Food Security and Nutrition Assessment in Refugee Settlements Final Report

South West:	**Nakivale, Oruchinga, Rwamwanja, and Kyaka II**
Midwest:	**Kyangwali and Kiryandongo**
West Nile:	**Adjumani, Arua, Bidibidi, Palabek, Paolrinya and Lobule**

Data Collected: October 2017

GoU **UNHCR** **UNICEF** **WFP**

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ACRONYMS AND ABBREVIATIONS

ANC	Ante Natal Clinic
CDR	Crude Death Rate
CI	Confidence Interval
CHWs	Community Health Workers
CSB	Corn-Soya Blend
DEFF	Design effect
ENA	Emergency Nutrition Assessment
EPI	Expanded Programme on Immunization
Epi Info	Name of CDC software for epidemiological investigations
GAM	Global Acute Malnutrition
GFD	General Food Distribution
HAZ	Height-for-Age z-score
Hb	Haemoglobin
HH	Household
HIS	Health Information System
LLINTs	Long-Lasting Insecticidal Nets
IYCF	Infant and Young Child Feeding
Lpppd	Litres Per Person Per Day
LNS	Lipid-based Nutrient Supplement
MAM	Moderate Acute Malnutrition
MCH	Maternal and Child Heath
MOH	Ministry of Health
MUAC	Middle Upper Arm circumference
NCHS	National Centre for Health Statistics
OTP	Out-patient Therapeutic Programme
PDM	Post Distribution Monitoring
ProGres	UNHCR registration database for refugees
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SD	Standard Deviation
SENS	Standardised Expanded Nutrition Survey for Refugee populations
SFP	Supplementary Feeding Programme
SMART	Standardised Monitoring & Assessment of Relief & Transitions
TFP	Therapeutic Feeding Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Funds
WASH	Water Sanitation and Hygiene
WAZ	Weight-for-Age z-score
WHZ	Weight-for-Height z-score
WFP	World Food Programme

EXECUTIVE SUMMARY

Uganda, as at the end of October 2017 was hosting more than 1.3 million refugees across 12 districts in the country. The refugees live alongside their Ugandan host's communities in the settlements.

The main objective of the survey was to assess the general nutrition and food security, infant and young child feeding, health and anaemia status of refugees and formulate some recommendations for appropriate nutritional and public health interventions to address and sustain the achievements the programme has registered so far. In the settlements, cross-sectional surveys were conducted in each designated settlement employing systematic random sampling.

In West Nile settlements, prevelances of acute malnutrition and anaemia were apparent with some variations. The highest global acute malnutrition (WHZ < -2 SD) prevelance was 12.3% (9.6-15.7% C.I) in Palabek. Other settlements in West Nile region found with higher GAM prevalence were Adjumani with 11.8% (9.3-14.8% C.I), Bidibidi 11.8% (9.0-15.3% C.I), Palorinya 11.1% (7.7-15.6% C.I) and Arua 10.3% (7.8-13.5% C.I). Based on the World Health Organization (WHO) classification on public health significance for children under 5 years of age, GAM prevalence between 10-14% is classified as **"SERIOUS"** level nutrition situation. However, the higher confidence intervels of GAM prevelance in Palabek, Bidibidi, and Palorinya settlements falls above the 15% of "EMERGENCY THRESHOLDS". In South West settlements, GAM prevalences were within the acceptable level of <5% as per WHO classification. In South West the GAM prevelances were; Kyaka II (4.0%), Oruchinga (4.1%), Nakivale (3.8%), and Kyangwali (3.2%). Severe Acute Malnutrition (SAM) based on (WHZ < -3 SD was below 1% based on WHO growth standards across the settlements. The highest prevalence of malnutrition based on MUAC was found in Kampala Urban (13.4%), this was followed by Kiryandongo (9.8%), Palorinya (9.8%), Kyaka II (9.3%) and Oruchinga (9.3%). In the refugee settlements MUAC is one of the measure used to to admit acute malnourished children in the feeding programme. MUAC is also a predictor of mortality among malnourished children.

The findings from the survey highlighted **"HIGH"** prevelance of anaemia above the 40% public health significance (WHO classification) as a significant public health problem in the settlements. The highest prevalence of anaemia for children 6-59 months old was in Bidibidi (56.6%), Lobule (53.0%), Palorinya (48.8%), Arua (46.0 %), Kyaka II (44.1%), Adjumani (42.3 %), Palabek (45.9 %), Rwamwanja (43.0%), Kiryandongo (41.4%), and Kyangwali (41.8%). While in the rest of settlements and Kampala Urban ranged from 24.7% - 37.1% classified as **"MEDIUM"** public health significance (WHO classification). Comparing the results with the nutrition survey in 2016 there is significant reduction in the prevelamce of anaemia in all the refugee settleements during 2017, specifically in Bidibidi reduced from 72.4% to 56.6%, in Lobule reduced from 72.2% to 53.0%, in Rhino camp reduced from 65.0% to 46.0%, in Kiryandongo reduced from 59.3% to 41.4%, and in Kyaka II, Rwamwanja reduced from 51.1% and 51.7% to 44.1% and 43.0% respectively. Despite of reduction the prevelance of anaemia among children aged 6-59 months remained above the 40% of public health signifance (WHO classification). The prevalence of anaemia among non-pregnant women aged 15-49 years reported the highest in Palabek settlement 47.3% **"HIGH"** above the 40% of public health significance. While in the rest of settelents ranged between 24.5% - 34.4% classified as **"MEDIUM"** level public health significance (WHO classification).

