STANDARDISED EXPANDED NUTRITION SURVEY (SENS)

FINAL REPORT

MA-AINI, ADIHARUSH, SHIMELBA AND HITSATS REFUGEE CAMPS

TIGRAY REGION – ETHIOPIA

Surveys conducted: 19th June to 15th of July 2017

Report completed: Nov 2017

UNHCR, ARRA AND WFP

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ACRONYMS AND ABREVIATIONS

ARRA	Administration for Refugee & Returnee Affairs
BSFP	Blanket Supplementary Feeding Program
CI	Confidence Interval
CMAM	Community-based Management of Acute Malnutrition
GAM	Global Acute Malnutrition
GFD	General Food Distribution
HFA	Height-for-Age
HAZ	Height-for-Age Z-score
HH	Household
IYCF	Infant and young children feeding
Kcal	Kilocalorie
Kg	Kilogram
LLIN	Long lasting insect side net
LPPPD	Liters per person per day
MSF-H	Medicines sans Frontiers' Holland
MUAC	Mid-Upper Arm Circumference
NGO	Non-Governmental Organization
ODK	Open Data Kit
OTP	Outpatient program
PPD	Per person per day
PPM	Per person per month
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SENS	Standardized Expanded Nutrition Survey
SFP	Supplementary Feeding Program
TFP	Therapeutic Feeding Program
TSFP	Targeted Supplementary Feeding Program
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water Sanitation and Health
WFA	Weight-for-Age
WHZ	Weight-for-Height / Length Z-score
WFH	Weight-for-Height
WFP	World Food Programme
WHO	World Health Organization

ACKNOWLEDGEMENTS

The nutrition and health surveys 2017 were coordinated jointly by UNHCR, WFP, and ARRA in four refugee camps of Shire operation (Mai aini, Adi_Harush, Shimelba and Hitsats) located in Tigray region. We acknowledge the important contributions made by individuals and organizations that ensured the smooth implementation of these surveys.

We would like to acknowledge all agencies involved in planning and conducting the surveys. Our sincere appreciation is extended to ARRA and WFP for providing staff, logistics support and supplies for the nutrition surveys. Special thanks to UNHCR nutrition staff, enumerators, and pre-survey labellers who formed the survey teams and ensured quality results.

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Finally, we sincerely thank the Eritrean refugees residing in all camps especially women of reproductive age and children who cooperated with the survey teams in the provision of information and allowed us to take the necessary measurements.

EXECUTIVE SUMMARY

There are four refugee camps under Shire refugee operation in Tigray Regional State located in the Northern part of Ethiopia. In 2017, Standardized Expanded Nutrition Surveys (SENS) were conducted by UNHCR in collaboration with WFP and ARRA from June 19th to 15th July 2017 in Mai aini, Adi_Harush, Shimelba and Hitsats camps.

This was a follow up to the previous SENS conducted in June/July 2015 (there was no SENS conducted in 2016). The surveys covered the six standard SENS modules which include; Anthropometry and Health, Anaemia, Infant and young child feeding (IYCF), Food security, Water, sanitation and hygiene (WASH) and Mosquito net coverage modules following the UNHCR SENS guidelines and SMART methodology. In addition to the above, mortality module questionnaire from SMART survey was also included.

Objectives of the survey: The overall objective of the health and nutrition survey was to assess the general health and nutrition status of the refugee population, and formulate workable recommendations for appropriate nutritional and public health interventions.

Methodology: The UNHCR Standardized Expanded Nutrition Survey (SENS) guideline V.2 (2013) was used as a basis for the survey methodology. The data were collected using SMART phone (Tablets) pre-installed with Open Data Kit (ODK). A separate record was made on paper for key measurements to retain a backup and avoid any risks associated with the mobile phones. Paper questionnaires were used for mortality data collection.

Simple random sampling method was applied to generate the sample sizes of households and children to be surveyed. Sample size was calculated using ENA for SMART software version July 9th, 2015 based on the 2015 SENS upper confidence intervals (CI) of the estimated prevalence of global acute malnutrition (GAM). Desired precision of ± 3% and 10% for non-response households was used for Adiharush and Hitsats camps. Unlike for the latter two camps, the non-response of 5% and correction to small population size used in ENA during calculation of sample size for Mai_Aini and Shimelba refugee camps.

An average household size were obtained from household counting and labelling which was done a week prior to the survey while percentage of under-five populations were incorporated from the 30th April 2017 UNHCR ProGres data.

All houses were checked and given a unique number. Empty houses were excluded from the sampling frame. All households were selected randomly using random number table generated by ENA for SMART software version July 9th, 2015. This random number table was translated to the list of existing households in the excel spread sheet.

Training on SENS components, techniques of data collection, team work in the camp was organized and conducted for survey supervisors and enumerators. Training was arranged in one venue for four days, followed by one additional day for the standardization and pilot test in the field.

A total of 72 including 24 Nationals staffs and 48 refugee community health worker were selected from partners (ARRA and MSF). Two groups of survey teams were formed; one group was assigned to Hitsats and Shimelba refugee camps and the second group was assigned to Adi_harush and Mai_Aini refugee camps. Each survey group was comprised of 36 persons in 6 teams. There were six individuals in each team; two for anthropometric measurements, one for the household questionnaire, one for the mortality data collection, one for haemoglobin data and one assistant.

The teams were mobilized into two locations as per their respective locations and data were collected simultaneously from two camps at a time. During data collection, supervisors were assigned to each team. Overall survey activities were coordinated by UNHCR, WFP and ARRA personnel. Data quality assurance was done by checking the plausibility of the daily data collected and giving feedback to data collectors every morning for correction of possible chances of errors.

All eligible children aged 6-59 months from all selected households were included in the assessment of anthropometry, measles vaccination and vitamin A supplementation coverage, enrolment in the nutrition program, diarrhoea over a recall period of the past two weeks, and measurement of haemoglobin. Children aged below six months were only assessed for IYCF related questions, and not considered to for anthropometry and anaemia survey. Other components of SENS assessed were WASH, mosquito net, food security and anaemia in non-pregnant women of reproductive age (15-49 yrs). Pregnant women were asked questions related to Iron and folate supplementations for assessment of Antenatal Care coverage.

A retrospective recall period for mortality data was set from 1st of April 2017 until the time of survey, making total number of days 89 for Adiharush, Hitsats and 93 for Mai Aini and Hhimelba respectively.

TABLE 1: SUMMARY OF RESULTS SENS 2017 refugee camps Shire – Ethiopia

	Mai-Aini		Adiharush		Shimelba		Hitsats		Classification of public health significance
	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	
CHILDREN (6-59 months) Acute Malnutrition (WHO 2006 Growth Standards)									
Global Acute Malnutrition (GAM)	23/325	7.1% (4.8-10.4%)	21/273	7.7% (5.1-11.5%)	32/259	12.4% (8.9-16.9%)	27/279	9.7% (6.7-13.7%)	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	21/325	6.5% (4.3- 9.7%)	21/273	7.7% (5.1-11.5%)	31/259	12.0% (8.6-16.5%)	27/279	9.7% (6.7-13.7%)	
Severe Acute Malnutrition (SAM)	2/325	0.6% (0.2- 2.2%)	0/273	0.0%	1/259	0.4% (0.1- 2.2%)	0/279	0.0%	
Oedema	0/325	0.0%	0/273	0.0%	0/259	0.0%	0/279	0.0%	
Stunting (WHO 2006 Growth Standards)									
Total Stunting	59/321	18.4% (14.5-23.0%)	(75/270)	27.8% (22.8-33.4%)	78/260	30.0% (24.8-35.8%)	72/274	26.3% (21.4-31.8%)	**Critical if ≥ 40%**
Severe Stunting	14/321	4.4% (2.6- 7.2	(17/270)	6.3% (4.0- 9.9%)	14/260	5.4% (3.2- 8.8%)	18/274	6.6% (4.2-10.1%)	
Mid Upper Arm Circumference (MUAC)									
MUAC < 125 mm and/or oedema	14/328	4.3% (2.6- 7.0%)	(7/275)	2.5% (1.2- 5.2%)	6/263	2.3% (1.0- 4.9%)	16/282	5.7% (3.5- 9.0%)	
MUAC < 125 mm and >= 115 mm, no oedema	11/328	3.4% (1.9-5.9)	(6/275)	2.2% (1.0-4.7%)	4/263	1.5% (0.8-2.2)	15/282	5.3% (3.4-7.0)	
MUAC < 115 mm and/or oedema	3/328	0.9% (0.3- 2.7)	(1/275)	0.4% (0.1- 2.0)	2/263	0.8% (0.2- 2.7%)	1/282	0.4% (0.1- 2.0%)	
Anaemia (6-59 months)									
Total Anaemia (Hb <11 g/dl)	47/314	15.0% (11.3-19.5%)	33/275	12.0% (8.4-16.4%)	65/262	24.8% (19.7-30.5%)	106/282	37.6% (31.9-43.5%)	**High if ≥ 40%**
Mild (Hb 10-10.9 g/dl)	30/314	9.6% (6.6-13.5%)	8/275	2.9% (1.3-5.7%)	40/262	15.3% (11.1-20.2%)	56/282	19.9% (15.3-25.0%)	
Moderate (Hb 7-9.9 g/dl)	17/314	5.4% (3.3-8.7%)	25/275	9.1% (6.0-13.1%)	25/262	9.5% (6.3-13.8%)	48/282	17.0% (12.8-21.9%)	
Severe (Hb<7.0 g/dl)	0/314	0.0%	0/275	0.0%	0/262	0.0%	2/282	0.71% (0.1-2.5%)	
Programme coverage									
Therapeutic program WHZ, Oedema and/or MUAC)	1/4	25.0% (0.6-80.6%)	0/1	0.0%	0/4	0.0%	0/2	0.0%	≥90%

	Mai-Aini		Adiharush		Shimelba		Hitsats		Classification of public health significance
	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	
SFP (based on all admission criteria WHZ and/or MUAC)	9/30	30.0% (14.7-49.4%)	3/25	12.0% (2.5-31.2%)	6/34	17.6% (6.8-34.5%)	1/36	2.8% (0.1-14.5%)	≥90%
BFP, Admission based on age, 6-23 months	86/101	85.1% (76.7-91.4%)	64/77	83.1% (72.9-90.7%)	77/89	86.5% (77.6-92.8%)	64/81	80.2% (69.9-88.3%)	
Measles vaccination with card (9-59 months	230/318	72.3% (67.1-77.2%)	159/262	60.7% (54.5-66.6)	238/254	93.7% (90.0-96.4%)	87/269	32.3% (26.8-38.3%)	
Measles vaccination with card or recall (9-59 months)	309/318	97.2% (94.5-98.6%)	251/262	95.8% (92.6-97.9%)	252/254	99.2% (97.2-99.9%)	258/269	95.9% (92.8-97.9%)	Target of ≥ 95%
Vitamin A supplementation coverage with card, within past 6 months (6-59 months)	83/328	25.3% (20.8-30.4%)	46/275	16.7% (12.5-21.7)	241/263	91.6% (87.6-94.7%)	83/282	29.4% (24.2-35.1%)	
Vitamin A supplementation within past 6 months with card or recall	211/328	64.3% (58.9-69.5%)	234/275	85.1% (80.3-89.1%)	254/263	96.6% (93.6-98.4%)	261/282	92.55% (88.8-95.3%)	Target of ≥ 90%
Morbidity									
Diarrhoea in the past 2 weeks	46/328	14.0% (10.5-18.4%)	35/274	12.8% (9.1-17.3%)	31/263	11.8% (8.2-16.3%)	54/282	19.2% (14.7-24.2%)	
CHILDREN (0-23 months)									
Infant and Young children Feeding Practices									
Timely initiation of breastfeeding (0-23 months)	89/126	70.6% (61.9-78.4%)	94/111	84.7% (76.6-90.8%)	82/105	78.1% (69.0-85.6%)	48/100	48.0% (37.9-58.2%)	
Exclusive breastfeeding under 6 months	13/23	56.5% (34.5-76.8%)	24/33	72.7% (54.5-86.7%)	13/16	81.3% (54.4-96.0%)	10/13	76.9% (46.2-95.0%)	
Continued breastfeeding at 1 year(12-15 months)	22/23	95.7% (78.1-99.9%)	17/17	100.0%	29/29	100%	24/24	100%	
Continued breastfeeding at 2 years (20-23 months)	15/23	65.2% (42.7-83.6%)	4/8	50% (15.7-84.3%)	17/24	70.8% (48.9-87.4%)	8/21	61.9% (38.4-81.9%)	
Introduction of solid, semi-solid or soft foods (6-8 mon)	9/10	90.0% (55.5-99.7%)	6/13	46.2% (19.2-74.9%)	5/9	55.6% (21.2-86.3%)	3/13	23.1% (5.0-53.8%)	
Consumption of iron-rich or iron-fortified foods (6-23 months)	76/101	75.2% (65.7-83.3%)	56/76	73.7% (62.3-83.1%)	70/88	79.5% (69.6-87.4%)	69/84	82.1% (72.3-89.6%)	
Bottle feeding (0-23 months)	5/126	4.0% (1.3-9.0%)	3/111	2.7% (0.6-77%)	3/105	2.9% (0.6-8.1%)	6/101	5.9% (2.2-12.5%)	
WOMEN 15-49 years									
Anaemia (non-pregnant) SENS / WHO cut off)									

	Mai-Aini		Adiharush		Shimelba		Hitsats		Classification of public health significance
	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	
Total Anaemia (Hb <12.0 g/dl)	24/281	8.5% (5.5-12.4%	25/264	9.5% (6.2-13.7%)	40/221	18.1% (13.3-23.8%)	85/311	27.3% (22.7-32.5%)	**High if ≥ 40%**
Mild (Hb 11.0-11.9)	18/281	6.4% (3.8-9.9%)	9/264	3.4% (1.6-6.4%)	29/221	13.1% (9.0-18.3%)	46/311	14.8% (11.2-19.2%)	
Moderate (Hb 8.0-10.9)	5/281	1.8% (0.6-4.1%)	14/264	5.3% (2.9-8.7%)	11/221	5.0% (2.5-8.7%)	34/311	10.9% (67.5-77.3%)	
Severe (Hb<8.0)	1/281	0.4% (0.0-2.0%)	2/264	0.8% (0.1-2.7%)	0/221	0.0%	5/311	1.6% (0.7-3.7%)	
FOOD SECURITY									
Proportion of HH with a ration card	323/324	99.7% (98.0-100%)	243/246	98.8% (96.5-99.7%)	306/315	97.1% (94.5-98.6%)	231/235	98.3% (95.7-99.5%)	
Average number of days GFD lasts out of 30 days	24.9		23.7		20.9		25.5		
Average duration (%) in relation to the theoretical duration of the ration	83.0%		79.0%		69.6%		85%		
Household Dietary Diversity Score {Mean(SD)}	4.74 (1.7)		4.91 (1.9)		5.23(1.8)		5.23 (SD 1.8)		
Proportion of households reporting using the following coping strategies over the past month*:									
Borrowed cash, food or other items with or without interest	150/310	48.4% (42.7-54.1%)	125/229	54.6% (47.9-61.2%)	117/308	38.0% (32.5-43.7%)	131/233	56.2% (49.6-62.7%)	
Sold any assets that would not have normally sold (furniture, other NFI, etc.)	16/324	4.9% (2.9-8.1%)	27/246	11.0% (84.4-92.6%)	42/309	13.6% (10.1-18.0%)	27/234	11.5% (7.7-16.3%)	
Requested increased remittances or gifts as compared to normal	17/324	5.2% (3.2-8.4%)	18/245	7.3% (4.4-11.4%)	55/309	17.8% (13.8-22.6%)	61/234	26.1% (20.6-32.2%)	
Reduced the quantity and/or frequency of meals and snacks	100/323	31.0% (26.0-36.4%)	98/245	40.0% (33.8-46.4%)	144/308	46.8% (41.1-52.5%)	122/234	52.1% (45.5-58.7%)	
Begged	3/323	0.9% (0.2-2.9%)	14/244	5.7% (3.2-9.4%)	3/308	1.0% (0.3-3.1%)	7/233	3.0% (1.2-6.1%)	
Engaged in potentially risky or harmful activities (list activities)	14/324	4.3% (2.5-7.3%)	6/245	2.4% (0.9-5.3%)	47/303	15.5% (11.7-20.2%)	18/233	7.7% (4.6-11.9%)	
WASH									
Water quality									
Proportion of households using an improved drinking water source	315/323	97.5% (95.0-98.8%)	244/246	99.2% (97.1-99.9%)	316/316	100%	230/233	98.7% (96.3-99.7%)	
Water quantity									

	Mai-Aini		Adiharush		Shimelba		Hitsats		Classification of public health significance
	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	
≥ 20 lpppd	112/323	34.7% (29.5-40.2%)	79/246	32.1% (26.3-38.3%)	206/316	65.2% (59.7-70.4%)	46/233	19.7% (14.8-25.4%)	UNHCR target average quantity of water /person / day ≥ 20 l
15 - <20 lpppd	39/323	12.1% (8.8-16.3%)	35/246	14.2% (10.1-19.2%)	72/316	22.8% (18.4-27.9%)	22/233	9.4% (6.0-13.6%)	
<15 lpppd	172/323	53.3% (47.6-58.8%)	132/246	53.7% (47.2-60.0%)	38/316	12.0% (8.8-16.3%)	165/233	70.8% (64.5-76.6%)	
Average consumption (Litres per person per day)	18.0		16.5		31.0		12.2		
Proportion of households that use a covered or narrow necked container for storing their drinking water	202/323	62.5% (57.0-67.8%)	119/246	48.4% (42.0-54.8%)	241/316	76.3% (71.2-80.8%)	148/233	63.5% (57.0-69.7%)	
Proportion of HHs that say they are satisfied with the drinking water supply	247/322	76.7% (71.7-81.2%)	156/245	63.7% (57-69.7%)	283/315	89.8% (86.0-92.9%)	92/233	39.5% (33.2-46.1%)	
Safe excreta disposal									
An improved excreta disposal facility (improved toilet facility, 1 household)	108/322	33.5% (28.5-39.0%)	70/243	28.8% (23.2-34.9%)	215/314	68.5% (63.0-73.6%)	142/233	60.9% (54.4-67.3%)	
A shared family toilet (improved toilet facility, 2 households)	47/322	14.6% (11.0-19.0%)	62/243	25.5% (20.2-31.5%)	25/314	8.0% (5.3-11.7%)	14/233	6.0% (3.3-9.9%)	
A communal toilet (improved toilet facility, 3 households or more)	83/322	25.8% (21.2-31.0%)	38/243	15.6% (11.3-20.8%)	7/314	2.2% (1.0-4.7%)	23/233	9.9% (6.4-14.4%)	
An unimproved toilet (unimproved toilet facility or public toilet)	84/322	26.1% (21.4-31.3%)	73/243	30.0% (24.3-36.2%)	67/314	21.3% (17.0-26.4%)	54/233	23.2% (17.9-29.1%)	
Proportion of households with children under three years old that dispose of faeces safely	78/104	75.0% (65.6-83.0%)	63/85	74.1% (63.5-83.0%)	67/88	76.1% (65.9-84.6%)	59/80	73.8% (62.7-83.0%)	
MOSQUITO NET COVERAGE									
Mosquito net ownership									
Proportion of households owning at least one mosquito net of any type	181/326	55.5% (49.9-61.0%)	171/245	69.8% (63.6-75.5%)	198/301	65.8% (60.1-71.1%)	126/220	57.3% (50.5-63.9%)	
Proportion of households owning at least one LLIN	156/326	47.9% (42.3-53.4%)	152/245	62.0% (55.6-68.1%)	187/301	62.1% (56.4-67.6%)	112/220	50.9% (44.1-57.7)	Target of >80%
Average number of persons per LLIN (Mean)	6.8		4.6		3.6			8.3	2 persons per LLIN

	Mai-Aini		Adiharush		Shimelba		Hitsats		Classification of public health significance
	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	no.	% (95% CI)	
Proportion of total population (all ages) Slept under net of any type	582/1411	41%	588/1060	55.5%	591/1093	54.1%	453/1253	36.2%	
Proportion of total population (all ages) Slept under LLIN	472/1411	33%	492/1060	46.4%	536/1093	49.0%	388/1253	31.0%	
MORTALITY									
Crude mortality rate (CDR) Deaths/10,000/day	0.08 (0.02-0.32)		0.5 (0.01-0.38)		0.38 (0.07-2.11)		0.75 (0.2-2.68)		<1 deaths/10,000/day
Under five mortality (U5M) Deaths/10,000/day	0.31 (0.04-2.34)		0.36 (0.01-0.38)		0.10 (0.03-0.36)		0.12 (0.04-0.34)		<2 deaths/10,000/day

The tables below shows the public health significance malnutrition classification among children under 5 years old for the interpretation of SENS results.

Table 2: classification of public health significance for under 5 children

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 3: classification of public health significance

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

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

Table 4: 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

INTERPRETATION OF RESULTS

Global Acute Malnutrition

A slight change in prevalence of global acute malnutrition (GAM) in children aged 6 – 59 months was noted in the three camps of Mai_Aini, Shimelba and Adiharush when compared to 2015. However, prevalence of GAM in Hitsats refugee camp, showed an increased from 6.3% in 2015 to 9.7% (6.7-13.7, 95% C.I.) in 2017. Prevalence of severe acute malnutrition (SAM) in the same age group decreased from 1.6% in 2015 to 0% 2017. However changes in both GAM and SAM prevalence were not statistically significant.

Figure 1: Trend of prevalence of GAM in 6-59 months in all camps (2011-2017)

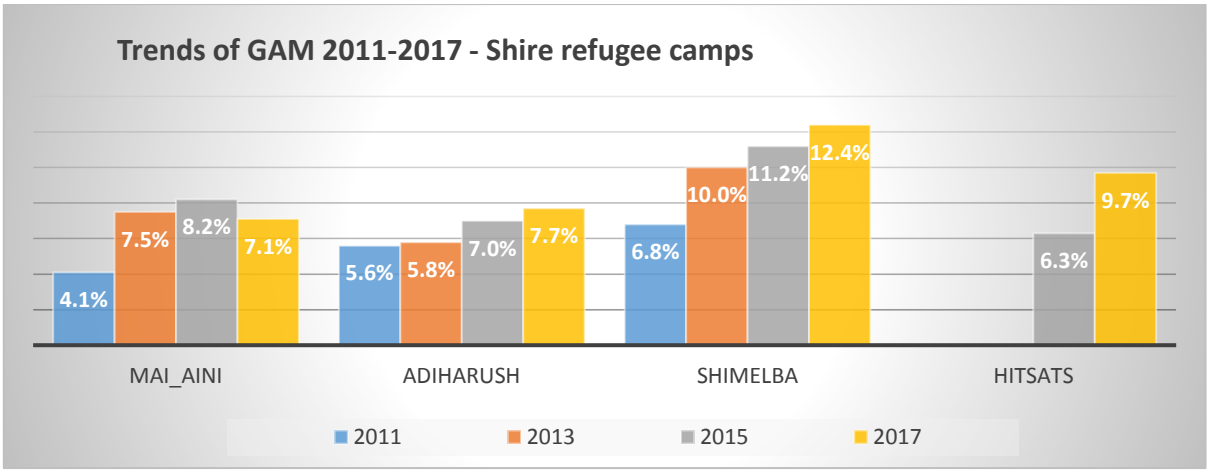
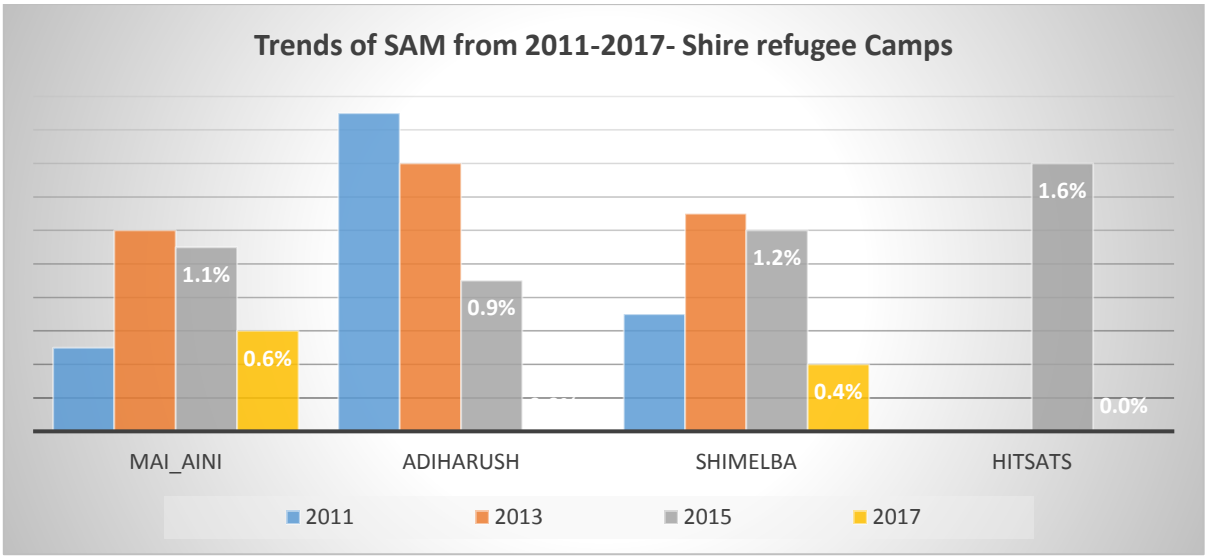


Figure 2: Trends of SAM prevalence in 6-59 months in all camps (2011-2017)



Prevalence of stunting

The prevalnce of stunting or chronic malnutrition among children aged 6-59 months reported 18.4% in Mai Aini camp considered acceptable level as per WHO classification, while in Adiharush and Hitsats reported 27.8% and 26.3% considered poor level, and lastly in Shimelba camp reported 30.0% which indicates serious level as per WHO classification.

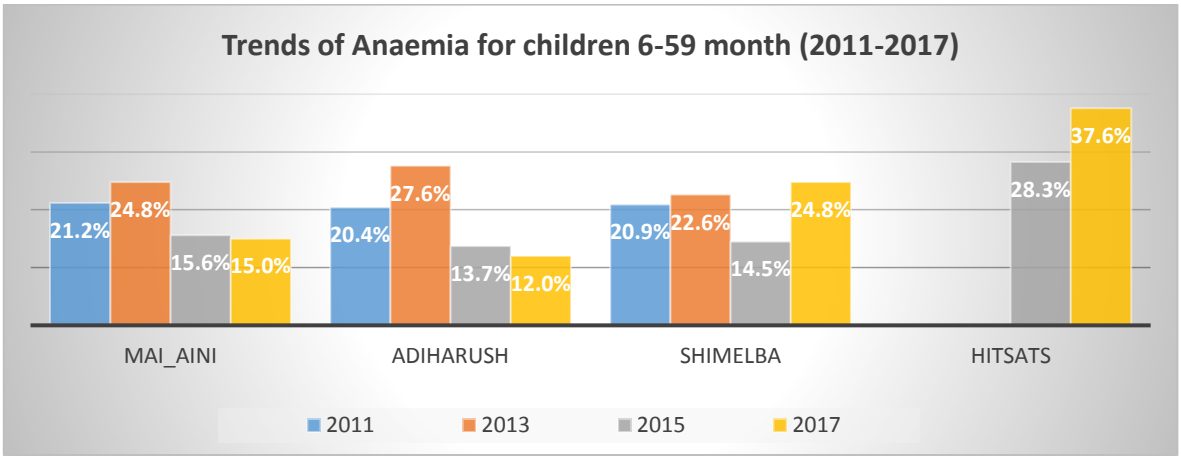
Prevalence of Anaemia

The prevalence of anaemia among children 6-59 months and non-pregnant women aged 15-49 years was below 20% in Mai_Aini and Adiharush refugee camps, which is acceptable level according to WHO classification.

However, prevalence of anaemia in children of the same age group in Shimelba and Hitsats refugee camps was above the acceptable level of 20% (24.8%, 37.6%). While in Hitsats camp, prevalence of anaemia was 27.3% for non-pregnant women and 37.6%

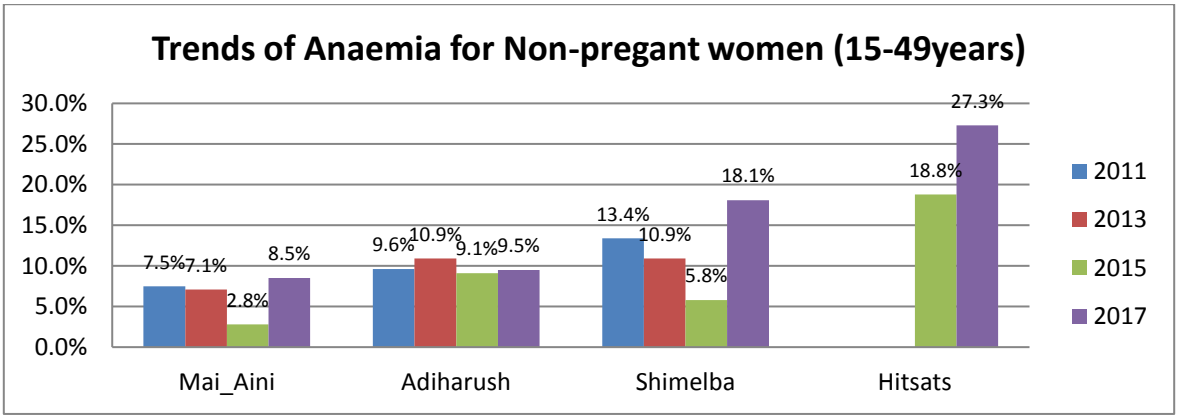
for children 6-59 months which indicate increase in the prevalence of anaemia in these two vulnerable groups when compared to the results of 2015 nutrition survey.

Figure 3: Trends of Anaemia prevalence in 6-59 months in all camps (2011-2017)



The trends of prevalence of anaemia among children 6-59 months remained descending in Mai_Aini and Adiharush refugee camps (<20% acceptable level WHO classification), while in Shimelba and Hitsats camps increased in comparison to 2015 SENS. However, the prevalence of Anaemia remained at medium public health significance (20-39% WHO classification) , and thus, a need to be addressed to reduced it back to acceptable levels of <20% in the two camps.

Figure 4: Trends of Anaemia prevalence in 15-49 years women (2011-2017)



Prevalence of anaemia among non-pregnant women of reproductive age (15-49 years) remained within WHO acceptable level (anaemia <20%) in Mai Aini, Adiharush and Shimelba camps. However, a sharp increase was noted from 2.8 to 8.5% in Mai Ain, from 5.8% to 18.1% in Shimelba and from 18.8% to 27.3% in Hitsats camp between 2015 and 2017. It is not clear as to why such sharp increase has happened, but presumed that high prevalence of malaria might have contributed to the increase.

Infant and young child feeding practices

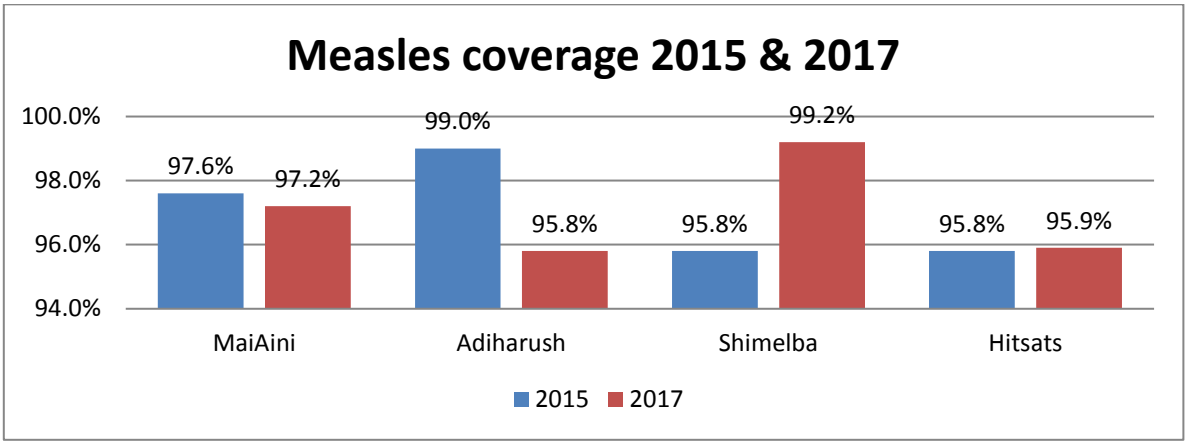
The two indicators of IYCF (continued breastfeeding at 1 year and introduction of solid, semi or soft foods) showed overall encouraging results in Adiharush, Shimelba, Hitsats, and remained stable in Mai Aini. Initiation of breastfeeding was however lower in Hitsats where it decreased from 68.3% in 2015 to 48.0% in 2017. A decrease on the same indicator was noted from 94.5% to 78.1% in Shimelba camp. Exclusive

breastfeeding also decreased from 74.4% to 56.5% in Mai Ain camp. Bottle feeding indicated significance reduction in Shimelba camp from 12% in 2015 to 2.9% in 2017.

Program coverage

Measles vaccination coverage for children age 9-59 months both by card and recall was found within acceptable threshold, ≥ 95% in all refugee camps.

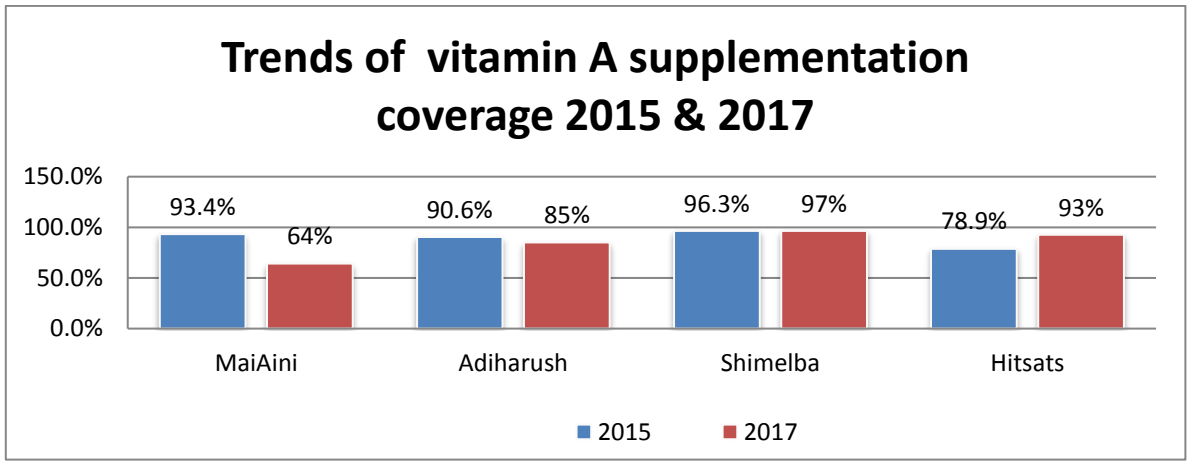
Figure 5: Measles vaccination coverage for children 9-59 months (2015-2017)



Generally enrolment coverage infeeding programmes was very low ranging from 0% to 25% for OTP and from 2.8% to 30% for TFSP respectively. The coverage for SAM and MAM cases was far below the recommended UNHCR/SPHERE standards of ≥90%. While the coverage of BSFP for children aged 6-23 months ranging between 80.2%-86.5% in all camps.

The prevalence of diarrhoea was ranging between 11.8%-19.2% in the last two weeks of SENS in all the camps. Hitsats camp presented the highest 19.2% diarrhoea which likely could be linked to the lowest quantity of water supply 12.2 litres per person per day.

Figure 6: Vit A supplementation coverage in 6-59 months (2015-2017)



Add a short interpretation of Vit A coverage.

Food security

Proportion of households with a food ration card was almost 100% in the all camps. The mean household dietary diversity score (HDDS) was low which ranges from 4.7 to 5.3 compared to the 12 targeted food groups despite of cash-based intervention in these camps. Average number of days the general food ration lasts including cash was between 21 to 25 days out of the targeted 30 days. This suggests that refugee were looking for other own ways of covering the gaps through their own initiatives. Results indicates that some negative coping strategies were used including; borrowing (cash, food or other items), selling assets, reducing quantity and/or frequency of meals and snacks as well as engaged in potentially risky or harmful activities. Proportion of the above mentioned negative coping strategies ranged from 38% to 56% for borrowing cash or food, 5% to 14% sold assets, 31% to 52% reduced quantity and/or frequency of meals and 2% to 16% were engaged in potentially harmful activities subjecting to risking their lives.

WASH

The proportion of HHs using an improved drinking water sources was 100%, implying that all refugees had access to quality drinking water. However, the amount of water consumed per person per day was below the UNHCR recommended level of ≥20 litres in Mai-Aini, Adi Harush and Hitsats camps. In the later camp, average water consumption was as low as 12.2 litres per person per day.

During data collection many water ponds were observed in the camps which would provide suitable habitat and breading sites for mosquito.

Mosquito net owner and utilization

Proportion of households owning at least one mosquito net of any type ranged from 56% to 70%, leading to increased number of persons per mosquito net from 2 recommended by UNHCR to an average between 3.6 and 8 .3 persons.**Mortality**

Mortality indicators both for crude and under-fives children remained within acceptable level (CMR <1 death and U5MR <2deaths in 10,000 population per day)

UNHCR and SPHERE standards. CMR ranged from 0.05 to 0.75 deaths in 10,000 population per day while U5MR was between 0.10 and 0.31 deaths in 10,000 population of under-fives per day in all the camps.

Recommendations

Short Term

- Enrolment coverage for SAM and MAM cases was very low in both OTP and TFSP in all camps. Some of the children were not enrolled in the right feeding program, for instance SAM children enrolled in MAM program while MAM children were in SAM or BSFP. Improvement of nutrition outreach programme for active case finding at in the community and appropriate capacity building to staff working in BFSP and targeted feeding programs through CMAM training will contribute to increased coverage and enrolment in appropriate program.

- Use of elevated MUAC of 14cm for children aged 6 – 23 months and 15cm among children aged 24 – 59 months during nutritional screening would increase a window to capture the most at risk children including those who are malnourished when subjected for WHZ. Regular measurement of children with WHZ at BSFP would greatly help to capture and enrol acute malnourished cases and enrol them in the nutrition program accordingly.

- Despite of the protracted refugee camps; provision of water was very low especially in Hitsats refugee camp (12.2 LPPPD). In-turn, the camp the highest prevalence of diarrhoea which might be linked to such low amount of water supply. Increased amount of water supply should be addressed to reduce prevalence of diarrhoea in the above mentioned camp.

Medium Term

- UNHCR in collaboration with ARRA to equip nutrition and health centres with appropriate anthropometric kits. This will enhance staffs working at these centres to properly identify cases and provide right management in the right facility.

- Prevalence of anaemia is high in Hitsats and Shimelba camps (Hitsats camp was 37.6% just below the emergency threshold). Measures for prevention and control of anaemia including distribution of mosquito net, addressing gaps related to infant and young children feeding practices as well as blanket supplementary feeding to children aged 6 – 59 months should be emphasised to ensure prevalence reduced to the acceptable levels.

- Mosquito net coverage was very low in all camps exposing refugees to high risk of contracting malaria. Procurement and distribution of mosquito net need an urgent attention for protection of UNHCR persons of concern especially children aged below five year as well as pregnant women. The water ponds which were observed in the camps need to be filled up to reduce mosquito breeding sites.

- Improve Infant and Young Child Feeding programme through training of healthcare providers in field locations and subsequent implementation of the UNHCR multi-sectoral IYCF framework. IYCF needs to be integrated and linked with primary

health care MCH unit with more focus on essential nutrition actions which include but not limited to; exclusive breastfeeding, attachment, positioning, building confidence for lactating mothers to produced milk, importance of antenatal care, postnatal care and so on.

Long term

- WFP in collaboration with UNHCR and ARRA should advocate to donors to increase food ration to the minimum recommended level, strengthen food basket monitoring and post distribution monitoring to ensure right amount of food is received and properly utilized.
- Analysis showed that younger children were the most affected by chronic malnutrition (stunting) than older children despite reasonable health and nutrition services provided in the camps. Causes of gradual increase of prevalence of stunting may need to be investigated for proper intervention in the future.
- Livelihood opportunities which includes agricultural, animal husbandry and related income generation activities are strongly recommended to complement the gap faced in the whole period of general ration cycle.

1. INTRODUCTION

Tigray regional state located in the northern part of Ethiopia has been hosting Eritrean refugees since the 2000's Ethio-Eritrea war and currently over 37,641 Eritrean refugees, out of which 3701 are under five children, resides in the four camps namely Shimelba, Adi-Harush Mai-Aini and Hitsats[1]. In 2017 an average of 309 new arrival refugees were registered per month and settled in the camps.

Eritrean refugee camps are the only camps where out-of-camp policy applies other than urban refugees in Addis Ababa. This provide an opportunity for refugees to move around for looking for temporary jobs by selling their labour for cash with the aim of complementing humanitarian aid received from UNHCR, WFP, ARRA and other partners. On the other hand, movement of refugees in and out of the camp has been a challenge to humanitarian agencies especially for planning of services to be provided. A substantial number of refugees appears in the camps once a month and specifically during general food rations distribution.

Comprehensive health services and Nutrition programs have been running in all camps by ARRA supported by UNHCR and WFP. The CMAM, which includes OTP for severe malnourished children without medical complication and SC for severe malnourished children with medical complication, supplementary feeding program for MAM, community mobilization and nutrition education were operational in Shire camps.

1.1. Nutrition services

While UNHCR was providing F-75, F-100 therapeutic milk and PlumpyNut for supporting treatment of severely acute malnutrition children, WFP was supporting treatment of MAM cases by providing PlumpySup for treatment of moderate acute malnutrition, supercereal plus (CSB++) for blanket supplementary feeding among children 6-23 months, supercereal for pregnant women, lactating mothers and some chronically ill cases.

1.2. Health services

There was health and nutrition surveillance system which includes growth monitoring in all camps regularly reported by using the UNHCR health Information System. Growth monitoring were used as a platform identifying the most at high risk children for acute malnutrition through measurement of MUAC and refer them to the nutrition and health centres for further actions. Primary health care services were provided at facility and community-based for refugees. Services at facility level were provided through In-patient department (IPD) Outpatient department (OPD) and Maternal and child health clinic (MCH). Other services were Expanded Program of Immunization (EPI) including "Health extension package" and WASH which were operational since 2015 in four camps.

1.3. Food security

WFP in collaboration with UNHCR and ARRA has recently introduced cash component to replace part of cereals distributed along with other items on monthly basis. During

[1] UNHCR ProGres database July 2017

this survey refugees in the four camps were receiving in-kind of 10kg cereals, 1.5kg pulses, 1.5kg of fortified corn-soy blend (CSB+), 0.9kg vegetable oil, 0.15 kg salt and 60ETB cash meant for 6kg cereals per person per month. Severe reduction of general rations was not imposed among Eritrean camps but sugar had already completely removed from general food distribution. At the time of the survey the refugee food basket was intended to provide a total of 2052kcal energy against the minimum recommended allowance of 2,100 kcal/p/d.

