - 2.0 95% C.I.)	(2) 0.7 % (0.2 - 2.9 95% C.I.)	(2) 0.8 % (0.2 - 3.4 95% C.I.)

The prevalence of oedema is 0.1 %

Table 176: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		**Moderate wasting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	129	1	0.8	18	14.0	110	85.3	0	0.0
18-29	137	1	0.7	13	9.5	123	89.8	0	0.0
30-41	157	2	1.3	11	7.0	144	91.7	0	0.0
42-53	81	0	0.0	5	6.2	76	93.8	0	0.0
54-59	22	0	0.0	2	9.1	20	90.9	0	0.0
Total	526	4	0.8	49	9.3	473	89.9	0	0.0

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

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 7 (1.3 %)	Not severely malnourished No. 524 (98.7 %)

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

	All n = 531	**Boys** n = 283	**Girls** n = 248
Prevalence of global malnutrition (< 125 mm and/or oedema)	(20) 3.8 % (2.5 - 5.7 95% C.I.)	(7) 2.5 % (1.1 - 5.3 95% C.I.)	(13) 5.2 % (3.3 - 8.2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(18) 3.4 % (2.1 - 5.3 95% C.I.)	(5) 1.8 % (0.6 - 4.8 95% C.I.)	(13) 5.2 % (3.3 - 8.2 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.4 % (0.1 - 1.5 95% C.I.)	(2) 0.7 % (0.2 - 2.8 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 179: 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	133	2	1.5	14	10.5	117	88.0	0	0.0
18-29	137	0	0.0	3	2.2	134	97.8	0	0.0
30-41	157	0	0.0	0	0.0	157	100.0	0	0.0
42-53	82	0	0.0	1	1.2	81	98.8	0	0.0
54-59	22	0	0.0	0	0.0	22	100.0	0	0.0
Total	531	2	0.4	18	3.4	511	96.2	0	0.0

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

	n = 526
Prevalence of global acute malnutrition (<80% and/or oedema)	(27) 5.1 % (3.4 - 7.6 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(24) 4.6 % (3.0 - 6.9 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(3) 0.6 % (0.2 - 1.8 95% C.I.)

Table 181: 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	129	1	0.8	6	4.7	122	94.6	0	0.0
18-29	137	0	0.0	5	3.6	132	96.4	0	0.0
30-41	157	2	1.3	8	5.1	147	93.6	0	0.0
42-53	81	0	0.0	4	4.9	77	95.1	0	0.0
54-59	22	0	0.0	1	4.5	21	95.5	0	0.0
Total	526	3	0.6	24	4.6	499	94.9	0	0.0

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

	All n = 527	**Boys** n = 279	**Girls** n = 248
Prevalence of underweight (<-2 z-score)	(284) 53.9 % (47.1 - 60.6 95% C.I.)	(150) 53.8 % (46.0 - 61.3 95% C.I.)	(134) 54.0 % (45.7 - 62.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(204) 38.7 % (34.8 - 42.8 95% C.I.)	(108) 38.7 % (32.7 - 45.1 95% C.I.)	(96) 38.7 % (33.6 - 44.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(80) 15.2 % (11.5 - 19.8 95% C.I.)	(42) 15.1 % (10.7 - 20.7 95% C.I.)	(38) 15.3 % (10.8 - 21.4 95% C.I.)

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

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	130	25	19.2	40	30.8	65	50.0	0	0.0
18-29	137	25	18.2	55	40.1	57	41.6	0	0.0
30-41	157	19	12.1	68	43.3	70	44.6	0	0.0
42-53	81	7	8.6	34	42.0	40	49.4	0	0.0
54-59	22	4	18.2	7	31.8	11	50.0	0	0.0
Total	527	80	15.2	204	38.7	243	46.1	0	0.0

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

	All n = 517	**Boys** n = 277	**Girls** n = 240
Prevalence of stunting (<-2 z-score)	(294) 56.9 % (49.3 - 64.1 95% C.I.)	(161) 58.1 % (49.0 - 66.7 95% C.I.)	(133) 55.4 % (47.7 - 62.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(163) 31.5 % (26.6 - 36.9 95% C.I.)	(91) 32.9 % (26.8 - 39.5 95% C.I.)	(72) 30.0 % (23.9 - 36.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(131) 25.3 % (20.4 - 31.1 95% C.I.)	(70) 25.3 % (19.1 - 32.6 95% C.I.)	(61) 25.4 % (18.7 - 33.5 95% C.I.)