The prevelance of stunting or chronic malnutrition among children aged 6-59 months reported the highest 32.6% in Kyangwali settlement which is classified **"SERIOUS"** level as per WHO

classification. In Nakivale, Oruchinga, Kyaka II, Rwamwanja, and Palebek settlements ranged between 20 – 29% classified as **"POOR"** as per WHO classification. While in Bidibidi, Palorinya, Rhino, Lobul, Adjumani, and Kiryandongo settlements reported <20% **"ACCEPTABLE"** level as per WHO classification.

Timely initiation of breastfeeding for children aged 0-23 months was highest in Rwamwanja (90%) and lowest in Palabek (69.1%). Rhino camp (87.5%) had the highest proportions of mothers reported practicing exclusive breastfeeding, this was followed by; Palabek (84.6%) and Adjumani (83.3%). Continuation of breasfeeding at age of 1-year ranges between 73.0% in Kampala Urban – 100% in Kiryandongo settlement. While the introuduction of solid, semi-solid or soft foods at age of 6-8 months ranged between 37.5% in Palorinya – 69.2% in Kampala Urban. The rate of bottle feeding ranged between 3.8% in Adjumani – 34.3% in Oruchinga settlements.

Briefly, findings suggest that settlements in West Nile had the highest rate of acute malnutrition, while anaemia cuts across settlements posing higher nutritional vulnerability to livelihood and food security opportunities. Rates of malnutrition among Kampala refugees tended to be slightly higher when compared to most settlements.

Table 1: Trend of GAM, Stunting and Underweight, Refugee Settlements, 2014 - 2017

	GAM			Stunting			Underweight		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Nakivale	5.5%	3.2%	3.8%	37.7%	23.0%	21.6%	11.2%	7.2%	6.4%
Oruchinga	4.5%	4.0%	4.1%	17.6%	34.2%	27.9%	4.8%	8.6%	6.7%
Kyaka II	6.8%	3.3%	4.0%	31.2%	35.7%	22.3%	6.8%	8.3%	6.8%
Kyangwali	4.4%	2.1%	3.2%	20.7%	39.6%	32.6%	4.4%	6.9%	5.4%
Rwamwanja	4.3%	1.6%	3.8%	40.2%	39.8%	25.0%	4.3%	9.1%	4.3%
Kiryandongo	9.7%	8.2%	7.5%	17.7%	6.5%	8.4%	17.7%	4.4%	7.0%
Rhino Camp	10.5%	14.2%	10.3%	15.1%	7.5%	9.2%	11.2%	4.7%	8.2%
Adjumani	11.0%	9.6%	11.8%	16.7%	12.7%	14.0%	14.1%	7.2%	5.8%
Lobule	2.6%	7.5%	6.1%	27.2%	9.8%	17.9%	11.0%	3.0%	10.0%
Bidibidi	-	7.6%	11.8%	-	18.4%	16.1%	-	10.1%	9.6%
Parolinya	-	-	11.1%	-	-	16.6%	-	-	9.0%
Palabek	-	-	12.3%	-	-	21.9%	-	-	16.7%
Kampala	-	-	9.0%	-	-	19.8%	-	-	7.5%

Table 2: Trend of Anaemia in Children and Mothers in Refugee Settlements, 2014-2017

	Total Anaemia in children 6-59			Moderate and Severe Anaemia in children 6-59			Anaemia in women 15-49 years		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Nakivale	41.0%	26.1%	24.7%	18.9%	2.5%	12.4%	27.8%	44.4%	29.6%

Oruchinga	39.4%	39.1%	37.1%	19.2%	23.2%	16.5%	30.4%	34.9%	27.0%
Kyaka II	52.2%	51.1%	44.1%	21.4%	23.2%	17.5%	43.2%	42.1%	38.8%
Kyangwali	41.1%	44.8%	41.8%	19.2%	19.6%	20.7%	30.8%	23.1%	30.7%
Rwamwanja	50.2%	51.7%	43.0%	31.5%	28.0%	19.4%	33.8%	47.8%	31.1%
Kiryandongo	43.9%	59.3%	41.4%	23.7%	26.5%	14.9%	37.3%	39.4%	30.6%
Rhino Camp	49.8%	65.0%	46.0%	27.9%	37.5%	25.6%	37.5%	38.5%	24.5%
Adjumani	54.2%	47.7%	42.3%	33.3%	29.2%	24.4%	35.6%	48.1%	34.4%
Lobule	63.9%	72.2%	53.0%	37.7%	40.8%	23.5%	30.0%	21.8%	30.0%
Bidibidi		72.4%	56.6%		48.1%	26.7%		56.5%	27.5%
Parolinya			48.8%			26.2%			33.8%
Palabek			45.9%			25.3%			47.3%
Kampala			36.6%			16.4%			26.6%