Table 5: Food basket contents of the general ration in Shire refugee camps

Ration Type	Amount (gm) /p/day	ENERGY Kcal	Protein (g)	Fat (g)	Vit.C (mg)
Cereal (Consumption)	427	1,429	52.7	8.0	0
Pulses	50	170	11.0	0.6	0
Vegetable oil	30	265	0.0	30.0	0
Corn Soya Blend plus (CSB+)	50	188	7.6	4.0	50.5
Iodized salt	5	0	0.0	0.0	0
Ration total	**562**[2]	**2052**	**71.3**	**42.6**	**50.5**

1.4. Demography

Table 6: Total Population and U5 Children in Shire camps as of 30 April 2017 based on UNHCR ProGress data

Camp/Site	Total ## HH	Total population	## of <5yrs children	Average HH size	% of children
Mai-Aini	6090	10977	1199	1.8	10.9%
Adi Harush	5842	9285	822	1.6	8.9%
Shimelba	2678	5627	637	2.1	11.3%
Hitsats	8432	11534	857	1.4	7.4%
Total	23042	37423	3515	1.6	9.4%

2. OBJECTIVES OF THE SURVEY

The overall objective of the nutrition survey was to assess the general health and nutrition status of refugees, mortality indices and formulate workable recommendations for appropriate nutritional and public health interventions.

[2] 20% meant for compensation of loses and milling cost for cereals is deducted

2.1. Primary objectives

a) To determine the prevalence of acute malnutrition among children 6 – 59 months.

b) To determine the prevalence of chronic malnutrition among children 6-59 months.

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

d) To assess the prevalence of anaemia among children 6-59 months and women of reproductive age (non-pregnant, 15-49 years).

e) To determine the coverage of measles vaccination among children 9-59 months.

f) To determine the coverage of vitamin A supplementation in the last six months among children 6-59 months.

g) To investigate IYCF practices among children 0-23 months.

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

i)

j) To determine the coverage of ration cards and the duration the GFD ration lasts for recipient households.

k) To determine the extent to which negative coping strategies are used by households.

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

m) To establish recommendations on actions to be taken to address the situation.

2.2. Secondary objectives:

a) To determine coverage of selective feeding programs for children 6-59 months (OT/SC, TSFP and BSFP)

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

c) To assess crude and under-five mortality rates in the camps in the last three months.

3. METHODOLOGY

3.1. Study Areas

This survey was conducted among Eritreans refugee communities hosted in the four camps namely; Mai-Aini, Adi Harush, Shimelba and Hitsats located in Shire, Tigray Regional State, in northern part of Ethiopia.

3.2. Study Population

During development of the survey protocol statistics used were indicating a total population of 37,423 including 23,042 children under the age of five years accommodated in 3, 515 households. Children aged between 0-59 months and women of child bearing were targeted for the assessment.

3.3. Study design

This was a cross-sectional study in which a simple random sampling technique was employed in all the surveyed camps.

3.4. Sample size

Sample size was calculated using ENA for SMART software (version July 9th, 2015) based on the 2015 SENS upper confidence limit of the estimated prevalence of global acute malnutrition for Mai_Aini refugee camp[3]. Other parameters were desire precision and non-response household set at ±3 and 10% respectively, used for Adiharush and Hitsats camps. Correction for small population size and a 5% non-response rate was used for Mai_Aini and Shimelba refugee camps.

Table 7: Sample size calculation based on physical counting of households and individuals as of 30 April 2017

	Mai-Aini	Adi Harush	Shimelba	Hitsats
Estimated prevalence (%)	11.5%	7.0%	11.3%	6.3%
± Desire precision (%)	± 3	± 3	± 3	± 3
Average household size	4.3	5.9	3.5	9.0
% of children under 5 years	11.5	8.9%	11.9	7.4%
% Non-response households	5%	10%	5%	10%
Number of children to be included for Anthropometry and Health module	314	278	250	252
Households to be included for Anthropometry and Health module	711	653	703	467

3.5. Sampling procedure

Average household size was updated a week prior to the survey, all households were counted and labelled by the survey team members. The number of under-fives population was also verified against UNHCR ProGress data base prior to sampling process. Empty houses were excluded from the sampling unit. Inhabited shelters were physically identified and given unique numbers – zone, block, community and

[3] The 2015 SENS sample methodology was used in this camp

household numbers. All selected households were filtered from the main list of the camp households with full address on excel sheet and assigned to survey teams for interviews during data collection.

3.6. Selection of households and individuals

Survey team members introduced themselves and explained the purpose of the assessment to the household head. A verbal consent was obtained prior to conducting interview and confidentiality was ensured to the respondent and their responses. The survey team did inquire an availability of eligible subject from the head of household. If an individual or an entire household was absent the teams revisited the household/individual later the same day or the next morning. However, if the individual or the household was absent after revisit, they were not replaced by another household or individual but rather noted as absent. If a selected child was living with a disability or physical deformity preventing certain anthropometric measurements, the child was still included in the assessment of the other indicators. If it was determined that a selected household did not have any eligible children, the women questionnaire was administered to eligible women, and the mortality questionnaire was administered to the household.

3.7. Questionnaires

The questionnaires were prepared in English language and administered in dialect languages via translators. The questionnaires were pre-tested before the survey.

Six standard SENS modules and one extra questionnaires for mortality module from SMART were designed to provide information on the relevant indicators of the different target groups as indicated in the survey objectives. The questionnaires covered the following areas and the following measurements:

Module 1*: Anthropometry and Health* - This included questions and measures on children aged 6-59 months. Information was collected on anthropometric status, oedema, enrolment in selective feeding programmes, immunization (measles), vitamin A supplementation in the last six months, morbidity from diarrhoea in past two weeks, and haemoglobin assessment.

Module 2*: Anaemia* - This included measurement of levels of haemoglobin in children aged 6 – 59 months and women of child bearing age (15 – 49 years) who are not pregnant. Further information collected from women was pregnancy status, enrolment in ANC, coverage of iron-folic acid pills and post-natal vitamin A supplement.

Module 3*: Infant and Young Children Feeding Practices (IYCF)* - This included questions on infant and feeding practices for children aged 0-23 months.

Module 4: *Food Security* - This included questions on access and use of the GFD ration, coping mechanisms when the GFD ran out ahead of time, household dietary diversity.

Module 5*: Water, Sanitation and Hygiene (WASH)* - This included questions on the quantity of water used per household and the satisfaction with the drinking water

supply, hygiene and sanitation.

Module 6: *Mosquito Net coverage* – This included questions on the general mosquito net coverage and utilization among household members and specifically children below the age of five and pregnant women.

Extra Module*: Mortality* - This included questions related to mortality in the last three months among the whole population and U5.

3.8. Measurement methods

a) Household-level indicators

Mortality: An individual-level mortality form similar to the 2015 nutrition survey was used.

Food security: The questionnaire used was adopted from the UNHCR's Standardized Expanded Nutrition Survey Guidelines for Refugee Populations.

WASH: The questionnaire used was adopted from the UNHCR's Standardized Expanded Nutrition Survey Guidelines for Refugee Populations.

b) Individual-level indicators

Sex of children: 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 birth certificates and checked on family fact sheet, and an EPI card or child health card. If no reliable proof of age was available, age was estimated in months using a local event calendar. 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 used for inclusion; the child had to measure between 65 cm and 110 cm.

Age of women 15-49 years: unlike small children, the exact date of birth of women was not recorded. Reported age was recorded in years.

Weight of children 6-59 months: measurements were taken to the closest 100 grams using an electronic scale (SECA scale) with a wooden board to stabilize it on the ground. All children were weighed without clothes.

Height/Length of children 6-59 months: children's height or length was taken to the closest millimetre using a wooden height board (*Shorr Productions*). 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 those greater than or equal to 87cm were measured standing up.

Oedema in children 6-59 months: bilateral oedema was assessed by applying gentle thumb pressure on to the tops of both feet of the child for a period of three seconds and thereafter observing for the presence or absence of an indent.

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 a standard tape. MUAC was recorded in centimetres.

Child enrolment in selective feeding programme for children 6-59 months: selective feeding programme enrolment status was assessed for the outpatient therapeutic feeding programme, supplementary feeding programme as well as blanket supplementary feeding programme. This was verified by card or showing the mother or care giver the images of the products given at the different programs

Measles vaccination in children 6-59 months: measles vaccination was assessed by checking for the measles vaccine on the EPI card if available or by asking the caregiver to recall if no EPI card was available. For ease of data collection, results were recorded on all children but were only analysed for 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 the EPI card or health card if available or by asking the caregiver to recall if no card is available. A vitamin A capsule was shown to the caregiver when asked to recall.

Haemoglobin concentration in children 6-59 months and women 15-49 years: 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 (HemoCue, Sweden). If severe anaemia was detected, the child or the woman was referred for treatment immediately.

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: if the surveyed woman was pregnant, it was assessed by card or recall whether she was enrolled in the ANC programme and was receiving iron-folic acid pills.

Infant and young child feeding practices in children 0-23 months: infant and young child feeding practices were assessed based on the UNHCR's Standardized Expanded Nutrition Survey Guidelines for Refugee Populations version 2 (2013).

Referrals: Children aged 6-59 months were referred to health centre/post for treatment when MUAC was <12.5 cm and or WHZ <-2 z-score, when oedema was present, or when haemoglobin was < 7.0 g/dL. Women of reproductive age were referred to the hospital for treatment when haemoglobin was < 8.0 g/dL.

3.9. Case definitions and calculations

Mortality: The crude mortality rate (CMR) was expressed as the number of deaths per 10,000 persons per day. The formula below was applied:

Crude Death Rate (CMR) = 10,000/a*f/ (b+f/2-e/2+d/2-c/2)

Where:

a = Number of recall days

b = Number of current household residents

c = Number of people who joined household during recall period

d = Number of people who left household during recall period

e = Number of births during recall period

f = Number of deaths during recall period

Malnutrition in children 6-59 months: Acute malnutrition was defined using weight-for-height index values or the presence of oedema and classified as show in the table below. Main results are reported after analysis using the WHO 2006 Growth Standards.

Table 8: Acute malnutrition using weight-for-height and/or oedema in children 6–59 months

Categories of acute malnutrition	Z-scores (NCHS Growth Reference 1977 and WHO Growth Standards 2006)	Bilateral oedema
Global acute malnutrition	< -2 z-scores	Yes/No
Moderate acute malnutrition	< -2 z-scores and ≥ -3 z-scores	No
Severe acute malnutrition	> -3 z-scores	Yes
	< -3 z-scores	Yes/No

Stunting, also known as chronic malnutrition was defined using height-for-age index values and was classified as severe or moderate based on the cut-offs shown below. Main results are reported according to the WHO Growth Standards 2006.

Table 9: Definitions of stunting using height-for-age in children 6–59 months

Categories of stunting	Z-scores (WHO Growth Standards 2006)
Stunting	<-2 z-scores
Moderate stunting	<-2 z-score and >=-3 z-score
Severe stunting	<-3 z-scores

Underweight was defined using the weight-for-age index values and was classified as severe or moderate based on the following cut-offs. Main results are reported according to the WHO Growth Standards 2006.

Table 10: Definitions of underweight using weight-for-age in children 6–59 months

Categories of underweight	Z-scores (WHO Growth Standards 2006)
Underweight	<-2 z-scores
Moderate underweight	<-2 z-scores and >=-3 z-scores
Severe underweight	<-3 z-scores

Mid Upper Arm Circumference (MUAC) values were used to define malnutrition according to the following cut-offs in children 6-59 months:

Table 11: Low MUAC values cut-offs in children 6-59 months

Categories of low MUAC values	
<12.5 cm:	Global acute malnutrition
≥ 11.5 cm and <12.5 cm: Moderate acute malnutrition	
< 11.5 cm:	Severe acute malnutrition

Child enrolment in selective feeding programme for children 6-59 months: Feeding programme enrolment coverage is estimated during the nutrition survey using the direct method as follows (reference: Emergency Nutrition Assessment: Guidelines for field workers. Save the Children. 2004):

Coverage of SFP programme (%) =

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

No. of surveyed children with MAM according to SFP admission criteria

Coverage of TFP programme (%) =

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

No. of surveyed children with SAM according to OTP admission criteria

Infant and young child feeding practices in children 0-23 months

Infant and young child feeding practices were assessed as follows based on the UNHCR SENS IYCF module (Version 1.3 (March 2012).

Timely initiation of breastfeeding in children aged 0-23 months*:*

Proportion of children 0-23 months who were put to the breast within one hour of birth

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

Children 0-23 months of age

Exclusive breastfeeding under 6 months*:*

Proportion of infants 0–5 months of age who are fed exclusively with breast milk: (including expressed breast milk or from a wet nurse, ORS, drops or syrups (vitamins, breastfeeding 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:

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*:*

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

Children ever breastfed*:*

Proportion of children born in the last 24 months who were ever breastfed Children born in the last 24 months who were ever breastfed

Children born in the last 24 months

Continued breastfeeding at 2 years:

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

Consumption of iron rich or iron fortified foods in children aged 6-23 months:

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

Bottle feeding:

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

Anaemia in children 6-59 months and women of reproductive age:

Anaemia was classified according to the following cut-offs in children 6-59 months and non-pregnant women of reproductive age. Pregnant women were not included in this surveys for the assessment of anaemia as recommended by UNHCR {pregnant women are not to be included in routine nutrition surveys for the assessment of anaemia due sample size issues, (usually a small number of pregnant women are found) as well as the difficulties in assessing gestational age in pregnant women)}.

Table 12: Definition of anaemia (WHO 2000)

Age/Sex groups	**Categories of Anaemia (Hb g/dL)**			
	Total	**Mild**	**Moderate**	**Severe**
Children 6 - 59 months	<11.0	10.9 - 10.0	9.9 - 7.0	< 7.0
Non-pregnant adult females 15-49 years	<12.0	11.9 - 11.0	10.9 - 8.0	< 8.0

Classification of public health problems and targets

Mortality: The following thresholds are used for mortality.

Table 13: Mortality benchmarks for defining crisis situations (NICS, 2010)

Emergency threshold
CDR > 1/10,000 / day: 'very serious'
CDR > 2 /10,000 /day: 'out of control'
CDR > 5 /10,000 /day: 'major catastrophe'
(double for U5MR thresholds)

Anthropometric data: UNHCR 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%. The tables below shows the classification of public health significance of the anthropometric results for children under-5 years of age according to WHO and UNHCR:

Table 14: 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

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

Selective feeding programmes:

Table 15: Performance indicators for selective feeding programmes *

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

* UNHCR and WFP selective feeding guideline 2011 and SPHERE standards for performance

Measles vaccination coverage: UNHCR recommends target coverage of ≥95% (same as Sphere Standards).

Vitamin A supplementation coverage: UNHCR performance indicator; target for vitamin A supplementation coverage for children aged 6-59 months by camp, country and region should be >90%.

Anaemia data*:* 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 should be classified according to WHO criteria as shown in Table 14 below.

Table 16: 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[4]. 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 (amongst others) apply to UNHCR WASH programmes:

Table 17: UNHCR WASH Programme Standards

UNHCR Standard	Indicator

[4] UNHCR Water, Sanitation and Hygiene SENS guidelines V2.

Average quantity of water available per person/day	> or = 20 litres
Latrine provision	20 people/latrine

3.10. Training, coordination and supervision

Training on SENS components, data collection techniques and teamwork was organized and conducted to the survey supervisors and enumerators. Training was conducted for four days in one location followed by one additional day for the standardization and piloting of data collection tools. The central training was conducted to 24 health professional national staffs selected from ARRA.

Enumerators and supervisors from central training were prearranged into two groups for data collection; one for Hitsats and Shimelba refugee camps and another for Adiharush and Mai_Aini camps. The 12 trained enumerators from each group joined the additional 24 refugee community health workers prior to data collection in the camps. The 36 enumerators formed 6 teams of 6 individuals; two for anthropometric measurements, one for the household questionnaire, one for the mortality data collection, one for blood sample test and one team assistant.

Teams were mobilized into two locations and data was collected simultaneously from two camps at a time. During data collection, supervisors were assigned to each team. The UNHCR nutritionist was the overall survey coordinator overseeing other two coordinators from WFP and ARRA.

3.11. Data collection and quality control

The data was collected using SMART phone pre-installed with Open Data Kit (ODK) software. A separate record was made on paper for key measurements for backup just in case of any risks associated with the mobile phone happens. Paper questionnaires were also used for mortality data collection.

All eligible children aged 0-59 months from selected households were included in the assessment of anthropometry, measles vaccination and vitamin A supplementation (in the past 6 months). The subjects were also assessed for enrolment in the nutrition program, episodes of diarrhoea with recall period of the previous two weeks, measurement of haemoglobin and infant and young child feeding practices and care for aged 0-23 months. Other components of SENS assessed were WASH, mosquito net owner and utilization, food security and anaemia in non-pregnant women of reproductive age (15-49 yrs) of which a sub-sample was considered. Coverage of Antenatal Care and Iron folate supplementations was also assessed in the later target group.

A retrospective recall period for mortality data was set from 1st of April 2017 until the time of the survey, making total number of days 89 for Adiharush, Hitsats and 93 for Mai Aini and Shimelba respectively.

For quality assurance the collected data was checked on daily basis and transferred to the server for running SMART plausibility checks after which feedback was given to the teams to correct errors if any for the following day of data collection. The measurement tools were calibrated every morning before the start of the data collection. HemoCue analysers were cleaned and standardized using the Eurotrol solution, daily checks were performed and daily reminders on proper use of the micro-cuvette

3.12. Data analysis

Anthropometric and mortality data was analysed using ENA for SMART, the version of July 9th 2015, and other indicators were analysed using Epinfo v.3.5.4.

Table 18: Targeted against surveyed number of children aged 6 – 59months

	Camp			
	Mai-aini	Adi_Harush	Shimelba	Hitsats
Targeted number of children to be surveyed	314	278	250	252
Actual number of children surveyed	328	275	263	282
Percentage coverage	**104%**	**98.9%**	**105%**	**111.9%**

The samples collected from Mai-aini, Adi_Harush, Shimelba and Hitsats was in accordance of UNHCR SENS guidelines which recommends a coverage of at least 80% of the planned figure of number of children aged 6 – 59 months.

4.1. MAI-AIYNI CAMP

4.1.1. Demography

Table 19 Demographic characteristics of the study population in Mai-aiyni

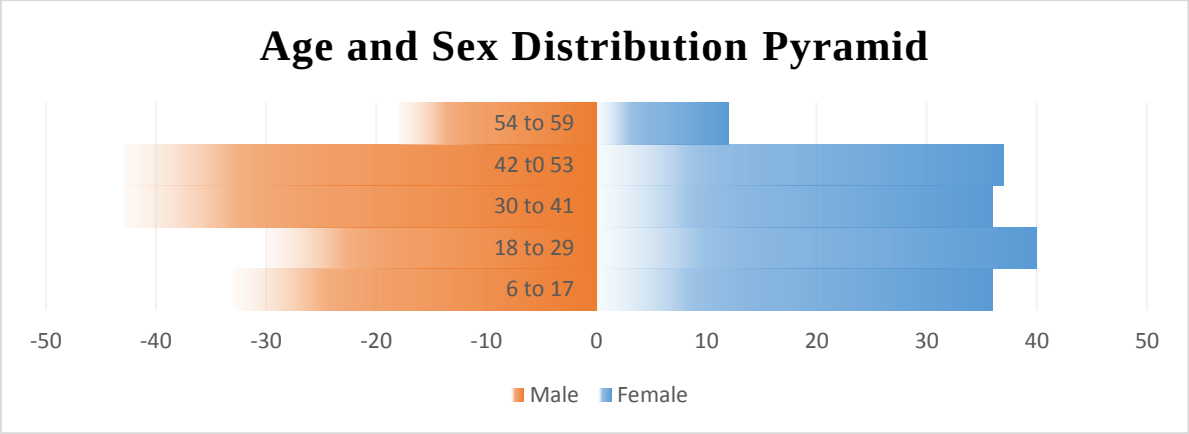
Total HHs surveyed	672
Total population surveyed	2806
Total U5 surveyed	352
Average HH size	4.2
% of U5	12.5%

Table 20 Distribution of age and sex of sample, Mai-aiyni.

	Boys		**Girls**		**Total**		**Ratio**
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	33	47.8	36	52.2	69	21.0	0.9
18-29	30	42.9	40	57.1	70	21.3	0.8
30-41	43	54.4	36	45.6	79	24.1	1.2
42-53	43	53.8	37	46.3	80	24.4	1.2
54-59	18	60.0	12	40.0	30	9.1	1.5
Total	167	50.9	161	49.1	328	100.0	1.0

The overall sex ratio was 1.0 which denotes equal distribution of the sexes of different age groups, it show normal trends and that there is no selection bias.

Figure 7: Population age and sex pyramid, Mai-aiyni.



4.1.2. Anthropometric results (based on WHO Growth Standards 2006)

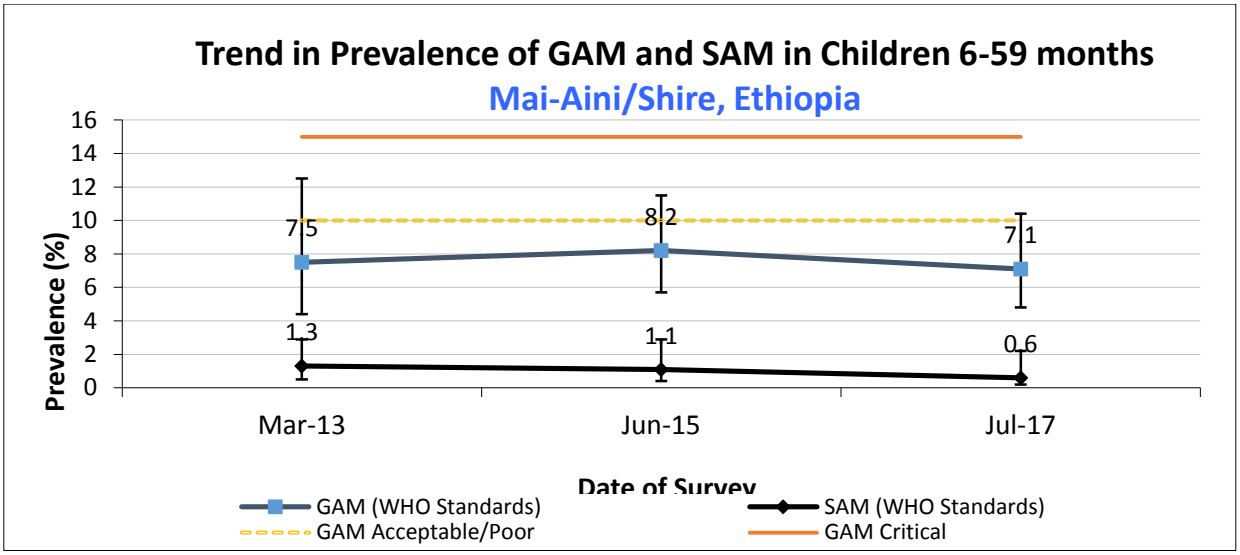
Anthropometric results are analysed and presented based on WHO Growth Standards and excluding z-scores from Observed mean (SMART flags)

Table 21: Prevalence of acute mal based on WHZ and/or oedema and by sex

	95% C.I.		
	All n = 325	**Boys** n = 164	**Girls** n = 161
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(23) 7.1 % (4.8 - 10.4)	(15) 9.1 % (5.6 - 14.5)	(8) 5.0 % (2.5 - 9.5)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(21) 6.5 % (4.3 - 9.7)	(15) 9.1 % (5.6 - 14.5)	(6) 3.7 % (1.7 - 7.9)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(2) 0.6 % (0.2 - 2.2)	(0) 0.0 % (0.0 - 2.3)	(2) 1.2 % (0.3 - 4.4)

The prevalence of oedema was 0.0 %
Significant difference was seen between Boys and Girls on the prevalence of acute malnutrition as Boys are more prevalent to be malnourished than Girls.

Figure 8: Prevalence of GAM based WHZ in children 6-59 months from 2013-2017



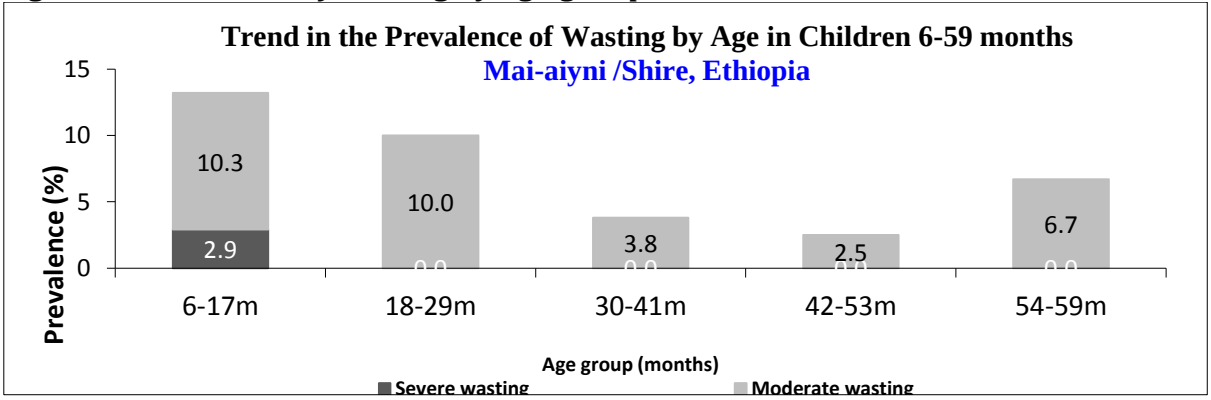
Comparison of results from 2013 shows slight reduction in GAM and SAM prevalence.

Table 22 Prevalence of acute malnutrition by age, based on WHZ-scores and/or oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 & <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	68	2	2.9	7	10.3	59	86.8	0	0.0
18-29	70	0	0.0	7	10.0	63	90.0	0	0.0
30-41	78	0	0.0	3	3.8	75	96.2	0	0.0
42-53	79	0	0.0	2	2.5	77	97.5	0	0.0
54-59	30	0	0.0	2	6.7	28	93.3	0	0.0
Total	325	2	0.6	21	6.5	302	92.9	0	0.0

The youngest children (6-17 months) is most affected by acute malnutrition as compared to other age groups.

Figure 9: Prevalence of wasting by age groups in children 6-59 months



Wasting, both severe and moderate was highest among the youngest age group

Table 23 Distribution of SAM and oedema based on WHZ in Mai-ayni

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 3 (0.9 %)	Not severely malnourished No. 325 (99.1 %)

All the cases of SAM were due to wasting and no oedema was detected.

Figure 10: Distribution of weight-for-height z-scores based on WHO Growth Standards.

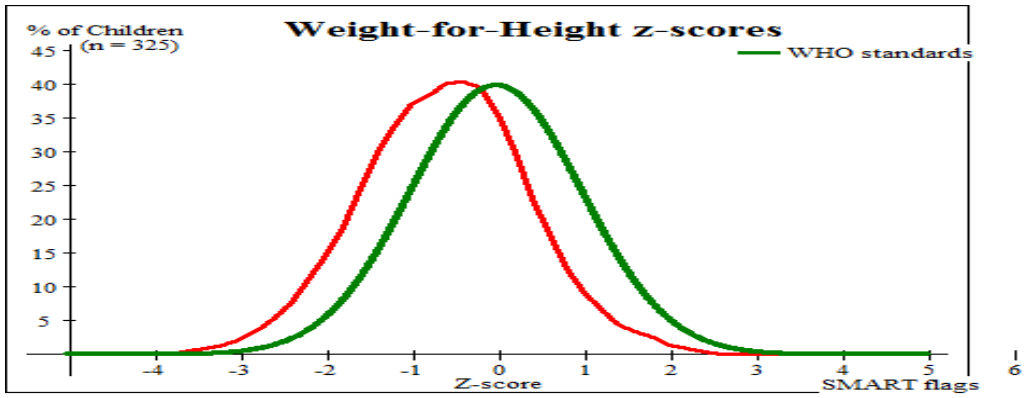


Figure 10 is a comparison of the surveyed and reference weight-for-height z-score (WHZ) distribution. The survey distribution (in red) followed a normal distribution and was shifted to the left of the WHO reference, showing an average lower z-scores, and therefore high malnutrition.

Table 24: Prevalence of acute malnutrition based on MUAC and/or oedema, and by sex

	95% C.I.		
	All n = 328	**Boys** n = 167	**Girls** n = 161
Prevalence of global malnutrition (< 125 mm and/or oedema)	(14) 4.3 % (2.6 - 7.0)	(2) 1.2 % (0.3 - 4.3)	(12) 7.5 % (4.3 - 12.6)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(11) 3.4 % (1.9 - 5.9)	(2) 1.2 % (0.3 - 4.3)	(9) 5.6 % (3.0 - 10.3)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(3) 0.9 % (0.3 - 2.7)	(0) 0.0 % (0.0 - 2.2)	(3) 1.9 % (0.6 - 5.3)

The prevalence of GAM as measured by MUAC was 4.3% (2.6-7.0, 95% C.I).

Table 25: Prevalence of acute malnutrition by age, based on MUAC 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	69	2	2.9	4	5.8	63	91.3	0	0.0
18-29	70	1	1.4	5	7.1	64	91.4	0	0.0
30-41	79	0	0.0	1	1.3	78	98.7	0	0.0
42-53	80	0	0.0	0	0.0	80	100.0	0	0.0
54-59	30	0	0.0	1	3.3	29	96.7	0	0.0
Total	328	3	0.9	11	3.4	314	95.7	0	0.0

Table 26: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 327	**Boys** n = 166	**Girls** n = 161
Prevalence of underweight (<-2 z-score)	(58) 17.7 % (14.0 - 22.2 95% C.I.)	(29) 17.5 % (12.4 - 24.0 95% C.I.)	(29) 18.0 % (12.8 - 24.7 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(54) 16.5 % (12.9 - 20.9 95% C.I.)	(28) 16.9 % (11.9 - 23.3 95% C.I.)	(26) 16.1 % (11.3 - 22.6 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(4) 1.2 % (0.5 - 3.1 95% C.I.)	(1) 0.6 % (0.1 - 3.3 95% C.I.)	(3) 1.9 % (0.6 - 5.3 95% C.I.)

A total of 17.7 % (14.0 – 22.2, 95% C.I.) were underweight, and 1.2 % (0.5 – 3.1 95% C.I.) were severely underweight (Table 7).

Table 27: 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	68	2	2.9	7	10.3	59	86.8	0	0.0
18-29	70	1	1.4	17	24.3	52	74.3	0	0.0
30-41	79	1	1.3	10	12.7	68	86.1	0	0.0
42-53	80	0	0.0	12	15.0	68	85.0	0	0.0
54-59	30	0	0.0	8	26.7	22	73.3	0	0.0
Total	327	4	1.2	54	16.5	269	82.3	0	0.0

Table 28: Prevalence of stunting based on height-for-age z-scores and by sex

	All	**Boys**	**Girls**

	n = 321	n = 164	n = 157
Prevalence of stunting (<-2 z-score)	(59) 18.4 % (14.5 - 23.0 95% C.I.)	(31) 18.9 % (13.6 - 25.6 95% C.I.)	(28) 17.8 % (12.6 - 24.6 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(45) 14.0 % (10.6 - 18.2 95% C.I.)	(24) 14.6 % (10.0 - 20.9 95% C.I.)	(21) 13.4 % (8.9 - 19.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(14) 4.4 % (2.6 - 7.2 95% C.I.)	(7) 4.3 % (2.1 - 8.5 95% C.I.)	(7) 4.5 % (2.2 - 8.9 95% C.I.)

The prevalence of stunting was 18.4 % (14.5-23.0, 95% C.I).

Table 29: Prevalence of stunting by age based on height-for-age z-scores

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	66	2	3.0	5	7.6	59	89.4
18-29	70	8	11.4	12	17.1	50	71.4
30-41	77	3	3.9	13	16.9	61	79.2
42-53	78	1	1.3	11	14.1	66	84.6
54-59	30	0	0.0	4	13.3	26	86.7
Total	321	14	4.4	45	14.0	262	81.6

Children under 30 months of age appear were more affected by stunting than the older ones.

Figure 11: Trends in the prevalence of stunting by age in children 6-59 months

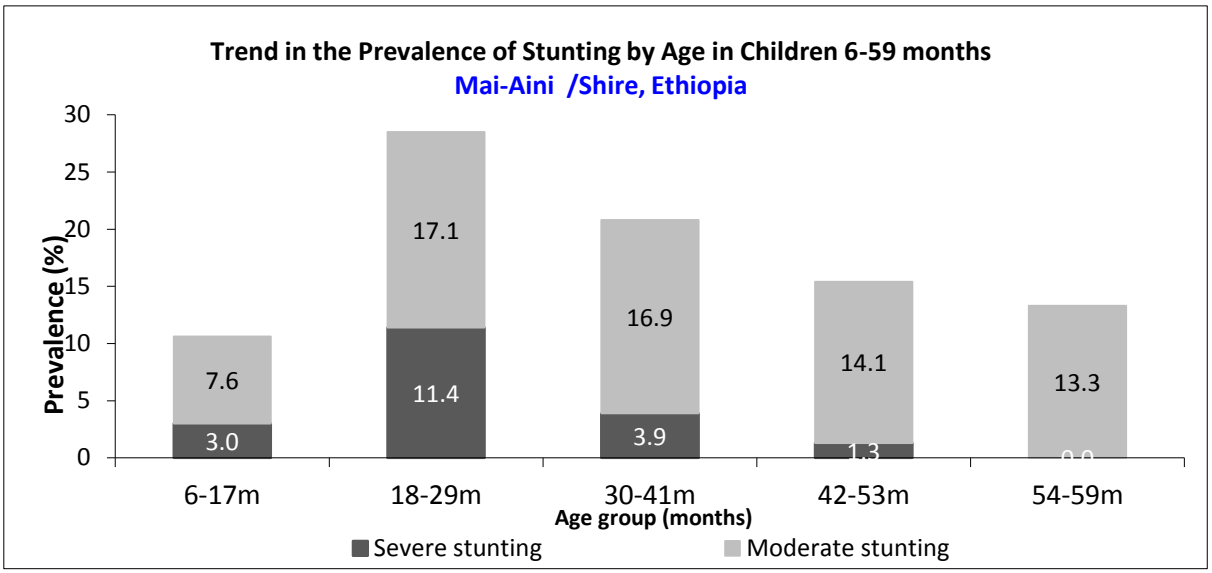


Figure 12: Distribution of height-for-age z-scores based on WHO Growth Standards.

The height-for-age distribution for the survey (red) is compared to the WHO distribution (green) in Figure12. The distribution followed a typical bell shape, and was also shifted to the left of the reference, indicating an average lower mean z-score for the survey sample.

Table 30: Mean z-scores, Design Effects and excluded subjects_Mai-aiyni

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	325	-0.62±0.94	1.00	0	3
Weight-for-Age	327	-1.05±0.98	1.00	0	1
Height-for-Age	321	-1.13±1.05	1.00	0	7

* contains for WHZ and WAZ the children with oedema.

4.1.3. Mortality results

Table 31: Mortality rates_Mai-aiyni

Crude Mortality Rate (CMR) total No. of death /10,000/day = (0.08(0.02-0.32;95% CI)
Under 5 Mortality (U5MR) total No. of death /10,000/day = 0.31(0.0.04-2.34 ;95% CI)

CMR and U5MR was below the emergency threshold at acceptable levels.

4.1.4. Feeding programme coverage results

Table 32 Estimated programme coverage for acutely malnourished children

	Number/total	**% (95% CI)**
Supplementary feeding programme coverage (WHZ >= - 3 AND WHZ < - 2 OR MUAC >= 115 mm AND MUAC < 125 mm)	9/30	30.0% (14.7-49.4%)
Therapeutic feeding programme coverage (WHZ < - 3 OR MUAC < 115mm)	1/4	25.0% (0.6-80.6%)
Blanket Supplementary (WHZ >= - 2 OR MUAC >= 125)	86/101	85.1% (76.7-91.4%)

Estimated programme coverage for supplementary, therapeutic and blanket feeding programmes were lower than expected standards for refugee settings (>90%).

4.1.5. Measles vaccination coverage results

Table 33 Measles vaccination coverage for children aged 9-59 months (n=300)

	Measles (with card) n=318	**Measles (with card or confirmation from mother) n=318**
YES	72.3% (67.1-77.2)	97.2% (94.5-98.6%)

The measles coverage with card or recall was in line with the recommendation which is above 95% target at 97.2% (94.5-98.6%, 95% CI).

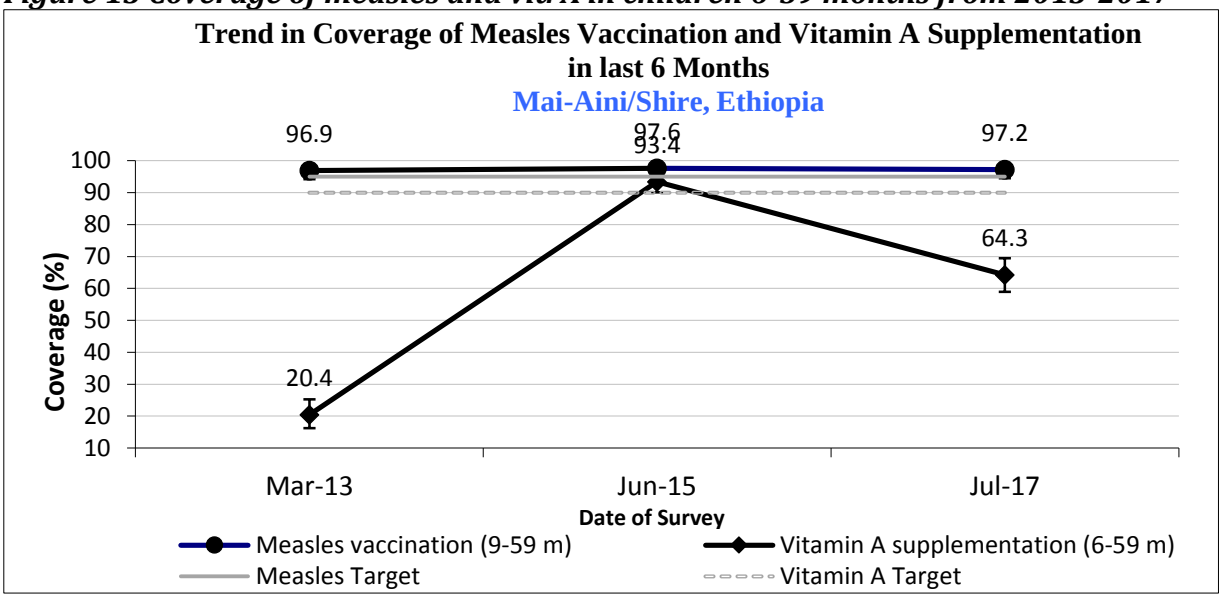
4.1.6. Vitamin A supplementation coverage results

Table 34 Vit. A supplementation among 6-59 months within past 6 months (n=317)

	Vitamin A capsule (with card) n=328	Vitamin A capsule (with card or confirmation from mother) n=328
YES	25.3% (10.8-30.4%)	64.3% (58.9-69.5%)

Vitamin A coverage by card or confirmation from the mother was 64.3% (58.9-69.5%) which is below the UNHCR target of above 90%. Comparison with 2015 results shows decrease in the vitamin A supplementation within the past six months in 2017.

Figure 13 Coverage of measles and vit. A in children 6-59 months from 2013-2017



Comparison of results shows that there is a significant reduction in Vit. A supplementation as compared to 2015. (Figure 6).

4.1.7. Diarrhoea results

Table 35 Period prevalence of diarrhoea

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	46/328	14.0% (10.5-18.4%)

14.0% (10.5-18.4%) of the sampled children reported having had diarrhoea in the 2 weeks prior to the survey. This shows that percentage of having Diarrhoea in the last two weeks has decreased slightly as compared to 20.5% in 2015 survey.

4.1.8. Anaemia results

Table 36 Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age

Anaemia in Children 6-59 months	All n =314
Total Anaemia (Hb<11.0 g/dL)	(n=47) 15.0% (11.3-19.5%)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(n=30) 9.6% (6.6-13.5%)
Moderate Anaemia (7.0-9.9 g/dL)	(n =17) 5.4% (3.3-8.7%)
Severe Anaemia (<7.0 g/dL)	0%
Mean Hb (g/dL)	12.02 g/dL and (1.23SD) [min 7.6 to max 16.0]

15.0% (11.3-19.5%) of children aged 6-59 months were anaemic (table 33). Comparison with 2015 anaemia results there is no significant difference with 15.6% (12.1-19.8%) in 2015.