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

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	129	22	17.1	32	24.8	75	58.1
18-29	136	37	27.2	43	31.6	56	41.2
30-41	150	40	26.7	52	34.7	58	38.7
42-53	80	23	28.8	30	37.5	27	33.8
54-59	22	9	40.9	6	27.3	7	31.8
Total	517	131	25.3	163	31.5	223	43.1

Table 186: 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	526	-0.94±0.86	1.26	2	5
Weight-for-Age	527	-2.05±0.94	2.30	1	5
Height-for-Age	517	-2.20±1.17	2.75	2	14

* contains for WHZ and WAZ the children with edema.

Results Tables for NCHS growth reference 1977-Gendrassa Camp

Table 187: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 479	**Boys** n = 231	**Girls** n = 248
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(37) 7.7 % (5.9 - 10.1 95% C.I.)	(18) 7.8 % (5.1 - 11.7 95% C.I.)	(19) 7.7 % (5.1 - 11.4 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(33) 6.9 % (5.1 - 9.3 95% C.I.)	(17) 7.4 % (4.7 - 11.4 95% C.I.)	(16) 6.5 % (4.0 - 10.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(4) 0.8 % (0.3 - 2.2 95% C.I.)	(1) 0.4 % (0.1 - 3.4 95% C.I.)	(3) 1.2 % (0.4 - 3.8 95% C.I.)

The prevalence of oedema is 0.0 %

Table 188: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		**Moderate wasting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	128	0	0.0	13	10.2	115	89.8	0	0.0
18-29	96	3	3.1	9	9.4	84	87.5	0	0.0
30-41	188	1	0.5	6	3.2	181	96.3	0	0.0
42-53	52	0	0.0	3	5.8	49	94.2	0	0.0
54-59	15	0	0.0	2	13.3	13	86.7	0	0.0
Total	479	4	0.8	33	6.9	442	92.3	0	0.0

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

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 6 (1.2 %)	Not severely malnourished No. 479 (98.8 %)

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

	All n = 486	**Boys** n = 235	**Girls** n = 251
Prevalence of global malnutrition (< 125 mm and/or oedema)	(21) 4.3 % (2.6 - 7.1 95% C.I.)	(9) 3.8 % (2.0 - 7.3 95% C.I.)	(12) 4.8 % (2.1 - 10.3 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(20) 4.1 % (2.5 - 6.8 95% C.I.)	(9) 3.8 % (2.0 - 7.3 95% C.I.)	(11) 4.4 % (2.0 - 9.3 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(1) 0.2 % (0.0 - 1.6 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.4 % (0.1 - 3.0 95% C.I.)

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

		Severe wasting (< 115 mm)		**Moderate wasting (>= 115 mm and < 125 mm)**		**Normal (> = 125 mm)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	129	0	0.0	13	10.1	116	89.9	0	0.0
18-29	99	0	0.0	5	5.1	94	94.9	0	0.0
30-41	190	1	0.5	2	1.1	187	98.4	0	0.0
42-53	53	0	0.0	0	0.0	53	100.0	0	0.0
54-59	15	0	0.0	0	0.0	15	100.0	0	0.0
Total	486	1	0.2	20	4.1	465	95.7	0	0.0

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

	n = 479
Prevalence of global acute malnutrition (<80% and/or oedema)	(21) 4.4 % (3.0 - 6.4 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(20) 4.2 % (2.9 - 6.1 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(1) 0.2 % (0.0 - 1.6 95% C.I.)

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

		Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	128	0	0.0	5	3.9	123	96.1	0	0.0
18-29	96	0	0.0	8	8.3	88	91.7	0	0.0
30-41	188	1	0.5	4	2.1	183	97.3	0	0.0
42-53	52	0	0.0	3	5.8	49	94.2	0	0.0
54-59	15	0	0.0	0	0.0	15	100.0	0	0.0
Total	479	1	0.2	20	4.2	458	95.6	0	0.0

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

	All n = 486	**Boys** n = 236	**Girls** n = 250
Prevalence of underweight (<-2 z-score)	(205) 42.2 % (37.4 - 47.2 95% C.I.)	(96) 40.7 % (32.8 - 49.0 95% C.I.)	(109) 43.6 % (37.5 - 49.9 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(159) 32.7 % (28.9 - 36.8 95% C.I.)	(75) 31.8 % (25.0 - 39.5 95% C.I.)	(84) 33.6 % (29.0 - 38.6 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(46) 9.5 % (7.2 - 12.4 95% C.I.)	(21) 8.9 % (6.0 - 13.1 95% C.I.)	(25) 10.0 % (7.1 - 13.9 95% C.I.)