Table 3: Summary Tables of Results

	Nakivale Refugee Settlement		Oruchinga Refugee Settlement		Kyaka II Refugee Settlement		Classification of public health significance or target (where applicable)
	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	
CHILDREN 6-59 months							
Acute Malnutrition (WHO 2006 Growth Standards)							
Global Acute Malnutrition (GAM)	17/453	3.8%(2.4-5.9)	16/387	4.1%(2.6-6.6)	17/429	4.0%(2.5-6.3)	**Critical if ≥ 15%**
Moderate Acute Malnutrition (MAM)	16/453	3.5%(2.2-5.7)	15/387	3.9%(2.4-6.3)	17/429	4.0%(2.5-6.3)	
Severe Acute Malnutrition (SAM)	1/453	0.2%(0.0-1.2)	1/387	0.3%(0.0-1.4)	0/429	0.0%(0.0-0.9)	
Oedema							
Mid Upper Arm Circumference (MUAC)							
MUAC <125mm and/or oedema	38/453	8.4%(6.2-11.3)	36/388	9.3%(6.8-12.6)	40/429	9.3%(6.9-12.5)	
MUAC 115-124 mm	37/453	8.2%(6.0-11.1)	34/388	8.8%(6.3-12.0)	32/429	7.5%(5.3-10.4)	
MUAC <115 mm and/or Oedema	1/453	0.2%(0.0-1.6)	2/388	0.5%(0.1-2.0)	8/429	1.9%(0.9-3.7)	
Stunting1 (WHO 2006 Growth Standards)							
Total Stunting	98/453	21.6%(18.1 - 25.7)	108/387	27.9 %(23.7 - 32.6)	95/426	22.3%(18.6-26.5)	
Severe Stunting	9/453	2.0%(1.0 - 3.7)	15/387	3.9 %(2.4 - 6.3)	5/426	1.2%(0.5 - 2.7)	
Programme coverage							
Measles vaccination with card or recall (9-59 months)	369/422	87.4%(83.9-90.3)	340/367	92.6%(89.5-94.9)	369/391	94.4%(91.6-96.3)	**Target of ≥ 95%**
Vitamin A supplementation within past 6 months with card or recall	361/453	79.7%(75.7-83.2)	352/388	90.7%(87.4-93.2)	395/429	92.1%(89.1-94.3)	**Target of ≥ 90%**
De-worming coverage in the past 6 months with card or recall (children aged 24-59 months)	329/453	72.6%(68.3-76.5)	336/388	86.6%(82.8-89.6)	363/429	84.6%(80.9-87.7)	
Therapeutic feeding program (based on all admission criteria WHZ, oedema and MUAC)	0/453	0%(0-0)	1/388	0.3%(0.0-1.8)	2/429	0.5%(0.1-1.8)	
TSFP (based on all admission criteria WHZ and MUAC)	4/453	0.9%(0.3-2.3)	7/388	1.8%(0.9-3.7)	10/429	2.3%(1.3-4.3)	

[1] Note that z-scores for height-for-age require accurate ages to within two weeks (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).