Figure 14 Anaemia categories in children 6-59 months from 2013-2017

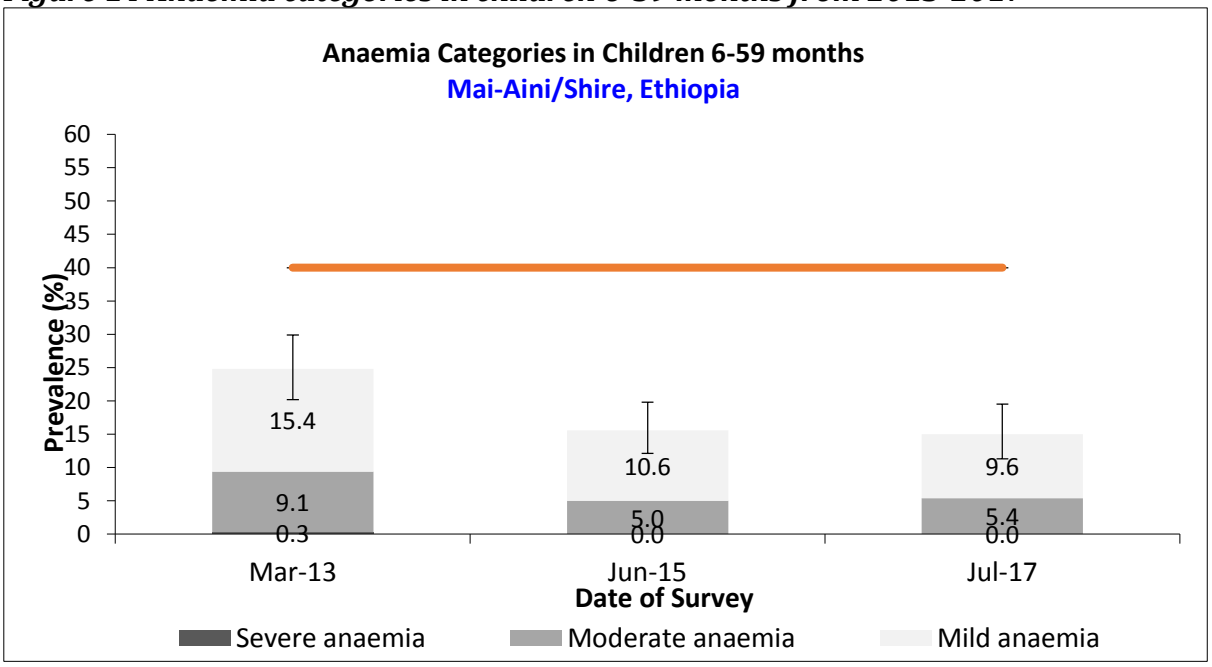


Figure 15: Mean Haemoglobin concentration in children 6-59 months (2013-2017)

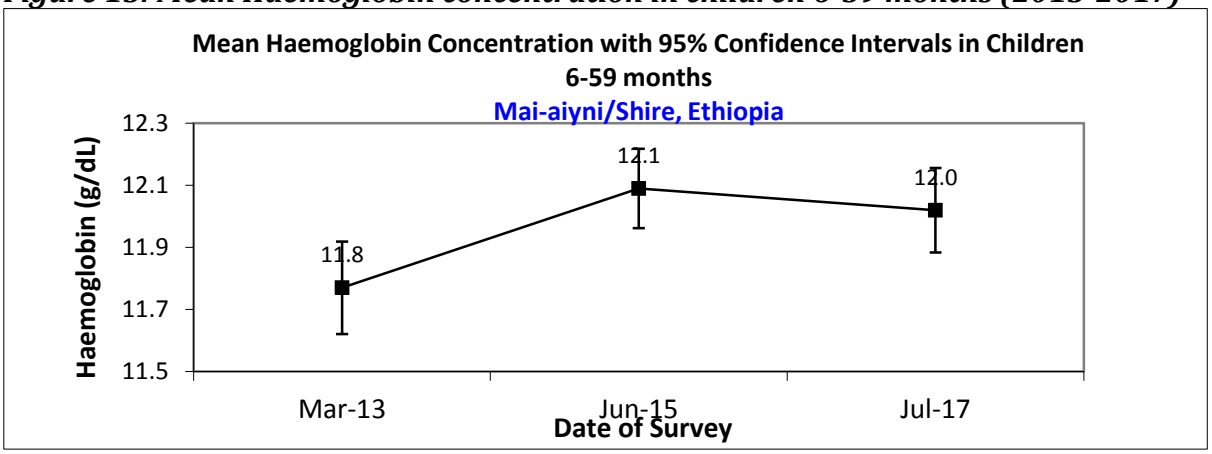


Table 37: Prevalence of anaemia by age

Age group	No.	Severe Anaemia (<7.0 g/dL)		Moderate Anaemia (7.0-9.9 g/dL)		Mild Anaemia (Hb 10.0-10.9 g/dL)		Total Anaemia (Hb<11.0 g/dL)		Normal (Hb≥11.0 g/dL)	
		no	%	no	%	no	%	no	%	no	%
6-23	99	0	0	10	10.1% (5.0-17.8)	15	15.2% (8.7-23.8)	25	25.3% (17.1-35.0)	74	74.7% (65.0-82.9)
24-35	68	0	0	3	4.4% (0.9-12.4)	7	10.3% (4.2-20.1)	10	14.7% (7.3-25.4)	58	85.3% (74.6-92.7)
36-59	147	0	0	4	2.7% (0.7-6.8)	8	5.4% (2.4-10.4)	12	8.2% (4.3-13.8)	135	91.8% (86.2-95.7)
Total	314	0	0	17	5.4%, (3.3-8.7)	30	9.6% (6.6-13.5)	47	15.0% (11.3-19.5)	267	85% (80.6-88.8)

In table 34 above; Categorisation of anaemia by age group shows children 6-23 months are most affected with anaemia at 25.3% (17.1-35.0%).

4.1.9. Children 0-23 months

Table 38: Prevalence of Infant and Young Child Feeding Practices Indicators

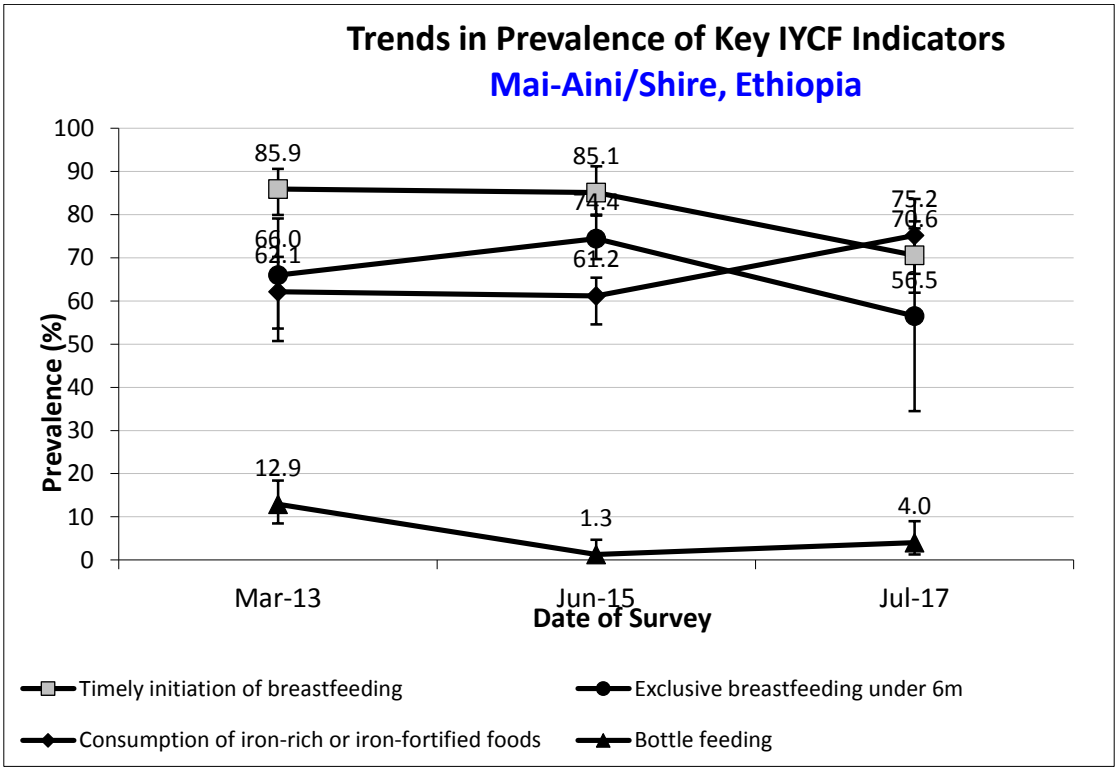
Indicator	Age range	No./ total	Prevalence (%) 95% CI
Timely initiation of breastfeeding	0-23 months	89/126	70.6% (61.9-78.4%)
Exclusive breastfeeding under 6 months	0-5 months	13/23	56.5% (34.5-76.8%)
Continued breastfeeding at 1 year	12-15 months	22/23	95.7% (78.1-99.9%)
Continued breastfeeding at 2 years	20-23 months	15/23	65.2% (42.7-83.6%)
Introduction of solid, semi-solid or soft foods	6-8 months	9/10	90.0% (55.5-99.7%)
Consumption of iron-rich or iron-fortified foods	6-23 months	76/101	75.2% (65.7-83.3%)
Bottle feeding	0-23 months	5/126	4.0% (1.3-9.0%)

More than half (70.6%) of children below 2 years had been introduced to breast milk within an hour of birth (Table 35). The exclusive breastfeeding prevalence was 56.5% (34.5-76.8, 95% C.I). Most of (95.7%) the sampled children were still breastfeeding at

1 year, whilst about 65.2% were still breastfeeding at 2 years. Ninety percent of 6-8 months children observed in 2017 as compared to almost 50% in 2015 had been introduced to solid foods. The proportion of children who were bottle fed the day before the survey were 4.0% (1.3-9.0, 95% C.I). The 2017 findings have shown an increasing trend in consumption of iron rich food while timely initiation of breastfeeding and exclusive breastfeeding kept decreasing. Bottle feeding showed a decreasing trend as well (Figure 16)

Note that when IYCF indicators are collected in nutritional surveys based on anthropometric sample of children aged 0-59 months, it is not feasible to achieve a large enough sample size for some of the indicators to be estimated as precisely as desired, especially for indicators covering a very narrow age range (e.g. 6-8 and 12-15 months). Hence, IYCF indicators need to be interpreted with caution.

Figure 16 Nutrition survey results (IYCF indicators) from 2013-2017



4.1.10. Prevalence of intake ANALYSIS

Infant formula

Table 39: Infant formula intake in children aged 0-23 months, mai-ayni

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	4/126	3.2% (0.9-7.9%)

Table 40: CSB+ intake from any source in children aged 6-23 months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	4/103	3.9% (1.1-9.6%)

Table 41: CSB ++ intake from any source in children aged 6-23 months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	64/103	62.1% (28.5-48.0%)

4.1.11. Women 15-49 years

Table 42: Women physiological status and age, Mai-ayni

Physiological status	Number/total	% of sample
Non-pregnant	282/298	94.6%, (91.4-96.9%)
Pregnant	16/298	5.4%, (3.1-8.6%)
Mean age (range)	24.5year Range: 15- 48 years	

Of the sampled women aged 15-49 years, 5.4% were pregnant. The mean age of women was 24.5 years

Table 43: Prevalence of anaemia and haemoglobin in women (15-49 years)

Anaemia in non-pregnant women of reproductive age (15-49 years)	**All (95% CI)** **n = 281**
Total Anaemia (<12.0 g/dL)	(24) 8.5% (5.5-12.4%)
Mild Anaemia (11.0-11.9 g/dL)	(18) 6.4% (3.8-9.9%)
Moderate Anaemia (8.0-10.9 g/dL)	(5) 1.8% (0.6-4.1%)
Severe Anaemia (<8.0 g/dL)	(1) 0.4% (0.0-2.0%)
Mean Hb (g/dL)	13.55 g/dL and (1.25SD) [min 7.3 to max 16.1 g/dL]

The prevalence of anaemia among non-pregnant women was 8.5% (5.5-12.4, 95% C.I).

Figure 17 Anaemia categories in women aged 15 – 49 years from 2013-2017

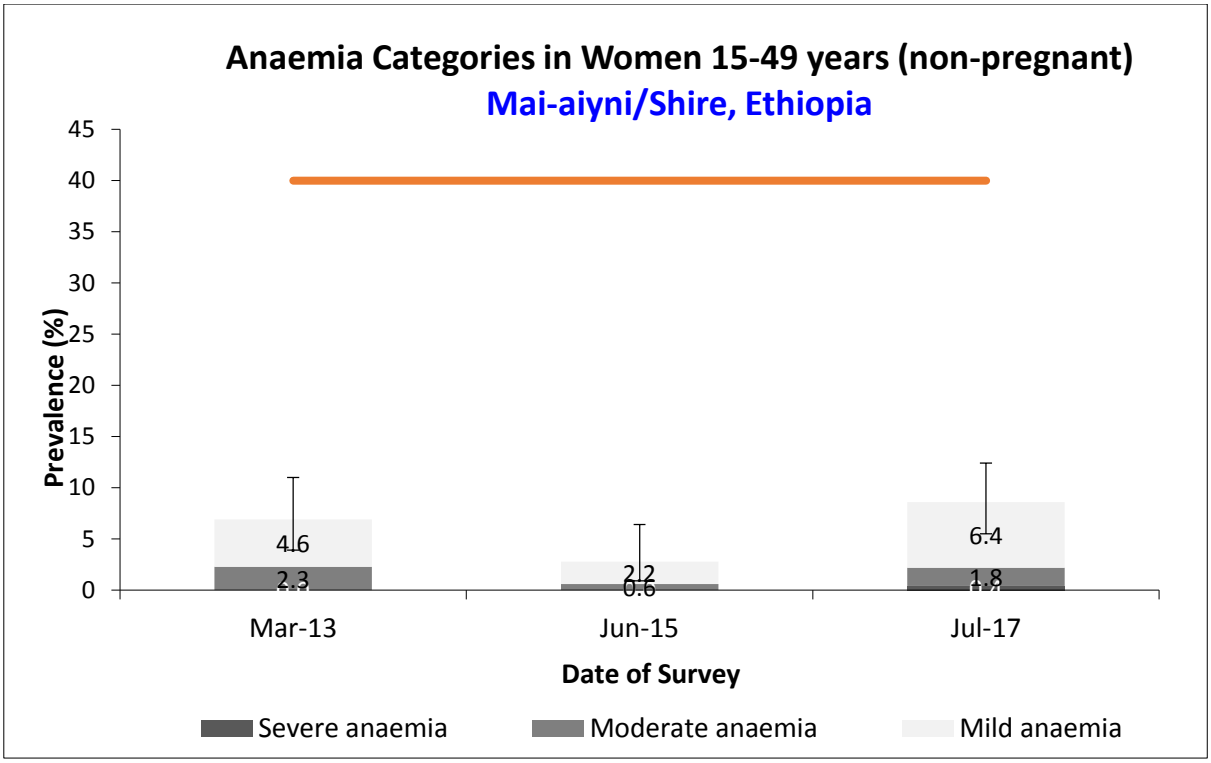


Figure 18: Mean Hb concentration in women aged 15 – 49 years from 2013-2017

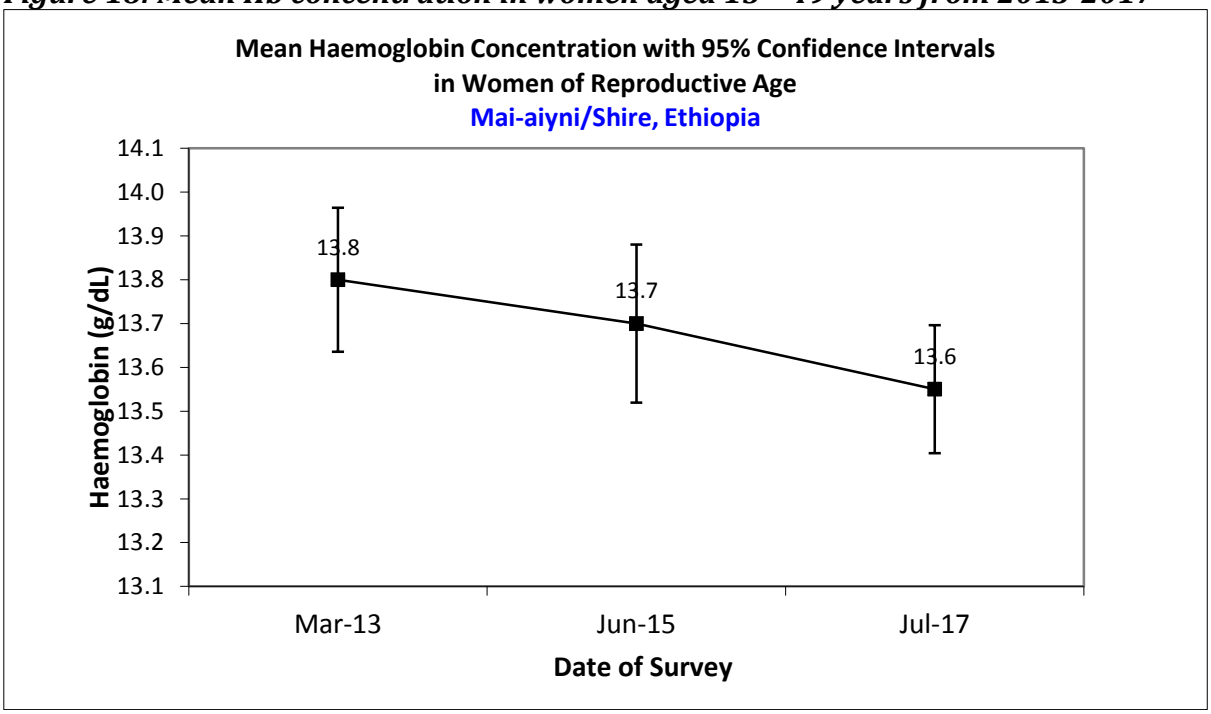


Table 44: ANC enrolment and iron-folic acid among pregnant women (15-49 years)

	Number /total	% (95% CI)

Currently enrolled in ANC programme	14/16	87.5% (61.7-98.4%)
Currently receiving iron-folic acid pills	10/16	62.5% (35.4-84.8%)

More than half of pregnant women enrolled in ANC had received iron-folic pills.

4.1.12. Food security

Table 45: Ration card coverage

	Number/total	**% (95% CI)**
Proportion of households with a ration card	323/324	99.7% (98.0-100%)

Almost all of the sampled households had ration cards

Table 46: Reported duration of general food ration

Average number of days the food ration lasts (Standard deviation or 95% CI)	**Average duration (%) in relation to the theoretical duration of the ration***
24.9 days out of 30 days	83.0%

Table 47: Reported duration of general food ration 2

	Number/total	**% (95% CI)**
Proportion of households reporting that the food ration lasts the entire duration of the cycle	294/310	94.8% (91.6-96.9%)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle (30 days)	8/310	2.6% (1.2-5.2%)
>75% of the cycle (30 days)	302/310	97.4% (94.8 – 98.8%)

Negative coping strategies results

Table 48 Coping strategies used by the surveyed population over the past month

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items *with or without interest*	150/310	48.4% (42.7-54.1%)
Sold any assets (furniture, seed stocks, tools, other NFI, livestock etc.)	16/324	4.9% (2.9-8.1%)
Requested increase remittances or gifts as compared to normal	17/324	5.2% (3.2-8.4%)
Reduced the quantity and/or frequency of meals	100/323	31.0% (26.0-36.4%)
Begged	3/323	0.9% (0.2-2.9%)
Engaged in potentially risky or harmful activities (list activities)	14/324	4.3% (2.5-7.3%)
Proportion of households reporting using none of the coping strategies over the past month	130/322	40.4% (35-46.0%)

***** The total will be over 100% as households may use several negative coping strategies.

The most important coping strategy that was reported to be used to fill the food gap was borrowing and reducing meal quantity and frequency (table 45).

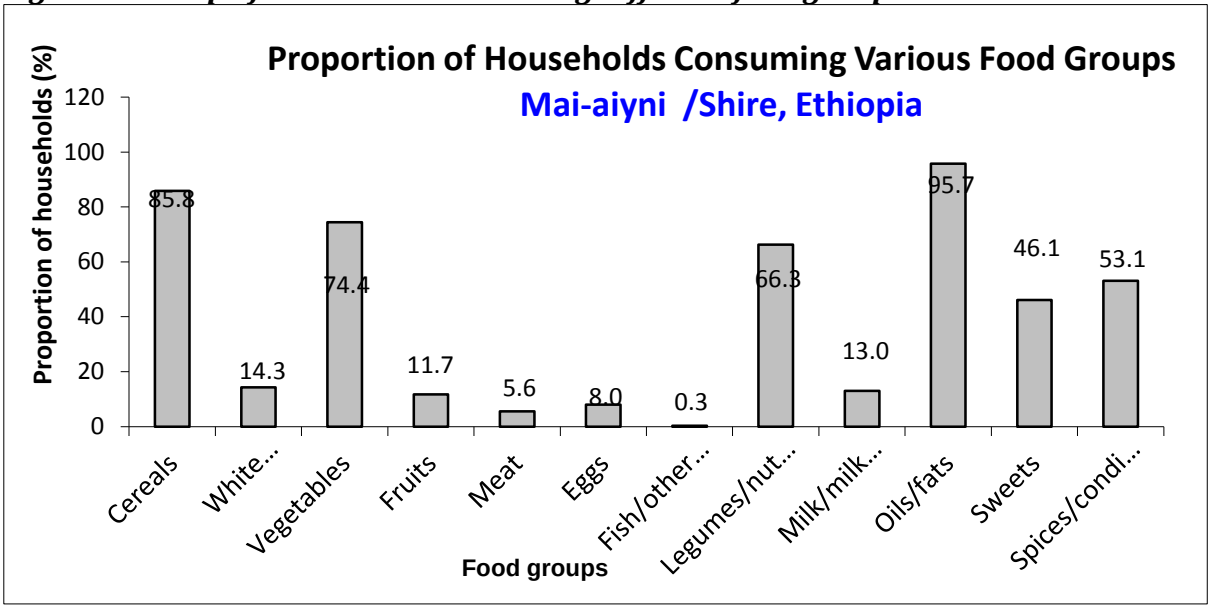
Household dietary diversity results

The general food distribution usually lasts more than one day and may be organized by family size, hence the surveyed households will be at different times of the cycle which may have an impact on the HDDS results and this needs to be considered in interpreting the data.

Table 49: Average HDDS

Average HDDS	4.74 (SD 1.7)

Figure 19: Prop of households consuming different food groups within last 24hrs



Most common items reported to be consumed were oils/fats (95.7%), cereal, (85.8%), vegetables (74.4%), Fish, eggs consumption is low.

Table 50: Consumption of macro and micronutrient rich foods by households

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	71/323	22.0% (17.7-27.0%)
Proportion of households consuming either a plant or animal source of vitamin A	111/322	34.5% (29.3-40.0%)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	18/324	5.6% (3.4-8.8%)

4.1.13. WASH

Table 51: Water Quality

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	315/323	97.5% (95.0-98.8%)
Proportion of households that use a covered or narrow necked container for storing their drinking water	202/323	62.5% (57.0-67.8%)

62.5% (57.0-67.8%, 95% CI) reported to have covered or narrow necked drinking water storage containers and 97.5% had improved drinking water source.

Table 52: Water Quantity 1: Amount of litres of water used per person per day

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	112/323	34.7% (29.5-40.2%)
15 – <20 lpppd	39/323	12.1% (8.8-16.3%)
<15 lpppd	172/323	53.3% (47.6-58.8%)
An average water usage in lpppd	18.0 lpppd	

53.3% (47.6-58.8%) reported to be receiving <15 lpppd.

Table 53: Satisfaction with water supply

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	247/322	76.7% (71.7-81.2%)

About 76.7% of the sampled household reported that they are satisfied with the drinking water supply. 14.6% were not satisfied with the drinking water supply, whereas 67.9% (47.6-84.1%) reported that the drinking water supply was not enough.

Figure 20: Proportion of households that say they are satisfied with the water supply

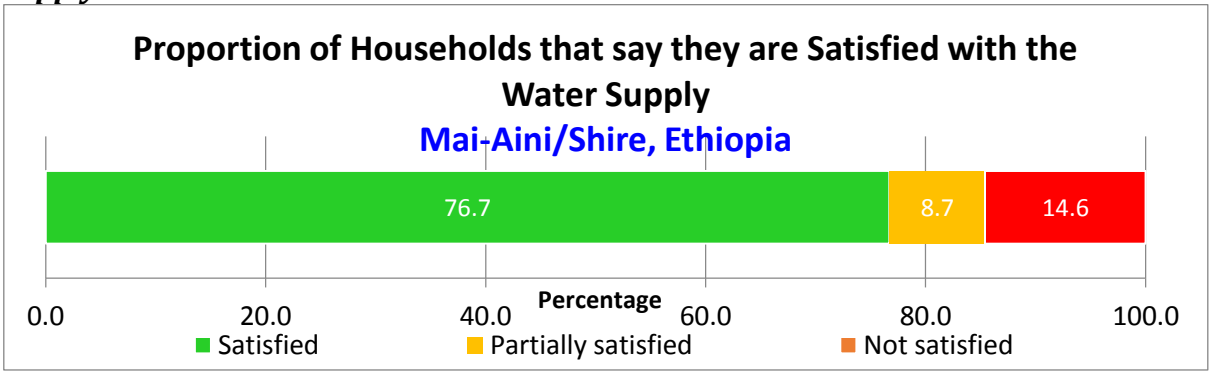


Table 54: Safe Excreta disposal

	Number/total	% (95% CI)
Proportion of households that use:		
Proportion of households using an improved excreta disposal facility (improved toilet facility, not shared)	108/322	33.5% (28.5-39.0%)
Proportion of households using a shared family toilet (improved toilet facility, 2 HH only)	47/322	14.6% (11.0-19.0%)
Proportion of households using a communal toilet (improved toilet facility, 3 HH or more)	83/322	25.8% (21.2-31.0%)
Proportion of households using an unimproved toilet	84/322	26.1% (21.4-31.3%)

The proportion of households with children under three years old that dispose of faeces safely.	78/104	75.0% (65.6-83.0%)

Percentages of the beneficieries are using improved toilet which are not shared was 33.5% (28.5-39.0%, 95% CI) whereas about 26% has unimproved toilet facilities (table 52). Further anlaysis showed 75.0% of households surveyed with children less than three years of age had their last stools disposed into the toilet and 40.5% had their stools disposed of unsafely.

Figure 21: Prop of HH with < 3 years whose (last) stools were disposed of safely

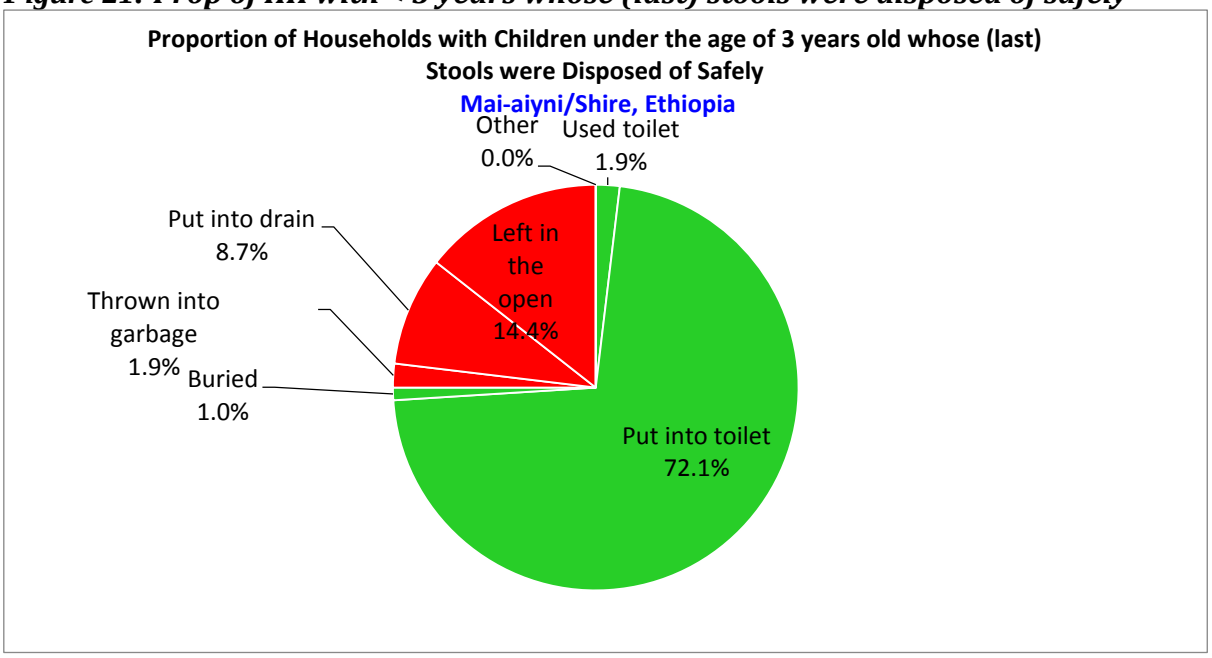
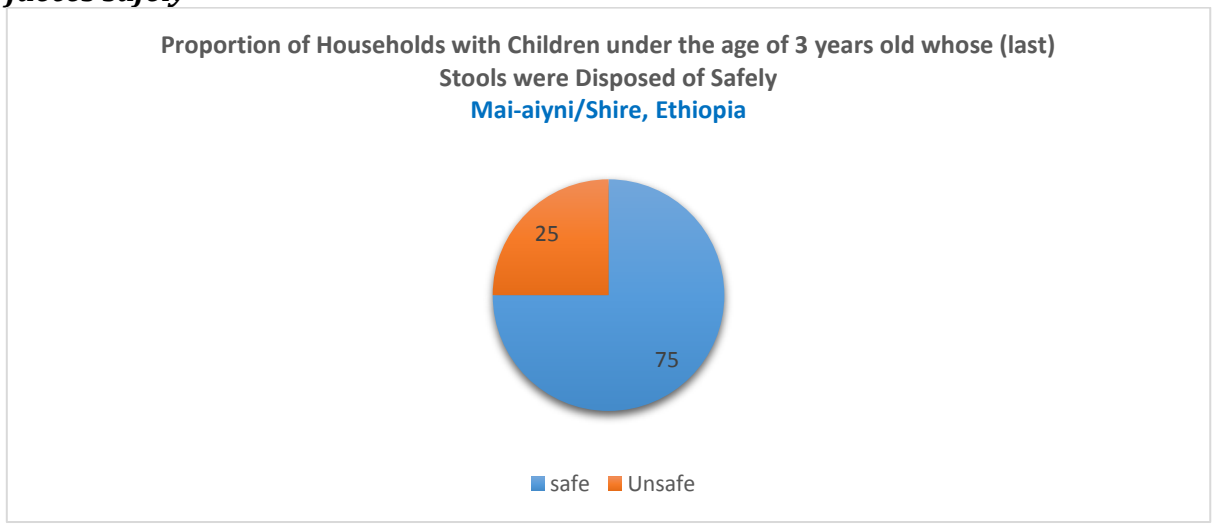


Figure 22: The proportion of households with <3 years old child that dispose of faeces safely



4.1.14. Mosquito Net Coverage

Table 55: Household Mosquito net ownership

	Number/total	% (95% CI)
Proportion of households owning at least one mosquito net of any type	181/326	55.5% (49.9-61.0%)
Proportion of households owning at least one LLIN	156/326	47.9% (42.3-53.4%)

55.5% (49.9-61.0%) of the surveyed households reported to have a mosquito net, out of which 47.9% (42.3-53.4, 95% CI) reported to own long lasting insecticide net (LLIN).

Figure 23: Household ownership of at least one Mosquito net

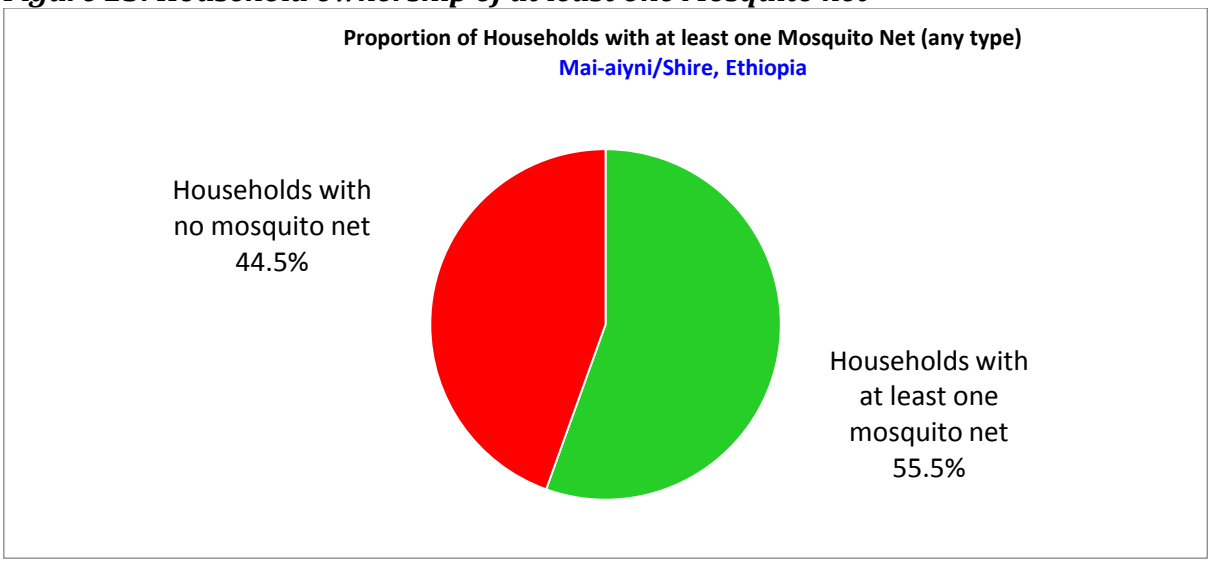


Figure 24 Household ownership of at least one LLIN

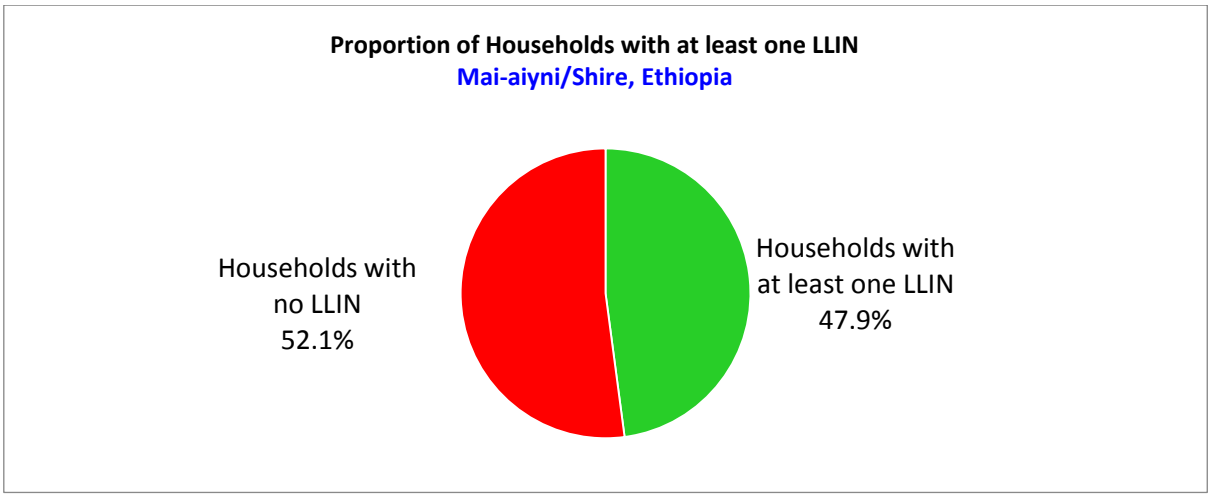


Table 56: Number of nets

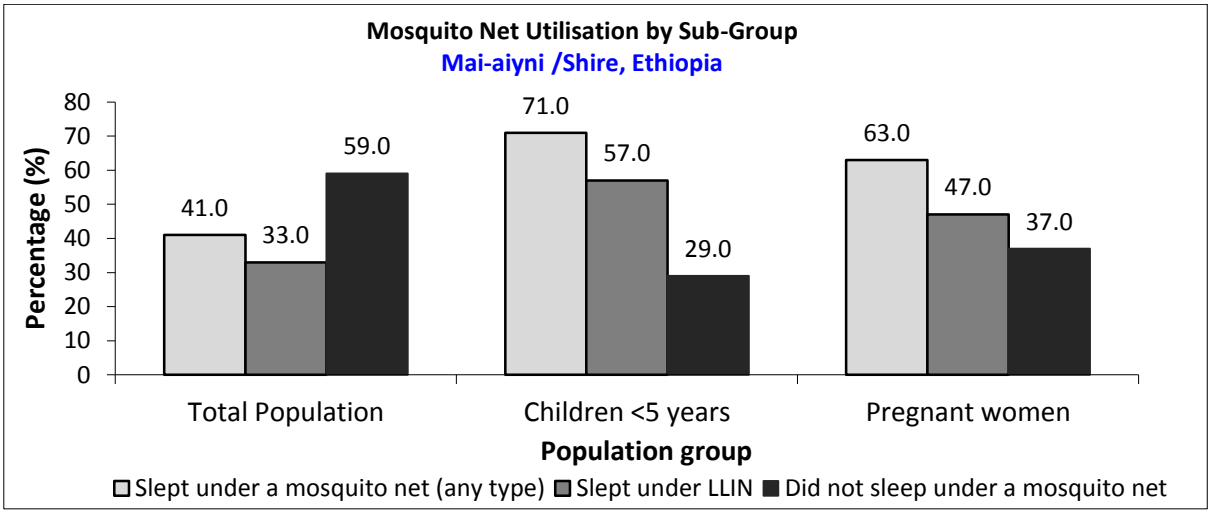
Average number of LLINs per household	Average number of persons per LLIN
1.15	6.75

Table 57: Mosquito net Utilisation

	Total population (all ages)		0-59 months		Pregnant	
	Total N=1411	%	Total No=174	%	Total N=38	%
Slept under net of any type	582	41%	124	71%	24	63%
Slept under LLIN	472	33%	100	57%	18	47%

Below half of the surveyed population slept under an LLIN mosquito net. Use of LLIN mosquito nets was higher among children aged 0-59 months in comparison to use among pregnant women.

Figure 25: Mosquito Net Utilisation by sub-groups



4.2. RESULTS ADI_HARUSH CAMP

Table 58 Demographic characteristics of the study population in Adi-Harush

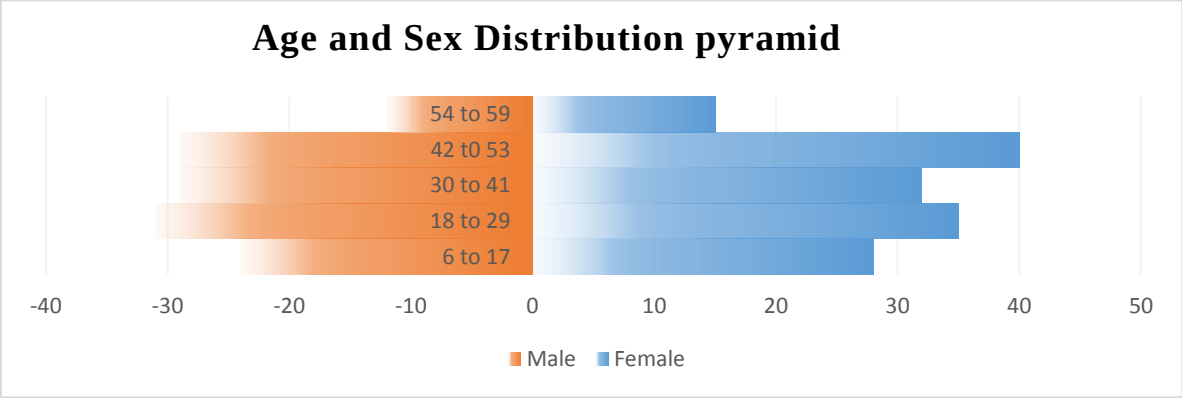
Total HHs surveyed	510
Total population surveyed	2193
Total U5 surveyed	311
Average HH size	4.3
% of U5	14.2%

Table 59 Distribution of age and sex of sample, Adi_Harush.

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	24	46.2	28	53.8	52	18.9	0.9
18-29	31	47.0	35	53.0	66	24.0	0.9
30-41	29	47.5	32	52.5	61	22.2	0.9
42-53	29	42.0	40	58.0	69	25.1	0.7
54-59	12	44.4	15	55.6	27	9.8	0.8
Total	125	45.5	150	54.5	275	100.0	0.8

The overall sex ratio was 0.8 which denotes equal distribution of the sexes of different age groups, it show normal trends and that there is no selection bias

Figure 26: Population age and sex pyramid, Adi_Harush



4.2.1 Anthropometric results (based on WHO Growth Standards 2006)

Anthropometric results were analysed and presented based on WHO Growth Standards and excluding z-scores from Observed mean (SMART flags): WHZ -3 to 3; HAZ -3 to 3; WAZ -3 to 3. Results based on NCHS Growth Reference 1977 are presented in annex.

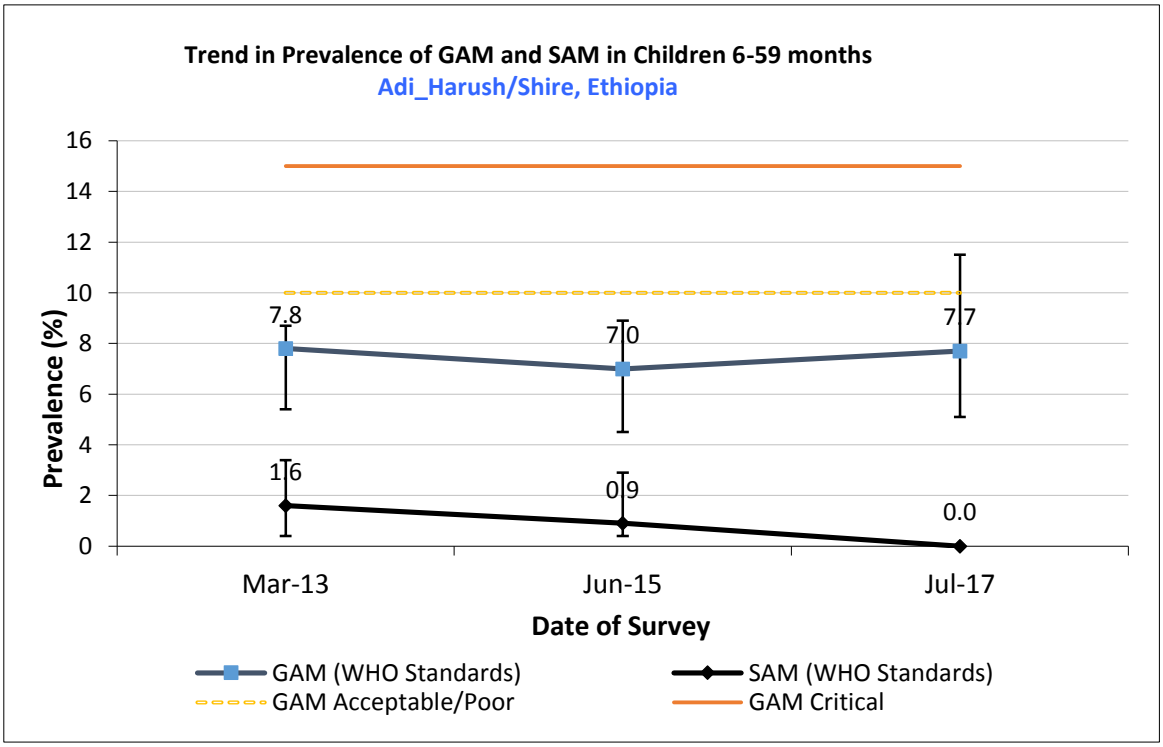
Table 60: Prevalence of acute malnutrition based on WHZ and/or oedema and by sex

	All n = 273	**Boys** n = 124	**Girls** n = 149
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(21) 7.7 % (5.1 - 11.5.)	(12) 9.7 % (5.6 - 16.2)	(9) 6.0 % (3.2 - 11.1)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(21) 7.7 % (5.1 - 11.5)	(12) 9.7 % (5.6 - 16.2)	(9) 6.0 % (3.2 - 11.1)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 - 1.4)	(0) 0.0 % (0.0 - 3.0)	(0) 0.0 % (0.0 - 2.5)

The prevalence of oedema was 0.0 %

Significant difference were seen between Boys and Girls on the prevalence of acute malnutrition as Boys are more prevalent to be malnourished than Girls.