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

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	129	6	4.7	37	28.7	86	66.7	0	0.0
18-29	98	11	11.2	30	30.6	57	58.2	0	0.0
30-41	190	20	10.5	66	34.7	104	54.7	0	0.0
42-53	53	5	9.4	19	35.8	29	54.7	0	0.0
54-59	16	4	25.0	7	43.8	5	31.3	0	0.0
Total	486	46	9.5	159	32.7	281	57.8	0	0.0

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

	All n = 473	**Boys** n = 228	**Girls** n = 245
Prevalence of stunting (<-2 z-score)	(206) 43.6 % (38.7 - 48.6 95% C.I.)	(114) 50.0 % (40.9 - 59.1 95% C.I.)	(92) 37.6 % (31.4 - 44.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(145) 30.7 % (26.3 - 35.4 95% C.I.)	(83) 36.4 % (28.4 - 45.2 95% C.I.)	(62) 25.3 % (20.5 - 30.8 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(61) 12.9 % (9.6 - 17.0 95% C.I.)	(31) 13.6 % (9.6 - 18.8 95% C.I.)	(30) 12.2 % (8.4 - 17.6 95% C.I.)

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

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	125	4	3.2	28	22.4	93	74.4
18-29	98	11	11.2	29	29.6	58	59.2
30-41	184	32	17.4	64	34.8	88	47.8
42-53	52	9	17.3	17	32.7	26	50.0
54-59	14	5	35.7	7	50.0	2	14.3
Total	473	61	12.9	145	30.7	267	56.4

Table 198: 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	479	-0.90±0.79	1.00	2	6
Weight-for-Age	486	-1.81±0.92	1.13	1	0
Height-for-Age	473	-1.80±1.13	1.11	1	13

* contains for WHZ and WAZ the children with edema.

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

	All n = 542	**Boys** n = 271	**Girls** n = 271
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(83) 15.3 % (12.4 - 18.7 95% C.I.)	(42) 15.5 % (11.0 - 21.4 95% C.I.)	(41) 15.1 % (11.4 - 19.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(76) 14.0 % (11.2 - 17.5 95% C.I.)	(39) 14.4 % (9.9 - 20.5 95% C.I.)	(37) 13.7 % (10.1 - 18.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(7) 1.3 % (0.7 - 2.5 95% C.I.)	(3) 1.1 % (0.4 - 3.3 95% C.I.)	(4) 1.5 % (0.6 - 3.7 95% C.I.)

The prevalence of oedema is 0.1 %

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

	All n = 542	**Boys** n = 271	**Girls** n = 271
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(83) 15.3 % (12.4 - 18.7 95% C.I.)	(42) 15.5 % (11.0 - 21.4 95% C.I.)	(41) 15.1 % (11.4 - 19.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(76) 14.0 % (11.2 - 17.5 95% C.I.)	(39) 14.4 % (9.9 - 20.5 95% C.I.)	(37) 13.7 % (10.1 - 18.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(7) 1.3 % (0.7 - 2.5 95% C.I.)	(3) 1.1 % (0.4 - 3.3 95% C.I.)	(4) 1.5 % (0.6 - 3.7 95% C.I.)

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

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 9 (1.6 %)	Not severely malnourished No. 537 (98.4 %)

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

	All n = 549	**Boys** n = 274	**Girls** n = 275
Prevalence of global malnutrition (< 125 mm and/or oedema)	(25) 4.6 % (2.8 - 7.3 95% C.I.)	(9) 3.3 % (1.5 - 6.9 95% C.I.)	(16) 5.8 % (3.1 - 10.8 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(24) 4.4 % (2.7 - 7.1 95% C.I.)	(8) 2.9 % (1.4 - 6.1 95% C.I.)	(16) 5.8 % (3.1 - 10.8 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(1) 0.2 % (0.0 - 1.4 95% C.I.)	(1) 0.4 % (0.0 - 2.8 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 203: 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	148	1	0.7	13	8.8	134	90.5	0	0.0
18-29	155	0	0.0	10	6.5	145	93.5	0	0.0
30-41	158	0	0.0	1	0.6	157	99.4	0	0.0
42-53	68	0	0.0	0	0.0	68	100.0	0	0.0
54-59	20	0	0.0	0	0.0	20	100.0	0	0.0
Total	549	1	0.2	24	4.4	524	95.4	0	0.0

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

	n = 542
Prevalence of global acute malnutrition (<80% and/or oedema)	(40) 7.4 % (5.6 - 9.7 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(38) 7.0 % (5.2 - 9.4 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(2) 0.4 % (0.1 - 1.5 95% C.I.)