Blanket SFP (children aged ??-?? months)	0/453	0%(0-0)	148/388	38.1%(33.4-43.1)	5/429	1.2%(0.5-2.8)	
Diarrhoea							
Diarrhoea in last 2 weeks	65/453	14.3%(11.4-17.9)	42/388	10.8%(8.1-14.3)	41/429	9.6%(7.1-12.7)	
Anaemia (children aged 6-59 months)							
Total Anaemia (Hb<11 g/dl)	112/453	24.7%(21.0-28.9)	144/388	37.1%(32.4-42.0)	189/429	44.1%(39.4-48.8)	**Critical if ≥ 40%**
Mild (Hb 10-10.9)	56/453	12.4%(9.6-15.7)	80/388	20.6%(16.9-24.9)	114/429	26.6(22.6-31.0)	
Moderate (Hb 7-9.9)	47/453	10.4%(7.9-13.5)	52/388	13.4%(10.4-17.2)	64/429	14.9%(11.8-18.6)	
Severe (Hb<7)	9/453	2.0%(1.0-3.8)	12/388	3.1%(1.8-5.4)	11/429	2.6%(1.4-4.6)	
CHILDREN 0-23 months							
IYCF indicators							
Timely initiation of breastfeeding	174/207	84.1%(78.4-88.5)	126/162	77.8%(70.7-83.5)	162/181	89.5%(84.1-93.2)	
Exclusive breastfeeding under 6 months	14/18	77.8%(52.6-91.7)	22/27	81.5%(62.0-92.2)	12/16	75(48.1-90.7)	
Continued Breastfeeding At 1 Year	43/48	89.6%(77.1-95.6)	27/29	93.1%(75.7-98.3)	43/46	93.5%(81.4-97.9)	
Continued Breastfeeding At 2 Years	35/46	76.1(61.5-86.4)	22/24	91.7%(71.4-98.0)	18/25	72%(51.3-86.3)	
Introduction of Solid, Semi-Solid or Soft Foods (age 6-8 months)	19/29	65.5%(46.5-80.6)	17/28	60.7%(41.6-77.0)	26/42	61.9%(46.3-75.4)	
Consumption of iron-rich or iron-fortified foods	199/205	97.1%(93.6-98.7)	140/148	94.6%(89.5-97.3)	164/173	94.8%(90.3-97.3)	
Bottle feeding	66/223	29.6%(24.0-35.9)	60/175	34.3%(27.6-41.6)	8/189	4.2%(2.1-8.3)	
WOMEN 15-49 years							
Anaemia (non-pregnant)							
Total Anaemia (Hb<12 g/dl)	118/398	29.6%(25.4-34.3)	93/344	27.0%(22.6-32.0)	71/183	38.8%(32.0-46.1)	**Critical if ≥ 40%**
Mild (Hb 11-11.9)	77/398	19.3%(15.8-23.5)	44/344	12.8%(9.7-16.8)	44/183	24.0%(18.4-30.8)	
Moderate (Hb 8-10.9)	39/398	9.8%(7.2-13.1)	42/344	12.2%(9.1-16.1)	25/183	13.7%(9.4-19.5)	
Severe (Hb<8)	2/398	0.5%(0.1-2.0)	7/344	2.0%(1.0-4.2)	2/183	1.1%(0.3-4.3)	
Prevalence of Malnutrition based on MUAC among women of reproductive age (non-pregnant)	9/487	1.8%(1.0-3.5)	18/418	4.3(2.7-6.7)	7/339	2.1%(1.0-4.3)	
Program coverage pregnant women							
Pregnant women currently enrolled in the ANC	61/89	68.5%(58.1-77.4)	29/74	39.2%(28.7-50.8)	84/156	53.8%(46.0-61.5)	
Pregnant women currently receiving Iron-folic acid pills	66/89	74.2%(64.0-82.2)	34/74	45.9%(34.9-57.4)	84/156	53.8%(46.0-61.5)	
FOOD SECURITY							
Average number of days general food	16.8 days,		18.3 days,		13.9 days,		

ration lasts out of [30] days2 (mean, SD or range)	7.3 SD		9.1 SD		8.4 SD		
Negative household coping strategies							
Proportion of households reporting using none of the coping strategies over the past month	143/430	33.3%(29.0-37.9)	137/404	33.9%(29.5-38.7)	262/385	68.1%(63.2-72.5)	
Household dietary diversity							
Average HDDS (mean, SD/ range)	3.9 Mean, 1.9 SD		4.2 Mean, 1.7 SD		4.5 Mean, 1.9 SD		
WASH							
Water quality							
Proportion of households using improved drinking water source	375/430	87.2%(83.7-90.1)	357/404	88.4%(84.9-91.2)	325/385	84.4%(80.4-87.7)	
Water quantity							
Proportion of households that use:							
≥ 20 lpppd	125/430	29.1%(25.0-33.5)	167/404	41.6%(36.9-46.46)	65/385	20%(16.3-24.3)	
15 - <20 lpppd	60/430	14.0%(11.0-17.6)	49/404	12.1%(9.3-15.7)	23/385	6.0%(4.0-8.8)	
<15 lpppd	245/430	57.0%(52.2-61.6)	187/404	46.3%(41.5-51.2)	95/385	74.0%(69.4-78.2)	
Average consumption: Litres per person per day (LPPPD)		15.1		37.5		13.3	**UNHCR target is ≥20 lpppd**
Satisfaction with drinking water supply							
Proportion of households that say they are satisfied with drinking water supply	113/430	26.3%(22.3-30.7)	335/404	82.9%(78.9-86.3)	188/385	48.8%(43.9-53.8)	
Safe excreta disposal							
Proportion of households that use:							
An improved excreta disposal facility (improved toilet facility, 1 household)	222/430	51.6%(46.9-56.3)	328/404	81.2%(77.1-84.7)	73/385	19.0%(15.3-23.2)	
A shared family toilet (improved toilet facility, 2 households)	17/430	4.0%(2.5-6.3)	24/404	5.9%(4.0-8.7)	20/385	5.2%(3.4-7.9)	
A communal toilet (improved toilet facility, 3 households or more)	11/430	2.6%(1.4-4.6)	17/404	4.2%(2.6-6.7)	10/385	2.6%(1.4-4.8)	
An unimproved toilet (unimproved toilet facility or public toilet)	180/430	41.9%(37.3-46.6)	35/404	8.7%(6.3-11.8)	282/385	73.2%(68.6-77.4)	
MOSQUITO NET COVERAGE							

[2] In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.