Figure 27 Prevalence of GAM and SAM based on WHZ in 6-59 months (2013-2017)



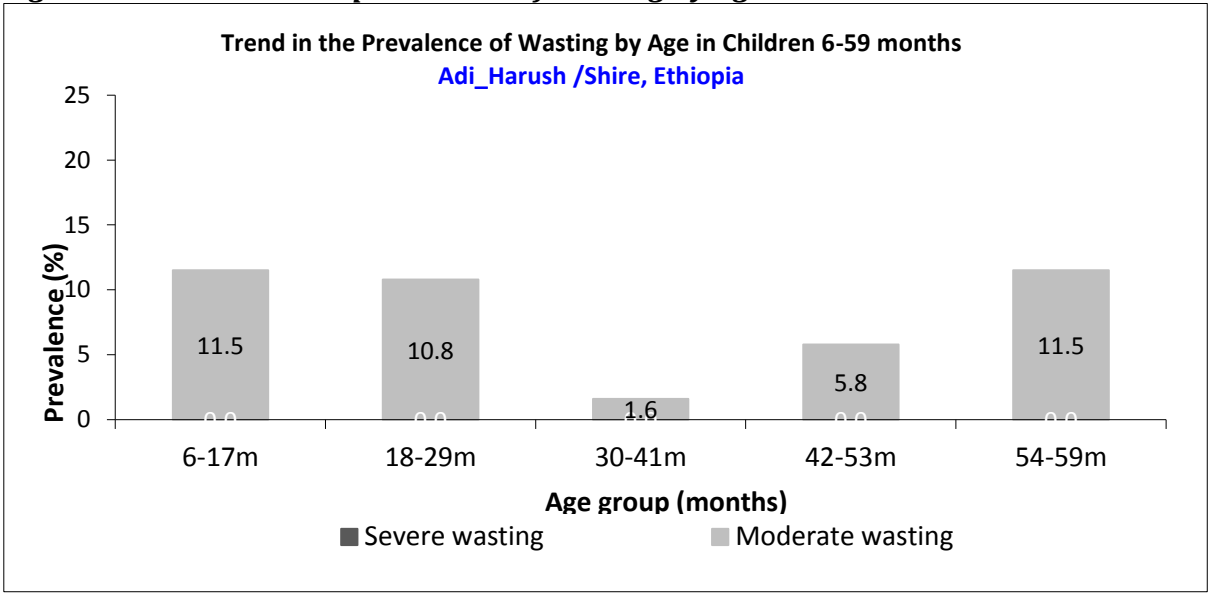
Comparison of results from 2013 shows GAM prevalence being stable while significance reduction in SAM prevalence (Figure 27).

Table 61: Prevalence of acute malnutrition by age, based on WHZ and/or oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 & <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	52	0	0.0	6	11.5	46	88.5	0	0.0
18-29	65	0	0.0	7	10.8	58	89.2	0	0.0
30-41	61	0	0.0	1	1.6	60	98.4	0	0.0
42-53	69	0	0.0	4	5.8	65	94.2	0	0.0
54-59	26	0	0.0	3	11.5	23	88.5	0	0.0
Total	273	0	0.0	21	7.7	252	92.3	0	0.0

The youngest children (6-17 months) is most affected by malnutrition as compared to other age groups.

Figure 28: Trends in the prevalence of wasting by age in children 6-59 months.



Wasting, both severe and moderate was highest among the youngest age group

Table 62: Distribution of severe acute malnutrition and oedema based on WHZ

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 0 (0.0 %)	Not severely malnourished No. 275 (100.0 %)

All the cases of SAM were due to wasting and no oedema was detected (Table 59).

Figure 29: Distribution of WHZ based on WHO Growth Standards Adi_Harush.

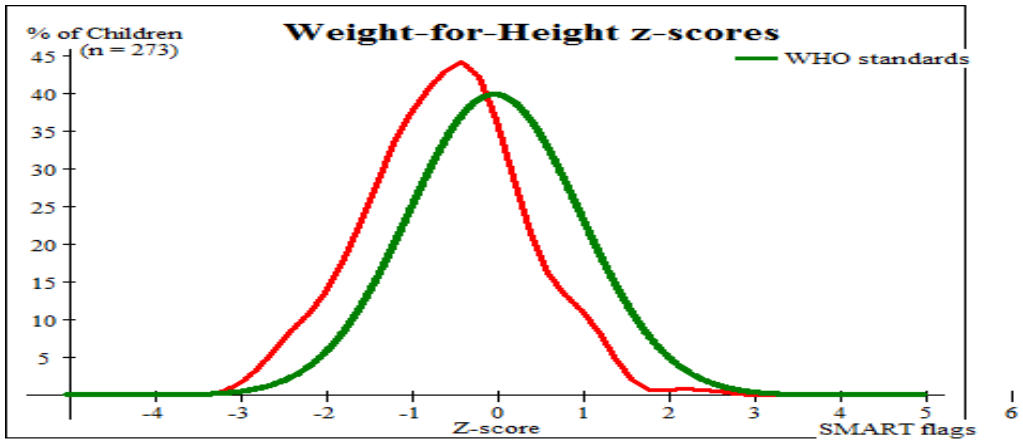


Figure 29 is a comparison of the surveyed and reference weight-for-height z-score (WHZ) distribution. The survey distribution (in red) followed a normal distribution and was shifted to the left of the WHO reference, showing an average lower z-scores, and therefore high malnutrition.

Table 63: Prevalence of acute malnutrition based on MUAC and/or oedema and by sex

	All n = 275	**Boys** n = 125	**Girls** n = 150
Prevalence of global malnutrition (< 125 mm and/or oedema)	(7) 2.5 % (1.2 - 5.2)	(0) 0.0 % (0.0 - 3.0)	(7) 4.7 % (2.3 - 9.3)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(6) 2.2 % (1.0 - 4.7)	(0) 0.0 % (0.0 - 3.0)	(6) 4.0 % (1.8 - 8.5)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(1) 0.4 % (0.1 - 2.0)	(0) 0.0 % (0.0 - 3.0)	(1) 0.7 % (0.1 - 3.7)

The prevalence of GAM as measured by MUAC was 2.5% (1.2-5.2,95%).

Table 64: Prevalence of acute malnutrition by age, based on MUAC 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	52	1	1.9	4	7.7	47	90.4	0	0.0
18-29	66	0	0.0	2	3.0	64	97.0	0	0.0
30-41	61	0	0.0	0	0.0	61	100.0	0	0.0
42-53	69	0	0.0	0	0.0	69	100.0	0	0.0
54-59	27	0	0.0	0	0.0	27	100.0	0	0.0
Total	275	1	0.4	6	2.2	268	97.5	0	0.0

Table 65: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 274	Boys n = 125	Girls n = 149
Prevalence of underweight (<-2 z-score)	(53) 19.3 % (15.1 - 24.4)	(24) 19.2 % (13.3 - 27.0)	(29) 19.5 % (13.9 - 26.6)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(42) 15.3 % (11.5 - 20.1)	(19) 15.2 % (10.0 - 22.5)	(23) 15.4 % (10.5 - 22.1)
Prevalence of severe underweight (<-3 z-score)	(11) 4.0 % (2.3 - 7.0)	(5) 4.0 % (1.7 - 9.0)	(6) 4.0 % (1.9 - 8.5)

A total of 19.3 % (15.1-24.4, 95% C.I.) were underweight, and 4.0 % (2.3 – 7.0, 95% C.I.) were severely underweight. The results show slight increment which is not significant in trend of underweight in comparison to 2015 survey.

Table 66: 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	51	1	2.0	5	9.8	45	88.2	0	0.0
18-29	66	4	6.1	10	15.2	52	78.8	0	0.0
30-41	61	3	4.9	9	14.8	49	80.3	0	0.0
42-53	69	3	4.3	13	18.8	53	76.8	0	0.0
54-59	27	0	0.0	5	18.5	22	81.5	0	0.0
Total	274	11	4.0	42	15.3	221	80.7	0	0.0

Table 67: Prevalence of stunting based on HAZ and by sex_Adi_Harush

	All n = 270	Boys n = 121	Girls n = 149
Prevalence of stunting (<-2 z-score)	(75) 27.8 % (22.8 - 33.4)	(35) 28.9 % (21.6 - 37.6)	(40) 26.8 % (20.4 - 34.5)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(58) 21.5 % (17.0 - 26.8)	(28) 23.1 % (16.5 - 31.4)	(30) 20.1 % (14.5 - 27.3)
Prevalence of severe stunting (<-3 z-score)	(17) 6.3 % (4.0 - 9.9)	(7) 5.8 % (2.8 - 11.5)	(10) 6.7 % (3.7 - 11.9)

The prevalence of stunting was 27.8 % (22.8 - 33.4, 95% C.I), and there is no significant difference between different sexes.

Table 68: Prevalence of stunting by age based on HAZ_Adi_Harush.

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	51	2	3.9	3	5.9	46	90.2
18-29	65	4	6.2	22	33.8	39	60.0
30-41	58	5	8.6	11	19.0	42	72.4
42-53	69	5	7.2	17	24.6	47	68.1
54-59	27	1	3.7	5	18.5	21	77.8
Total	270	17	6.3	58	21.5	195	72.2

Children under between the ages of 18-29 months of age appear to be more affected by stunting than the other age groups.

Figure 30: Trends in the prevalence of stunting by age in children 6-59 months

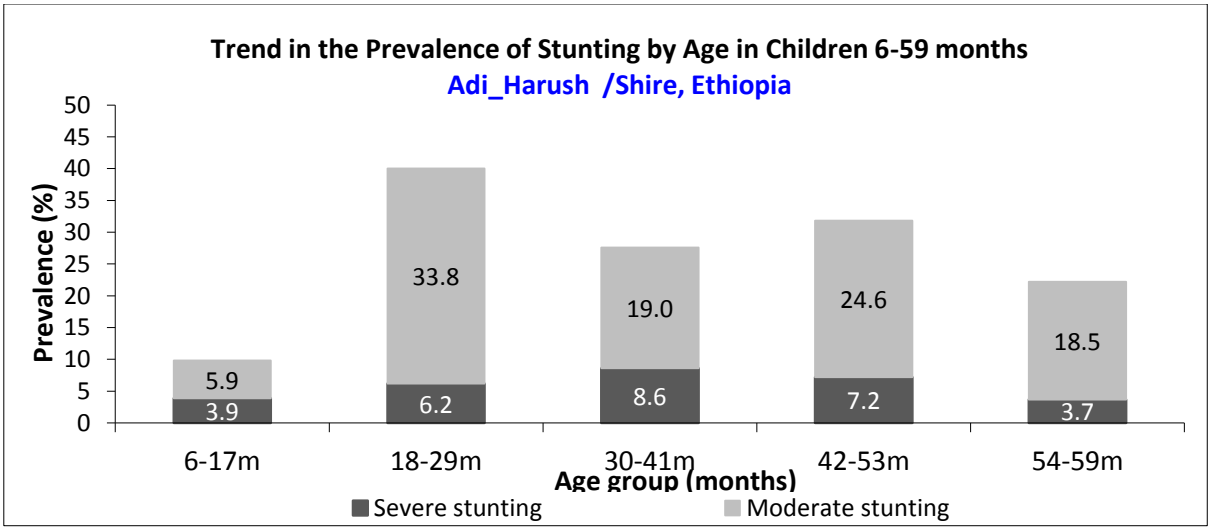
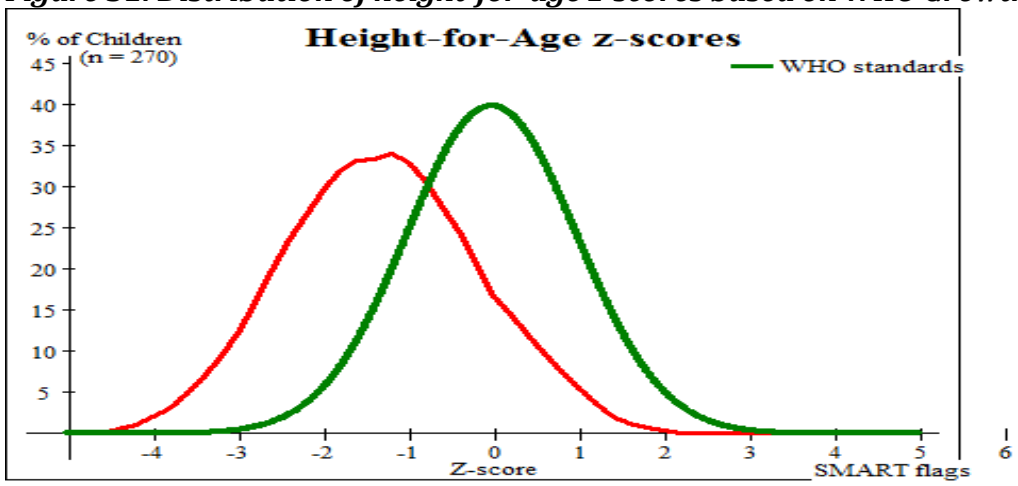


Figure 31: Distribution of height-for-age z-scores based on WHO Growth Standards



The height-for-age distribution for the survey (red) is compared to the WHO distribution (green) in Figure 31. The distribution followed a typical bell shape, and was also shifted to the left of the reference, indicating an average lower mean z-score for the survey sample.

Table 69 Mean z-scores, Design Effects and excluded subjects_Adi_Harush

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	273	-0.59±0.91	1.00	0	2
Weight-for-Age	274	-1.16±0.98	1.00	0	1
Height-for-Age	270	-1.31±1.09	1.00	0	5

* contains for WHZ and WAZ the children with oedema.

4.2.2. Mortality results

Table 70: Mortality rates

Crude Mortality Rate (CMR) total No. of death /10,000/day = (0.5(0.01-0.38;95% CI)
Under 5 Mortality (U5MR) total No. of death /10,000/day = 0.36 (0.01-0.38 ;95% CI)

CMR and U5MR was below the emergency threshold at acceptable levels.

4.2.3. Feeding programme coverage results

Table 71: Estimated programme coverage for acutely malnourished children

	Number/total	**% (95% CI)**
Supplementary feeding programme coverage (WHZ >= - 3 AND WHZ < - 2 OR MUAC >= 115 mm AND MUAC < 125 mm)	3/25	12.0% (2.5-31.2%)

Therapeutic feeding programme coverage (WHZ < - 3 OR MUAC < 115mm)	0/1	0.0%
Blanket Supplementary (WHZ >= - 2 OR MUAC >= 125)	64/77	83.1% (72.9-90.7%)

Estimated programme coverage for supplementary and therapeutic was far below the expected standard for refugee settings (>90%).

4.2.4. Measles vaccination coverage results

Table 72: Measles vaccination coverage for children aged 9-59 (n=300)

	Measles (with card) n=262	**Measles (with card or confirmation from mother) n=262**
YES	60.7% (54.5-66.6)	95.8% (92.6-97.9%)

The measles coverage with card or recall was in line with the recommendation which was above 95% target at 95.8% (92.6-97.9%, 95% CI).

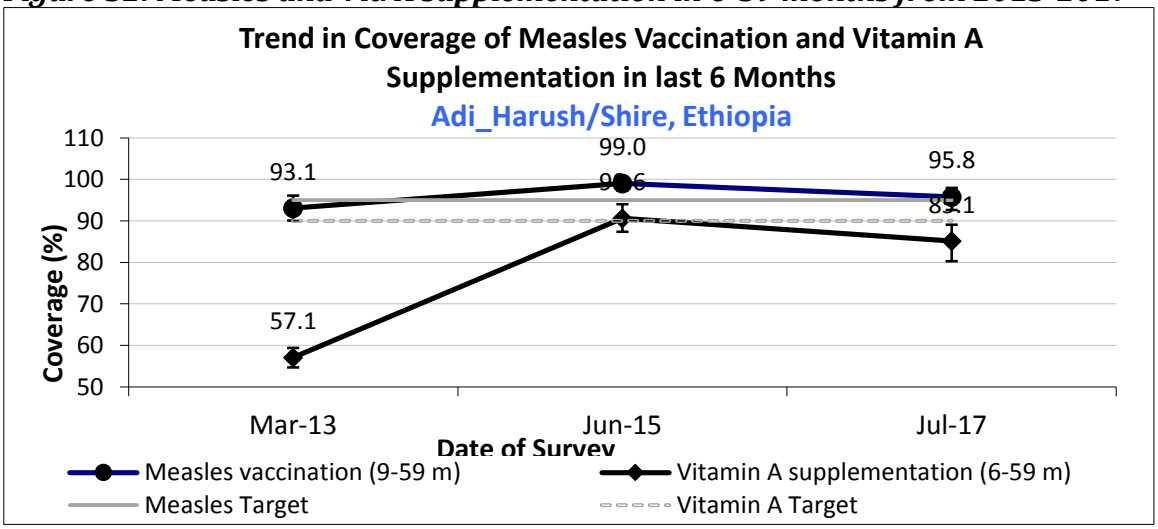
4.2.5. Vitamin A supplementation coverage results

Table 73: Vitamin A supplementation in 6-59 months within past 6 months (n=317)

	Vitamin A capsule (with card) n=275	**Vitamin A capsule (with card or confirmation from mother) n=275**
YES	16.7% (12.5-21.7%)	85.1% (80.3-89.1%)

Vitamin A coverage by card or confirmation from the mother was 85.1% (80.3-89.1%) which is below the UNHCR target > 90%. Comparison with 2015 results shows slight decrement in the vitamin A supplementation within the past six months.

Figure 32: Measles and Vit. A supplementation in 6-59 months from 2013-2017



Comparison of results shows that there is a significant reduction in Vit A supplementation as compared to 2015. (Figure 32).

4.2.6. Diarrhoea results

Table 74: Period prevalence of diarrhoea

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	35/274	12.8% (9.1-17.3%)

12.8% (9.1-17.3%) of the sampled children reported having had diarrhoea in the 2 weeks prior to the survey. This shows that percentage of having Diarrhoea in the last two weeks has decreased slightly as compared to 2015 survey 18.2%.

4.2.7. Anaemia results

Table 75: Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age

Anaemia in Children 6-59 months	All n =275
Total Anaemia (Hb<11.0 g/dL)	(n=33) 12.0% (8.4-16.4%)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(n=8) 2.9% (1.3-5.7%)
Moderate Anaemia (7.0-9.9 g/dL)	(n =25) 9.1% (6.0-13.1%)
Severe Anaemia (<7.0 g/dL)	0%
Mean Hb (g/dL)	12.44 g/dL and (1.77SD) [min 8 to max 16.7]

12.0% (8.4-16.4%) of children aged 6-59 months were anaemic. Comparison with 2015 anaemia results there is no significant difference.

Figure 33: Anaemia categories in children 6-59 months from 2013-2017

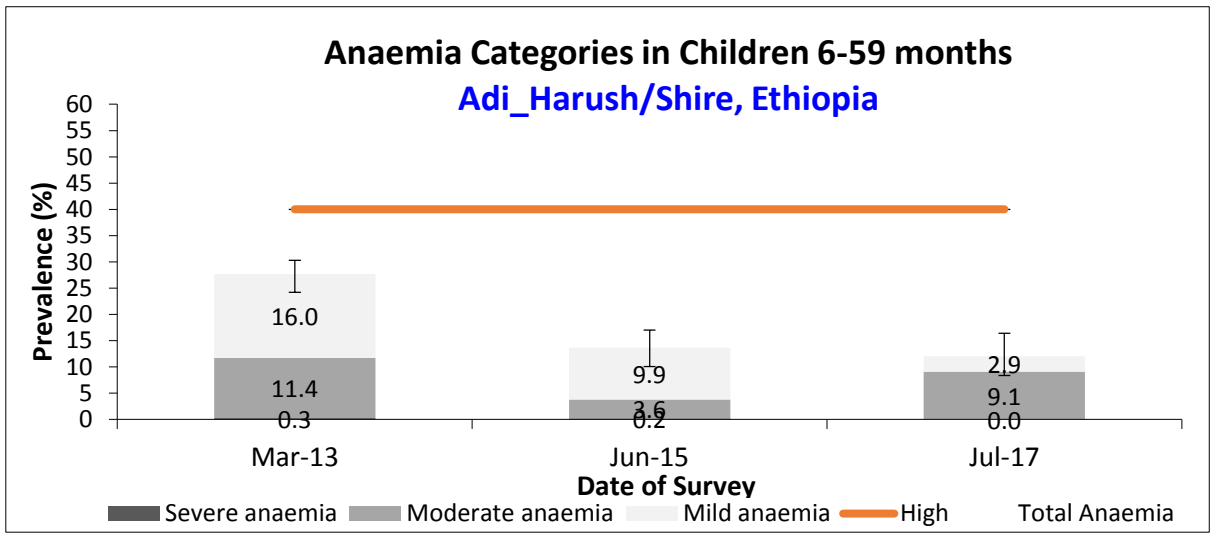


Figure 34: Mean Haemoglobin concentration in children 6-59 months from 2013-2017

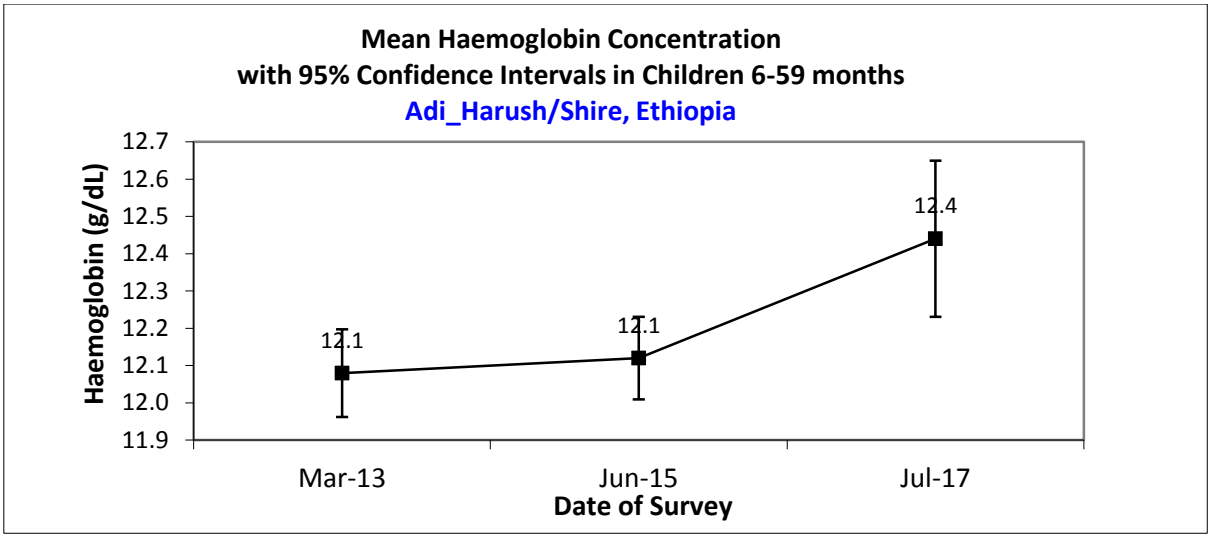


Table 76: Prevalence of anaemia by age

In table 73 above; Categorisation of anaemia by age group showed children 6-23 months were most affected with anaemia at 21.8% (13.2-32.6%).

Age group	No.	Severe Anaemia (<7.0 g/dL)		Moderate Anaemia (7.0-9.9 g/dL)		Mild Anaemia (Hb 10.0-10.9 g/dL)		Total Anaemia (Hb<11.0 g/dL)		Normal (Hb≥11.0 g/dL)	
		no	%	no	%	no	%	no	%	no	%
6-23	78	0	0	13	16.7% (9.2-26.8%)	4	5.1% (1.4-12.6%)	17	21.8% (13.2-32.6%)	61	78.2% (67.4-86.8%
24-35	66	0	0	6	9.1% (3.4-18.7%)	2	3.0% (0.4-10.5%)	8	12.1% (5.4-22.5%)	58	85.3% (74.6-92.7%)
36-59	131	0	0	6	4.6% (1.7-9.7%)	2	1.5% (0.2-5.4%	8	6.1% (2.7-11.7%)	123	93.9% (88.3-97.3%)
Total	275	0	0	25	9.1%, (6.0-13.1%)	8	2.9% (1.3-2.7%)	33	12.0% (8.4-16.4%)	242	88% (83.6-91.6%)

4.2.8. Children 0-23 months

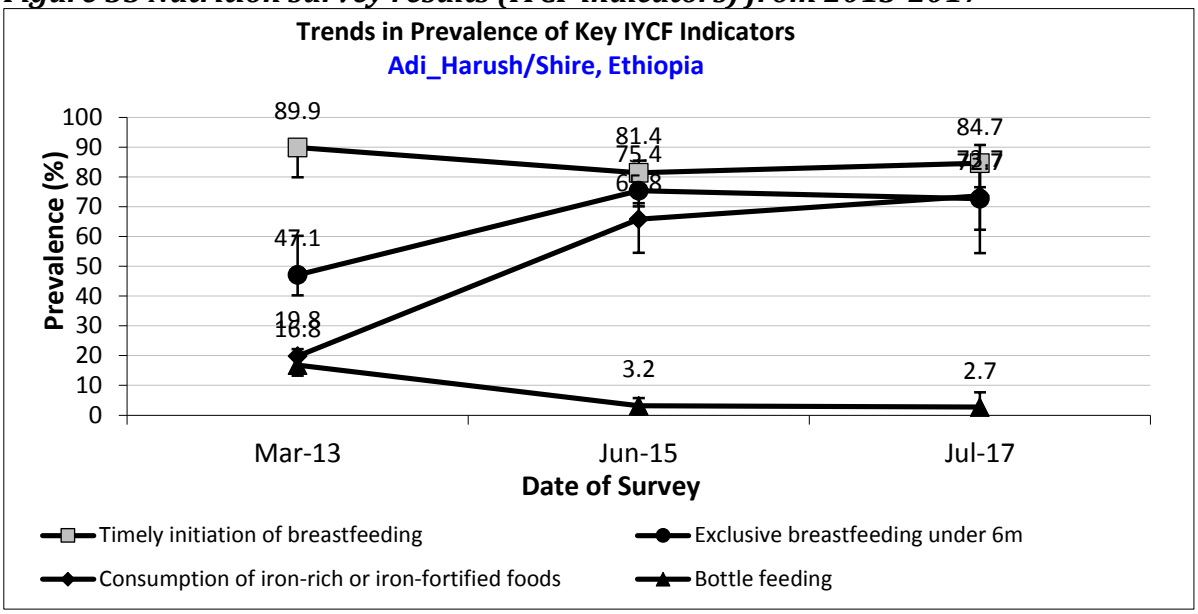
Table 77: Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range	No./ total	Prevalence (%) & 95% CI
Timely initiation of breastfeeding	0-23 months	94/111	84.7% (76.6-90.8%)
Exclusive breastfeeding under 6 months	0-5 months	24/33	72.7% (54.5-86.7%)
Continued breastfeeding at 1 year	12-15 months	17/17	100.0%
Continued breastfeeding at 2 years	20-23 months	4/8	50% (15.7-84.3%)
Introduction of solid, semi-solid or soft foods	6-8 months	6/13	46.2% (19.2-74.9%)
Consumption of iron-rich or iron-fortified foods	6-23 months	56/76	73.7% (62.3-83.1%)
Bottle feeding	0-23 months	3/111	2.7% (0.6-7.7%)

More than three fourth (84.7% (76.6-90.8, 95% C.I) of children below 2 years had been introduced to breast milk within an hour of birth (Table 74). The exclusive breastfeeding prevalence was 72.7% (54.5-86.7, 95% C.I). All of (100%) the sampled children were still breastfeeding at 1 year, whilst about only 50% were still breastfeeding at 2 years. About 46.2% (19.2-74.9%) of 6-8 months children had been introduced to solid foods. The proportion of children who were bottle fed the day before the survey were 2.7% (0.6-7.7, 95% C.I). The 2017 findings have shown an increasing trend in some of the key IYCF indicators and there has been improvement in bottle feeding prevalence (Figure 35).

Note that when IYCF indicators are collected in nutritional surveys based on anthropometric sample of children aged 0-59 months, it is not feasible to achieve a large enough sample size for some of the indicators to be estimated as precisely as desired, especially for indicators covering a very narrow age range (e.g. 12-15 months, 6-8 months). Hence, IYCF indicators need to be interpreted with care.

Figure 35 Nutrition survey results (IYCF indicators) from 2013-2017



4.2.9. Prevalence of intake ANALYSIS

Infant formula

INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS, ADI_HARUSH

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	13/111	11.7% (6.4-19.2%)

CSB+ INTAKE FROM ANY SOURCE IN CHILDREN AGED 6-23 MONTHS

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	18/77	23.4% (14.5-34.4%)

CSB ++ INTAKE IN CHILDREN AGED 6-23 MONTHS _ADI_HARUSH

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	50/78	64.1% (52.4-74.7%)

4.2.10. Women 15-49 years

Table 78: Women physiological status and age, Adi_Harush

Physiological status	Number/total	% of sample
Non-pregnant	268/285	94.0%, (90.6-96.5%)
Pregnant	17/285	6.0%, (3.6- 8.5%)
Mean age (range)	**24.7year**	**Range: 15- 48 years**

Of the sampled women aged 15-49 years in the survey, 6.0% were pregnant. The mean age of women was 24.7 years (Table 75).

Table 79: Prevalence of anaemia and Hb concentration women (15-49 yrs)

Anaemia in non-pregnant women of reproductive age (15-49 years)	All (95% CI) n = 264
Total Anaemia (<12.0 g/dL)	(25) 9.5% (6.2-13.7%)
Mild Anaemia (11.0-11.9 g/dL)	(9) 3.4% (1.6-6.4%)
Moderate Anaemia (8.0-10.9 g/dL)	(14) 5.3% (2.9-8.7%)
Severe Anaemia (<8.0 g/dL)	(2) 0.8% (0.1-2.7%)
Mean Hb (g/dL)	13.98 g/dL and (2.1 SD) [min 8.8 to max 22.0 g/dL]

The prevalence of anaemia among non-pregnant women was 9.5% (6.2-13.7, 95% C.I).

Figure 36: Anaemia categories in 15 – 49yrs women from 2013-2017

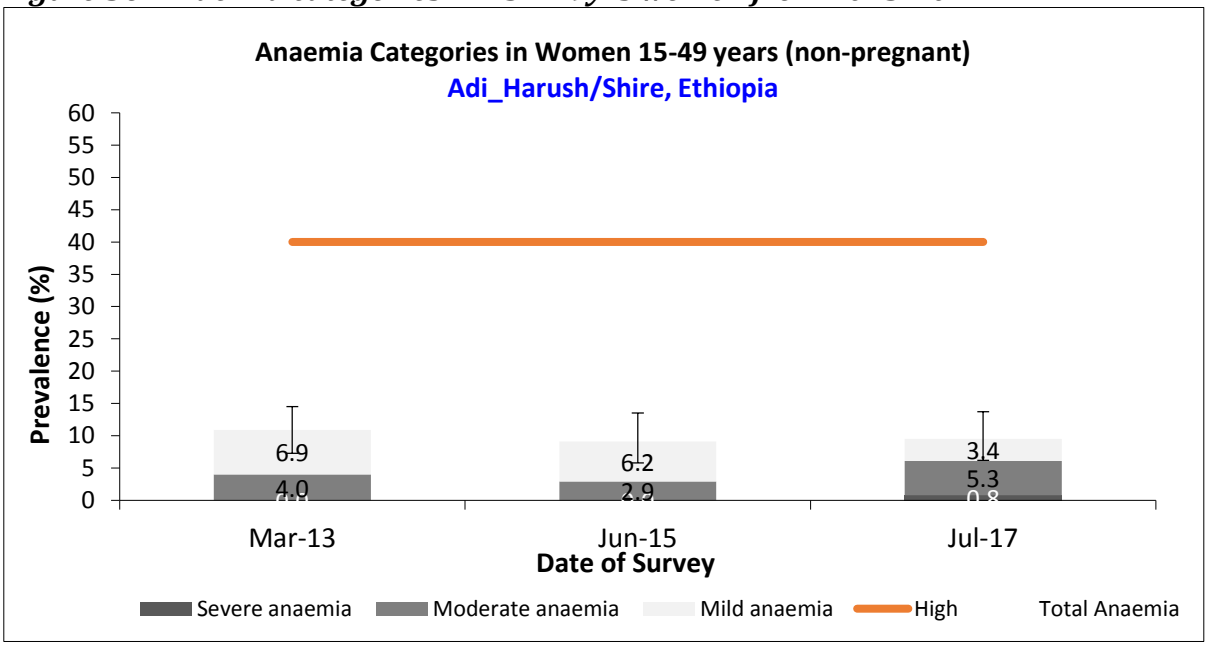


Figure 37: Mean Hb concentration in women age 15 – 49yrs from 2013-2017

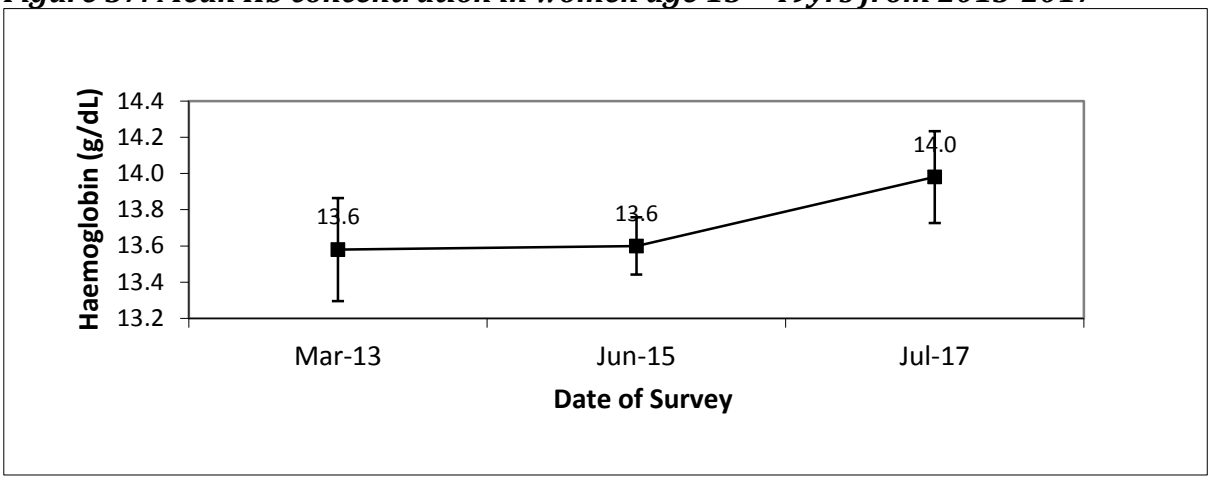


Table 80: ANC enrolment and iron-folic acid coverage among pregnant women

	Number /total	% (95% CI)
Currently enrolled in ANC programme	15/16	93.8% (69.8-99.8%)
Currently receiving iron-folic acid pills	6/16	37.5% (15.2-64.6%)

Below half of pregnant women enrolled in ANC had received iron-folic pills

4.2.11. Food security

Table 81: Ration card coverage

	Number/total	% (95% CI)
Proportion of households with a ration card	243/246	98.8% (96.5-99.7%)

Almost all of the sampled households did have a ration card

Table 82: Reported duration of general food ration 1

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
23.7 days out of 30	79.0%

Table 83: Reported duration of general food ration 2

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	216/230	93.9% (90.0-96.6%)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle (30 days)	4/230	1.7% (0.5-4.4%)

>75% of the cycle (30 days)	226/2330	98.3% (95.6-99.5%)

Negative coping strategies results

Table 84: Coping strategies used by the surveyed population over the past month

	Number/total	**% (95% CI)**
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items *with or without interest*	125/229	54.6% (47.9-61.2%)
Sold any assets (furniture, seed stocks, tools, other NFI, livestock etc.)	27/246	11.0% (84.4-92.6%)
Requested increase remittances or gifts as compared to normal	18/245	7.3% (4.4-11.4%)
Reduced the quantity and/or frequency of meals	98/245	40.0% (33.8-46.4%)
Begged	14/244	5.7% (3.2-9.4%)
Engaged in potentially risky or harmful activities (list activities)	6/245	2.4% (0.9-5.3%)
Proportion of households reporting using none of the coping strategies over the past month	78/239	32.6% (26.7-39.0%)

***** The total will be over 100% as households may use several negative coping strategies.

The most important coping strategy that was reported to be used to fill the food gap was borrowing and reducing meal quantity and frequency (table 81).

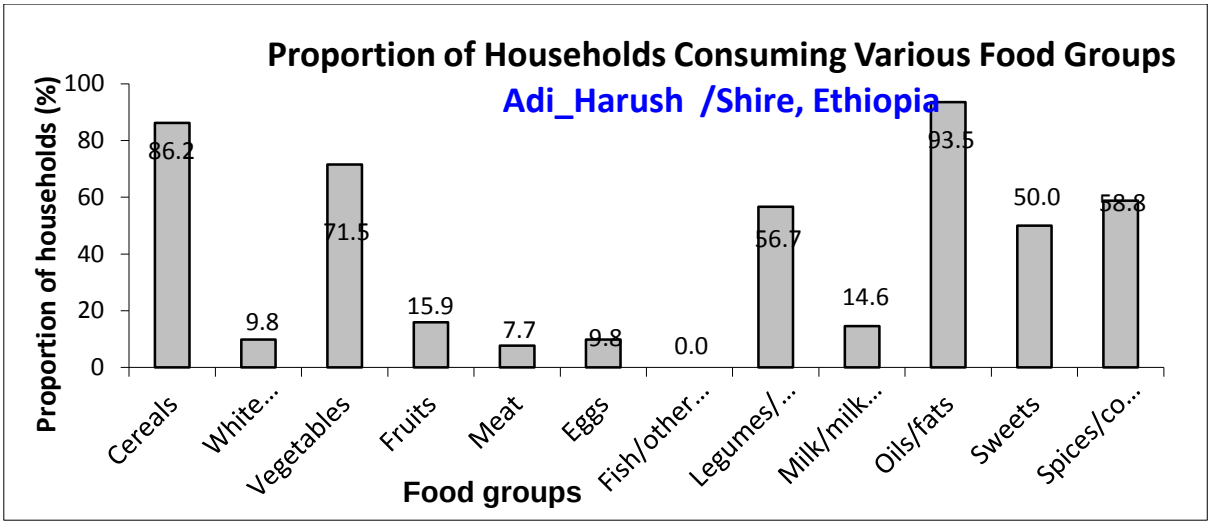
Household dietary diversity results

The general food distribution usually lasts more than one day and may be organized by family size, hence the surveyed households will be at different times of the cycle which may have an impact on the HDDS results and this needs to be considered in interpreting the data.

Table 85: Average HDDS

Average HDDS	4.91 (1.9 SD)

Figure 38: Prop of households consuming different food groups within last 24 hours



The most food items reported to have been consumed in the last 24 hours were oils/fats (93.5%), cereal, (86.2%), vegetables (71.5%), Fish, eggs consumption is low.

Table 86: Consumption of food rich of macro and micronutrients

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	58/246	23.6% (18.4-29.4%
Proportion of households consuming either a plant or animal source of vitamin A	92/242	38.0% (31.9-44.5%)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	19/246	7.7% (4.7-11.8%)

4.2.12. WASH

Table 87: Water Quality

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	244/246	99.2% (97.1-99.9%)
Proportion of households that use a covered or narrow necked container for storing their drinking water	119/246	48.4% (42.0-54.8%)

48.4% (42.0-54.8%, 95% CI) reported to have covered or narrow necked drinking water storage containers and 99.2% had improved drinking water source.

Table 88: Amount of litres of water used per person per day

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	79/246	32.1% (26.3-38.3%)

15 – <20 lpppd	35/246	14.2% (10.1-19.2%)
<15 lpppd	132/246	53.7% (47.2-60.0%)
An average water usage in lpppd	16.5 lpppd	

53.7% (47.2-60.0%) reported to be receiving <15lpppd.

Table 89: Satisfaction with water supply

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	156/245	63.4% (57.1-69.4%)

About 63.4% of the sampled household reported that they are satisfied with the drinking water supply. 22.8% were not satisfied with the drinking water supply (Figure 39), whereas 57.6% (39.2-74.5%) reported that the drinking water supply was not enough.

Figure 39: Prop of households that say they are satisfied with the water supply

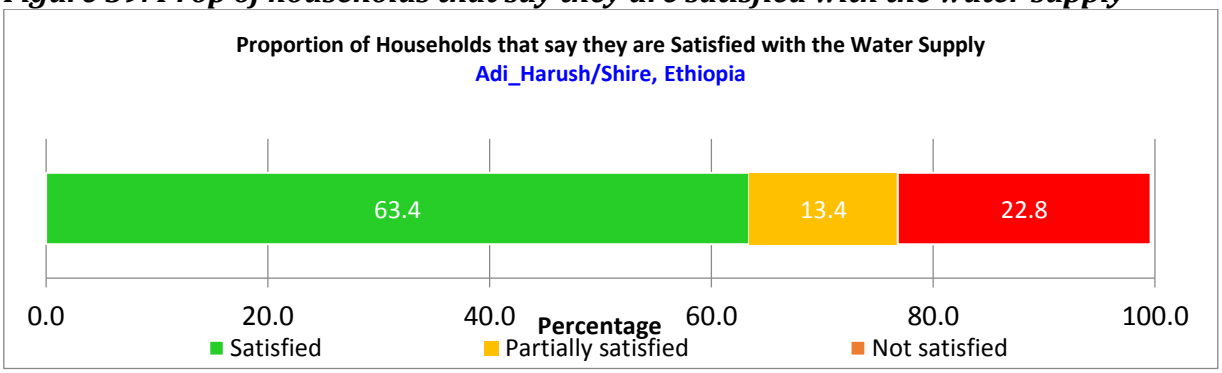


Table 90: Safe Excreta disposal

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, not shared)	70/243	28.8% (23.2-34.9%)
A shared family toilet (improved toilet facility, 2 HH only)	62/243	25.5% (20.2-31.5%)
A communal toilet (improved toilet facility, 3 HH or more)	38/243	15.6% (11.3-20.8%)
An unimproved toilet (unimproved toilet facility or public toilet)	73/243	30.0% (24.3-36.2%)
Proportion of households with children under three years old that dispose of faeces safely.	63/85	74.1% (63.5-83.0%)

Percentages of the beneficieries that were using improved toilet which are not shared was 28.8% (23.2-34.9%, 95% CI) whereas 30.0% (24.3-36.2%) were using unimproved toilet facilities (table 87). Further anlaysis showed 74.1% of households surveyed with children less than three years of age had their last stools disposed safely (figure 40) and 25.9% had their stools disposed of unsafely (figure 41) .