Table 205: 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	143	1	0.7	11	7.7	131	91.6	0	0.0
18-29	155	0	0.0	15	9.7	140	90.3	0	0.0
30-41	156	0	0.0	9	5.8	147	94.2	0	0.0
42-53	68	1	1.5	1	1.5	66	97.1	0	0.0
54-59	20	0	0.0	2	10.0	18	90.0	0	0.0
Total	542	2	0.4	38	7.0	502	92.6	0	0.0

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

	All n = 548	**Boys** n = 274	**Girls** n = 274
Prevalence of underweight (<-2 z-score)	(300) 54.7 % (49.5 - 59.9 95% C.I.)	(147) 53.6 % (46.2 - 60.9 95% C.I.)	(153) 55.8 % (49.5 - 62.0 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(222) 40.5 % (35.2 - 46.0 95% C.I.)	(111) 40.5 % (33.5 - 48.0 95% C.I.)	(111) 40.5 % (34.1 - 47.2 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(78) 14.2 % (11.6 - 17.4 95% C.I.)	(36) 13.1 % (9.5 - 17.8 95% C.I.)	(42) 15.3 % (11.5 - 20.2 95% C.I.)

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

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	147	19	12.9	50	34.0	78	53.1	0	0.0
18-29	155	24	15.5	70	45.2	61	39.4	0	0.0
30-41	158	20	12.7	67	42.4	71	44.9	0	0.0
42-53	68	12	17.6	25	36.8	31	45.6	0	0.0
54-59	20	3	15.0	10	50.0	7	35.0	0	0.0
Total	548	78	14.2	222	40.5	248	45.3	0	0.0

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

	All n = 529	**Boys** n = 266	**Girls** n = 263
Prevalence of stunting (<-2 z-score)	(302) 57.1 % (52.5 - 61.5 95% C.I.)	(151) 56.8 % (49.9 - 63.3 95% C.I.)	(151) 57.4 % (50.5 - 64.1 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(188) 35.5 % (31.9 - 39.4 95% C.I.)	(93) 35.0 % (27.9 - 42.8 95% C.I.)	(95) 36.1 % (30.5 - 42.2 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(114) 21.6 % (17.3 - 26.5 95% C.I.)	(58) 21.8 % (15.8 - 29.3 95% C.I.)	(56) 21.3 % (17.0 - 26.3 95% C.I.)

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

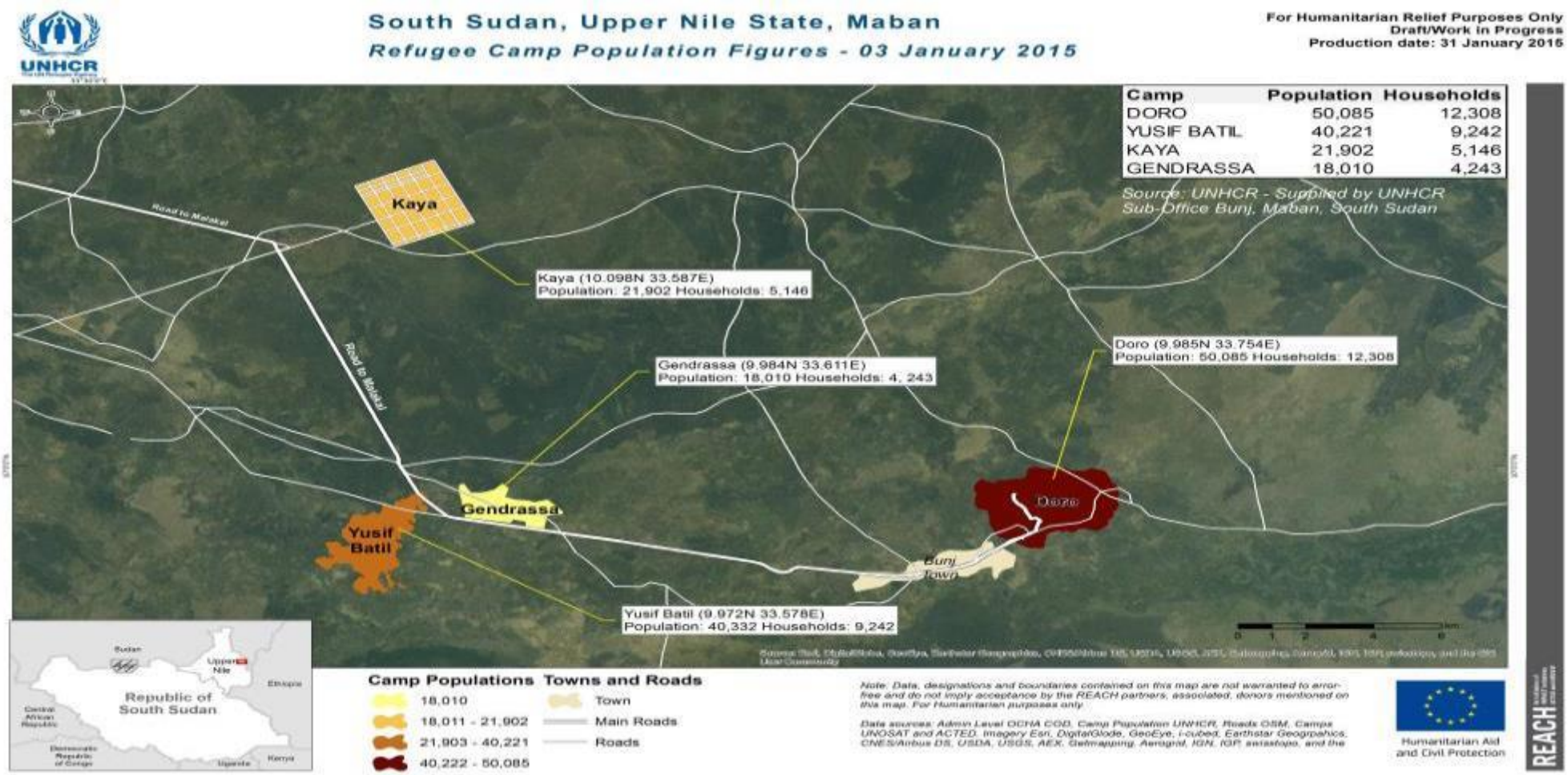
		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	141	19	13.5	39	27.7	83	58.9
18-29	152	32	21.1	64	42.1	56	36.8
30-41	153	43	28.1	53	34.6	57	37.3
42-53	66	18	27.3	21	31.8	27	40.9
54-59	17	2	11.8	11	64.7	4	23.5
Total	529	114	21.6	188	35.5	227	42.9