Mosquito net ownership							
Proportion of households owning at least one LLINT	150/430	34.9%(30.5-39.5)	342/404	84.7%(80.8-87.9)	37/385	9.6%(7.0-13.0)	**Target of >80%**
Average number of persons per LLINT (mean)		3.7		2.4		3.7	**2 person/ LLIN**
Mosquito Net Utilisation							
Proportion of household members (all ages) who slept under an LLINT	486/2023	24.0%(22.2-25.9)	1270/1579	80.4%(78.4-82.3)	146/1101	13.3(11.4-15.4)	
Proportion of children 0-59 months who slept under an LLINT	138/375	36.8%(31.9-41.9)	276/323	85.4%(81.1-89.1)	43/309	13.9%(10.3-18.3)	
Proportion of pregnant women who slept under an LLINT	24/43	55.8%(39.9-70.9)	41/50	82.0%(68.6-91.4)	8/38	21.1%(9.6-37.3)	
Mortality							
Crude mortality rate (CDR) Deaths/10,000/day		1.0%(0.7-1.6)		0.1%(0.0-0.5)		0.8%(0.5-1.4)	Very serious if >1
Under five mortality (U5M) Deaths/10,000/day		0.5%(0.1-1.9)		3.2%(1.8-5.8)		0.9%(0.3-2.2)	Very serious if >2

	Kyangwali Refugee Settlement		Rwamwanja Refugee Settlement		Kiryandongo Refugee Settlement		Classification of public health significance or target (where applicable)
	Number /Total	% (95% CI)	Number /Total	% (95% CI)	Number /Total	% (95% CI)	
CHILDREN 6-59 months							
Acute Malnutrition (WHO 2006 Growth Standards)							
Global Acute Malnutrition (GAM)	9/285	3.2 %(1.7 - 5.9)	14/372	3.8 %(2.3 - 6.2)	16/214	7.5 %(4.7 - 11.8)	**Critical if ≥ 15%**
Moderate Acute Malnutrition (MAM)	9/285	3.2 %(1.7 - 5.9)	13/372	3.5 %(2.1 - 5.9)	15/214	7.0 %(4.3 - 11.2)	
Severe Acute Malnutrition (SAM)	0/285	0.0 %(0.0 - 1.3)	1/372	0.3 %(0.0 - 1.5)	1/214	0.5 %(0.1 - 2.6)	
Oedema							
Mid Upper Arm Circumference (MUAC)							
MUAC <125mm and/or oedema	18/285	6.3%(4.0-9.8)	25/372	6.7%(4.6-9.8)	21/215	9.8%(6.4-14.5)	
MUAC 115-124 mm	18/285	6.3%(4.0-9.8)	18/372	4.8%(3.1-7.6)	20/215	9.3%(6.1-14.0)	
MUAC <115 mm and/or Oedema	0/285	0%(0-0)	7/372	1.9%(0.9-3.9)	1/215	0.5%(0.1-3.2)	
Stunting3 (WHO 2006 Growth Standards)							
Total Stunting	92/282	32.6 %(27.4 - 38.3)	93/372	25.0%(20.9 - 29.6)	18/215	8.4 %(5.4 - 12.8)	
Severe Stunting	17/282	6.0 %(3.8 - 9.4)	6/372	1.6 %(0.7 - 3.5)	2/215	0.9 %(0.3 - 3.3)	
Programme coverage							
Measles vaccination with card or recall (9-59 months)	228/263	86.7%(82.0-90.3)	317/330	96.1%(93.3-97.7)	181/203	89.2(84.1-92.8)	**Target of ≥ 95%**
Vitamin A supplementation within past 6 months with card or recall	229/285	80.4%(75.3-84.6)	351/372	94.4%(91.5-96.3)	195/215	90.7%(86.0-93.9)	**Target of ≥ 90%**
De-worming coverage in the past 6 months with card or recall (children aged 24-59 months)	231/285	81.1%(76.1-85.2)	312/372	83.9%(79.8-87.3)	184/215	85.6%(80.2-89.7)	
Therapeutic feeding program (based on all admission criteria WHZ, oedema and MUAC)	1/285	0.4%(0.0-2.5)	0/372	0(0-0)	61/215	28.4%(22.7-34.8)	
TSFP (based on all admission criteria WHZ and MUAC)	0/285	0%(0-0)	11/372	3.0%(1.6-5.3)	6/215	2.8%(1.3-6.1)	
Blanket SFP (children aged ??-?? months)	0/285	0%(0-0)	8/372	2.2%(1.1-4.2)	42/215	19.5%(14.8-25.4)	

[3] Note that z-scores for height-for-age require accurate ages to within two weeks (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).