Figure 40: Prop of households with <3 yrs children whose stools were disposed of safely

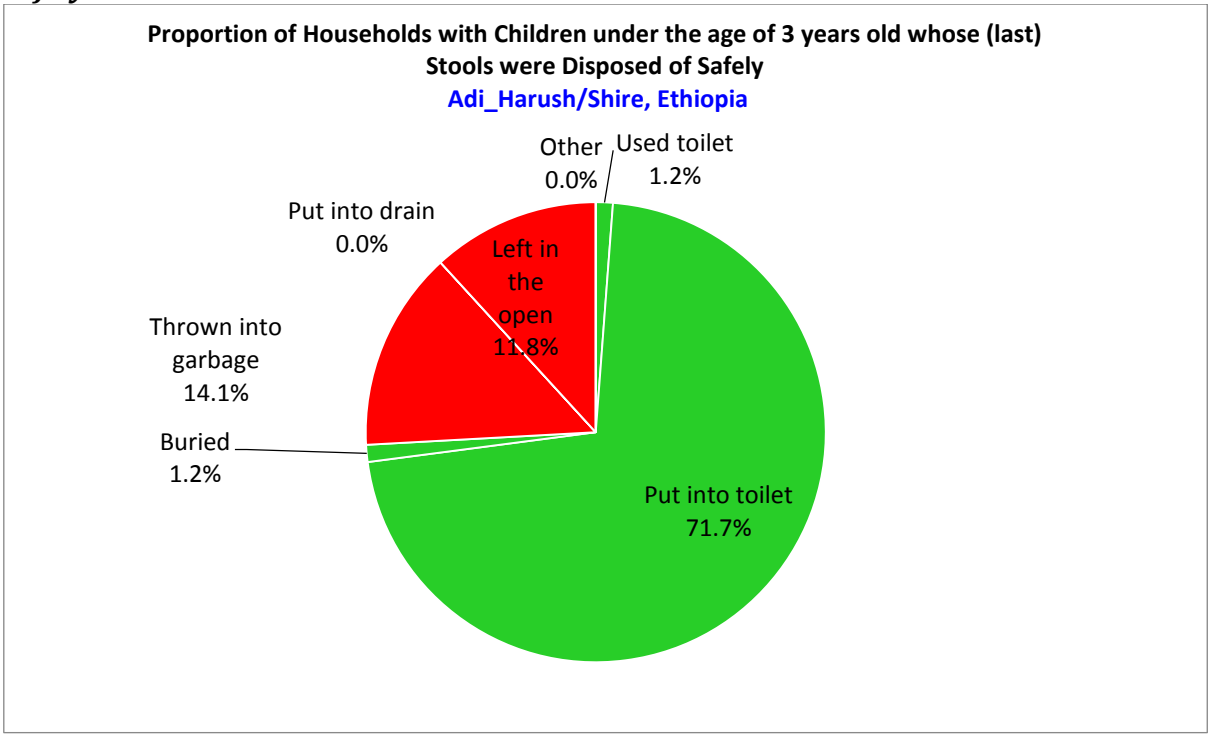
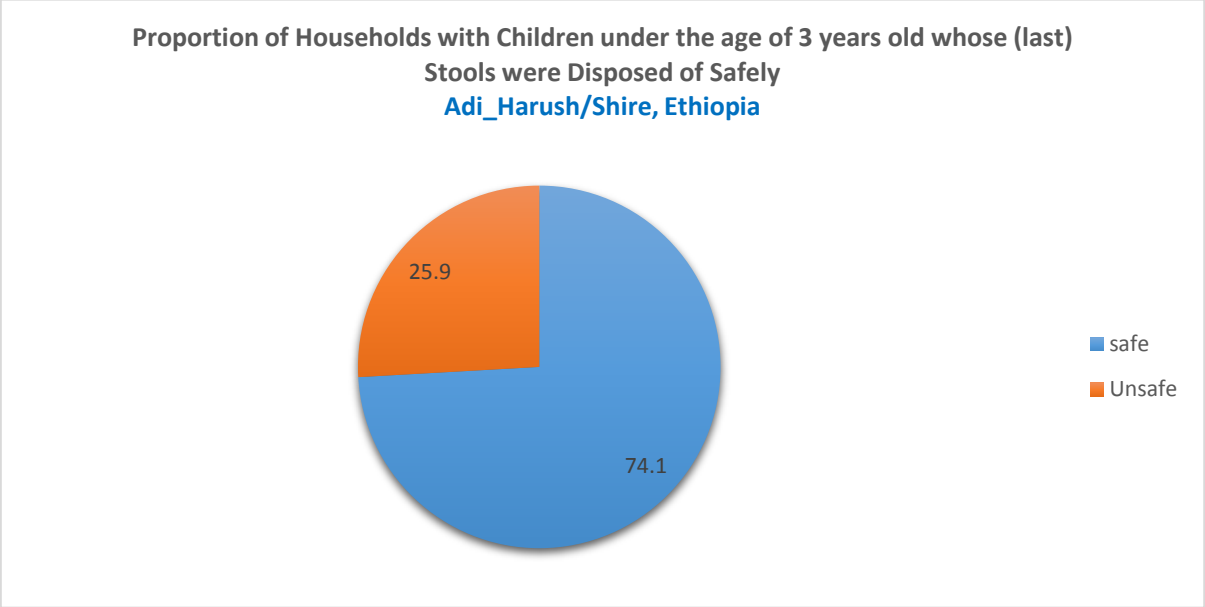


Figure 41: Prop of households with <3yrs children whose faeces were dispose of safely



4.2.13. Mosquito Net Coverage

Table 91: Household Mosquito net ownership

	Number/total	% (95% CI)
Proportion of households owning at least one mosquito net of any type	171/245	69.8% (63.6-75.5%)
Proportion of households owning at least one LLIN	152/245	62.0% (55.6-68.1%)

69.8% (63.6-75.5%) of the surveyed households reported to have a mosquito net, out of which 62.0% (55.6-68.1%), 95% CI) reported to own long lasting insecticide net (LLIN) (Table 88 and figure 42).

Figure 42 Household ownership of at least one mosquito net.

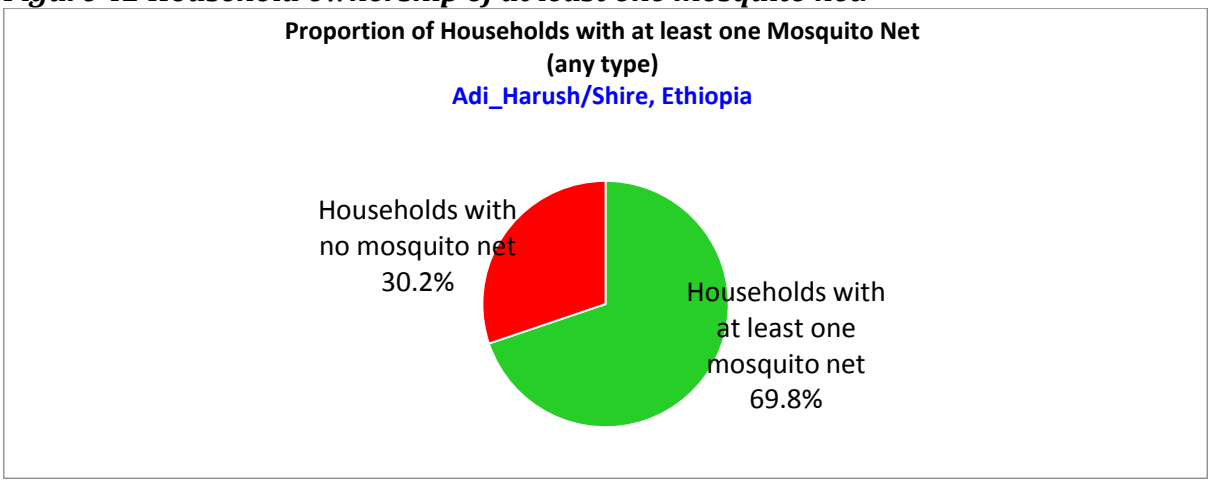


Figure 43 Household ownership of at least one LLIN

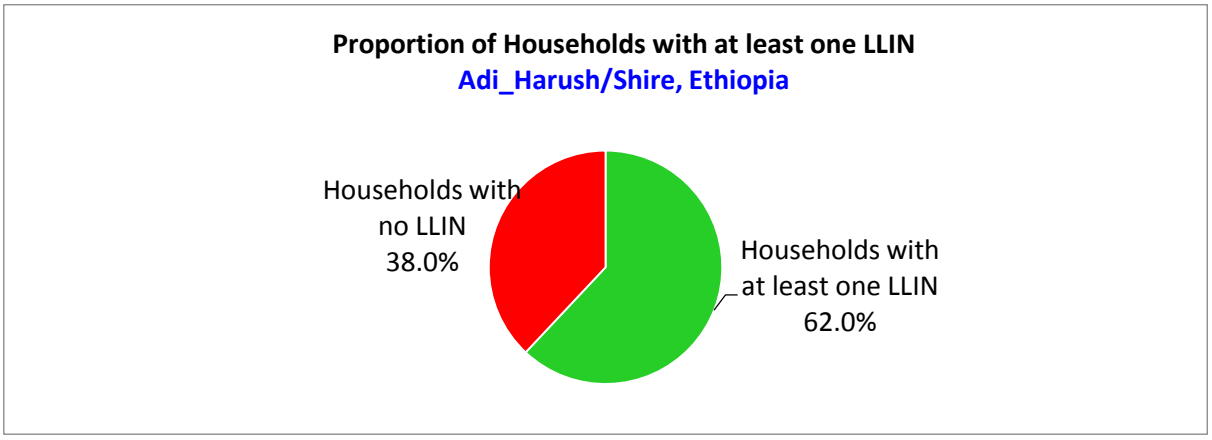


Table 92: Number of nets

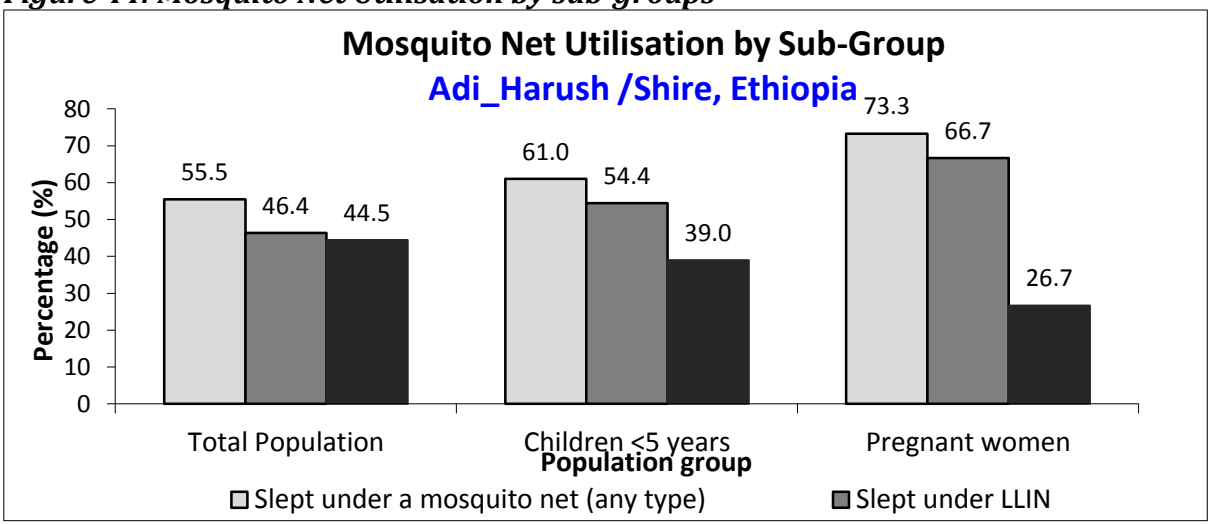
Average number of LLINs per household	Average number of persons per LLIN
1.35	4.59

Table 93: Mosquito net Utilisation

	Total population (all ages)		0-59 months		Pregnant	
	Total No=1060	%	Total No=228	%	Total No=15	%
Slept under net of any type	588	55.5%	139	61.0%	11	73.3 %
Slept under LLIN	492	46.4%	124	54.4%	10	66.7 %

Below half of the surveyed population slept under an LLIN mosquito net. Use of LLIN mosquito nets was higher pregnant women in comparison to use Children <5.

Figure 44: Mosquito Net Utilisation by sub-groups



4.3. RESULTS SHIMELBA CAMP

Table 94 Demographic characteristics of the study population in Shimelba

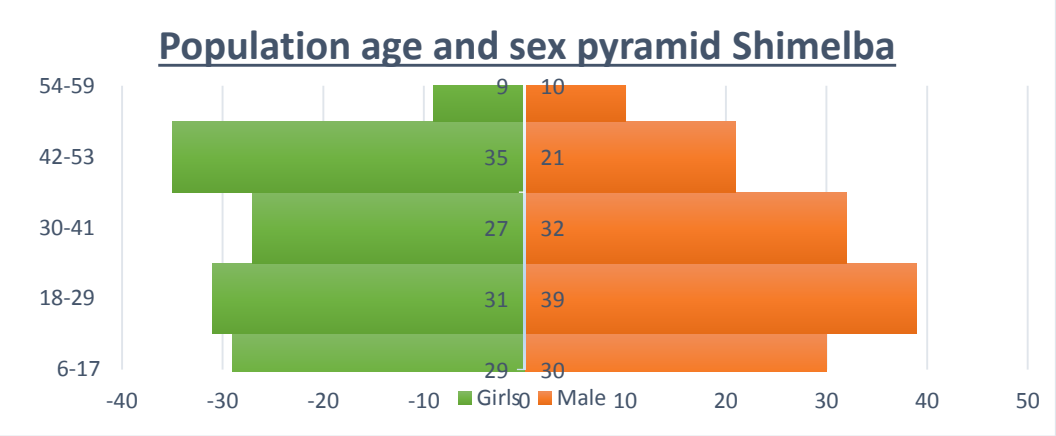
Total HHs surveyed	701
Total population surveyed	2244
Total U5 surveyed	300
Average HH size	3.2
% of U5	13.4%

Table 95 Distribution of age and sex of sample, Shimelba

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:girl**
6-17	30	50.8	29	49.2	59	22.4	1.0
18-29	39	55.7	31	44.3	70	26.6	1.3
30-41	32	54.2	27	45.8	59	22.4	1.2
42-53	21	37.5	35	62.5	56	21.3	0.6
54-59	10	52.6	9	47.4	19	7.2	1.1
Total	132	50.2	131	49.8	263	100.0	1.0

The overall sex ratio was 1.0 which means equal distribution, it show normal trends and that there was no selection bias.

Figure 45: Population age and sex pyramid,



4.3.1. Anthropometric results (based on WHO Growth Standards 2006)

Anthropometric results were analysed and presented based on WHO Growth Standards and excluding z-scores from Observed mean (SMART flags): WHZ -3 to 3; HAZ -3 to 3; WAZ -3 to 3.

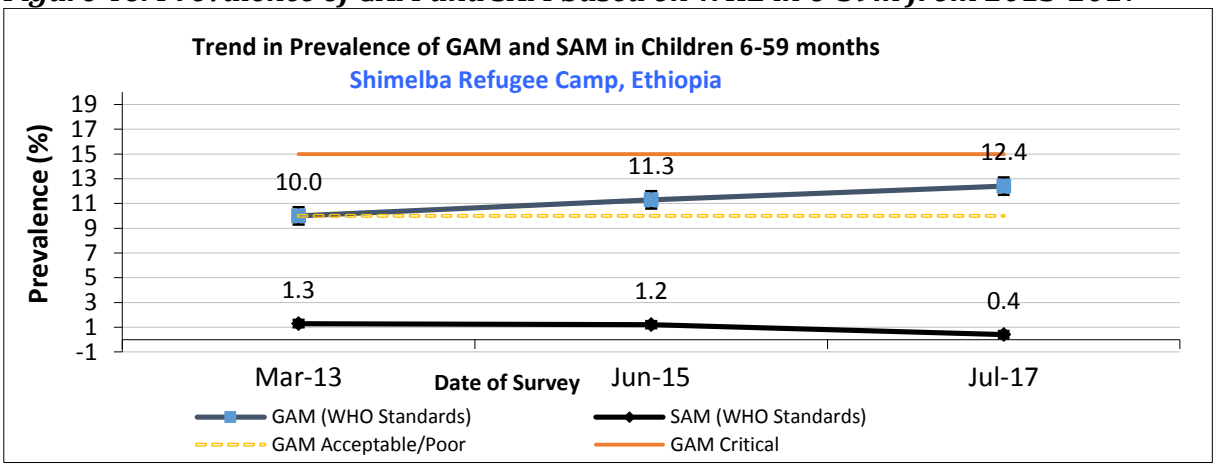
Table 96: Prevalence of acute malnutrition based on WHZ (and/or oedema) and by sex

Indicator	95% C.I.		
	All n = 259	**Boys** n = 130	**Girls** n = 129
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(32) 12.4 % (8.9 - 16.9)	(16) 12.3 % (7.7 - 19.1)	(16) 12.4 % (7.8 - 19.2)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(31) 12.0 % (8.6 - 16.5)	(15) 11.5 % (7.1 - 18.2)	(16) 12.4 % (7.8 - 19.2)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.4 % (0.1 - 2.2)	(1) 0.8 % (0.1 - 4.2)	(0) 0.0 % (0.0 - 2.9)

The prevalence of oedema was 0.0 %

There was no significant difference seen between Boys and Girls on the prevalence of global acute malnutrition.

Figure 46: Prevalence of GAM and SAM based on WHZ in 6-59m from 2013-2017



The trends shows minor increasing trend over the years in the prevalence of global acute malnutrition, while reduction in SAM prevalence.

Table 97: Prevalence of acute malnutrition by age, based on WHZ and/or oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	58	0	0.0	5	8.6	53	91.4	0	0.0
18-29	68	0	0.0	10	14.7	58	85.3	0	0.0
30-41	58	1	1.7	6	10.3	51	87.9	0	0.0
42-53	56	0	0.0	4	7.1	52	92.9	0	0.0
54-59	19	0	0.0	6	31.6	13	68.4	0	0.0
Total	259	1	0.4	31	12.0	227	87.6	0	0.0

Figure 47: Trends in the prevalence of wasting by age in children 6-59 months

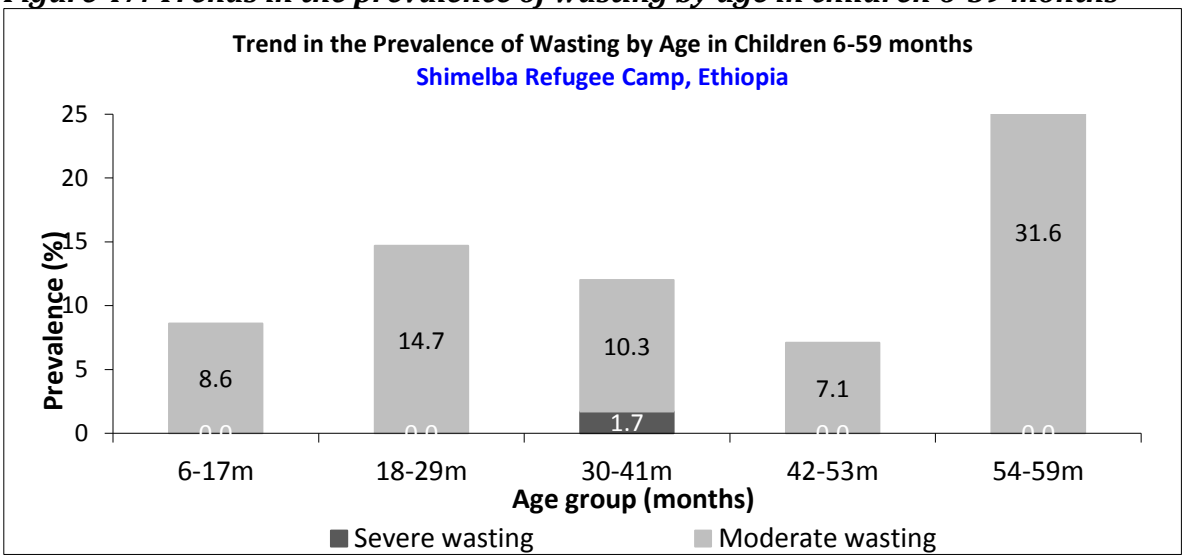


Table 98: Distribution of SAM and oedema based on weight-for-height z-scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 2 (0.8 %)	Not severely malnourished No. 261 (99.2 %)

Figure 48: Distribution of weight-for-height z-scores (based on WHO Growth Standards.

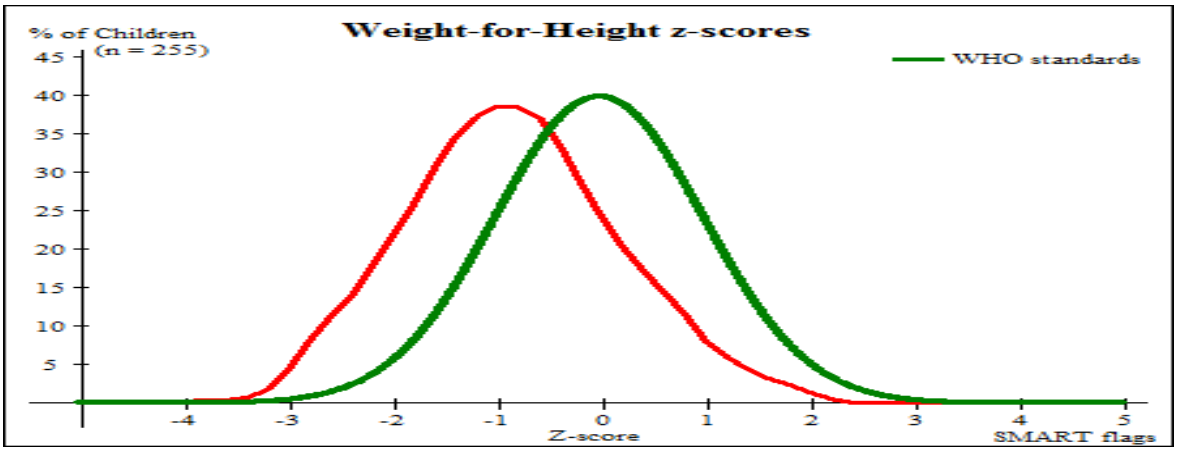


Figure 48 is a comparison of the surveyed and reference weight-for-height z-score (WHZ) distribution. The survey distribution (in red) followed a normal distribution and was shifted to the left of the WHO reference, showing an average lower z-scores, and therefore high malnutrition.

Table 99: Prevalence of acute malnutrition based on MUAC (and/or oedema) and by sex

Indicator	95% C.I.		
	All n = 263	**Boys** n = 132	**Girls** n = 131
Prevalence of global malnutrition (< 125 mm and/or oedema)	(6) 2.3 % (1.0 - 4.9)	(2) 1.5 % (0.4 - 5.4)	(4) 3.1 % (1.2 - 7.6)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(4) 1.5 % (0.6 - 3.8)	(1) 0.8 % (0.1 - 4.2)	(3) 2.3 % (0.8 - 6.5)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.8 % (0.2 - 2.7)	(1) 0.8 % (0.1 - 4.2)	(1) 0.8 % (0.1 - 4.2)

Table 100: Prevalence of acute malnutrition by age, based on MUAC and/or oedema

Age (mo)	Total no.	Severe wasting (< 115 mm)		Moderate wasting (>= 115 and < 125 mm)		Normal (> = 125 mm)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	59	1	1.7	3	5.1	55	93.2	0	0.0
18-29	70	0	0.0	1	1.4	69	98.6	0	0.0
30-41	59	0	0.0	0	0.0	59	100.0	0	0.0
42-53	56	1	1.8	0	0.0	55	98.2	0	0.0
54-59	19	0	0.0	0	0.0	19	100.0	0	0.0
Total	263	2	0.8	4	1.5	257	97.7	0	0.0

Table 101: Prevalence of underweight based on weight-for-age z-scores by sex

	95% C.I.		
	All n = 262	**Boys** n = 131	**Girls** n = 131
Prevalence of underweight (<-2 z-score)	(65) 24.8 % (20.0 - 30.4)	(35) 26.7 % (19.9 - 34.9)	(30) 22.9 % (16.5 - 30.8)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(53) 20.2 % (15.8 - 25.5)	(28) 21.4 % (15.2 - 29.2)	(25) 19.1 % (13.3 - 26.7)
Prevalence of severe underweight (<-3 z-score)	(12) 4.6 % (2.6 - 7.8)	(7) 5.3 % (2.6 - 10.6)	(5) 3.8 % (1.6 - 8.6)

Table 102: Prevalence of underweight by age, based on weight-for-age z-scores

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 & <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	58	1	1.7	7	12.1	50	86.2	0	0.0
18-29	70	4	5.7	18	25.7	48	68.6	0	0.0
30-41	59	4	6.8	10	16.9	45	76.3	0	0.0
42-53	56	1	1.8	12	21.4	43	76.8	0	0.0
54-59	19	2	10.5	6	31.6	11	57.9	0	0.0
Total	262	12	4.6	53	20.2	197	75.2	0	0.0

Table 103: Prevalence of stunting based on height-for-age z-scores and by sex

	95% C.I.		
	All n = 260	Boys n = 130	Girls n = 130
Prevalence of stunting (<-2 z-score)	(78) 30.0 % (24.8 - 35.8)	(44) 33.8 % (26.3 - 42.3)	(34) 26.2 % (19.4 - 34.3)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(64) 24.6 % (19.8 - 30.2)	(37) 28.5 % (21.4 - 36.7)	(27) 20.8 % (14.7 - 28.5)
Prevalence of severe stunting (<-3 z-score)	(14) 5.4 % (3.2 - 8.8)	(7) 5.4 % (2.6 - 10.7)	(7) 5.4 % (2.6 - 10.7)

Table 104: Prevalence of stunting by age based on height-for-age z-scores

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	58	2	3.4	11	19.0	45	77.6
18-29	69	4	5.8	21	30.4	44	63.8
30-41	58	5	8.6	12	20.7	41	70.7
42-53	56	3	5.4	14	25.0	39	69.6
54-59	19	0	0.0	6	31.6	13	68.4
Total	260	14	5.4	64	24.6	182	70.0

Children under 30 months of age appear to be more affected by stunting than the older ones.

Figure 49 Trends in the prevalence of stunting by age in children 6-59 months

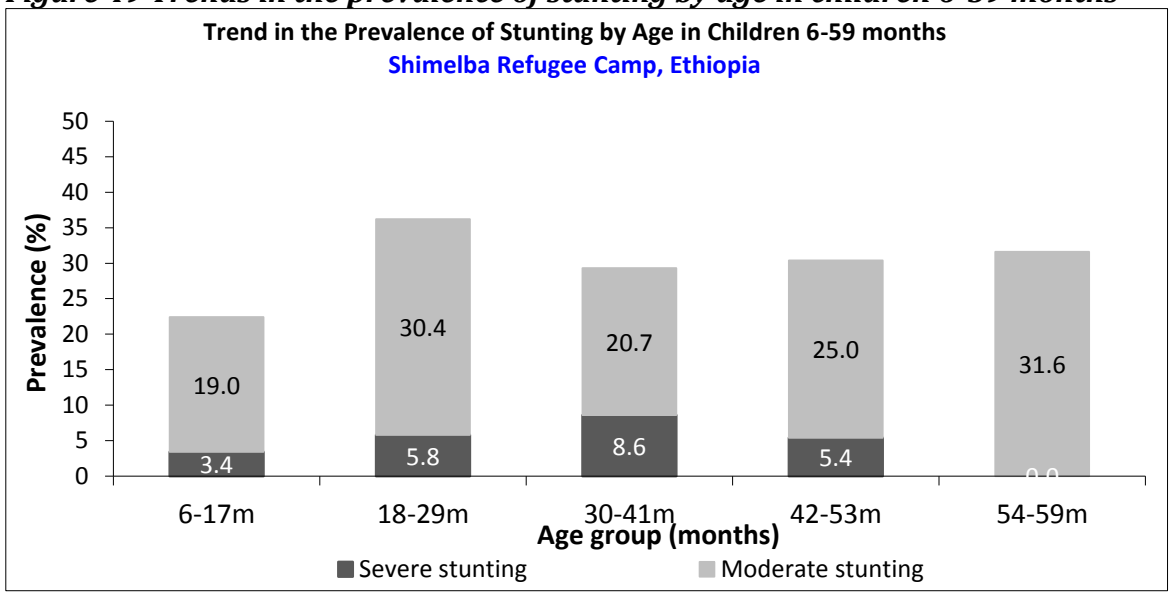


Figure 50: Distribution of height-for-age z-scores (based on WHO Growth Standards)

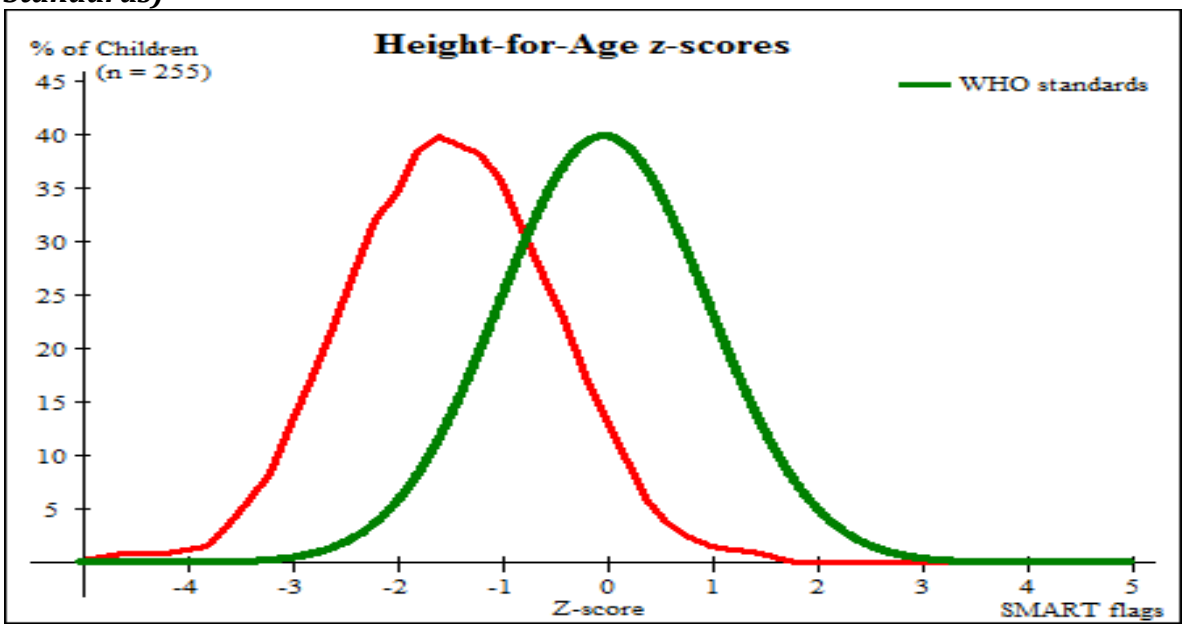


Table 105: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	259	-0.85±0.99	1.00	0	4
Weight-for-Age	262	-1.40±0.94	1.00	0	1
Height-for-Age	260	-1.50±0.95	1.00	0	3

* contains for WHZ and WAZ the children with oedema.

4.3.2. Mortality results

Table 106: Mortality rates

Crude Mortality Rate (CMR) total No. of death /10,000/day	0.38(0.07- 2.11%, 95% CI)
Under 5 Mortality (U5MR) total No. of death /10,000/day	0.10(0.03-0.36%, 95% CI)

CMR and U5MR was below the emergency threshold at acceptable levels.

4.3.3. Feeding programme coverage results

Table 107: Estimated programme coverage for acutely malnourished children

	Number/total	% (95% CI)
Supplementary feeding programme coverage (WHZ >=- 3 and WHZ<-2 OR MUAC>=115 mm and MUAC < 125 mm)	6/34	17.6% (6.8-34.5%)
Therapeutic feeding programme coverage (WHZ< - 3 OR MUAC< 115mm)	0/1	0.0%
Blanket Supplementary (WHZ>=- 2 OR MUAC>= 125)	77/89	86.5% (77.6-92.8%)

Estimated programme coverage for supplementary, therapeutic and blanket feeding programme was lower than expected standards for refugee settings (≥ 90%).

4.3.4. Measles vaccination coverage results

Table 108: Measles vaccination coverage for children aged 9-59 months (n= 254)

	Measles (with card) n=238	**Measles (with card or confirmation from mother) n=252**
YES	93.7% (90.0-96.4%)	99.2% (97.2-99.9%)

Total coverage of measles vaccination is in line with UNHCR standard which is above 95%).

4.3.5. Vitamin A supplementation coverage results

Table 109: Vitamin A sup in children aged 6-59 months within past 6 months (n=263)

	Vitamin A capsule (with card) n=241	Vitamin A capsule (with card or confirmation from mother) n=254
YES	91.6% (87.6-94.7%)	96.6% (93.6-98.4%)

Total coverage of Vitamin A supplementation with in the past 6 month's period the survey was in line with the UNHCR standards of above 90%.

Figure 51: Measles vaccination and Vit A supplementation in 6-59 months (2013-2017)

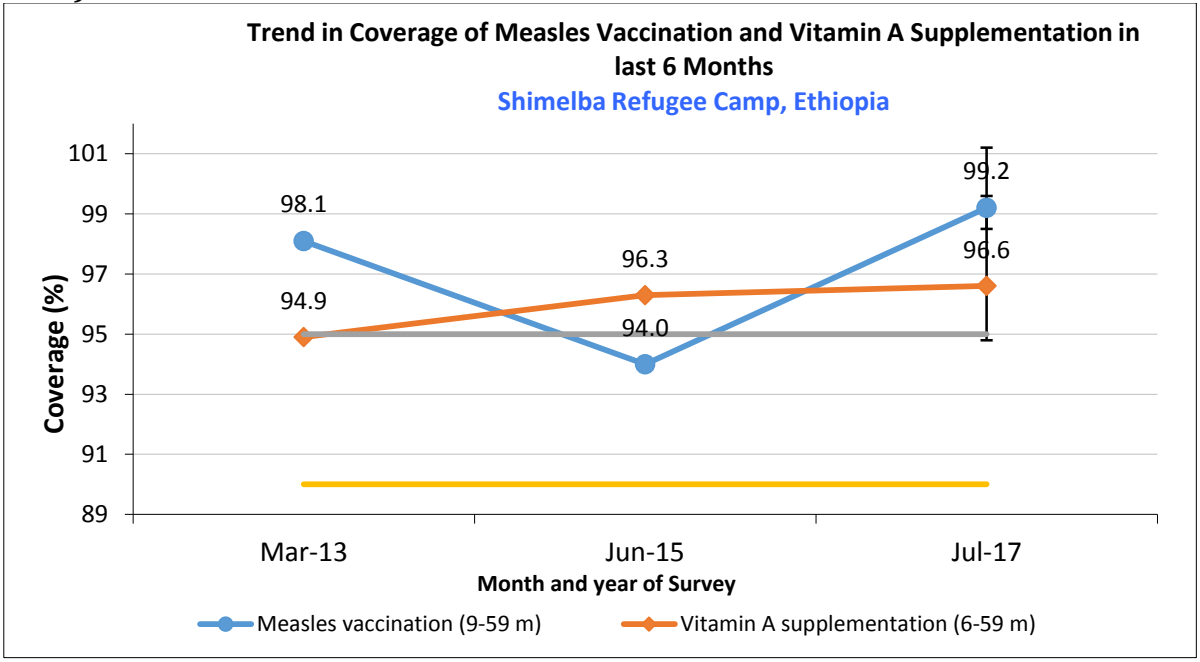


Table 110: Period prevalence of diarrhoea

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	31/263	11.8% (8.2-16.3%)

4.3.6. Anaemia results

Table 111: Prevalence of anaemia and Hb concentration in 6-59 months of age

Anaemia in Children 6-59 months	All N= 262
Total Anaemia (Hb<11.0 g/dL)	(n=65) 24.8% (19.7-30.5%)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(n=40) 15.3% (11.1-20.2%)
Moderate Anaemia (7.0-9.9 g/dL)	(n=25) 9.5% (6.3-13.8%)

Severe Anaemia (<7.0 g/dL)	0.0%
Mean Hb (g/dL)	11.6 g/dL and SD) 1.12 [min 7.2 to max 11.7]

Figure 52: Anaemia categories in children 6-59 months from 2011-2017

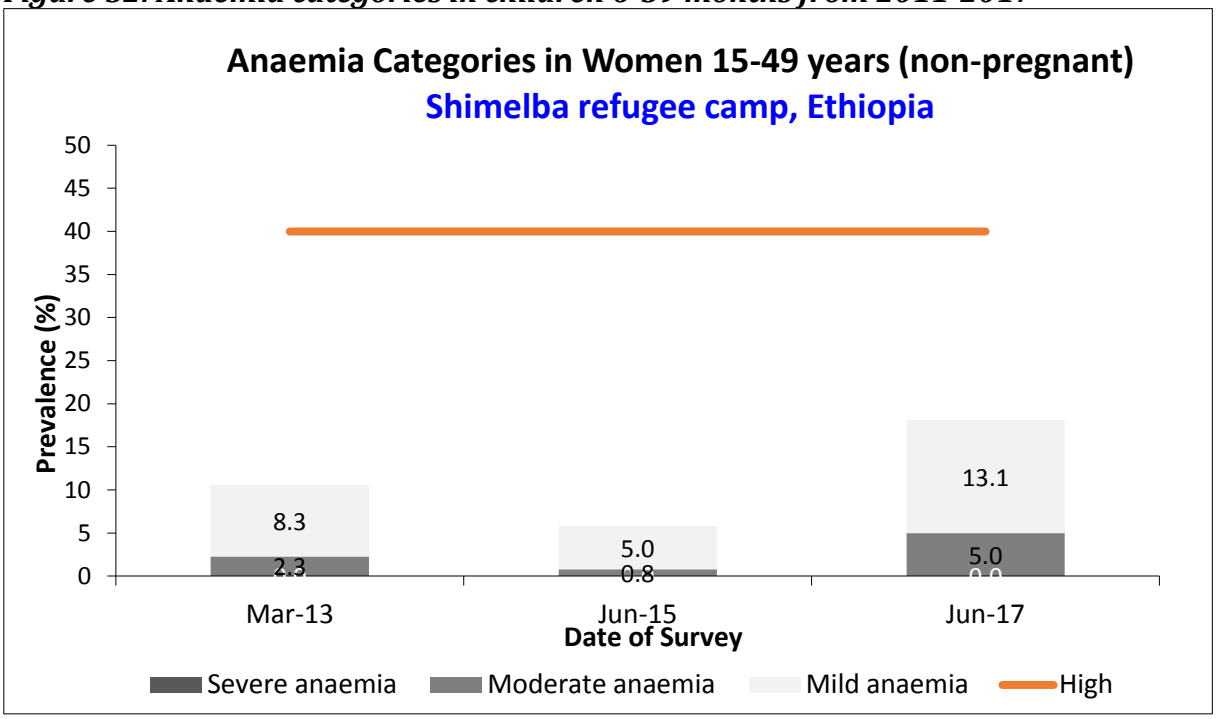


Figure 53: Mean Haemoglobin concentration in children 6-59 months from 2013-2017

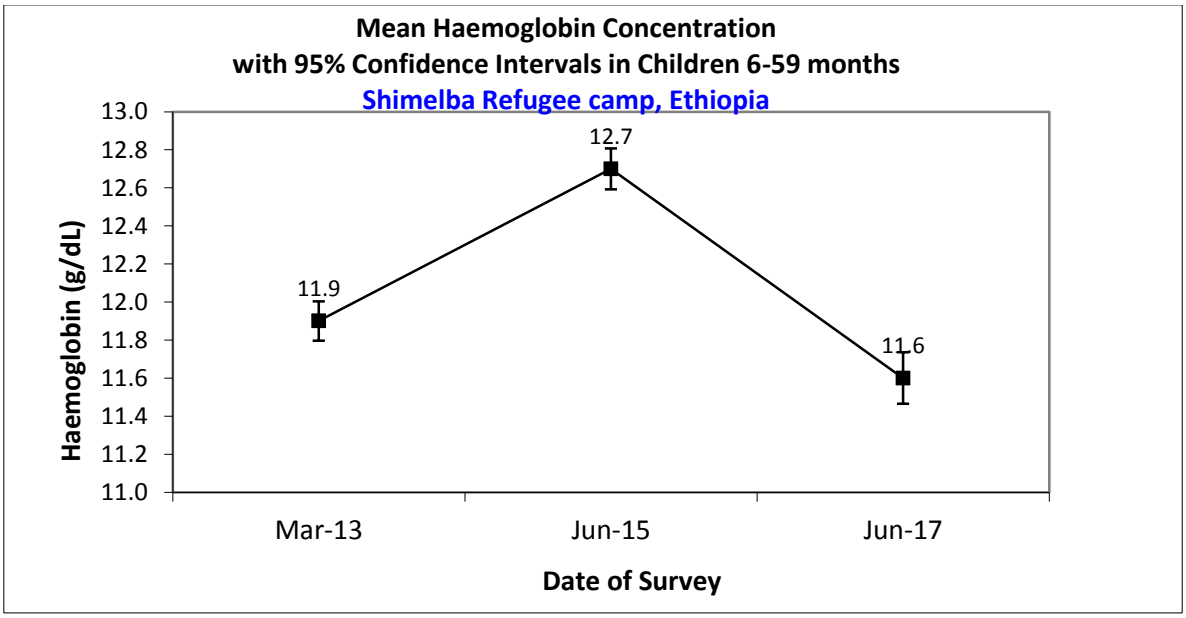


Table 112: Prevalence of anaemia by age

		g/dl

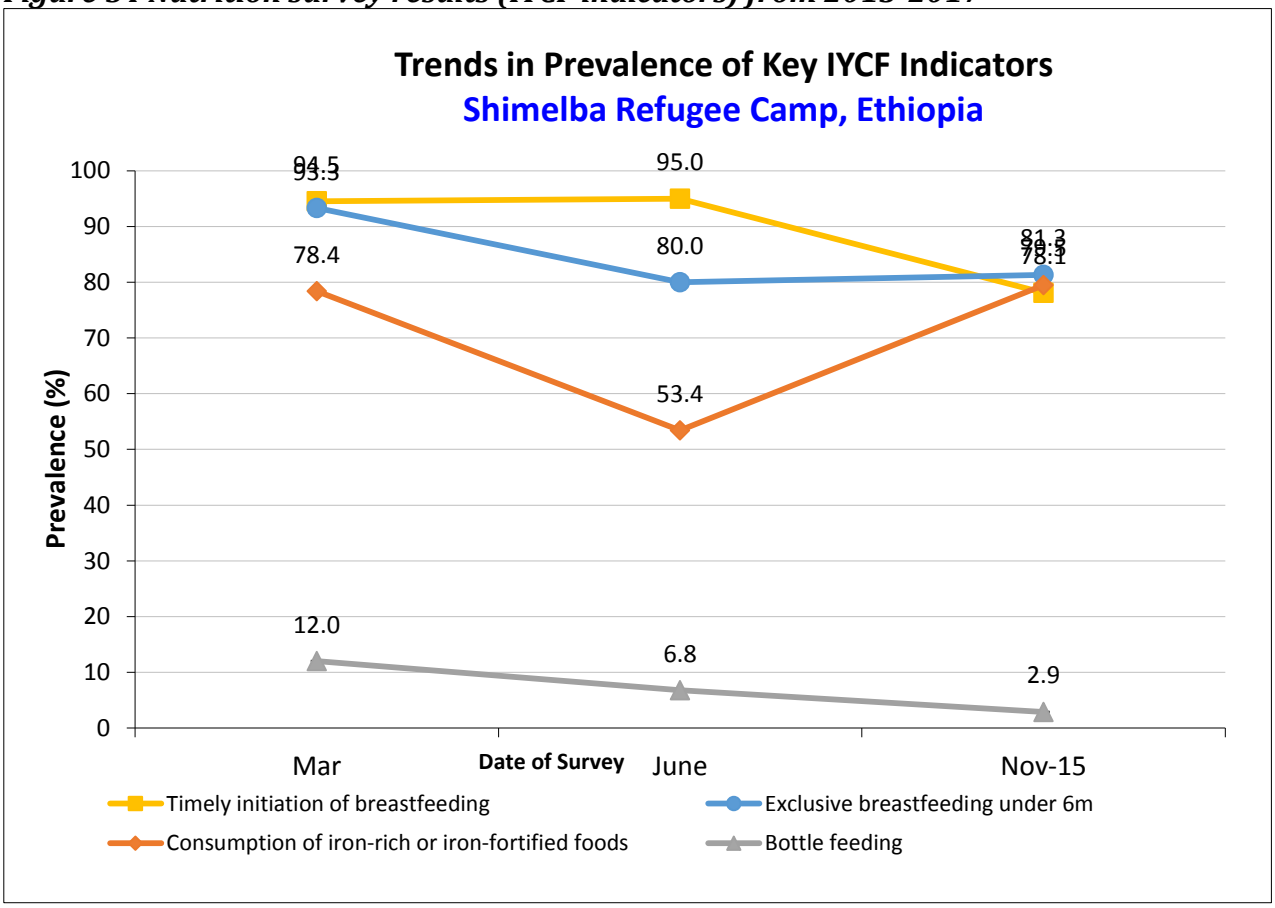
Age group	Total No.	Severe Anaemia (<7.0)		Moderate anaemia (7.0-9.9)		Mild Anaemia (10.0-10.9)		Total Anaemia (<11.0)		Normal (≥11.0)	
		no	%	no	%	no	%	no	%	no	%
6-23	89	0	0.0%	18	202.2% (12.4-30.1)	20	22.5% (14.3-32.6)	38	42.7% (32.3-53.6)	51	57.3% (46.4-67.7)
24-35	62	0	0.0%	4	6.5% (1.8-15.7)	9	14.5% (6.9-25.8)	13	21.0% (11.7-33.2)	49	79.0% (66.8-88.3)
36-59	111	0	0.0%	3	2.7% (0.6-7.7)	11	9.9% (5.1-17.0)	14	12.6% (7.1-20.3)	97	87.4% (79.7-92.9)
Total	262	0	0.0%	25	9.5% (6.3-13.8%)	40	15.3% (11.1-20.2%)	65	24.8% (19.7-30.5%)	197	75.2% (75.2% (69.5-80.3%)