Table 210: 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	542	-1.04±0.91	1.00	3	4
Weight-for-Age	548	-2.08±0.94	1.47	0	1
Height-for-Age	529	-2.16±1.12	1.07	3	17

* 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

urve

(SENS) المفوضية الموحد مسح التغذية الموسعة استبيان

Greeting and reading of rights:

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

تحية وقراءة من الحقوق

هذا البيان هو أن 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

SENS- MORTALITY QUESTIONNAIRE (One questionnaire per HH)

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

#	**COL1**مربع1	**COL2**	**COL3**	**COL4**	**COL5**	**COL6**
	NAME اسم	SEX نوع /زكر/انثى M/F	AGE IF **≥5 YRS** سنة<5 **UNIT:** وحدة **YRS**	AGE IF **< 5 YRS** سنة ازا <5سنة **SPECIFY UNIT:** حدد الوحدة **DAYS / MONTHS / YRS** يوم /شهر/سنة	BORN BETWEEN **LAST 3 MONTHS** AND TODAY تم ميالد فى بين واليوم (ازكر اليوم) **(Y/N)**	JOINED HOUSEHOLD BETWEEN **END (3 MONTHS)** AND TODAY **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** سجل كل اعضاء الزين يسكنون الان فى هزى البيت وياكلون فى نفس هلا(قدر)					
01						
02						

03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
B.	**DID ANY MEMBERS OF THE HOUSEHOLD LEAVE BETWEEN LAST 3 MONTHS AND TODAY? IF SO LIST THEM** و هل اعضاء البيت يسكن بين نهاية (ازكر اليوم) اليوم ازا نعم سجلهم					
01						
02						
03						

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

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

		TOTAL الجملة	Under 5 تحت 5
1. Members present now يقدم الاعضاء الان	**A.** COL **1**		
2. Joined household between last 3 months) and	**A**. COL **6**		
3. Members that left the household between last 3	**B**. COL **1**		
4. Births between last 3 months) and today بين المواليد	**A, B**. COL **5**		
5. Deaths between last 3 months) and today بين	**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 household who نامو فى البيت فى الليل الماضيى وايضا الاضاء البيت الزين نامو فى البيت فى ليل الماضى وزهبوا الى شوق وسوف يعودون قبل نهية اليوم يمكن تسجيل ايضا slept here last night but who are away today to the market/elsewhere and will return before the end of the day should be listed here also.
- A child who was born and dead during the recall period is counted as a death only when entering data in ENA (SMART Version 1, April 2006). الطفل الزى تم ميلادة و مات خلال فترة زكر يمكن تسجلة كلا ميت