Diarrhoea							
Diarrhoea in last 2 weeks	31/285	10.9%(7.7-15.1)	44/372	11.8%(8.9-15.5)	31/215	14.4%(10.3-19.8)	
Anaemia							
Total Anaemia (Hb<11 g/dl)	119/285	41.8%(36.2-47.6)	160/372	43.0%(38.1-48.1)	89/215	41.4%(35.0-48.1)	**Critical if ≥ 40%**
Mild (Hb 10-10.9)	60/285	21.1%(16.7-26.2)	88/372	23.7%(19.6-28.2)	57/215	26.5%(21.0-32.8)	
Moderate (Hb 7-9.9)	47/285	16.5%(12.6-21.3)	58/372	15.6%(12.2-19.6)	29/215	13.5%(9.5-18.8)	
Severe (Hb<7)	12/285	4.2%(2.4-7.3)	14/372	3.8%(2.2-6.3)	3/215	1.4%(0.4-4.2)	
CHILDREN 0-23 months							
IYCF indicators							
Timely initiation of breastfeeding	101/118	85.6%(78.0-90.9)	153/170	90%(84.5-93.7)	73/87	83.9%(74.6-90.3)	
Exclusive breastfeeding under 6 months	10/18	55.6%(32.3-76.6)	26/33	78.8%(61.3-89.7)	7/12	58.3%(29.6-82.4)	
Continued Breastfeeding At 1 Year	18/20	90%(66.7-97.6)	28/29	96.6%(78.5-99.5)	20/20	100%(0-0)	
Continued Breastfeeding At 2 Years	11/20	55%(33.0-75.2)	16/21	76.2%(53.3-90.0)	10/12	83.3%(50.5-96.1)	
Introduction of Solid, Semi-Solid or Soft Foods (aged 6-8 months)	11/24	45.8%(27.1-65.8)	22/36	61.1%(44.3-75.7)	7/15	46.7%(23.4-71.5)	
Consumption of iron-rich or iron-fortified foods	107/113	94.7%(88.6-97.6)	139/149	93.3%(87.9-96.4)	78/83	94.0%(86.3-97.5)	
Bottle feeding	13/131	9.9%(5.8-16.4)	43/182	23.6%(18.0-30.4	27/95	28.4%(20.2-38.3)	
WOMEN 15-49 years							
Anaemia (non-pregnant)							
Total Anaemia (Hb<12 g/dl)	58/189	30.7%(24.5-37.6)	99/318	31.1%(26.3-36.4)	67/219	30.6%(24.8-37.0)	**Critical if ≥ 40%**
Mild (Hb 11-11.9)	26/189	13.8%(9.5-19.5)	42/318	13.2%(9.9-17.4)	32/219	14.6%(10.5-20.0)	
Moderate (Hb 8-10.9)	28/189	14.8%(10.4-20.6)	50/318	15.7%(12.1-20.2)	31/219	14.2%(10.1-19.4)	
Severe (Hb<8)	4/189	2.1%(0.8-5.5)	7/318	2.2%(1.1-4.6)	4/219	1.8%(0.7-4.8)	
Prevalence of Malnutrition based on MUAC among women of reproductive age (non-pregnant)	18/289	6.2%(4.0-9.7)	15/391	3.8%(2.3-6.3)	15/275	5.5(3.3-8.9)	
Program coverage pregnant women							
Pregnant women currently enrolled in the ANC	89/100	89%(81.2-93.8)	50/73	68.5%(56.9-78.1)	28/56	50%(37.1-62.9)	
Pregnant women currently receiving Iron-folic acid pills	65/100	65%(55.1-73.7)	51/73	69.9%(58.3-79.3)			
FOOD SECURITY							
Average number of days general food	19.4days,11.1 SD		16..4days, 7.1 SD		20.3days, 9.6 SD		

ration lasts out of [30] days4 (mean, SD or range)							
Negative household coping strategies							
Proportion of households reporting using none of the coping strategies over the past month	145/297	48.8%(43.2-54.5)	39/137	69.2%(62.4-75.2)	62/105	70.5%(62.6-77.3)	
Average HDDS (mean, SD/ range)	3.8 Mean, 1.7 SD		4.4 Mean, 1.9 SD		3.6 Mean, 2.0 SD		
WASH							
Water quality							
Proportion of households using improved drinking water source	256/297	86.2%(81.8-89.7)	198/198	100%	112/149	75.2%(67.6-81.5)	
Water quantity							
Proportion of households that use:							
≥ 20 lpppd	80/297	26.9%(22.2-32.3)	65/198	32.8%(26.6-39.7)	60/149	40.3%(32.7-48.4)	
15 - <20 lpppd	25/297	8.4%(5.7-12.2)	23/198	11.6%(7.8-16.9)	23/149	15.4%(10.5-22.2)	
<15 lpppd	192/297	64.6%(59.0-69.9)	110/198	55.6%(48.6-62.3)	66/149	44.3%(36.5-52.4)	
Average consumption: Litres per person per day (LPPPD)		16.1		17.2		18.9	**UNHCR target is ≥20 lpppd**
Satisfaction with drinking water supply							
Proportion of households that say they are satisfied with drinking water supply	129/297	43.4%(37.9-49.1)	153/193	77.3%(70.9-82.6)	28/149	18.8%(13.3-25.9)	
Safe excreta disposal							
Proportion of households that use:							
An improved excreta disposal facility (improved toilet facility, 1 household)	149/297	50.2%(44.5-55.8)	75/193	37.9%(31.4-44.8)	42/149	28.2%(21.5-36.0)	
A shared family toilet (improved toilet facility, 2 households)	0/297	0%(0-0)	0/193	0%(0-0)	4/149	2.7%(1.0-7.0)	
A communal toilet (improved toilet facility, 3 households or more)	0/297	0%(0-0)	4/193	2.0%(0.8-5.3)	2/149	1.3%(0.3-5.2)	
An unimproved toilet (unimproved toilet facility or public toilet)	148/297	49.8%(44.2-55.5)	119/193	60.1%(53.1-66.7)	101/149	67.8%(59.8-74.8)	
MOSQUITO NET COVERAGE							
Mosquito net ownership							

[4] In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.