4.3.7. Children 0-23 months

Table 113: Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range	No./ total	Prevalence (%) & 95% CI
Timely initiation of breastfeeding	0-23 months	82/105	78.1% (69.0-85.6%)
Exclusive breastfeeding under 6 months	0-5 months	13/16	81.3% (54.4-96.0%)
Continued breastfeeding at 1 year	12-15 months	29/29	100.0%
Continued breastfeeding at 2 years	20-23 months	17/24	70.8% (48.9-87.4%)
Introduction of solid, semi-solid or soft foods	6-8 months	5/9	55.6% (21.2-86.3%)
Consumption of iron-rich or iron-fortified foods	6-23 months	70 /88	79.5% (69.6-87.4%)
Bottle feeding	0-23 months	3/105	2.9% (0.6-8.1%)

Figure 54 Nutrition survey results (IYCF indicators) from 2013-2017



4.3.8. Prevalence of intake

Infant formula

TABLE: INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	5/105	4.8% (1.6-10.8%)

CSB+ FROM ANY SOURCE INTAKE IN CHILDREN AGED 6-23 MONTHS

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	12/90	13.3% (7.1-22.1%)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	57/89	64.0% (53.2-73.9%)

4.3.9. Women 15-49 years

Table 114: Women physiological status and age

Physiological status	Number/total	% of sample
Non-pregnant	221/240	92.1% (87.9-95.2%,95%CI)
Pregnant	19/240	7.9% (4.8-12.1%, 95%)
Mean age (range)	26.9 years	

Table 115: Prevalence of anaemia and Hb concentration in women (15-49 years)

Anaemia in non-pregnant women of reproductive age (15-49 years)	All	95% CI
Total Anaemia (<12.0 g/dL)	40/221	18.1% (13.3-23.8%)
Mild Anaemia (11.0-11.9 g/dL)	29/221	13.1% (9.0-18.3%)
Moderate Anaemia (8.0-10.9 g/dL)	11/221	5.0% (2.5-8.7%)
Severe Anaemia (<8.0 g/dL)	0/221	0.0%
Mean Hb (g/dL)	12.96 g/dL and (1.2 SD) [min 8.6-max 15.7]	

Figure 55: Anaemia categories in women of reproductive age from 2013-2017

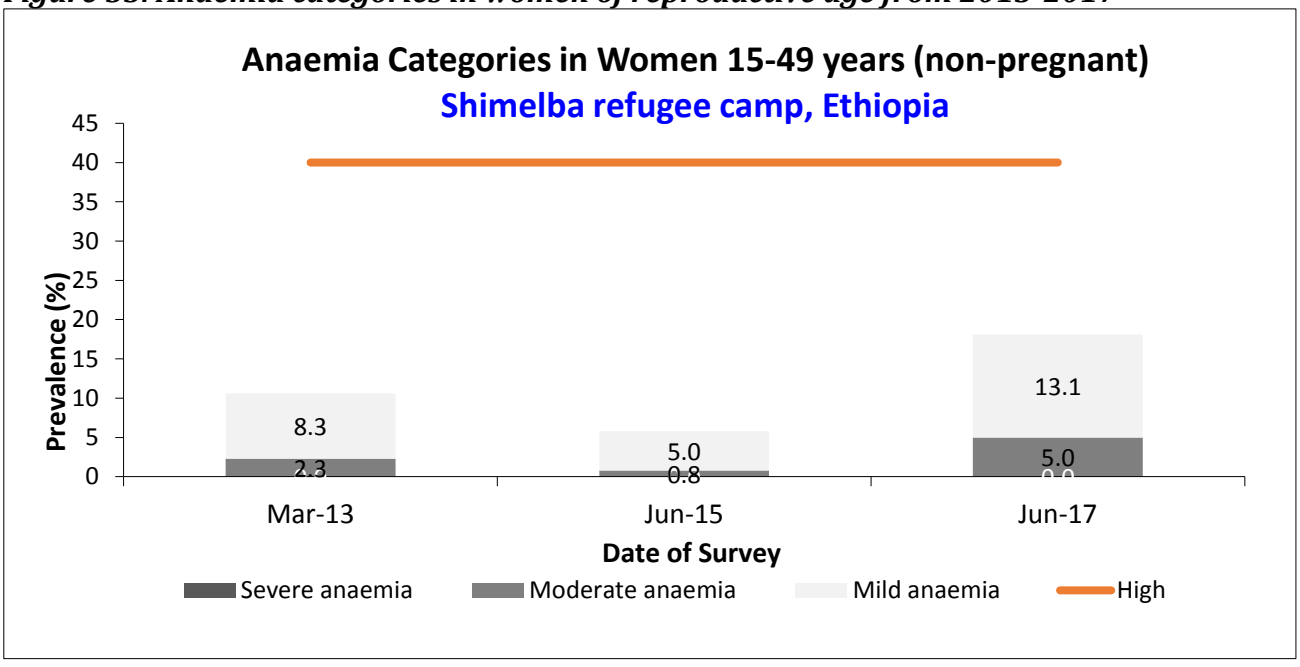


Figure 56: Mean Hb concentration in women of reproductive age from 2013-2017

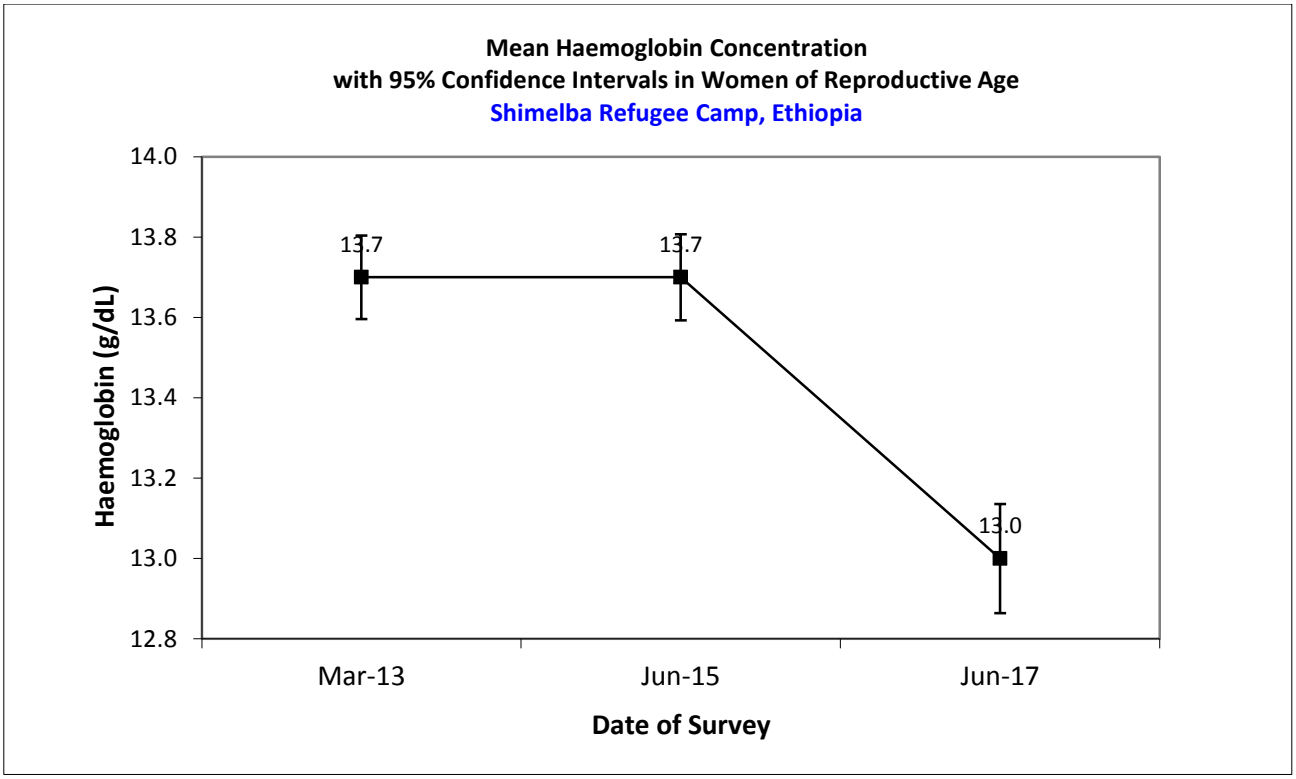


Table 116: ANC enrolment and iron-folic acid coverage among pregnant women

	Number /total	% (95% CI)
Currently enrolled in ANC programme	19/19	100.0%
Currently receiving iron-folic acid pills	10/19	52.6% (28.9-75.6%)

More than half of pregnant women enrolled in ANC had received iron-folic pills

4.3.10. Food security

Table 117: Ration card coverage

	Number/total	% (95% CI)
Proportion of households with a ration card	304/313	97.1% (94.4-98.6%)

A total of 9 households had no ration cards; five households saying were not eligible, three households living in the local community whereas one got lost as was not kept in the shelter scaring of one of the household member who was mentally retarded.

Table 118: Reported duration of general food ration 1

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
20.6 days out of 30 days	68.7%

Table 119: Reported duration of general food ration 2

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	254/304	83.6% (78.9-87.5%)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle (30 days)	12/304	3.9% (2.2-7.0%)
>75% of the cycle (30 days)	292/304	96.1% (93.0-97.8%)

Negative coping strategies results

Table 120: Coping strategies used by the surveyed population over the past month

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items	116/306	37.9% (32.4-43.6%)
Sold any assets (furniture, seed stocks, tools, other NFI, livestock etc.)	42/306	13.7% (10.2-18.2%)
Requested increase remittances or gifts as compared to normal	55/306	18.0% (13.9-22.8%)
Reduced the quantity and/or frequency of meals	141/305	46.2% (40.5-52.0%)
Begged	2/305	0.7% (0.1-2.6%)
Engaged in potentially risky or harmful activities (list activities)	47/299	15.7% (11.8-203%)
Proportion of households reporting using none of the coping strategies over the past month	65/299	21.7% (17.2-26.9%)

The most important coping strategy that was reported was borrowing and reducing meal quantity and frequency (table 117).

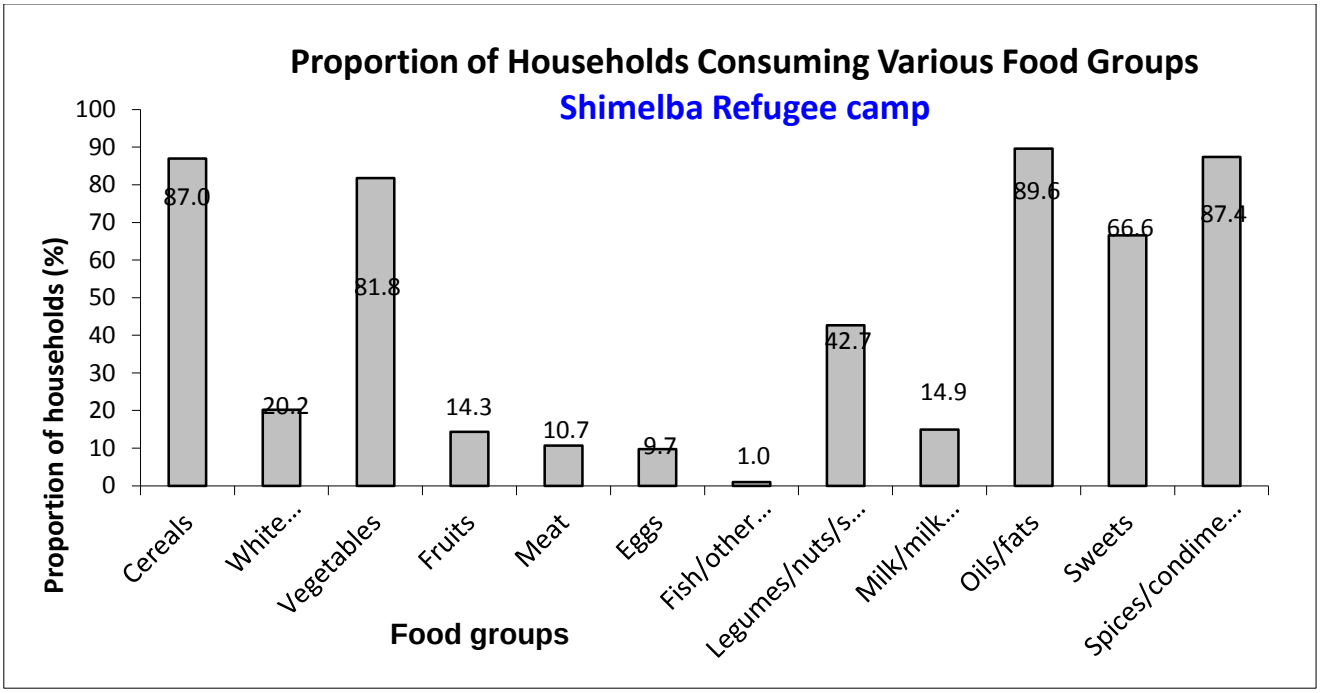
Household dietary diversity results

The general food distribution usually lasts more than one day and may be organized by family size, hence the surveyed households will be at different times of the cycle which may have an impact on the HDDS results and this needs to be considered in interpreting the data.

Table 121 Average HDDS

Average HDDS	5.23 (SD 1.8)

Figure 57 Prop of households consuming different food groups within last 24 hours



Most common items reported to be consumed were oils/fats (89.6%), spices (87.4%), cereal (87.0%), vegetables (81.8%), sweets (66.6%), eggs, fish consumption is low.

Table 122: Consumption of Macro and micronutrient rich foods by households

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	44/307	14.3% (10.7-18.9%)
Proportion of households consuming either a plant or animal source of vitamin A	159/304	52.3% (46.5 – 58.0%)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	36/307	11.7% (8.5-16.0%)

4.3.11. WASH

Table 123: Water Quality

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	316/316	100.0%
Proportion of households that use a covered or narrow necked container for storing their drinking water	241/316	76.3% (71.2-80.8%, 95% CI)

Table 124: Amount of litres of water used per person per day

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	206/316	65.2% (59.7-70.4%)
15 – <20 lpppd	38/316	12.0% (8.8-16.3%)
<15 lpppd	72/316	22.8% (18.4-27.9%)
An average water usage in lpppd	31.0	

Table 125: Satisfaction with water supply

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	283/315	89.8% (86.0-92.9%)

Long distance (55.6%), not enough water (33.3%) and long waiting que (11.1%) were the reasons outlined for not satisfied with water supply at Shimelba camp

Figure 58: Prop of households that say they are satisfied with the water supply

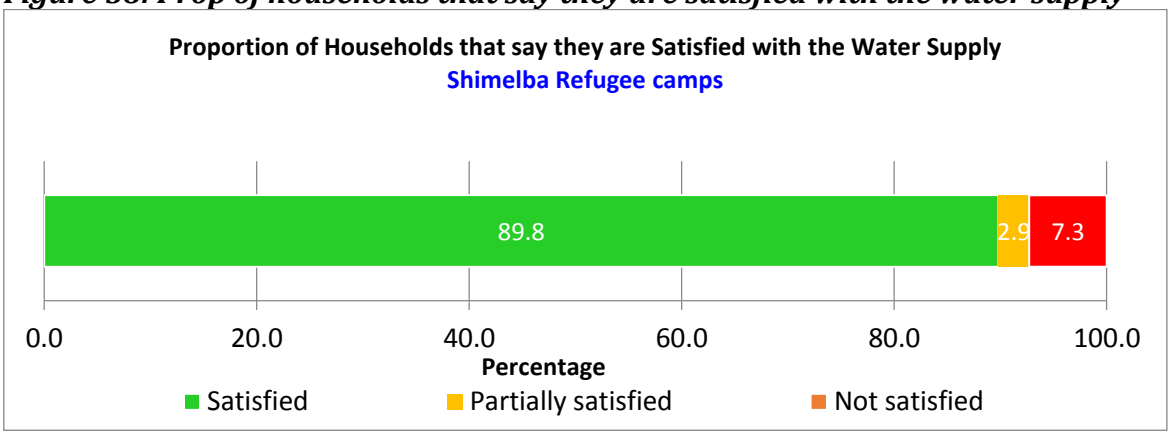


Table 126: Safe Excreta disposal

	Number/total	% (95% CI)
Proportion of households that use:		
Proportion of households using an improved excreta disposal facility (improved toilet facility, not shared)	215/314	68.5% (63.0-73.6%)
Proportion of households using a shared family toilet (improved toilet facility, shared with only 2 HH)	25/314	8.0% (5.3-11.7%)
Proportion of households using a communal toilet(improved toilet facility, shared with 3HH and more)	7/314	2.2% (1.0-4.7%)
Proportion of households using an unimproved toilet	67/314	21.3% (17.0-26.4%)
The proportion of households with children under three years old that dispose of faeces safely.	67/88	76.1% (65.9-84.6%)

Percentages of the beneficieries are using improved toilets which are not shared was 68.5% (63.0-73.6%, 95% CI) whereas about 21.3% (17.0-26.4%) had unimproved toilet facilities (table 124). Further anlaysis showed 76.1% (65.9-84.6%) of households surveyed with children less than three years of age had their last stools disposed safely (figure 59) and 23.9% (15.4-34.1%, 95% CI) had their stools disposed of unsafely (figure 60) .

Figure 59: Proportion of households with children < 3 years whose (last) stools were disposed of safely

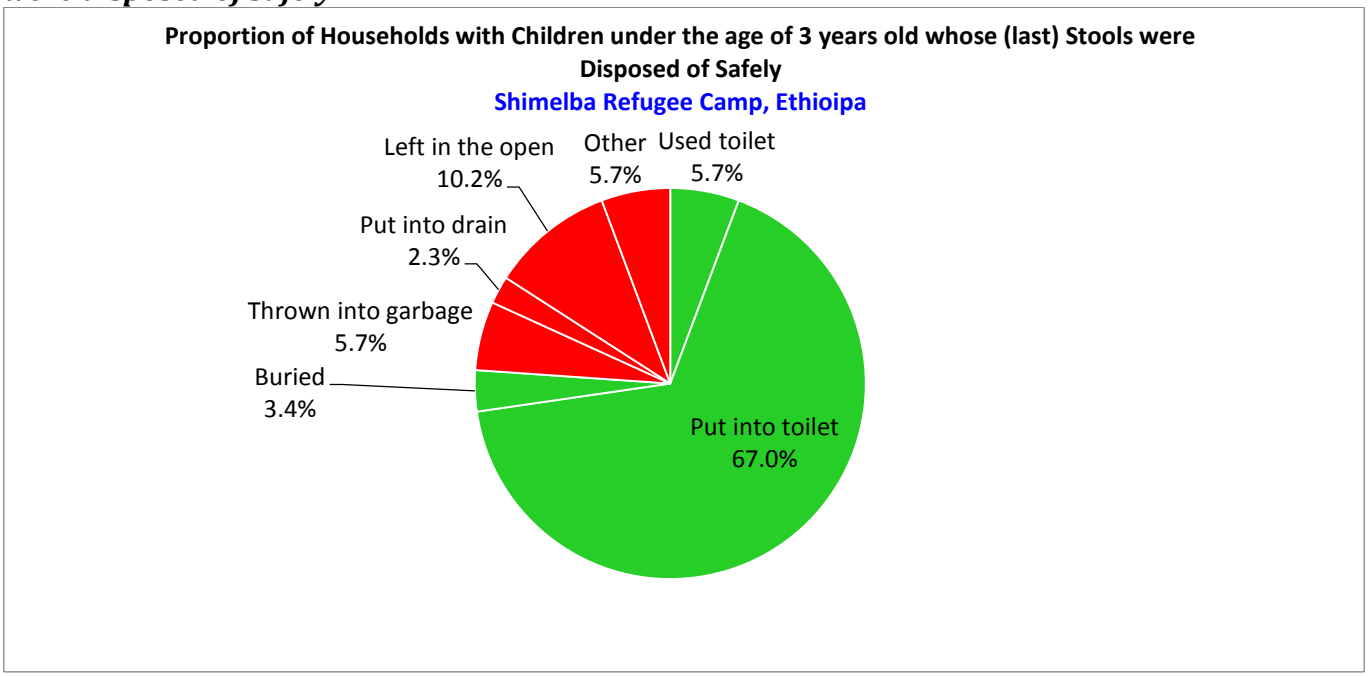
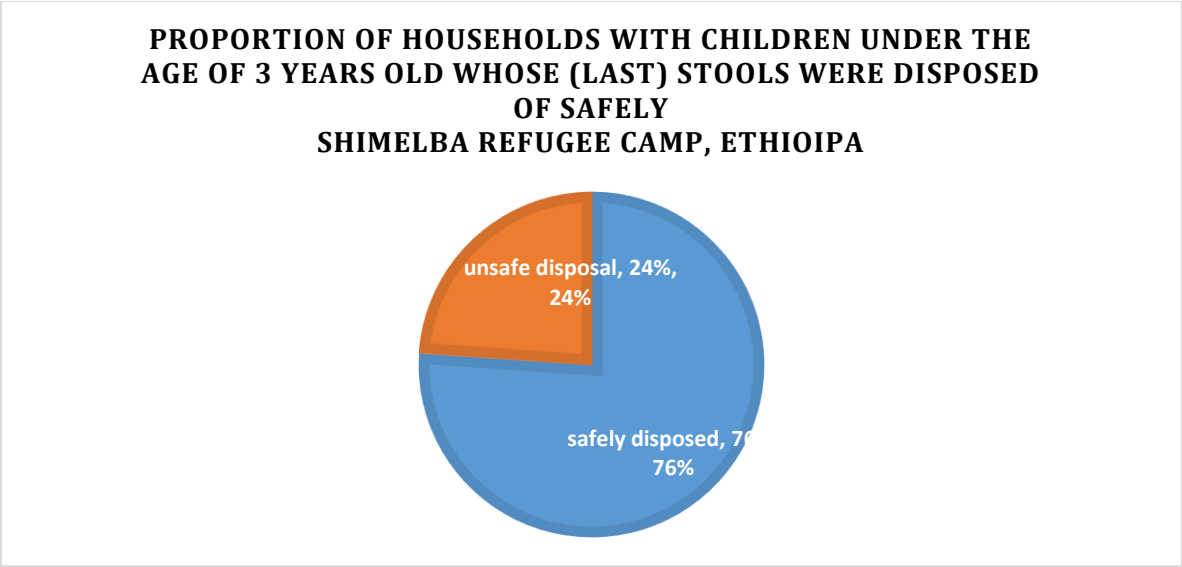


Figure 60: The prop of households with <3yrs old that dispose of faeces safely



4.3.12. Mosquito Net Coverage

Table 127: Household Mosquito net ownership

	Number/total	% (95% CI)
Proportion of households owning at least one mosquito net of any type	198/301	65.8% (60.1-71.1%)
Proportion of households owning at least one LLIN	187/301	62.1% (56.4-67.6%)

65.8% (60.1-71.1%)of the surveyed households reported to have a mosquito net, out of which 62.1% (56.4-67.6%)reported to own long lasting insecticide net (LLIN) (Table 124 and figure 61).

Figure 61: Household ownership of at least one Mosquito net.

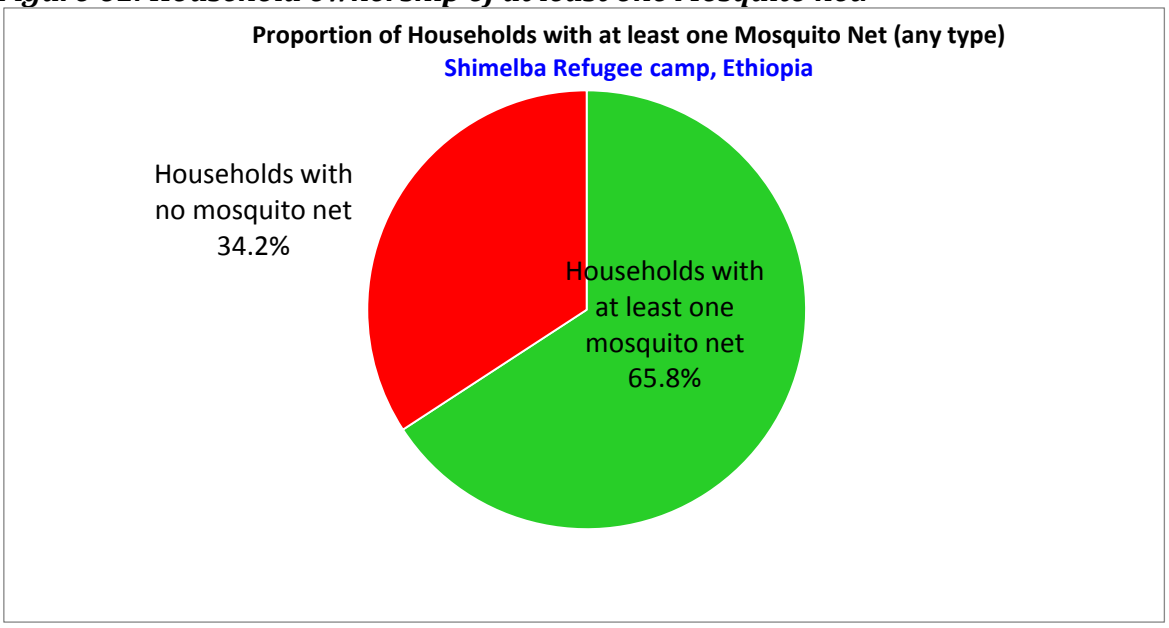


Figure 62: Household ownership of at least one LLIN

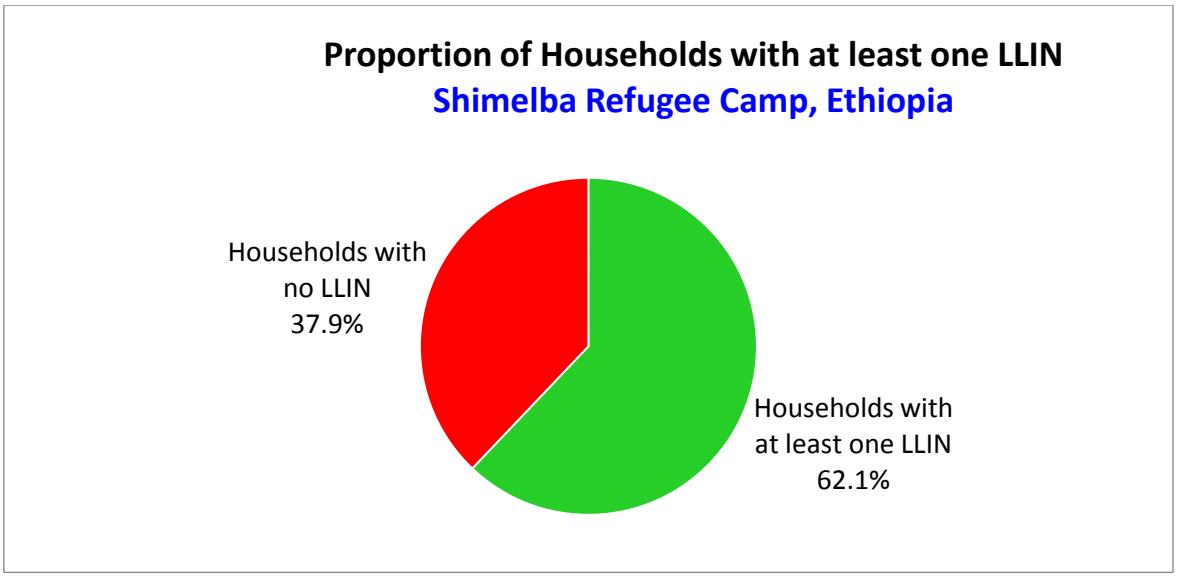


Table 128 Number of nets

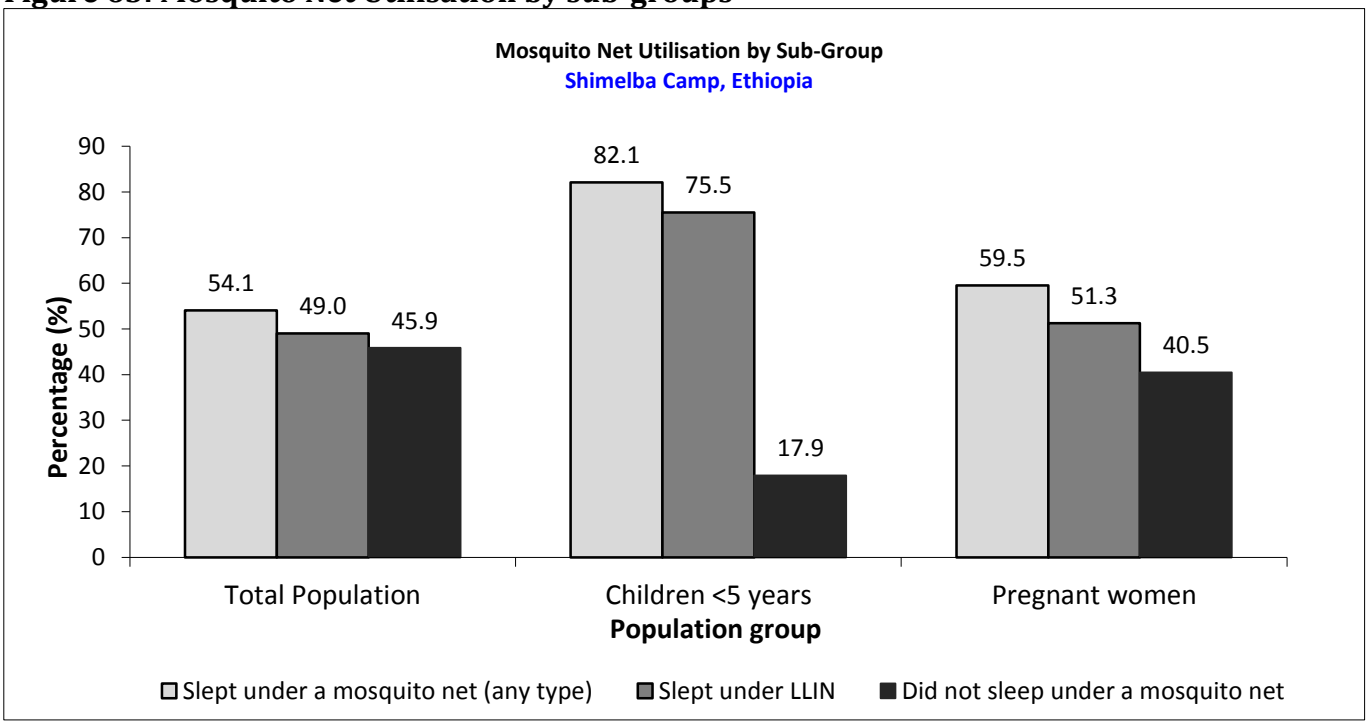
Average number of LLINs per household	Average number of persons per LLIN
1.5	**3.6**

Table 129 Mosquito net Utilisation

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1093	%	Total No= 151	%	Total No=37	%
Slept under net of any type	591	54.1 %	124	82.1%	22	59.5%
Slept under LLIN	536	49.0 %	114	75.5%	19	51.4%

Below half of the surveyed population slept under an LLIN mosquito net. Use of LLIN mosquito nets was higher among children aged 0-59 months in comparison to use among pregnant women.

Figure 63: Mosquito Net Utilisation by sub-groups



4.4. RESULTS HITSATS CAMP

Table 130: Demographic characteristics of the study population in Hitsats

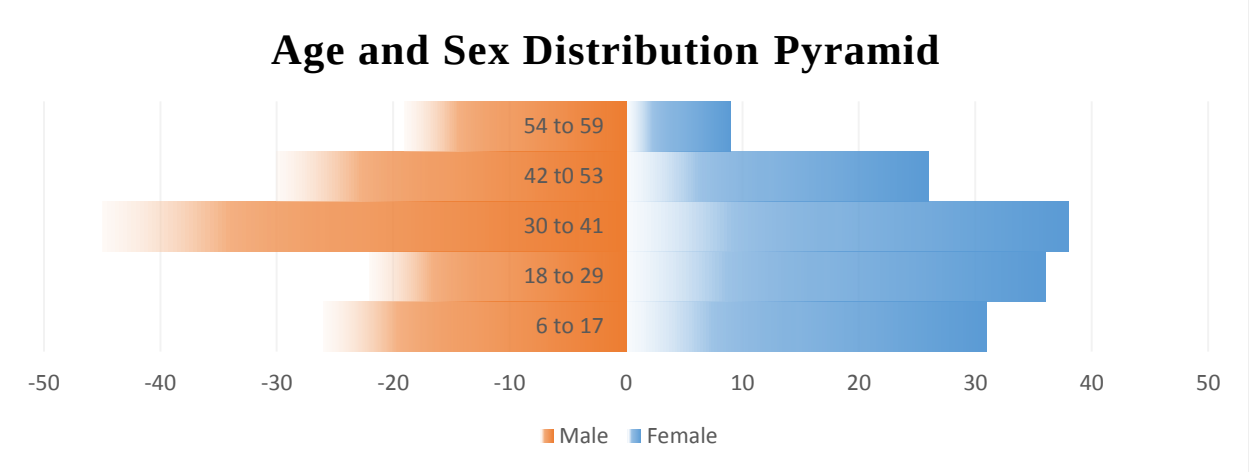
Total HHs surveyed	462
Total population surveyed	2913
Total U5 surveyed	305
Average HH size	6.3
% of U5	10.5%

Table 131: Distribution of age and sex of sample, Hitsats.

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	26	45.6	31	54.4	57	20.2	0.8
18-29	22	37.9	36	62.1	58	20.6	0.6
30-41	45	54.2	38	45.8	83	29.4	1.2
42-53	30	53.6	26	46.4	56	19.9	1.2
54-59	19	67.9	9	32.1	28	9.9	2.1
Total	142	50.4	140	49.6	282	100.0	1.0

The overall sex ratio was 1.0 which denotes equal distribution of the sex in different age groups, showing that there was no selection bias

Figure 64: Population age and sex pyramid, Hitsats.



4.4.1. Anthropometric results (based on WHO Growth Standards 2006)

Anthropometric results are analysed and presented based on WHO Growth Standards and excluding z-scores from Observed mean (SMART flags): WHZ -3 to 3; HAZ -3 to 3; WAZ -3 to 3. Results based on NCHS Growth Reference 1977 are presented in annex.

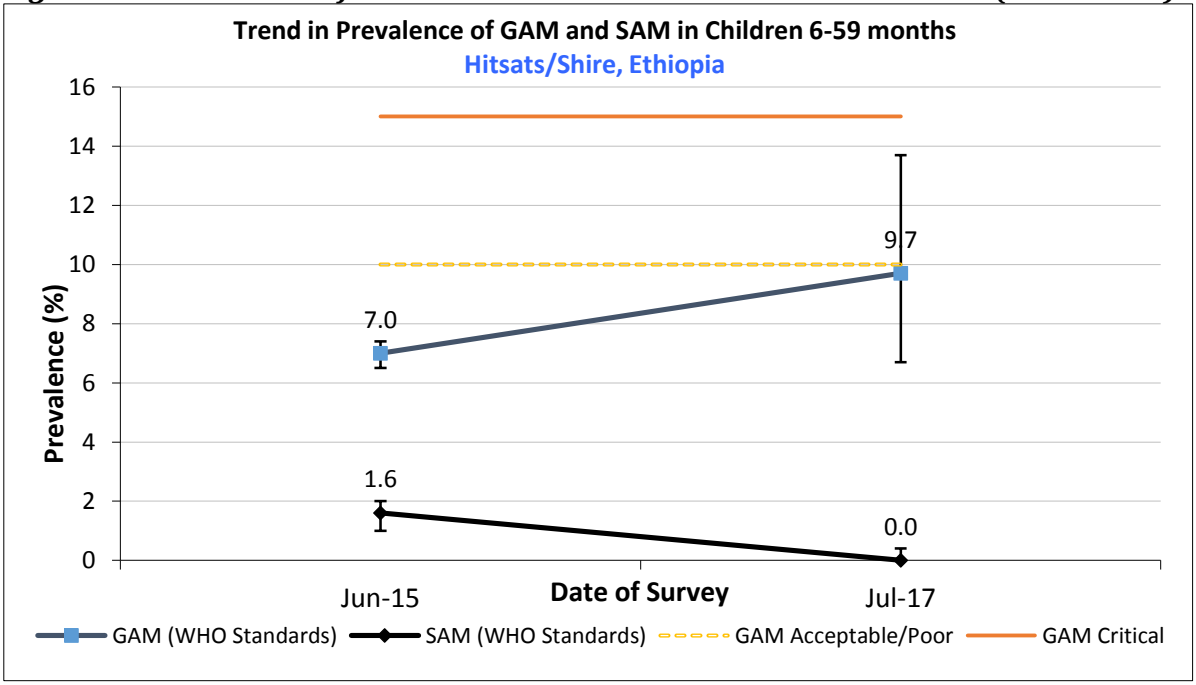
Table 132: Prevalence of acute malnutrition based on WHZ and/or oedema and by sex

	All n = 279	**Boys** n = 139	**Girls** n = 140
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(27) 9.7 % (6.7 - 13.7 95% C.I.)	(11) 7.9 % (4.5 - 13.6 95% C.I.)	(16) 11.4 % (7.2 - 17.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(27) 9.7 % (6.7 - 13.7 95% C.I.)	(11) 7.9 % (4.5 - 13.6 95% C.I.)	(16) 11.4 % (7.2 - 17.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 - 1.4 95% C.I.)	(0) 0.0 % (0.0 - 2.7 95% C.I.)	(0) 0.0 % (0.0 - 2.7 95% C.I.)

The prevalence of oedema was 0.0 %

There was no significant difference seen between Boys and Girls on the prevalence of acute malnutrition (Table 129).

Figure 65: Prevalence of GAM and SAM based on WHZ in 6-59 months (2015-2017)



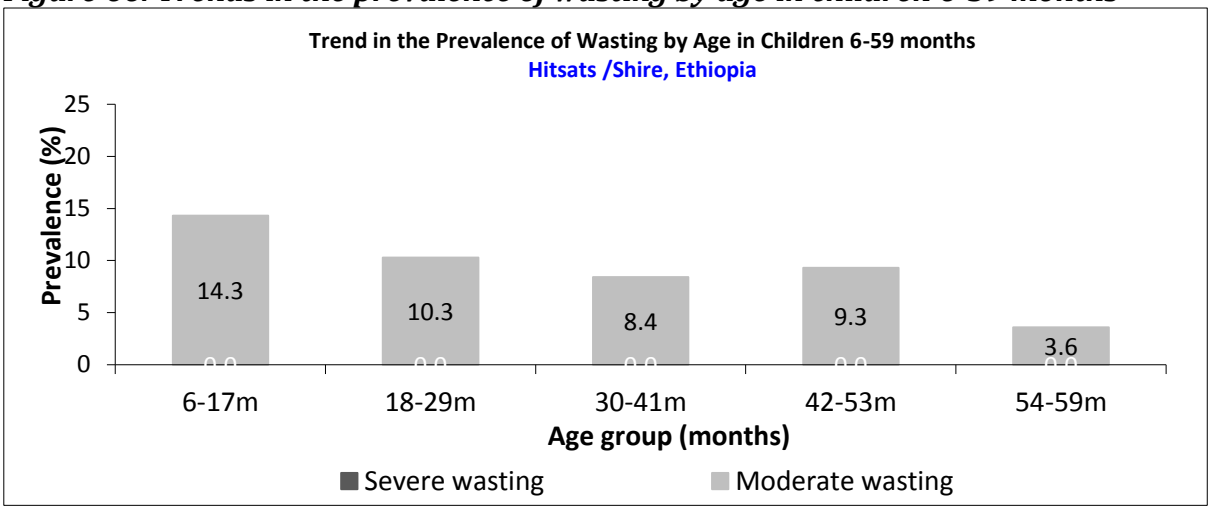
Comparison of results from 2015 shows increase in GAM prevalence, while reduction in SAM prevalence (Figure 65).

Table 133 Prevalence of acute malnutrition by age, based on WHZ and/or oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 & <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	56	0	0.0	8	14.3	48	85.7	0	0.0
18-29	58	0	0.0	6	10.3	52	89.7	0	0.0
30-41	83	0	0.0	7	8.4	76	91.6	0	0.0
42-53	54	0	0.0	5	9.3	49	90.7	0	0.0
54-59	28	0	0.0	1	3.6	27	96.4	0	0.0
Total	279	0	0.0	27	9.7	252	90.3	0	0.0

Children below 29 months is most affected by malnutrition as compared to other age groups.

Figure 66: Trends in the prevalence of wasting by age in children 6-59 months



Wasting, both severe and moderate was highest among the youngest age group (Figure 66).

Table 134: Distribution of severe acute malnutrition and oedema based WHZ

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 1 (0.4 %)	Not severely malnourished No. 281 (99.6 %)

All the cases of SAM were due to wasting and no oedema was detected (Table 133).

Figure 67: Distribution of weight-for-height z-scores based on WHO Growth Standards.