SENS CHILDREN 6-59 QUESTIONNAIRE

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

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

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

CH1	**CH2**	**CH3**	**CH4**	**CH5**	**CH6**	**CH7**	**CH8**	**CH9**	**CH10**	**CH11**	**CH12**	**CH13**	**CH14**	**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) (ر (months)	Weight وزن (kg) ±100g جرا100+- م	Height طول (سنتمتر) (cm) ±0.1cm	Oedema وزمة الامعاء (y/n)	MUAC مقياس يد الاعلى (mm)	Child enrolled الطفل المسجل 1=SFP الكل الاضافى 2=TFP الكل اللعلاج 3=None لاثيئ	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 فتر 6شهور أmonths (show capsule) 1=yes card نعم لى بطاقة 2=yes recall نعم ازكر 3=no or don't know لا اعرف	Diarrhoea in past 2 weeks اسهلات خلال فترة 2اسبوع الماضية 1=yes نعم 2=no لا 8=DK لا اعرف	DPT3/ Penta 3 1=yes card لى ذ عم بـ طاقة 2=yes recallن ازكر عم 3=no or don't know عرف لا	Hb *(g/dL)*
01				/ /											
02				/ /											
03				/ /											
04				/ /											
05				/ /											
06				/ /											
07				/ /											
08				/ /											

09				/ /												
10				/ /												
11				/ /												
12				/ /												
13				/ /												

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

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

الالواثائق فية التاريخ/شهر/سنة الميلاد ازا يوجد سجل الواثائق الرسمية ولا تسجل حتى لوالام يتزكر التاريخ الميلاد اترك خالية ازا الوثائق رسمية غير موجود.وازا لا توجد وثائق الميلاد خمن التاريخ ا حسب حواديث المحلى. وازا سجل موجود سجل

Annex -SENS IYCF questionnaire

No	QUESTION الاسئللة	ANSWER CODES الجابات	
SECTION IF1			
IF1	Sex نوع	Male زكر.....1 Female انثى 2	|___|
IF2	Birthdate التاريخ الميلاد RECORD FROM AGE DOCUMENTATION. LEAVE BLANK IF NO VALID AGE DOCUMENTATION سجل من وثيق	Day/Month/Year.....|___|___| /|___|___| / |___|___||___|___| **يوم/شهر/سنة**	
IF3	Child's age in months سنة الطفل فى شهر	IF AGE DOCUMENTATION NOT AVAILABLE, ESTIMATE USING EVENT CALENDAR. IF AGE DOCUMENTATION AVAILABLE, RECORD THE AGE IN MONTHS FROM THE DATE OF BIRTH *ازا لا توجد 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 ساعة 23 و بين 1 ... 2 More than 24 hours ساعة 24 اكثر من .....3 DK لا اعرف 8	|___|
IF6	Was [NAME] breastfed yesterday during the day or at night?	Yes نعم .....1 No لا 2	|___|

	هل رضيض الفلك خلال نهار ام الليل؟	DK لا اعرف 8	

SECTION IF2

IF7 Now I would like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] receive any of the following?

الان اريد اسال عن السائل ممكن اخزت خلال النهار امس و فى ليل.لى رغبة لمعرفة ازا طفلك لة مواد حتلا لو مغلوط مع بعض من اكل خلال يوم او ليل امس(اسم) هل استلام بعض من مزكورة:

ASK ABOUT EVERY LIQUID. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE.

اسال عن السائل ازا اخزوا ضع دئرة فى (1) و ازا لم تاخز ضع دئرة فى (2) و ام ازا لاعرف ضع دئرة فى (8)

	Yes	No	DK
7A. Plain water مياة السهل	1	2	8
7B. Infant formula: for example (Libto Mama)] طفل مرضيى على سبيل المثال اضيف عيش الماحلى من اكل قوى غير قوى(مبتومامة, لبتونيل)	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	1	2	8
7D. Juice or juice drinks (Gungules-Aradeb, Kedem) عصير او مشروب عصير اضيف مشروبات المحلى (قنفوليس, اريديب, قديم) .	1	2	8
7E. Clear broth or Soup	1	2	

	مرق الصافى	8	
	7F. Sour milk or yogurt for example: (Zabadi , Roob) لبن حامض (زبادي , روب)	7F.....1 8	2
	7G. Thin porridge for example: (Medida Khafif) **نثة خفيف ازكر اسم المحلى (**مديدة خفيف)	7G.....1 8	2
	7H. Tea or coffee with milk الشاى لبن او قهوة	7H.....1 8	2
	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 مشرونبا ت الشاى خالى من لبن مشروبات الحلوة مشروبات عشبية	7I.....1 8	2
IF8	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? امس خلال اليوم او اليل هل (اسم) اكلت اكل صلب ام شبة صلب (لين عصبى)	Yesنعم..... .1 No لا .....2 DK... لااعرف..... ..8	|___|
SECTION IF3			
IF9	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night? هل (اسم) شرب اى شئ من زجاج لة حلمةا امس خلال النها ر او اليل	Yes نعم ..... .1 No لا .....2 DK لا اعرف	|___|