Proportion of households owning at least one LLINT	35/297	11.8%(8.6-16.0)	88/198	44.4%(37.7-51.4)	39/149	26.2%(19.7-33.8)	**Target of >80%**
Average number of persons per LLINT (mean)		1.6		1.5		2.2	**2 person/ LLIN**
Mosquito Net Utilisation							
Proportion of household members (all ages) who slept under an LLINT	111/944	11.8%(9.9-14.0)	317/1009	31.4%(28.6-34.4)	174/637	27.3%(24.0-30.9)	
Proportion of children 0-59 months who slept under an LLINT	28/190	14.7%(10.0-20.6)	96/256	37.5%(31.5-43.7)	52/159	32.7%(25.5-40.6)	
Proportion of pregnant women who slept under an LLINT	15/27	55.6%(35.3-74.5)	15/26	57.7%(36.9-76.6)	5/14	35.7%(12.8-64.9)	
Mortality							
Crude mortality rate (CDR) Deaths/10,000/day		0.9%(0.5-1.5)		0.4%(0.2-1.1)		0.3%(0.1-1.0)	Very serious if $\geq$1
Under five mortality (U5M) Deaths/10,000/day		4.7%(2.9-7.6)		4.0%(2.2-7.3)		0.0%(0.0-2.1)	Very serious if $\geq$2

	Adjumani Refugee Settlement		Arua Refugee Settlement		Lobule Refugee Settlement		Classification of public health significance or target (where applicable)
	Number /Total	% (95% CI)	Number /Total	% (95% CI)	Number /Total	% (95% CI)	
CHILDREN 6-59 months							
Acute Malnutrition (WHO 2006 Growth Standards)							
Global Acute Malnutrition (GAM)	63/535	11.8 %(9.3 - 14.8)	45/437	10.3 %(7.8 - 13.5	17/280	6.1 %(3.8 - 9.5)	**Critical if ≥15%**
Moderate Acute Malnutrition (MAM)	60/535	11.2 %(8.8 - 14.2)	43/437	9.8 %(7.4 - 13.0	16/280	5.7 %(3.5 - 9.1)	
Severe Acute Malnutrition (SAM)	3/535	0.6 %(0.2 - 1.6)	2/437	0.5 %(0.1 - 1.7)	1/280	0.4 %(0.1 - 2.0)	
Oedema							
Mid Upper Arm Circumference (MUAC)							
MUAC <125mm and/or oedema	47/537	8.8%(6.6-11.5)	35/437	8.0%(5.8-11.0)	23/281	8.2%(5.5-12.0)	
MUAC 115-124 mm	39/537	7.3%(5.3-9.8)	32/437	7.3%(5.2-10.2)	16/281	5.7%(3.5-9.1)	
MUAC <115 mm and/or Oedema	8/537	1.5%(0.7-3.0)	3/437	0.7%(0.2-2.1)	7/281	2.5(1.2-5.1)	
Stunting[5] (WHO 2006 Growth Standards)							
Total Stunting	75/537	14.0%(11.3- 17.2)	40/436	9.2%(6.8 - 12.3)	50/279	17.9%(13.9-22.8)	
Severe Stunting	7/537	1.3%(0.6 - 2.7)	7/436	1.6%(0.8 - 3.3)	4/279	1.4%(0.6 - 3.6)	
Programme coverage							
Measles vaccination with card or recall (9-59 months)	452/502	90.0%(87.1-92.3)	355/407	87.2%(83.6-90.1)	233/268	86.9%(82.3-90.5)	**Target of ≥ 95%**
Vitamin A supplementation within past 6 months with card or recall	487/537	90.7%(87.9-92.9)	374/437	85.6%(82.0-88.6)	241/281	85.8%(81.2-89.4)	**Target of ≥ 90%**
De-worming coverage in the past 6 months with card or recall (children aged 24-59 months)	471/537	87.7%(84.6-90.2)	345/437	78.9%(74.9-82.5)	229/281	81.5%(76.5-85.6)	
Therapeutic feeding program (based on all admission criteria WHZ, oedema and MUAC)	3/537	0.6%(0.2-1.7)	4/437	0.9%(0.3-2.4)	13/281	4.6%(2.7-7.8)	
TSFP (based on all admission criteria	7/537	0.6%(0.2-1.7)	13/437	3.0%(1.7-5.1)	1/281	0.4%(0.0-2.5)	

[5] Note that z-scores for height-for-age require accurate ages to within two weeks (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).