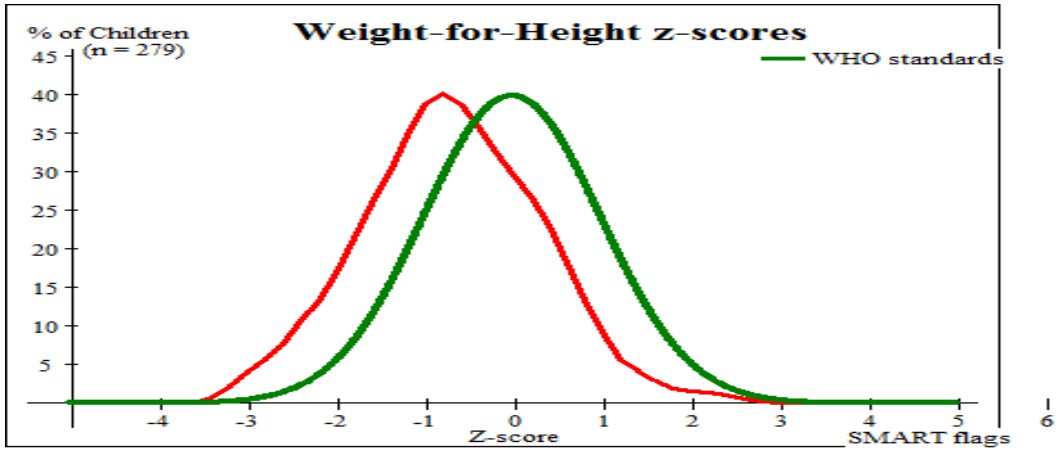


Figure 67 is a comparison of the surveyed and reference weight-for-height z-score (WHZ) distribution. The survey distribution (in red) followed a normal distribution and was shifted to the left of the WHO reference, showing an average lower z-scores, and therefore high malnutrition.

Table 135: Prevalence of acute malnutrition based on MUAC and/or oedema and by sex

	All n = 282	**Boys** n = 142	**Girls** n = 140
Prevalence of global malnutrition (< 125 mm and/or oedema)	(16) 5.7 % (3.5 - 9.0 95% C.I.)	(5) 3.5 % (1.5 - 8.0 95% C.I.)	(11) 7.9 % (4.4 - 13.5 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(15) 5.3 % (3.2 - 8.6 95% C.I.)	(5) 3.5 % (1.5 - 8.0 95% C.I.)	(10) 7.1 % (3.9 - 12.6 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(1) 0.4 % (0.1 - 2.0 95% C.I.)	(0) 0.0 % (0.0 - 2.6 95% C.I.)	(1) 0.7 % (0.1 - 3.9 95% C.I.)

The prevalence of GAM as measured by MUAC was 5.7 % (3.5 - 9.0,95%).

Table 136: Prevalence of acute malnutrition by age, based on MUAC 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	57	1	1.8	12	21.1	44	77.2	0	0.0
18-29	58	0	0.0	3	5.2	55	94.8	0	0.0
30-41	83	0	0.0	0	0.0	83	100.0	0	0.0
42-53	56	0	0.0	0	0.0	56	100.0	0	0.0
54-59	28	0	0.0	0	0.0	28	100.0	0	0.0
Total	282	1	0.4	15	5.3	266	94.3	0	0.0

Table 137: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 281	**Boys** n = 141	**Girls** n = 140
Prevalence of underweight (<-2 z-score)	(60) 21.4 % (17.0 - 26.5 95% C.I.)	(28) 19.9 % (14.1 - 27.2 95% C.I.)	(32) 22.9 % (16.7 - 30.5 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(51) 18.1 % (14.1 - 23.1 95% C.I.)	(26) 18.4 % (12.9 - 25.6 95% C.I.)	(25) 17.9 % (12.4 - 25.0 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(9) 3.2 % (1.7 - 6.0 95% C.I.)	(2) 1.4 % (0.4 - 5.0 95% C.I.)	(7) 5.0 % (2.4 - 10.0 95% C.I.)

A total of 21.4 % (17.0 - 26.5, 95% C.I.) were underweight, and 3.2 % (1.7 - 6.0, 95% C.I.) were severely underweight (Table 134). The results show slight decrement which is not significant in trend of underweight in comparison to 2015 survey.

Table 138: 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	56	0	0.0	7	12.5	49	87.5	0	0.0
18-29	58	2	3.4	15	25.9	41	70.7	0	0.0
30-41	83	2	2.4	18	21.7	63	75.9	0	0.0
42-53	56	4	7.1	6	10.7	46	82.1	0	0.0
54-59	28	1	3.6	5	17.9	22	78.6	0	0.0
Total	281	9	3.2	51	18.1	221	78.6	0	0.0

Table 139: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 274	**Boys** n = 136	**Girls** n = 138
Prevalence of stunting (<-2 z-score)	(72) 26.3 % (21.4 - 31.8 95% C.I.)	(39) 28.7 % (21.7 - 36.8 95% C.I.)	(33) 23.9 % (17.6 - 31.7 95% C.I.)

Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(54) 19.7 % (15.4 - 24.8 95% C.I.)	(30) 22.1 % (15.9 - 29.7 95% C.I.)	(24) 17.4 % (12.0 - 24.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(18) 6.6 % (4.2 - 10.1 95% C.I.)	(9) 6.6 % (3.5 - 12.1 95% C.I.)	(9) 6.5 % (3.5 - 11.9 95% C.I.)

The prevalence of stunting was 26.3 % (21.4 - 31.8, 95% C.I), and there is no significant difference between different sexes.

Table 140: Prevalence of stunting by age based on WHZ

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	55	1	1.8	5	9.1	49	89.1
18-29	56	2	3.6	7	12.5	47	83.9
30-41	82	8	9.8	26	31.7	48	58.5
42-53	54	5	9.3	10	18.5	39	72.2
54-59	27	2	7.4	6	22.2	19	70.4
Total	274	18	6.6	54	19.7	202	73.7

Children above 30 months of age appear to be more affected by stunting than the other age groups.

Figure 68: Prevalence of stunting by age groups in children 6-59 months

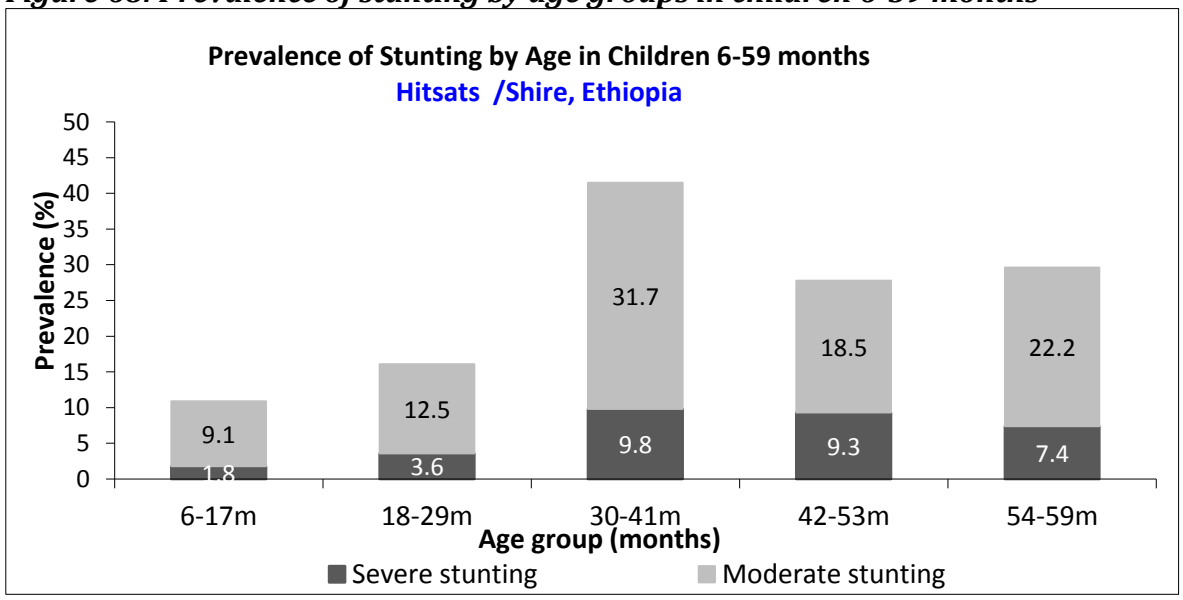


Figure 69: Distribution of HAZ based on WHO Growth Standards.

The height-for-age distribution for the survey (red) is compared to the WHO distribution (green) in Figure 69. The distribution followed a typical bell shape, and was also shifted to the left of the reference, indicating an average lower mean z-score for the survey sample.

Table 141: Mean z-scores, Design Effects and excluded subjects_Hitsats

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	279	-0.69±0.99	1.00	0	3
Weight-for-Age	281	-1.23±0.99	1.00	0	1
Height-for-Age	274	-1.33±1.14	1.00	0	8

* contains for WHZ and WAZ the children with oedema.

4.4.2. Mortality results

Table 142: Mortality rates_Hitsats.

Crude Mortality Rate (CMR) total No. of death /10,000/day = (0.75(0.20-2.68;95% CI)
Under 5 Mortality (U5MR) total No. of death /10,000/day = 0.12 (0.04-0.34 ;95% CI)

U5MR and CMR was below the emergency threshold.

4.4.3. Feeding programme coverage results

Table 143: Estimated programme coverage for acutely malnourished children

	Number/total	% (95% CI)
Supplementary feeding programme coverage (WHZ >= - 3 AND WHZ < - 2 OR MUAC >= 115 mm AND MUAC < 125 mm)	1/36	2.8% (0.1-14.5%)
Therapeutic feeding programme coverage (WHZ < - 3 OR MUAC < 115mm)	0/2	0.0%
Blanket Supplementary (WHZ >= - 2 OR MUAC >= 125)	64/81	80.2% (69.9-88.3%)

Estimated programme coverage for supplementary and therapeutic is far below the expected standard for refugee settings (>90%).

4.4.4. Measles vaccination coverage results

Table 144: Measles vaccination coverage for children aged 9-59 months

	Measles (with card) n=269	Measles (with card or confirmation from mother) n=269
YES	32.3% (26.8-38.3%)	95.9% (92.8-97.9%)

The measles coverage with card or recall was in line with the recommendation which is above 95% target at 95.9% (92.8-97.9%, 95% CI).

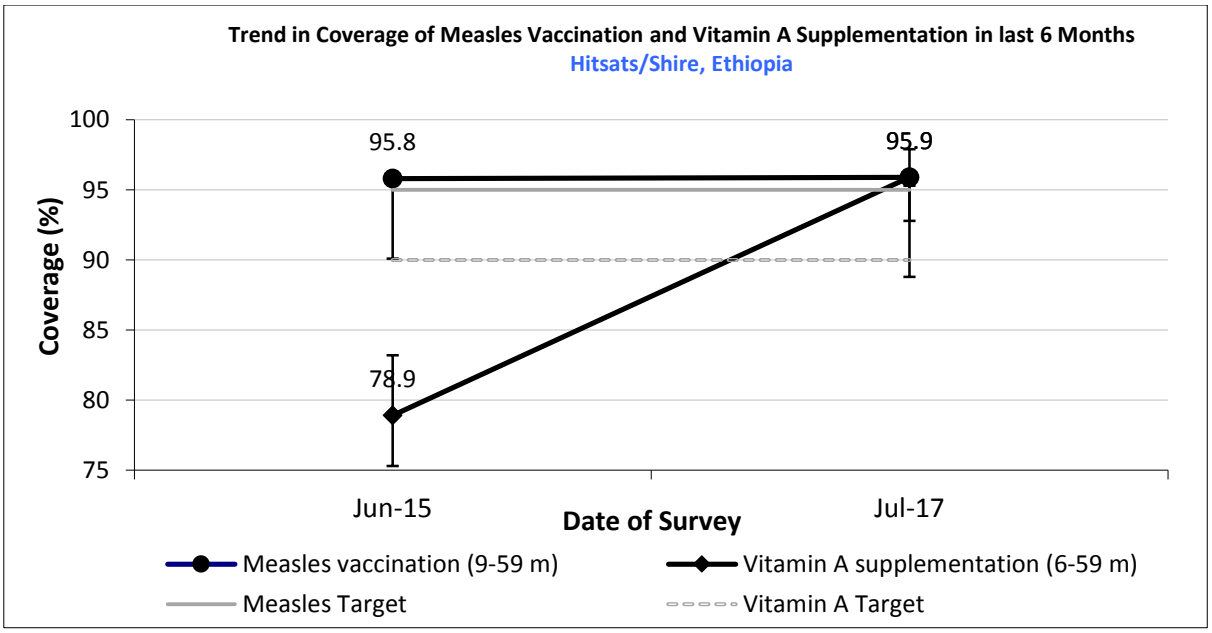
4.4.5. Vitamin A supplementation coverage results

Table 145: Vit A supplementation for children aged 6-59 months within past 6 months (n=282)

	Vitamin A capsule (with card) n=282	Vitamin A capsule (with card or confirmation from mother) n=282
YES	29.4% (24.2-35.1%)	92.6% (88.8-95.3%)

Vitamin A coverage by card or confirmation from the mother was 92.55% (88.8-95.3%) which is in line with the UNHCR target >90%. Comparison with 2015 results shows significant increment in the vitamin A supplementation within the past six months.

Figure 70: Measles vaccination and Vit A supplementation (2013-2017)



Comparison of results shows that there is a significant increment in Vit A supplementation as compared to 2015 (Figure 70).

4.4.6. Diarrhoea results

Table 146: Period prevalence of diarrhoea

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	54/282	19.2% (14.7-24.2%)

19.2% (14.7-24.2%) of the sampled children reported having had diarrhoea in the 2 weeks prior to the survey. This shows that percentage of having Diarrhoea in the last two weeks has increased slightly as compared to 2015 survey 17.2%.

4.4.7. Anaemia results

Table 147: Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age

Anaemia in Children 6-59 months	All n =282
Total Anaemia (Hb<11.0 g/dL)	(n=106) 37.6% (31.9-43.5%)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(n=56) 19.9% (15.3-25.0%)
Moderate Anaemia (7.0-9.9 g/dL)	(n =48) 17.0% (12.8-21.9%)
Severe Anaemia (<7.0 g/dL)	(n=2) 0.71% (0.1-2.5%)
Mean Hb (g/dL)	11.25 g/dL and (1.54SD) [min 6 to max 14.6]

37.6% (31.9-43.5%) of children aged 6-59 months were anaemic (table 144). Comparison with 2015 anaemia results show there is significant difference as it was 28.3%.

Figure 71: Anaemia categories in children 6-59 months from 2013-2017

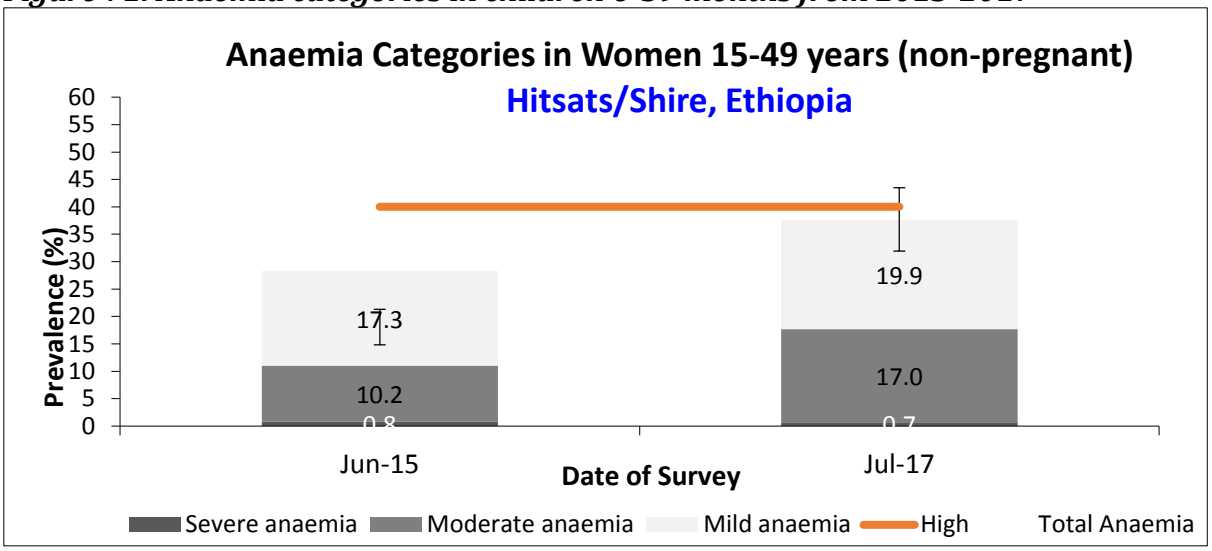


Figure 72: Mean Hb concentration in children 6-59 months from 2013-2017

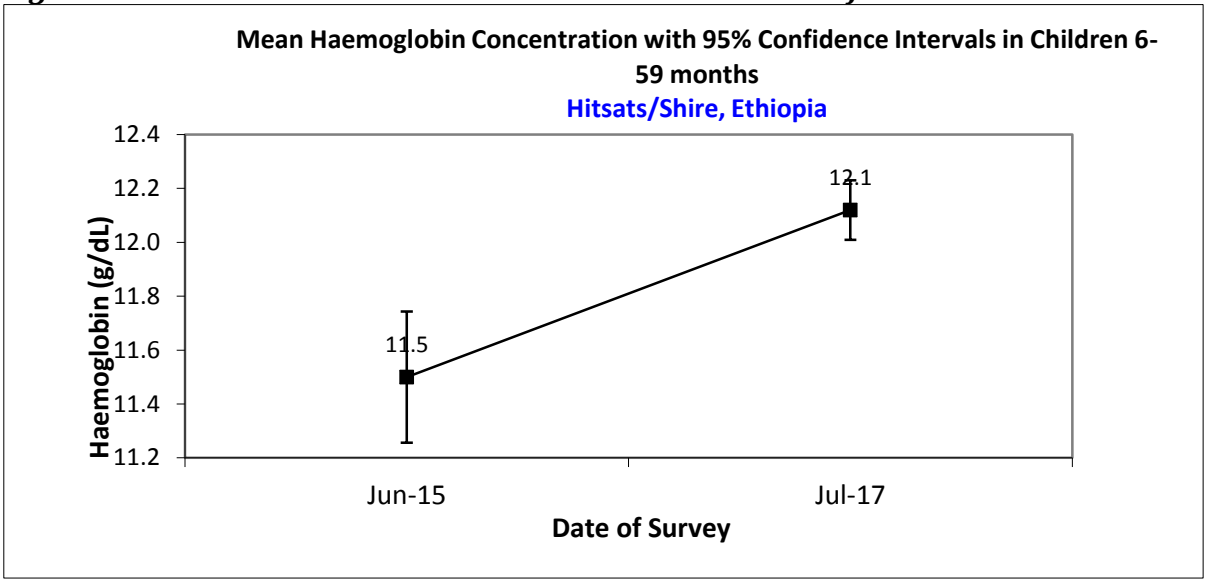


Table 148: Prevalence of anaemia by age

Age group	No.	Severe Anaemia (<7.0 g/dL)		Moderate Anaemia (7.0-9.9 g/dL)		Mild Anaemia (Hb 10.0-10.9 g/dL)		Total Anaemia (Hb<11.0 g/dL)		Normal (Hb≥11.0 g/dL)	
		no	%	no	%	no	%	no	%	no	%
6-23	88	1	1.1% (0.0-6.2)	23	26.1% (17.3-36.6)	22	25.0% (16.4-35.4)	46	52.3% (41.4-63.0%)	42	47.7% (37.0-85.6)
24-35	67	0	0	13	19.4% (10.8-30.9)	15	22.4% (13.1-34.2)	28	41.8% (29.8-54.5%)	39	58.2% (45.5-70.2%)
36-59	127	1	0.8% (0.0-4.3)	12	9.4% (5.0-15.9%)	19	15% (9.3-22.4%	32	25.2% (17.9-33.7%)	95	74.8% (66.3-82.1%)
Total	282	2	0.7% (0.1-2.5)	48	17.0% (12.8-21.9)	56	19.9% (15.4-25)	106	37.6% (31.9-43.5%)	176	62.4% (56.5-68.1%)

In table 145 above; Categorisation of anaemia by age group shows that children 6-23 months were most affected with anaemia at 21.8% (13.2-32.6%).

4.4.8. Children 0-23 months

Table 149: Prevalence of Infant and Young Child Feeding Practices Indicators

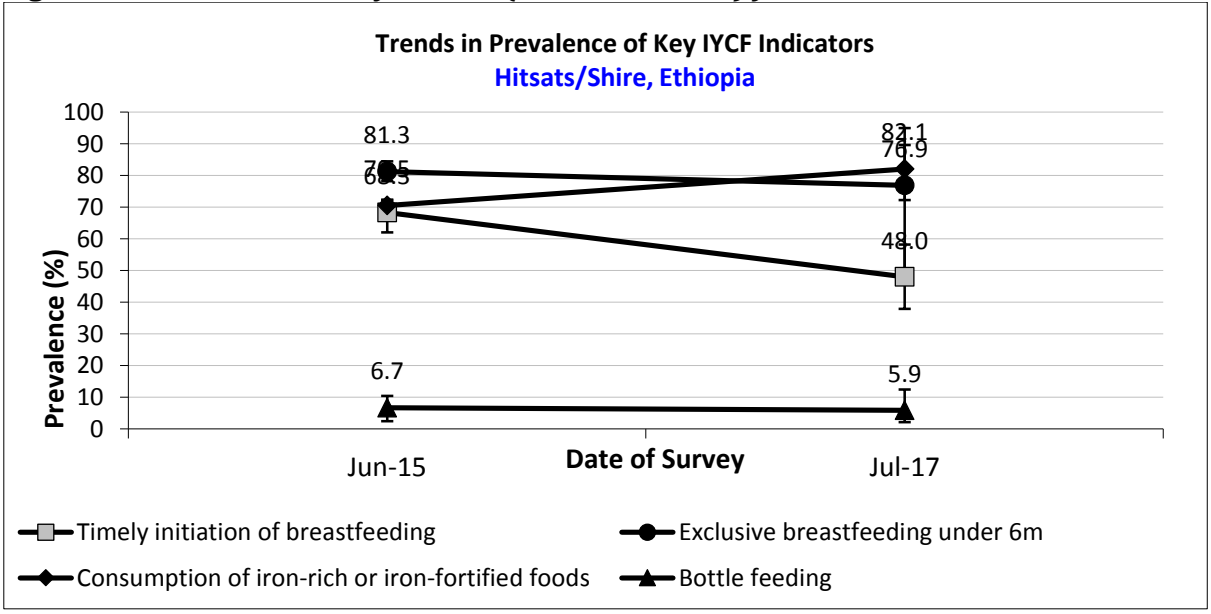
Indicator	Age range	No./ total	Prevalence (%) & 95% CI
Timely initiation of breastfeeding	0-23 months	48/100	48.0% (37.9-58.2%)
Exclusive breastfeeding under 6 months	0-5 months	10/13	76.9% (46.2-95.0%)
Continued breastfeeding at 1 year	12-15 months	24/24	100%
Continued breastfeeding at 2 years	20-23 months	8/21	61.9% (38.4-81.9%)
Introduction of solid, semi-solid or soft foods	6-8 months	3/13	23.1% (5.0-53.8%)

Consumption of iron-rich or iron-fortified foods	6-23 months	69/84	82.1% (72.3-89.6%)
Bottle feeding	0-23 months	6/101	5.9% (2.2-12.5%)

More than three fourth (84.7% (76.6-90.8, 95% C.I) of children below 2 years had been introduced to breast milk within an hour of birth (Table 146). The exclusive breastfeeding prevalence was 72.7% (54.5-86.7, 95% C.I). All of the sampled children were still breastfeeding at 1 year, whilst about only 50% were still breastfeeding at 2 years. About 73.7% (62.3-83.1%) of 6-8 months children had been introduced to solid foods. The proportion of children who were bottle fed the day before the survey was 2.7% (0.6-7.7, 95% C.I).

Note that when IYCF indicators are collected in nutritional surveys based on anthropometric sample of children aged 0-59 months, it is not feasible to achieve a large enough sample size for some of the indicators to be estimated as precisely as desired, especially for indicators covering a very narrow age range (e.g. 12-15 months, 6-8 months). Hence, IYCF indicators need to be interpreted with care.

Figure 73: Nutrition survey results (IYCF indicators) from 2013-2017



4.4.9. Prevalence of intake ANALYSIS

Infant formula

TABLE: INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS, ADI_HARUSH

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	7/101	6.9% (2.8-13.8%)

CSB+ INTAKE FROM ANY SOURCE IN CHILDREN AGED 6-23 MONTHS

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	18/87	20.7% (12.7-30.7%)

CSB ++ INTAKE IN CHILDREN AGED 6-23 MONTHS _ADI_HARUSH

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	43/86	50% (39-61%)

4.4.10. Women 15-49 years

Table 150: Women physiological status and age, Adi_Harush

Physiological status	Number/total	% of sample
Non-pregnant	311/323	96.3%, (93.6-97.9%)
Pregnant	12/323	3.7%, (2.1- 6.4%)
Mean age (range)	23.3year Range: 15- 48 years	

Of the sampled women aged 15-49 years in the survey, 6.0% were pregnant. The mean age of women was 24.7 years (Table 18).

Table 151: Prevalence of anaemia and Hb in women aged 15-49 years

Anaemia in non-pregnant women of reproductive age (15-49 years)	**All (95% CI) n = 311**
Total Anaemia (<12.0 g/dL)	(85) 27.3% (22.7-32.5%)
Mild Anaemia (11.0-11.9 g/dL)	(46) 14.8% (11.2-19.2%)
Moderate Anaemia (8.0-10.9 g/dL)	(34) 10.9% (67.5-77.3%)
Severe Anaemia (<8.0 g/dL)	(5) 1.6% (0.7-3.7%)
Mean Hb (g/dL)	12.6 g/dL and (1.56 SD) [min 6.6 to max 16.7 g/dL]

The prevalence of anaemia among non-pregnant women was 27.3% (22.7-32.5%, 95% C.I).

Figure 74: Anaemia categories in women aged 15 – 49 yrs from 2013-2017

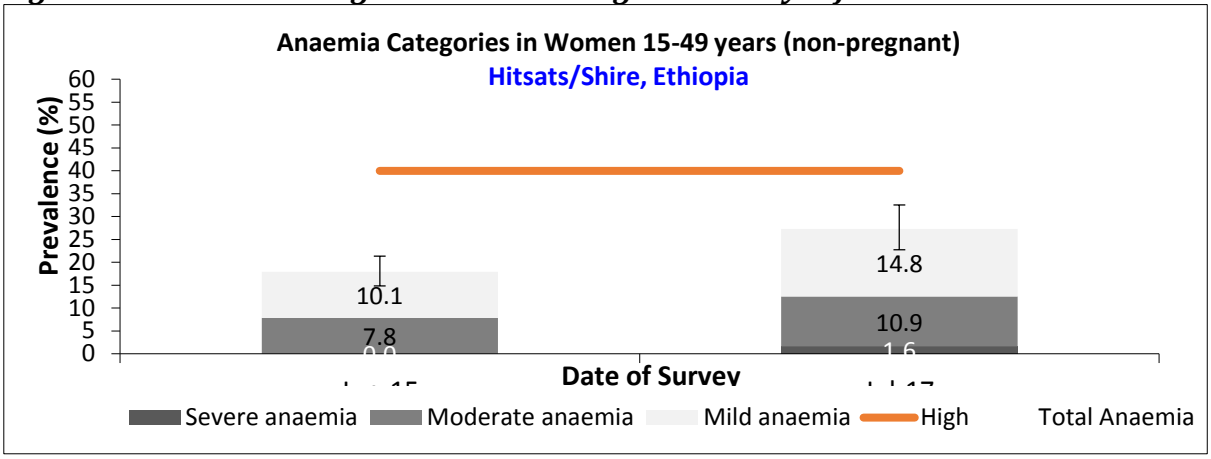


Figure 75: Mean Hb concentration in 15 – 49 yrs women from 2015-2017

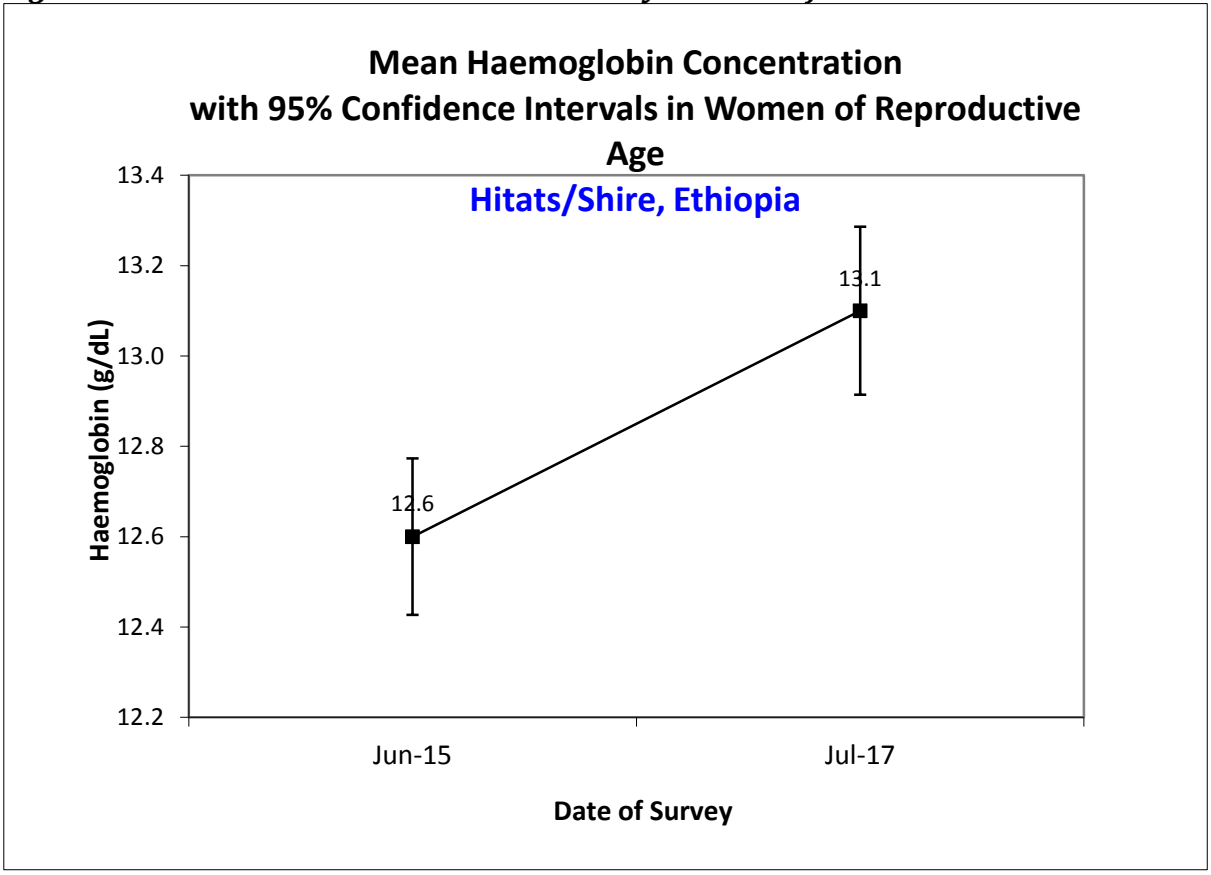


Table 152: ANC enrolment and iron-folic acid coverage among pregnant women

	Number /total	% (95% CI)
Currently enrolled in ANC programme	12/12	100%
Currently receiving iron-folic acid pills	11/12	91.7% (61.5-91.8%)

Below half of pregnant women enrolled in ANC had received iron-folic pills

4.4.11. Food security

Table 153: Ration card coverage

	Number/total	% (95% CI)
Proportion of households with a ration card	231/235	98.30% (95.7-99.5%)

Almost all of the sampled households did have a ration card

Table 154: Reported duration of general food ration 1

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
25.5 days out of 30	85.0%

Table 155: Reported duration of general food ration 2

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	74/230	32.2% (26.2-38.6%)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle (30 days)	117/230	50.9% (44.2-57.5%)
>75% of the cycle (30 days)	113/230	49.1% (42.5-55.8%)

Negative coping strategies results

Table 156 Coping strategies used by the surveyed population over the past month

	Number/total	**% (95% CI)**
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items *with or without interest*	131/233	56.22% (49.6-62.7%)
Sold any assets (furniture, seed stocks, tools, other NFI, livestock etc.)	27/234	11.5% (7.7-16.3%)
Requested increase remittances or gifts as compared to normal	61/234	26.1% (20.6-32.2%)
Reduced the quantity and/or frequency of meals	122/234	52.1% (45.5-58.7%)
Begged	7/233	3.0% (1.2-6.1%)
Engaged in potentially risky or harmful activities (list activities)	18/233	7.7% (4.6-11.9%)
Proportion of households reporting using none of the coping strategies over the past month	131/233	56.22% (49.6-62.7%)

***** The total will be over 100% as households may use several negative coping strategies. The most important coping strategy that was reported to be used to fill the food gap was borrowing and reducing meal quantity and frequency (table 153).

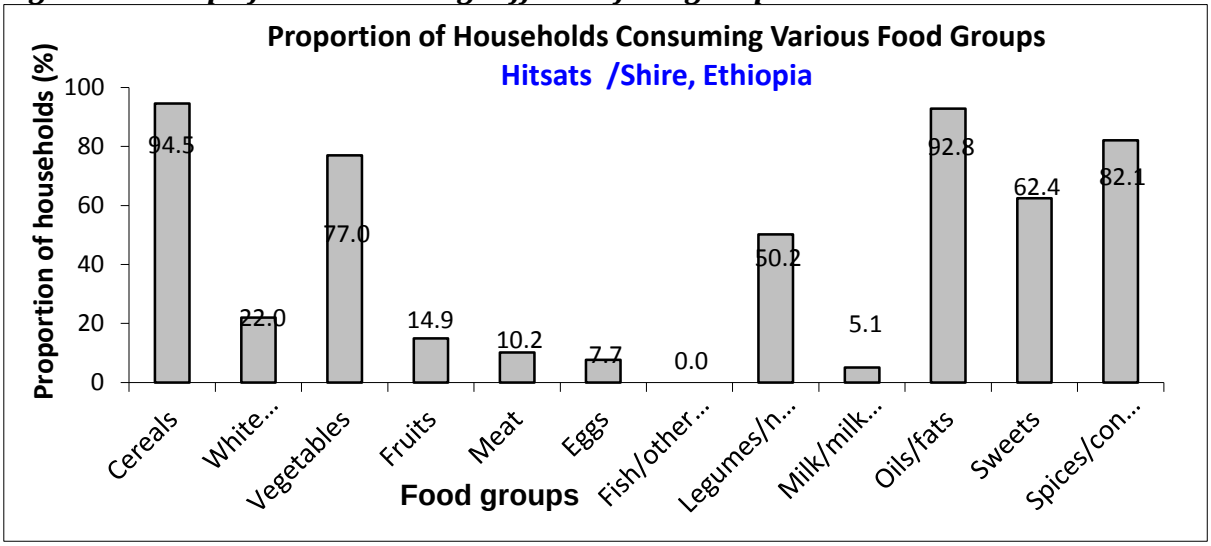
Household dietary diversity results

The general food distribution usually lasts more than one day and may be organized by family size, hence the surveyed households will be at different times of the cycle which may have an impact on the HDDS results and this needs to be considered in interpreting the data.

Table 157 Average HDDS

Average HDDS	5.57 (2.12 SD)

Figure 76: Prop of HH consuming different food groups within last 24 hours



Most common items reported to be consumed were cereal (94.5%), oils/fats (92.8%) and vegetables (77%), while consumption of Fish, milk and eggs was very low.

Table 158: Consumption of food aid commodities and micronutrient rich foods by household

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	44/234	18.8% (14-24.4%
Proportion of households consuming either a plant or animal source of vitamin A	70/234	29.9% (24.1-36.2%)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	23/234	9.8% (6.3-14.4%)

4.4.12. WASH

Table 159 Water Quality

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	230/233	98.7% (96.3-99.7%)
Proportion of households that use a covered or narrow necked container for storing their drinking water	148/233	63.5% (57.0-69.7%)

48.4% (42.0-54.8%, 95% CI) reported to have covered or narrow necked drinking water storage containers and 99.2% had improved drinking water source.

Table 160: Amount of litres of water used per person per day

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	46/233	19.7% (14.8-25.4%)
15 – <20 lpppd	22/233	9.4% (6.0-13.6%)
<15 lpppd	165/233	70.8% (64.5-76.6%)
An average water usage in lpppd	12.2 lpppd	

53.7% (47.2-60.0%) reported to be receiving <15lpppd.

Table 161: Satisfaction with water supply

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	92/233	39.5% (33.2-46.1%)

About 39.5% of the sampled household reported that they were satisfied with the drinking water supply. 32.2% were not satisfied with the drinking water supply (Figure 77), whereas 57.6% (39.2-74.5%) reported that the drinking water supply was not enough.

Figure 77: Prop of HH that say they are satisfied with the water supply

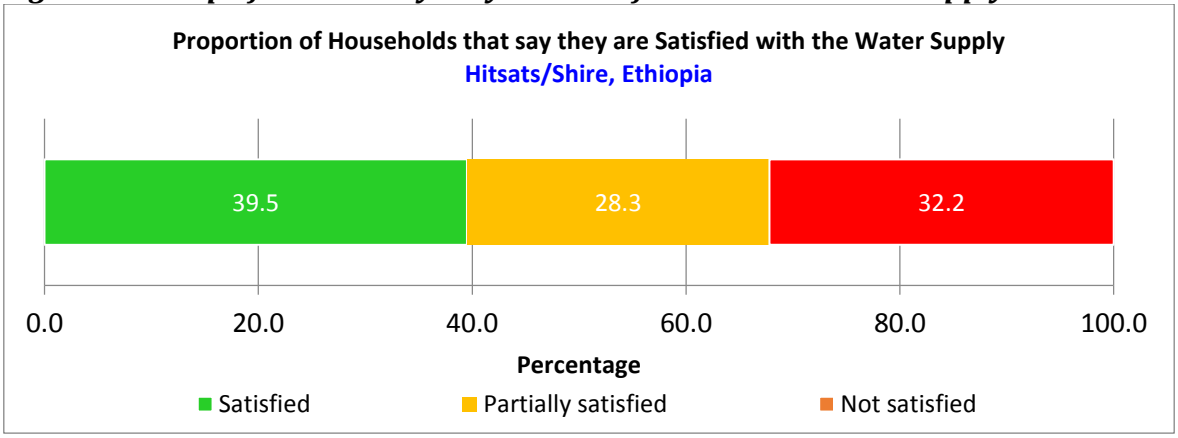


Table 162: Safe Excreta disposal

	Number/total	% (95% CI)
Proportion of households that use:		
Proportion of households using an improved excreta disposal facility (improved toilet facility, not shared)	142/233	60.94% (54.4-67.3%)
Proportion of households using a shared family toilet	14/233	6.01% (3.3-9.9%)
Proportion of households using a communal toilet	23/233	9.87% (6.4-14.4%)
Proportion of households using an unimproved toilet	54/233	23.18% (17.9-29.1%)

The proportion of households with children under three years old that dispose of faeces safely.	59/80	73.8% (62.7-83.0%)

Percentages of the beneficieries that are using improved toilet which is not shared was 60.94% (54.4-67.3%) whereas 23.18% (17.9-29.1%) were using unimproved toilet facilities (table 159). Further anlaysis showed 73.8% of households surveyed with children less than three years of age had their last stools disposed safely (figure 78) and 26.2% had their stools disposed of unsafely (figure 79) .

Figure 78: HH with children < 3yrs whose stools were disposed of safely

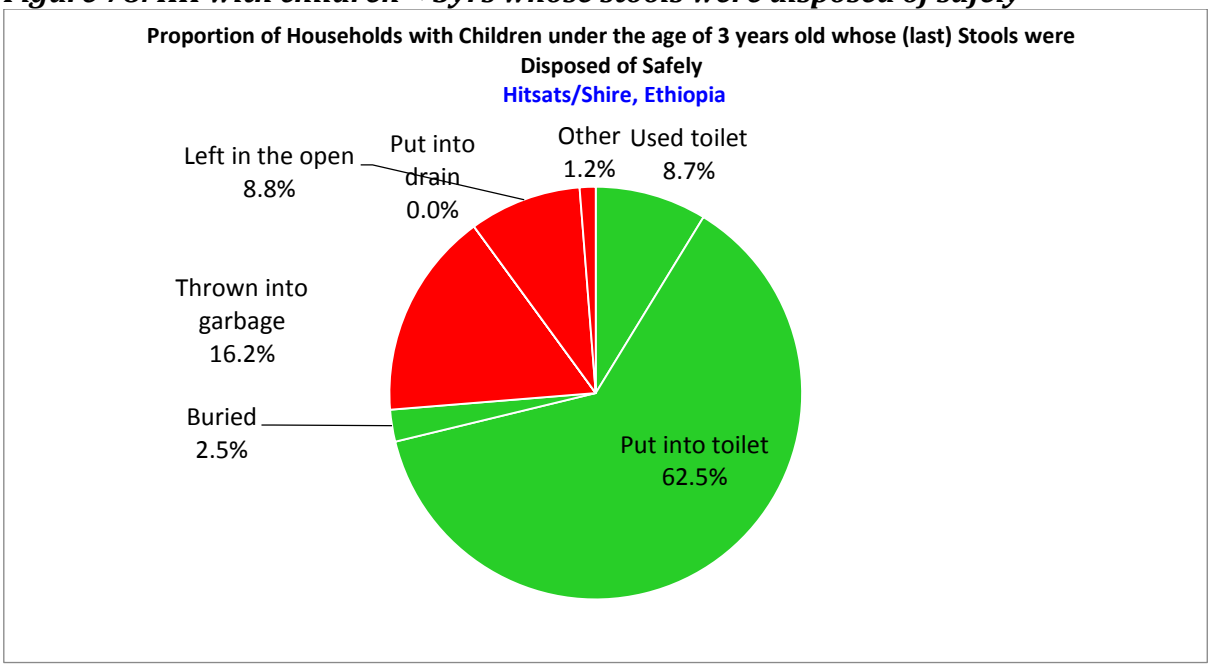
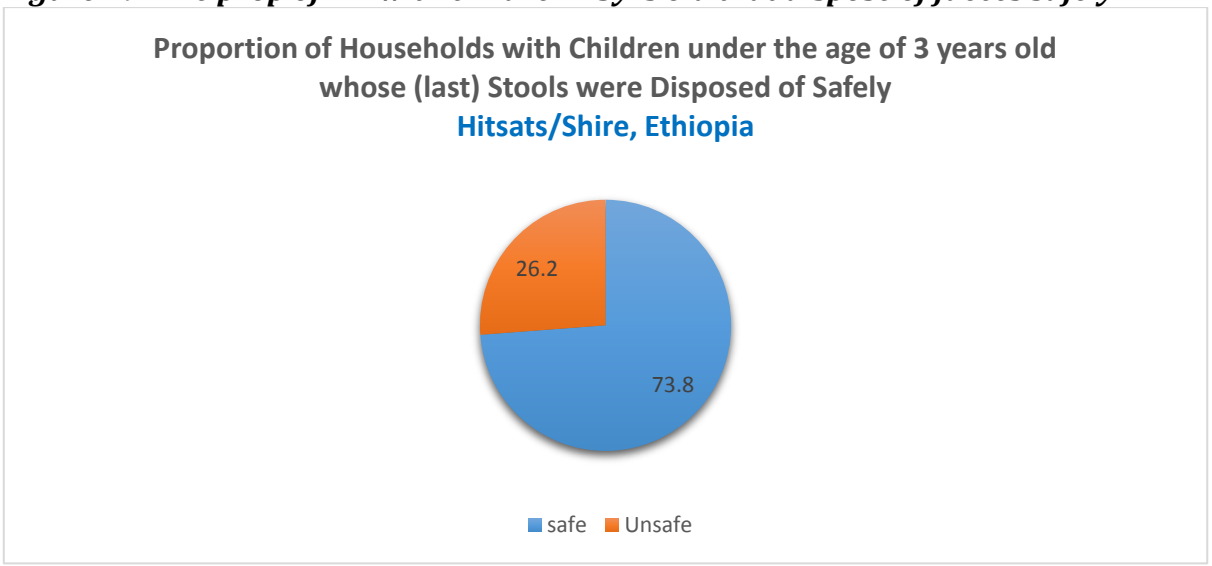


Figure 79: The prop of HH with children <3yrs old that dispose of faeces safely



4.4.13. Mosquito Net Coverage

Table 163 Household Mosquito net ownership

	Number/total	% (95% CI)
Proportion of households owning at least one mosquito net of any type	126/220	57.3% (50.5-63.9%)
Proportion of households owning at least one LLIN	126/220	57.3% (50.5-63.9%)

57.3% (50.5-63.9%) of the surveyed households reported to have a mosquito net, in which all of those reported to own long lasting insecticide net (LLIN) (Table 160 and figure 80).