		……..8	
SECTION IF4			
IF10	Is child aged 6-23 months? هل طفلك عمره 6-23 شهر REFER TO IF2	Yes نعم ……1 No لا ……2	|___| **IF ANSWER IS 2 STOP NOW** **ازا اللجا بة 2 قف الان**
IF11	Now I would like to ask you about some particular foods [NAME] may eat. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] consume any of the following? الان اريد عن اسا ل بعض غزاء ت (اسم)توكل طفلك لة هزى المواد حتى لو مخلوت مع اغزية اخرى امس خلال اليل او نها ر (اسم) يا كل التا لي: ASK ABOUT EVERY ITEM. IF ITEM WAS GIVEN,CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE. اسا ل كل المواد ازا المواد قد ضع دائرة (1)ازا المواداعطى دائرة (2)و ازا لم تعرف ضع دائرة (8) كل خطوط عن تكن لة رمز Yes No DK		
IF12	11A. **Flesh foods** for example: beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart غزاء لحمى (سجل كل لحم العا مة مثل سمك دجاج وكبد)على سبيل مثا ل لحم بقر ضا ن بط ارنب لحم خنزير كبد كلية 11B CSB+ Premix الغزاء المخلوتة وقوى وسجل الموجود فى المنطقة 11C. **FBF++** : for example CSB++ صويا وف ول زرة مثل الـ قوى الـ غزاء	11A……..1 2 8 11B……1 2 8 11C……1 2 8	

	11D. **RUTF** : for example Plumpy'Nut® (SHOW SACHET) يسد تعامل هزة الجا الغزاء المحلى الغزئية هزى سجل العلاج في	11D.....1 2 8
	11E. **RUSF** : for example Plumpy'Sup® (SHOW SACHET) في دالا ضا محلى الجاهزة الكل الموجو الكل هزة سجل	11E.....1 2 8
		11F.....1 2 8
	11G. Infant formula: for example Libto Mama .الطفل لو صفة الاقوى حديد دى ال الغزئية اسماء هزة من بعض ازكر الرضى	11G.....1 2 8
	11H. **List any *iron fortified* solid, semi-solid or soft foods designed specifically for infants and young children available in the local setting that are different than distributed commodities.المصنع لين سجل بعض الغزي من فرق ولة المنطقة في الموجون يرضى والاط فال لاط فال او و صلب صلب شبة يالغزئ**	11H.....1 2 8

SENS QUESTIONNAIRE Women 15-49 years

15-49 الاذ ساء

Date of interview (dd/mm/yyyy): الدمقابل لذ تاريخ |___|___|/|___|___|/|___|___|	**Cluster Number (*in cluster survey only*)** الدمجموع ذمرة |___|___|	**Team number** |___| رغم الد فريق

WM1	WM2	WM3	WM4	WM5	WM6	WM7	WM8
ID الد بطا قة	**HH** ربة الد بيت	**Consent given** الد قبول اعطى 1=yes نعم 2=no لا 3=absent الغائب	**Age** العمر (السنة) (years)	**Are you pregnant?** هل حامل اذ ت 1=yes نعم 2=no لا (GO TO WM 8) 8=DK لااعرف (GO TO WM 8)	**Are you currently <u>enrolled</u> 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 <u>receiving</u> 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	**الدم ف قرHb** (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							

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

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

الرقم السرى ..... رقم المربع: .....

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

No	**QUESTION** السؤال	**ANSWER CODES** رمز الاجابة	
SECTION WS1 القسم			
WS 1	How many people live in this household and slept here last night? كم عدد الافراد الذين قضوا هذه الليلة هنا ؟		|___|___|
WS 2	What is the ***main*** source of drinking water for members of your household? ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. WHEN ADAPTING THE LIST, KEEP THE ORIGINAL ANSWER CODES AND DO NOT CHANGE. ما هى مصادر مياه الشرب لافراد لاسرنك ؟ DO NOT READ THE ANSWERS لا تقرأ الأجابة ؟	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	|___|___|

	SELECT ONE ONLY أختر ا	Surface water (e.g. river, pond) 13 الماء السطحى Other ..... 96 اشياء اخرى Don't know ..... 98 لا اعلم	
WS 3	Are you satisfied with the water supply? هل انت 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**
WS 4	What is the ***main*** reason you are not satisfied with the water supply? ما هى الاسباب 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	Not enough..... 01 لا يكفى Long waiting queue ..... 02 انتظار طويل للصف Long distance..... 03 المسافة بعيدة Irregular supply .....04 التجهيز شاذ Bad taste..... 05 الطعم السيئ Water too warm .....06 الماء الساخن Bad quality .....07 النوعية سئية Have to pay..... 08 يجب ان تدفع Other ..... 96 اشياء اخرى Don't know ..... 98 لا اعلم	|___|___|
WS 5	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	Flush to piped sewer system01 تدفق نظام البلاعة الزمر Flush to septic system ..... 02 - تدفق نظام النتك Pour-flush to pit .. 03 – صب الاحمرار التحريض VIP/simple pit latrine with floor/slab04 الحفرة فى الارض	|___|___| **IF ANSWER IS**

	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	Composting/dry latrine .....05 التسميد Flush or pour-flush elsewhere06 تدفق اة صب فى مكان اخر Pit latrine without floor/slab07 حفرة مرحاض بدون ارضية Service or bucket latrine .....08 صيانة سريعة للمرحاض Hanging toilet/latrine.....09 المرحاض معلق No facility, field, bush, plastic bag10 , لا وسيلة حقل , كيس بلاستيكى	**10 GO TO WS7**
WS 6	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 Not shared (**1 HH**).....1 لا اشتراك Shared family (**2 HH**) .....2 مشاركة العائلة Communal toilet (**3 HH or more**)3 المرحاض العام Public toilet (**in market or clinic etc**.)4 المرحاض العمومى Don't know.....8 لا اعلم	|___|
WS 7	Do you have children under three years old? **هل لديك اطفال تحت الاعمار 3 سنة**	Yes .....1 نعم No .....2 لا	|___| **IF ANSWER IS 2 GO TO WS9**
WS 8	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 ONLY اختر واحد فقط	Put/rinsed into toilet or latrine ..... 02 ضع الشفط للمرحاض Buried ..... 03المدفون Thrown into garbage ..... 04رميت الى القمامة Put/rinsed into drain or ditch..... 05 ضع شفط فى البلاعة او الخندق Left in the open .....06ترك مفنوحا Other .....96اشياء 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 استقرقها 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 عامة لل Some are .....2 بعض منها None are .....3 لا شئ			|___|

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 ADULT MEMBER OF THE HOUSEHOLD). *تغطية ناموسية لكل عائلة : هذا الاستقتاء سيدار الى رئيس العائلة او 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 I___I months? (OPTIONAL) هل تم رش منزلك بمبيد حشرات فى الحملة الماضية للرش ؟		Yes.....1 نعم No.....2 لا		|___|
TN 5	Do you have mosquito nets in this household that can be used while sleeping? هل لديك ناموسيات تستعملها فى الليل مع العائلة ؟		Yes.....1 نعم No.....2 لا		|___| **IF ANSWER IS 2 STOP NOW**
TN 6	How many of these mosquito nets that can be used while sleeping does your household have? كم عدد الناموسيات التى يمكن ان تستعملها العائلة اثناء النوم فى الليل ؟ INSERT NUMBER العدد الملحق		IF MORE THAN 4 NETS, ENTER THE NUMBER AND USE ADDITIONAL NET QUESTIONNAIRE SHEETS ENTERING THE NUMBER OF THE NETS SEQUENTIALLY AT THE TOP. **اذا اكثر من 4 شبكات التى تدخل فيها الشبكات عدد فى القمة**		|___| Nets
TN 7	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD. IF NETS ARE NOT OBSERVED → CORRECT TN6 ANSWER اسال المستجيب لتشويفك صحيح TNلشبكة فى العائلة اذا شبكات 6 جواب	NET #|___|	NET #|___|	NET #|___|	NET #|___|
TN 8	OBSERVE NET AND RECORD THE BRANDNAME OF NET ON				

	THE TAG. IF NO TAG EXISTS OR IS UNREADABLE RECORD 'DK' FOR DON'T KNOW. لاحظ شبكة وسجل العلامة التجارية من 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, 45 – 15 للنساء ASK: اسأل سنة Is (NAME) currently pregnant? الاسم (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	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 بالعلامة(TN8) LLIN OTHER/DK

				N/A					
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	1 0		1 0		1 2

			≥5	99		|___|	
l5		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 net of any type الذين ناموا تحت الناموسيات او اى شئ	Count the number of '1' in COL5 **احسب العدد من**	**TN11** |___|___|	For children < 5 **للاطفال اعمار 5 سنة** (COL3 is '<5'), count the number of '1' in COL5 **احسب العدد**	**TN13** |___|___|	For pregnant women (COL4 is '1'), count the number of '1' in COL5 **للامهات الحوامل من 1 الى 4** **احسب العدد من 1 الى 5**	**TN15** |___|___|
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**	**TN14** |___|___|	For pregnant women **للامهات الحوامل احسب من العدد** (COL4 is '1'), count the number of '1' in COL7	**TN16** |___|___|