Figure 80: Household ownership of at least one Mosquito net.

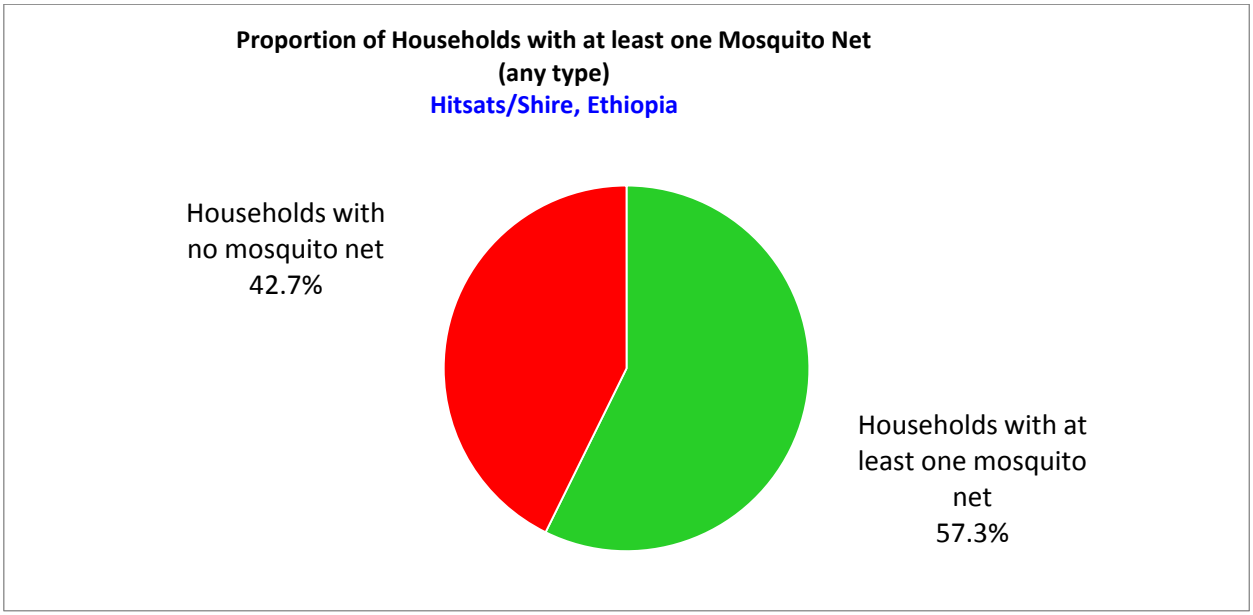


Figure 81: Household ownership of at least one LLIN

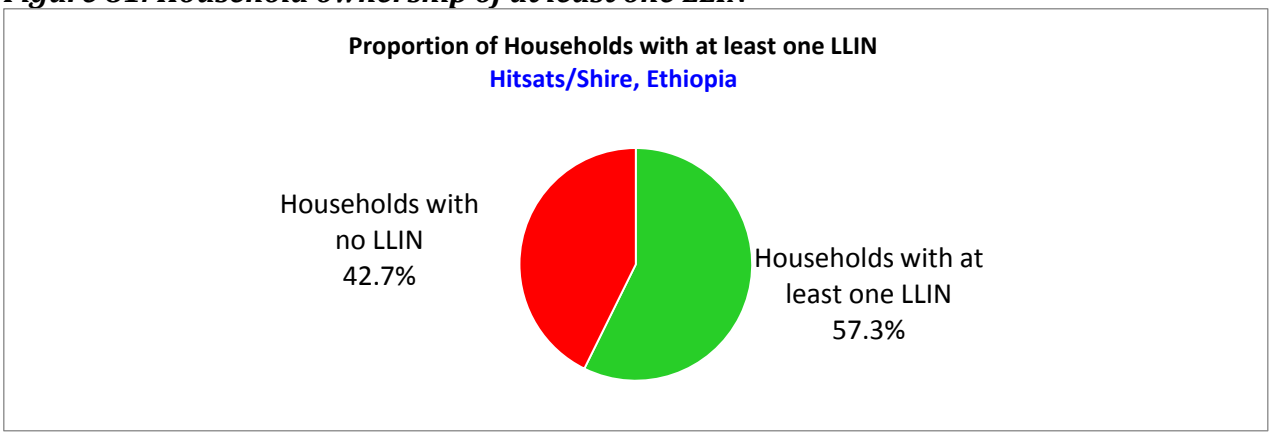


Table 164: Number of nets

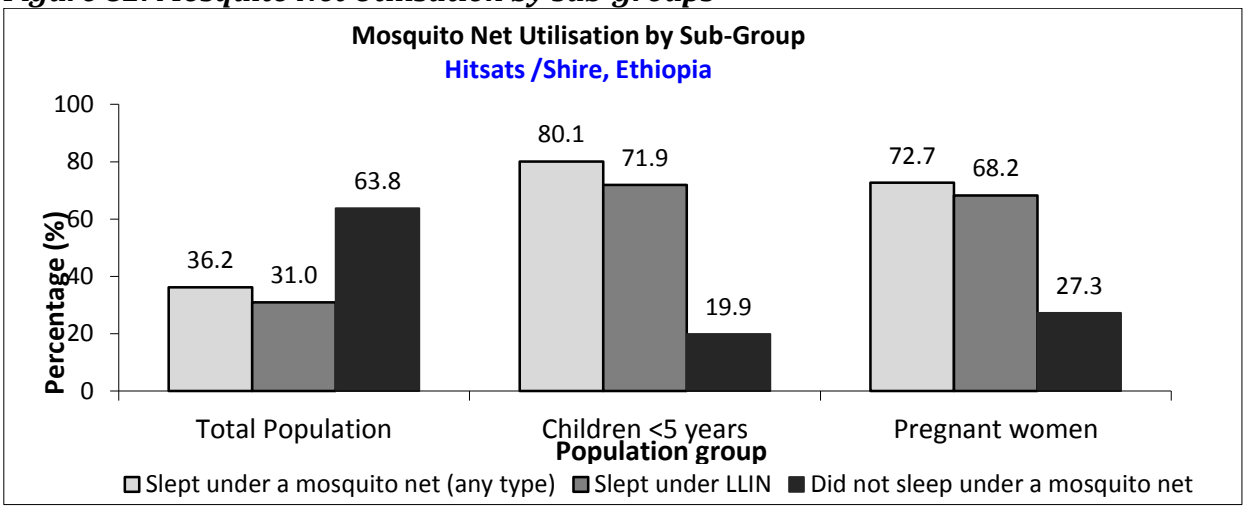
Average number of LLINs per household	Average number of persons per LLIN
1.2	8.3

Table 165: Mosquito net Utilisation

	Total population (all ages)		0-59 months		Pregnant	
	Total No= 1253	%	Total No= 156	%	Total No= 24	%
Slept under net of any type	453	36.2	125	80.1	16	72.7
Slept under LLIN	388	31.0	110	71.9	15	68.2

Below half of the surveyed population slept under an LLIN mosquito net. Use of LLIN mosquito nets was higher amongst under five children in comparison to use in pregnant women.

Figure 82: Mosquito Net Utilisation by sub-groups



5. DISCUSSION

Nutritional status among children aged 6 – 59 months:

- The overall nutrition situation in Shire refugee camps was the same for the three camps (Mai-Aini, Adi_harush, Shimelba), with an exception of Hitsats where an increase of GAM from 6.3% to 9.7%, though not statistically significant, was noted between 2015 and 2017. The average weighted prevalence was 8.8% and 0.2% for GAM and SAM respectively, which is within the UNHCR acceptable level of below 10%.
- Stunting prevalence was 18.4% for Mai-Aini, 27.8% for Adiharush, 30% for Shimelba, and 26.3% for Hitsats. When compared to classification of public health significance, the prevalence was below the WHO emergency threshold of above or equal to 40%. The average weighted prevalence of stunting for the four camps was 24.8%. Disaggregation by age revealed younger children aged between 6 – 23 months to be the most affected by stunting. This may be linked to poor maternal and child care focusing on the first 1000 days of life (starting from conception, infancy and childhood till 24months) which includes optimal feeding – timely initiation of breastfeeding, exclusive breastfeeding, complementary feeding and continued breastfeeding until 2 years and above.
- Despite the presence of acutely malnourished children in the camps, no child was found registered in the OTP in Adi-Harush, Shimelba, Hitsats excepte Mai-Aini where coverage was as low as 25%. In TSFP the coverage ranged from 2.8% in Hitsats to 30% in Mai-Aini while in BSFP coverage of children aged 6 – 23 months was ranging between 80.2% and 86.5%. This may suggest that children were readily available at BSFP but could not be detected for admission in appropriate targeted feeding program leading to keep them deteriorating further and thus increased prevalence of acute malnutrition.

Anaemia in children and women of child bearing age

- Prevalence of anaemia in children aged 6 – 59 months was ”low” being below 20% in Adihrush (12.0%) and Mai-Aini and “medium” being between 20% and 39% in Shimelba (24.8%) and Hitsats (37.6%) according to WHO classification . Looking at the results obtained, Mai-Aini and Adi_harush camps prevalence of anaemia has shown an improvement as compared to 2015, but for Shimelba and Hitsats the prevalence of children with anaemia have increased significantly. Except for Hitsats which was 27.3%, the prevalence of anaemia among women of reproductive age (15 - 49 years) was below 20% among other camps of Shire. The increased prevalence of anaemia in Hitsats may be attributed to high incidence of malaria, low nutrition program coverage in the blanket and targeted feeding programme, inadequate sanitation and hygiene practices, and deteriorated IYCF practices as compared to 2015 report.

Infant and young child feeding practices (IYCF)

- Timely initiation of breastfeeding and exclusive breast feeding was below 90% in shire camps, despite some interventions that were introduced targeting mothers

and child including blanket supplementation programs among children aged 6 – 23 months, pregnant and lactating mothers. Introduction of solid or semi-solid foods percentage among children 6-8 months was low in all the camps and the lowest was reported in Hitsats (23.1%) camp with highest proportion of bottle feeding (5.9%) as compared to the other camps. It should be noted that poor IYCF practices may results to poor nutrition among young children leading to increased prevalence of GAM, anaemia as well as stunting.

Food Security

- Proportion of households with a ration card was almost 100% in the all camps. Despite introduction of cash which was intended to bring flexibility among refugee to purchase food according to their preference, the mean households dietary diversity score (HDDS) was found between 4.7 and 5.3 compared to the standard 12 food groups. There is need to investigate as to why HDDS did not increase despite distribution of cash and in-kind combination among the refugee communities in Shire camps.

Water, Sanitation and Hygiene (WASH)

- Proportion of HHs using an improved drinking water source was 100% implying that all refugees had access to quality drinking water. However, the mean water supply to refugees was as little as 12.2 litres per person per day (l/p/d) in Hitsas, 16.5 l/p/d in Adiharush and 18.0 l/p/d in Mai-Aini, all below the UNHCR recommended standard of above 20 l/p/d. Only Shimelba was meeting the standard by supplying 31l/p/day during the survey.
- Proportion of households that were using unimproved latrines ranged from 21.3% in Shimelba to 30.0% in adiharush. Inadequate number of toilets coupled with inadequate amount of water supplied to refugee communities was linked to prevalence of diarrhea at 19.2% in Hitsas, 14.0% in Mai-Aini, 12.8% in Adiharush and 11.8% in Shibelba where water supply was meeting the UNHCR standards. It should be noted that poor WASH services may result into outbreak of communicable diseases which may cost lives of refugees and related UNHCR person of concern.

Mosquito net coverage

- Despite the camps being located in malaria endemic area, proportion of households owning at least one mosquito net of any type ranged between 56% and 70% compared to 80% recommended by UNHCR. The theoretical number persons who were using one LLIN ranged between 3.6 and 8.3 compared to the standard of 2 persons per LLIN according to UNHCR. Since it is impracticable to such number of persons to use a single net it implies inadequate utilization of mosquito net which may lead to high prevalence of malaria and subsequent mortalities especially in children aged below five years.

Mortality

- The mortality indicators remained acceptable according to the sphere standards; crude mortality rates are <1 death per 10,000 per day and under five mortality rate <2 deaths per 10,000 per day.

6. CONCLUSION

Generally there was no significant change in prevalence of acute malnutrition among children aged 6 – 59 months Shire camps. Prevalence of GAM was below the emergency threshold of below 15% in the four camps and three of the four were within the UNHCR acceptable level of below 10%. Prevalence of SAM in the four camps remained below 2% critical which is a threshold for UNHCR standard in the same age group.

While chronic malnutrition measured by the level of stunting was below the WHO emergency threshold of 40% children aged below two months seemed the most affected. Infant and young child feeding practices, household diversity score, mosquito net coverage, water supply and toilet facilities indicated a degree of dissatisfaction while enrolment of malnourished children aged 6 – 59 month in the targeted feeding programs were extremely low. The latter components were linked to some deteriorated indicators and if not well corrected it critically may result into significant deteriorated nutritional status in the future.

7. RECOMMENDATIONS

Short Term

- Enrolment coverage for SAM and MAM cases was very low in both OTP and TFSP in all camps. Some of the children were not enrolled in the right feeding program, for instance SAM children enrolled in MAM program while MAM children were in SAM or BSFP. Improvement of nutrition outreach programme for active case finding at in the community and appropriate capacity building to staff working in BFSP and targeted feeding programs through CMAM training will contribute to increased coverage and enrolment in appropriate program.
- Use of elevated MUAC of 14cm for children aged 6 – 23 months and 15cm among children aged 24 – 59 months during nutritional screening would increase a window to capture the most at risk children including those who are malnourished when subjected for WHZ. Regular measurement of children with WHZ at BSFP would greatly help to capture and enrol acute malnourished cases and enrol them in the nutrition program accordingly.
- Despite of the protracted refugee camps; shortage of water was very low in especially Hitsats refugee camp (12.2 LPPPD). In-turn, the camp the highest prevalence of diarrhoea which might be linked to such low amount of water supply. Increased amount of water supply should be addressed to reduce prevalence of diarrhoea in the above mentioned camp.

Medium Term

- UNHCR in collaboration with ARRA to equip nutrition and health centres with appropriate anthropometric kits. This will enhance staffs working at these centres to properly identify cases and provide right management in the right facility.
- Prevalence of anaemia in Hitsas camps was just below the emergency threshold. Measures for prevention and control of anaemia including distribution of mosquito net, addressing gaps related to infant and young children feeding practices as well as blanket supplementary feeding to children aged 6 – 59 months should be emphasised to ensure prevalence of reduced.
- Mosquito net coverage was very low in all camps exposing refugees to high risk of contracting malaria. Procurement and distribution of mosquito net need an urgent attention for protection of UNHCR persons of concern especially children aged below five year as well as pregnant women. The water ponds which were observed in the camps need to be filled up to reduce mosquito breeding sites.
- Improve Infant and Young Child Feeding programme through training of healthcare providers in field locations and subsequent implementation of the UNHCR IYCF framework. IYCF needs to be integrated and linked with primary health care MCH unit with more focus on essential nutrition actions which include but not limited to; exclusive breastfeeding, attachment, positioning, building confidence for lactating mothers to produced milk, importance of antenatal care, postnatal care and so on.

Long term

- WFP in collaboration with UNHCR and ARRA should advocate to donors to increase food ration to the minimum recommended level, strengthen food basket monitoring and post distribution monitoring to ensure right amount of food is received and properly utilized.

- Analysis showed that younger children were the most affected by chronic malnutrition (stunting) than older children despite reasonable health and nutrition services provided in the camps. Causes of gradual increase of prevalence of stunting may need to be investigated for proper intervention in the future.

ANNEX: 1 PLAUSABILITY CHECK

Plausibility check for: HITSATS

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 (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (1.1 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.905)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**2** (p=0.082)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (9)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (10)
Standard Dev WHZ . .	Excl and Excl	SD and SD	<1.1 and >0.9	<1.15 and >0.85	<1.20 and >0.80	>=1.20 or <=0.80	
			0	5	10	20	**0** (0.99)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.13)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.00)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**6** %

The overall score of this survey is 6 %, this is excellent.

Plausibility check for: SHIMELBA

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 (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (1.5 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.951)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.313)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (8)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (10)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (10)
Standard Dev WHZ . .	Excl Excl	SD SD	<1.1 and >0.9	<1.15 and >0.85	<1.20 and >0.80	>=1.20 or <=0.80	
			0	5	10	20	**0** (0.99)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.17)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.19)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**5** (p=0.000)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**11** %

The overall score of this survey is 11 %, this is good.
Plausibility check for: ADI_HARUSH

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 (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (0.7 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.132)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.312)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (6)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (10)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (6)
Standard Dev WHZ . .	Excl	SD	<1.1 and Excl	<1.15 and SD	<1.20 and >0.9	>=1.20 or <=0.80	
			0	>0.85 5	>0.80 10	20	**0** (0.91)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.06)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.05)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=)
OVERALL SCORE WHZ =			0-9 0	10-14 2	15-24 4	>25 10	**2** %

The overall score of this survey is 2 %, this is excellent.
Plausibility check for: MAI-AIYNI

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 (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (0.9 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.783)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.178)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (6)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (12)
Standard Dev WHZ . .	Excl Excl	SD SD	<1.1 and >0.9	<1.15 and >0.85	<1.20 and >0.80	>=1.20 or <=0.80	
			0	5	10	20	**0** (0.94)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.00)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.03)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=)

OVERALL SCORE WHZ = 0-9 10-14 15-24 >25 **2** %

The overall score of this survey is 2 %, this is excellent.

ANNEX: 2 UNHCR Standardised Expanded Nutrition Survey (SENS) Questionnaire

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 HEAD OF HOUSEHOLD AS MEMBER OF THE FAMILY WHO MANAGES THE FAMILY RESOURCES AND IS THE FINAL DECISION MAKER IN THE HOUSE.

Hello, my name is _____ and I work with *[organisation/institution*]. 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 assistance 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 give us your verbal consent. Be assured that any information that you will provide will be kept strictly confidential.
- You can ask me any question that you have about this survey before you decide 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.

Note that in some camps, the words 'block' and 'section' may not be used and other words may be used for these. Adapt the wording accordingly.

CAPITAL LETTERS refer to instructions for the surveyors and should not be read to the respondent.

CHILDREN 6-59 MONTHS ANTHROPOMETRY, HEALTH AND ANAEMIA: 1 questionnaire per cluster / zones / sections *(*THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO ALL CHILDREN BETWEEN 6 AND 59 MONTHS OF AGE*)*

Section code / number:_____**Block code / number**: _____

Date of interview (dd/mm/yyyy): |___|___|/|___|___|/|___|___||___|___|	**Cluster Number (*in cluster survey only*)** |___|___|	**Team number** |___|

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11	CH12	CH13	CH14	CH15
ID	**HH**	**Consent given** 1=Yes 2=No 3=Absent	**Sex** (m/f)	**Birthdate*** dd/mm/yyyy	**Age**** (months)	**Weight** (kg) ±100g	**Height** (cm) ±0.1cm	**Oedema** (y/n)	**MUAC** (mm)	**Child enrolled** 1=SFP 2=TFP 3=None	**Measles** 1=Yes card 2=Yes recall 3=No or don't know	**Vit. A in past 6 months** (SHOW CAPSULE) 1=Yes card 2=Yes recall 3=No or don't know	**Diarrhoea in past 2 weeks** 1=Yes 2=No 3=Don't know	**Hb** *(g/L or g/dL)*
01				/ /										
02				/ /										
03				/ /										
04				/ /										
05				/ /										
06				/ /										
07				/ /										
08				/ /										
09				/ /										
…				/ /										

*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.

WOMEN ANAEMIA: 1 questionnaire per cluster / zones / sections (THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO ALL WOMEN AGED BETWEEN 15 AND 49 YEARS IN THE SELECTED HOUSEHOLD)

Section code / number:_____**Block code / number**: _____

Date of interview (dd/mm/yyyy): |___|___|/|___|___|/|___|___||___|___|	**Cluster Number (*in cluster survey only*)** |___|___|	**Team number** |___|

WM1	**WM2**	**WM3**	**WM4**	**WM5**	**WM6**	**WM7**	**WM8**
ID	**HH**	**Consent given** 1=Yes 2=No 3=Absent	**Age** (years)	**Are you pregnant?** 1=Yes 2=No (GO TO HB) 8=Don't know (GO TO HB)	**Are you currently <u>enrolled</u> in the ANC programme?** 1=Yes 2=No 8=Don't know	**Are you currently <u>receiving</u> iron-folate pills (*SHOW PILL*)?** 1=Yes (STOP NOW) 2=No (STOP NOW) 8=Don't know (STOP NOW)	**Hb** (g/L or g/dL)
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
…							

IYCF: 1 questionnaire per child 0-23 months *(*THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO THE MOTHER OR THE MAIN CAREGIVER WHO IS RESPONSIBLE FOR FEEDING THE CHILD AND THE CHILD SHOULD BE BETWEEN 0 AND 23 MONTHS OF AGE)

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

Date of interview (dd/mm/yyyy)	**Cluster Number (*in cluster survey only*)**	
|___|___|/|___|___|/|___|___||___|___|	|___|___|	
Team Number	**ID Number**	**HH Number**
|___|	|___|___|___|	|___|___|___|

No	**QUESTION**	**ANSWER CODES**	
SECTION IF1			
IF1	Sex	Male .....1 Female 2	|___|
IF2	Birthdate RECORD FROM AGE DOCUMENTATION. LEAVE BLANK IF NO VALID AGE DOCUMENTATION.	Day/Month/Year.....|___|___| /|___|___| / |___|___||___|___|	
IF3	Child's age in months	IF AGE DOCUMENTATION NOT AVAILABLE, ESTIMATE USING EVENT CALENDAR. IF AGE DOCUMENTATION AVAILABLE, RECORD THE AGE IN MONTHS FROM THE DATE OF BIRTH.	|___|___|
IF4	Has [NAME] ever been breastfed?	Yes.....1 No.....2 Don't know.....8	|___| **IF ANSWER IS 2 or 8 GO TO IF7**
IF5	How long after birth did you first put [NAME] to the breast?	Less than one hour.....1 Between 1 and 23 hours.....2 More than 24 hours.....3 Don't know.....8	|___|
IF6	Was [NAME] breastfed yesterday during the day or at night?	Yes.....1 No.....2 Don't know.....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? ASK ABOUT EVERY LIQUID. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOES NOT KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE. REPLACE AND ADAPT THE TEXT HIGHLIGHTED IN GREY TO THE CONTEXT. THE TEXT IN *ITALICS* NEEDS TO BE DELETED FROM THE FINAL SURVEY QUESTIONNAIRE – THE LIST THAT IS PROVIDED BELOW IS AN EXAMPLE.		
			Yes No DK
	7A. Plain water	7A……1	2 8
	7B. Infant formula, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF INFANT FORMULA, *ALL TYPES*]	7B……1	2 8
	7C. Milk such as tinned, powdered, or fresh animal milk, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF TINNED AND POWDERED MILK]	7C……1	2 8
	7D. Juice or juice drinks, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF JUICE DRINKS]	7D……1	2 8
	7E. Clear broth	7E……1	2 8
	7F. Sour milk or yogurt, for example [INSERT LOCAL NAMES]	7F……1	2 8
	7G. Thin porridge, for example [INSERT LOCAL NAMES]	7G……1	2 8
	7H. Tea or coffee with milk	7H……1	2 8
	7I. Any other water-based liquids, for example [INSERT OTHER WATER-BASED LIQUIDS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g. *sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual fluids)*	7I……..1	2 8
IF8	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food?	Yes……..1 No……..2 Don't know……..8	|___|
SECTION IF3			

IF9	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night?	Yes……..1 No……..2 Don't know……..8	|___|
SECTION IF4			
IF10	IS CHILD AGED 6-23 MONTHS? REFER TO IF2 / IF3	Yes……1 No……..2	|___| **IF ANSWER IS 2 STOP NOW**
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? ASK ABOUT EVERY ITEM. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOES NOT KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE. REPLACE AND ADAPT THE TEXT HIGHLIGHTED IN GREY TO THE CONTEXT. THE TEXT IN *ITALICS* NEEDS TO BE DELETED FROM THE FINAL SURVEY QUESTIONNAIRE – THE LIST THAT IS PROVIDED BELOW IS AN EXAMPLE. IF A CATEGORY OF IRON-RICH FOOD (11A-11H) IS NOT AVAILABLE IN THE SETTING, DELETE IT FROM THE QUESTIONNAIRE BUT KEEP THE ORIGINAL QUESTION NUMBERS AND DO NOT CHANGE.		
			Yes No DK
	11A. [INSERT COMMON MEAT, FISH, POULTRY AND LIVER/ORGAN FLESH FOODS USED THE LOCAL SETTING] *(e.g. beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart)*	11A……..1	2 8
	11B. [INSERT FBF AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g. CSB+, WSB+)	11B……..1	2 8
	11C. [INSERT FBF++ AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] *(e.g. CSB++, WSB++)*	11C……..1	2 8
	11D. [INSERT RUTF PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] *(e.g. Plumpy'Nut®, eeZeePaste™)* (SHOW SACHET)	11D……..1	2 8
	11E. [INSERT RUSF PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] *(e.g. Plumpy'Sup®)* (SHOW SACHET)	11E……..1	2 8
	11F. [INSERT LNS PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] *(e.g. Nutributter®, Plumpy'doz®)* (SHOW SACHET / POT)	11F……..1	2 8

	11G. [INSERT LOCALLY AVAILABLE BRAND NAMES OF *IRON FORTIFIED* INFANT FORMULA *ONLY*] *(e.g. Nan, S26 infant formula)*	11G……..1 2 8	
	11H. [INSERTST 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 AND USE LOCALLY AVAILABLE BRAND NAMES] *(e.g. Cerelac, Weetabix)*	11H……..1 2 8	
IF12	**In a setting where micronutrient powders are used:** Yesterday, during the day or at night, did [NAME] consume any food to which you added a [INSERT LOCAL NAME FOR MICRONUTRIENT POWDER OR SPRINKLES] like this? (SHOW MICRONUTRIENT POWDER SACHET)	Yes……1 No……..2 Don't know……..8	|___|

WASH: 1 questionnaire per household *(*THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO THE MAIN CARETAKER OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSEHOLD)

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

Date of interview (dd/mm/yyyy)	**Cluster Number (*in cluster survey only*)**
|___|___|/|___|___|/|___|___||___|___|	|___|___|
Team Number	**HH Number**
|___|	|___|___|___|

No	QUESTION	ANSWER CODES	
SECTION WS1			
WS1	How many people live in this household and slept here last night?		|___|___|
WS2	What is the ***main*** source of drinking water for members of your household? ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. WHEN ADAPTING THE LIST, KEEP THE ORIGINAL ANSWER CODES AND DO NOT CHANGE. DO NOT READ THE ANSWERS SELECT ONE ONLY	Piped water ..... 01 Public tap/standpipe ..... 02 Tubewell/borehole (& pump) ..... 03 Protected dug well ..... 04 Protected spring ..... 05 Rain water collection ..... 06 UNHCR Tanker ..... 07 Unprotected spring ..... 08 Unprotected dug well ..... 09 Small water vendor ..... 10 Tanker truck ..... 11 Bottled water ..... 12 Surface water (e.g. river, pond) ..... 13 Other ..... 96 Don't know 98	|___|___|
WS3	Are you satisfied with the water supply? THIS RELATES TO THE DRINKING WATER SUPPLY	Yes ..... 1 No ..... 2 Partially ..... 3 Don't know 8	|___| **IF ANSWER IS 1, 3 OR 8 GO TO WS5**
WS4	What is the ***main*** reason you are not satisfied with the water supply?	Not enough ..... 01 Long waiting queue 02	

	ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. DO NOT READ THE ANSWERS SELECT ONE ONLY	Long distance.....03 Irregular supply .....04 Bad taste.....05 Water too warm .....06 Bad quality .....07 Have to pay.....08 Other .....96 Don't know 98	|___|___|
WS5	What kind of toilet facility does this household use? ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. WHEN ADAPTING THE LIST, KEEP THE ORIGINAL ANSWER CODES AND DO NOT CHANGE. DO NOT READ THE ANSWERS SELECT ONE ONLY	Flush to piped sewer system..... 01 Flush to septic system ..... 02 Pour-flush to pit ..... 03 VIP/simple pit latrine with floor/slab..... 04 Composting/dry latrine ..... 05 Flush or pour-flush elsewhere..... 06 Pit latrine without floor/slab..... 07 Service or bucket latrine ..... 08 Hanging toilet/latrine ..... 09 No facility, field, bush, plastic bag..... 10	|___|___| **IF ANSWER IS 10 GO TO WS7**
WS6	How many ***households*** share this toilet? THIS INCLUDES THE SURVEYED HOUSEHOLD	RECORD NUMBER OF HOUSEHOLDS IF KNOWN (RECORD 96 IF PUBLIC TOILET OR 98 IF UNKNOWN)	|___|___| Households
		SUPERVISOR SELECT ONE ONLY Not shared (**1 HH**).....1 Shared family (**2 HH**) .....2 Communal toilet (**3 HH or more**) .....3 Public toilet (**in market or clinic etc**.).....4 Don't know 8	|___|
WS7	Do you have children under three years old?	Yes .....1 No 2	|___| **IF ANSWER IS 2 GO TO WS9**
WS8	The last time [NAME OF YOUNGEST CHILD] passed stools, what was done to dispose of the stools? DO NOT READ THE ANSWERS SELECT ONE ONLY	Child used toilet/latrine ..... 01 Put/rinsed into toilet or latrine ..... 02 Buried ..... 03 Thrown into garbage ..... 04 Put/rinsed into drain or ditch..... 05 Left in the open ..... 06 Other ..... 96 Don't know 98	|___|___|
SECTION WS2 **Observation Based Questions (*done after the initial questions to ensure the flow of the interview is not broken*)**			

No	OBSERVATION / QUESTION	ANSWER			
WS9	CALCULATE THE TOTAL AMOUNT OF WATER USED BY THE HOUSEHOLD PER DAY THIS RELATES TO ALL SOURCES OF WATER (DRINKING WATER AND NON-DRINKING WATER SOURCES)	Please show me the containers you used yesterday for collecting water ASSIGN A NUMBER TO EACH CONTAINER	Capacity in litres	Number of journeys made with each container	Total litres **SUPERVISOR TO COMPLETE HAND CALCULATION**
		1 E.g. jerry can	25 L	1 x	25
		2 E.g. jerry can	10 L	2 x	20
		3 E.g. jerry can	5 L	2 x	10
		4 E.g. jerry can	5 L	1 x	5
		5 E.g. bucket	50 L	1 x	50
		6			
		7			
		8			
		9			
		10			
		Total litres used by household			110
WS10	Please show me where you store your drinking water. ARE THE DRINKING WATER CONTAINERS COVERED OR NARROW NECKED?	All are .....1 Some are ..... 2 None are 3			|___|

FOOD SECURITY: 1 questionnaire per household *(*THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO THE MAIN CARETAKER WHO IS RESPONSIBLE FOR COOKING THE MEALS)

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

Date of interview (dd/mm/yyyy)	**Cluster Number (*in cluster survey only*)**
|___|___|/|___|___|/|___|___||___|___|	|___|___|
Team Number	**HH Number**
|___|	|___|___|___|

No	QUESTION	ANSWER CODES	
SECTION FS1			
FS1	Does your household have a ration card?	Yes.....1 No.....2	|___| **IF ANSWER IS 1 GO TO FS3**
FS2	Why do you not have a ration card?	Not given one at registration.....1 Lost card.....2 Traded/sold card.....3 Not registered but eligible.....4 Not eligible (not in targeting criteria)....5 Other.....6	|___| **GO TO FS5**
FS3	Does your household receive full or reduced ration? (OPTIONAL)	Full..... ...1 Half..... .2 Other..... .6	|___| **IF ANSWER IS 2 OR 6 GO TO FS5**
FS4	How many days did the food from the general food aid ration from the [INSERT] cycle of [INSERT MONTH] last?	RECORD THE NUMBER OF DAYS IF KNOWN (RECORD 98 IF UNKNOWN)	|___|___|
FS5	In the last month, have you or anyone in your household borrowed cash, food or other items with or without interest?	Yes.....1 No.....2 Don't know.....8	|___|
FS6	In the last month, have you or anyone in your household sold any assets that you would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)?	Yes.....1 No.....2 Don't know.....8	|___|

FS7	In the last month, have you or anyone in your household requested increased remittances or gifts as compared to normal?	Yes.....1 No.....2 Don't know.....8	|___|
FS8	In the last month, have you or anyone in your household reduced the quantity and / or frequency of meals and snacks?	Yes.....1 No.....2 Don't know.....8	|___|
FS9	In the last month, have you or anyone in your household begged?	Yes.....1 No.....2 Don't know.....8	|___|
FS10	In the last month, have you or anyone in your household engaged in: [ADD LIST OF POTENTIALLY RISKY OR HARMFUL ACTIVITIES SUCH AS LOCAL ILLEGAL ACTIVITIES] or any other risky or harmful activities?	Yes.....1 No.....2 Don't know.....8	|___|

SECTION FS2

FS11	Now I would like to ask you about the types of foods that you or anyone else in your household ate yesterday during the day and at night. I am interested in whether you or anyone else in your household had the item even if it was combined with other foods. I am interested in knowing about meals, beverages and snacks eaten or drank inside or outside the home. READ THE LIST OF FOODS AND DO NOT PROBE. PLACE A *ONE* IN THE BOX IF ANYONE IN THE HOUSEHOLD ATE THE FOOD IN QUESTION, PLACE A *ZERO* IN THE BOX IF NO ONE IN THE HOUSEHOLD ATE THE FOOD. REPLACE AND ADAPT THE TEXT HIGHLIGHTED IN GREY TO THE CONTEXT. THE TEXT IN *ITALICS* NEEDS TO BE DELETED FROM THE FINAL SURVEY QUESTIONNAIRE – THE LIST THAT IS PROVIDED BELOW IS AN EXAMPLE.	
	1. Any [INSERT CEREALS LOCALLY AVAILABLE] (*e.g. wheat, corn/maize, corn soy blend, barley, buckwheat, millet, oats, rice, rye, sorghum, teff*) or any foods made from these such as [INSERT LOCAL FOODS] (*e.g. bread, porridge, noodles, ugali, nshima, paste*)	1……|___|
	2. Any [INSERT WHITE ROOTS AND TUBERS LOCALLY AVAILABLE] *(e.g. green bananas, lotus root, parsnip, taro, plantains, white potatoes, white yam, white cassava, white sweet potato)* or any foods made from roots such as [INSERT LOCAL FOODS]	2……|___|
	3A. Any [INSERT VITAMIN A RICH VEGETABLES AND TUBERS LOCALLY AVAILABLE] *(e.g. carrot, pumpkin, squash, or sweet potato that are orange inside, red sweet pepper)*	3A……|___|

	3B. Any [INSERT DARK GREEN LEAFY VEGETABLES LOCALLY AVAILABLE INLCUDING WILD FORMS AND VITAMIN A RICH LEAVES] (*e.g. amaranth, arugula, cassava leaves, kale, spinach*)	3B……|___|
	3C. Any [INSERT ANY OTHER VEGETABLES LOCALLY AVAILABLE] *(e.g. bamboo shoots, cabbage, green pepper, tomato, onion, eggplant, zucchini)*	3C……|___|
	4A. Any [INSERT VITAMIN A RICH FRUITS LOCALLY AVAILABLE], and 100% fruit juice made from these *(e.g. mango (ripe, fresh and dried), cantaloupe melon (ripe), apricot (fresh or dried), ripe papaya, passion fruit (ripe), dried peach)*	4A……|___|
	4B. Any [INSERT ANY OTHER FRUITS LOCALLY AVAILABLE INCLUDING WILD FRUITS], and 100% fruit juice made from these *(e.g. apple, avocados, banana, coconut flesh, lemon, orange)*	4B……|___|
	5A. Any [INSERT ORGAN MEAT OR BLOOD-BASED FOODS LOCALLY AVAILABLE] *(e.g. liver, kidney, heart)*	5A……|___|
	5B. Any [INSERT FLESH MEAT LOCALLY AVAILABLE] *(e.g. beef, goat, lamb, mutton, pork, rabbit, chicken, duck, cane rat, guinea pig, rat, agouti frogs, snakes, insects)*	5B……|___|
	6. Any eggs from [INSERT EGGS LOCALLY AVAILABLE] *(e.g. eggs from chicken, duck, guinea fowl)*	6……|___|
	7. Any [INSERT FRESH, DRIED OR CANNED FISH OR SHELLFISH LOCALLY AVAILABLE] *(e.g. anchovies, tuna, sardines, shark, whale, roe/fish eggs, clam, crab, lobster, crayfish, mussels, shrimp, octopus, squid, sea snails)*	7……|___|
	8. Any [INSERT LEGUMES, NUTS AND SEEDS LOCALLY AVAILABLE] *(e.g. dried peas, dried beans, lentils, nuts, seeds)* or any foods made from these such as [INSERT LOCAL FOODS] *(e.g. hummus, peanut butter)*	8……|___|
	9. Any [INSERT MILK AND MILK PRODUCTS LOCALLY AVAILABLE] *(e.g. milk, infant formula, cheese, kiefer, yogurt)*	9……|___|
	10. Any [INSERT OILS AND FATS LOCALLY AVAILABLE] added to food or used for cooking *(e.g. vegetable oil, ghee or butter)*	10……|___|

	11. Any [INSERT SWEETS, SWEETENED SODA OR JUICE DRINKS AND SUGARY FOODS LOCALLY AVAILABLE] *(e.g. sugar, honey, soda drinks, chocolates, candies, cookies, sweet biscuits and cakes)*	11……..……..…|___|
	12. Any [INSERT SPICES, CONDIMENTS AND BEVERAGES LOCALLY AVAILABLE] *(e.g. black pepper, salt, chillies, soy sauce, hot sauce, fish powder, fish sauce, ginger, herbs, magi cubes, ketchup, mustard, coffee, tea, beer, alcoholic beverages like wine, hard spirits)*	12……..…|___|

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).

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

Date of interview (dd/mm/yyyy)	**Cluster Number (*in cluster survey only*)**
|___|___|/|___|___|/|___|___||___|___|	|___|___|
Team Number	**HH Number**
|___|	|___|___|___|

No	**QUESTION**		**ANSWER CODES**		
SECTION TN1					
TN1	How many people live in this household and slept here last night? INSERT NUMBER				|___|___|
TN2	How many children 0-59 months live in this household and slept here last night? INSERT NUMBER				|___|___|
TN3	How many pregnant women live in this household and slept here last night? INSERT NUMBER				|___|___|
TN4	Did you have your house sprayed with insecticide in an indoor residual spray campaign in the past I___I months? (OPTIONAL)		Yes ..... 1 No 2		|___|
TN5	Do you have mosquito nets in this household that can be used while sleeping?		Yes ..... 1 No 2		|___| **IF ANSWER IS 2 STOP NOW**
TN6	How many of these mosquito nets that can be used while sleeping does your household have? INSERT NUMBER		IF MORE THAN 4 NETS, ENTER THE NUMBER AND USE ADDITIONAL NET QUESTIONNAIRE SHEETS ENTERING THE NUMBER OF THE NETS SEQUENTIALLY AT THE TOP.		|___| Nets
TN7	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD. IF NETS	NET #|___|	NET #|___|	NET #|___|	NET #|___|

	ARE NOT OBSERVED → CORRECT TN6 ANSWER				
TN8	OBSERVE NET AND RECORD THE BRANDNAME OF NET ON THE TAG. IF NO TAG EXISTS OR IS UNREADABLE RECORD 'DK' FOR DON'T KNOW.				
TN9	**For surveyor/supervisor only (not to be done during interview)**: WHAT TYPE OF NET IS THIS? BASED ON THE TAG INDICATE IF THIS IS A LLIN OR OTHER TYPE OF NET OR DK.	1=LLIN 2=Other/DK |___|	1=LLIN 2=Other/DK |___|	1=LLIN 2=Other/DK |___|	1=LLIN 2=Other/DK |___|
TN10	**For surveyor/supervisor only (not to be done during interview)**: RECORD THE TOTAL NUMBER OF LLINs IN HOUSEHOLD BY COUNTING THE NUMBER OF '1' IN TN9.				|___| LLINs

SECTION TN2							
Line no	**Household members**	**Sex**	**Age**	**Pregnancy status**	**Slept under net**	**Which net**	**Type of net**
#	**COL1**	**COL2**	**COL3**	**COL4**	**COL5**	**COL6**	**COL7**
	Please give me the names of the household members who live here and who slept here last night	Sex m/f	Age years	FOR WOMEN 15-49 YEARS, ASK: Is (NAME) currently pregnant? (CIRCLE NOT APPLICABLE OR N/A'99' IF FEMALE <15->49 YEARS OR MALE) Yes No/DK N/A	Did (NAME) sleep under a net last night? Yes No/DK	ASK THE RESPONDENT TO PHYSICALLY IDENTIFY WHICH OF THE OBSERVED NETS THEY SLEPT UNDER. WRITE THE NUMBER CORRESPONDING TO THE NET THEY USED.	**For surveyor/ supervisor only:** BASED ON THE OBSERVED NET BRANDNAME RECORDED (TN8), INDICATE IF IT IS AN LLIN OR OTHER / DON'T KNOW (DK). LLIN OTHER/DK
01		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
02		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
03		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
04		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
05		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
06		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
07		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
08		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
09		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
10		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
11		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
12		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
13		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
14		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
15		m f	<5 ≥5	1 0 99	1 0	|___|	1 2

Mosquito net summary (for surveyor / supervisor only, not to be done during interview)			
	Total household members	**Total <5**	**Total Pregnant**

Slept under a net of any type	Count the number of '1' in COL5	**TN11** |___|___|	For children < 5 (COL3 is '<5'), count the number of '1' in COL5	**TN13** |___|___|	For pregnant women (COL4 is '1'), count the number of '1' in COL5	**TN15** |___|___|
Slept under an LLIN	Count the number of '1' in COL7	**TN12** |___|___|	For children <5 (COL3 is '<5'), count the number of '1' in COL7	**TN14** |___|___|	For pregnant women (COL4 is '1'), count the number of '1' in COL7	**TN16** |___|___|