WHZ and MUAC)							
Blanket SFP (children aged ??-?? months)	3/537	0.6%(0.2-1.7)	243/437	55.6%(50.9-60.2)	9/281	3.2%(1.7-6.0)	
Diarrhoea							
Diarrhoea in last 2 weeks	56/537	10.4%1(8.1-13.3)	67/437	15.3%(12.2-19.0)	30/281	10.7%(7.6-14.9)	
Anaemia (children aged 6-59 months)							
Total Anaemia (Hb<11 g/dl)	227/537	42.3%(38.2-46.5)	201/437	46.0%(41.4-50.7)	149/281	53.0%(47.2-58.8)	**Critical if ≥ 40%**
Mild (Hb 10-10.9)	96/537	17.9%(14.9-21.4)	89/437	20.4%(16.8-24.4)	83/281	29.5%(24.5-35.1)	
Moderate (Hb 7-9.9)	122/537	22.7%(19.4-26.5)	100/437	22.9%(19.2-27.1)	54/281	19.2%(15.0-24.3)	
Severe (Hb<7)	9/537	1.7%(0.9-3.2)	12/437	2.7%(1.6-4.8)	12/281	4.3%(2.4-7.4)	
CHILDREN 0-23 months							
IYCF indicators							
Timely initiation of breastfeeding	168/205	82.0%(76.1-86.6)	162/189	85.7%(79.9-90.0)	78/101	77.2%(68.0-84.4)	
Exclusive breastfeeding under 6 months	20/24	83.3%(62.4-93.8)	28/32	87.5%(70.6-95.3)	14/19	73.7%(49.4-88.9)	
Continued Breastfeeding At 1 Year	48/49	98.0%(86.6-99.7)	33/36	91.7%(76.8-97.3)	17/18	94.4%(68.0-99.3)	
Continued Breastfeeding At 2 Years	36/45	80%(65.6-89.4)	29/40	72.5%(56.6-84.2)	17/19	89.5%(65.2-97.5)	
Introduction of Solid, Semi-Solid or Soft Foods (aged 6-8 months)	16/34	47.1%(30.9-63.8)	17/27	63.0%(43.3-79.1)	9/18	50(27.8-72.2)	
Consumption of iron-rich or iron-fortified foods	172/185	93.0%(88.3-95.9)	159/166	95.8%(91.4-98.0)	90/94	95.7%(89.1-98.4)	
Bottle feeding	8/209	3.8%(1.9-7.5)	12/198	6.1%(3.5-10.4)	25/113	22.1%(15.4-30.7)	
WOMEN 15-49 years							
Anaemia (non-pregnant)							
Total Anaemia (Hb<12 g/dl)	152/442	34.4%(30.1-38.9)	50/204	24.5%(19.1-30.9)	83/277	30.0%(24.8-35.6)	**Critical if ≥ 40%**
Mild (Hb 11-11.9)	78/442	17.6%(14.4-21.5)	34/204	16.7%(12.1-22.4)	39/277	14.1%(10.5-18.7)	
Moderate (Hb 8-10.9)	68/442	14.3%(11.3-17.86)	15/204	7.4%(4.5-11.9)	41/277	14.8%(11.1-19.5)	
Severe (Hb<8)	11/442	2.5%(1.4-4.4)	1/204	0.5%(0.1-3.4)	3/277	1.1%(0.3-3.3)	
Prevalence of Malnutrition Based on MUAC among women of reproductive age (non-pregnant)	21/557	3.8%(2.5-5.7)	7/400	1.8%(0.8-3.6)	16/382	4.2%(2.6-6.7)	
Program coverage pregnant women							
Pregnant women currently enrolled in the ANC	81/115	70.4%(61.4-78.1)	100/196	51.0%(44.0-58.0)	53/105	50.5%(41.0-60.0)	
Pregnant women currently receiving Iron-folic acid pills	77/115	67.0%(57.8-75.0)	77/196	39.3%(32.7-46.3)	63/105	60%(50.3-69.0)	

FOOD SECURITY							
Average number of days general food ration lasts out of [30] days6 (mean, SD or range)	19.5days, 7.5 SD		22.2days, 6.7 SD		16.3days, 6.3 SD		
Negative household coping strategies							
Proportion of households reporting using none of the coping strategies over the past month	340/425	80%(75.9-83.5)	227/341	66.6%(61.3-71.4)	73/134	54.5%(46.0-62.7)	
Household dietary diversity							
Average HDDS (mean, SD/ range)	3.8 Mean, 1.7 SD		4.3 Mean, 1.7 SD		5.2 Mean, 1.8 SD		
WASH							
Water quality							
Proportion of households using improved drinking water source	387/425	91.1%(87.9-93.4)	208/341	61%(55.7-66.0)	134/134	100%	
Water quantity							
Proportion of households that use:							
≥ 20 lpppd	110/425	25.9%(21.9-30.3)	126/341	37.0%32.0-42.2)	51/134	38.1%(30.2-46.6)	
15 - <20 lpppd	40/425	9.4%(7.0-12.6)	21/341	6.2%(4.0-9.3)	51/134	13.4%(8.6-20.3)	
<15 lpppd	275/425	64.7%(60.0-69.1)	194/341	57.0%(51.6-62.1)	65/134	48.5%(40.1-57.0)	
Average consumption: Litres per person per day (LPPPD)		16.0		18.1		20.4	**UNHCR is target ≥20 lpppd**
Satisfaction with drinking water supply							
Proportion of households that say they are satisfied with drinking water supply	179/425	42.1%(37.5-46.9)	116/341	34.0%(29.2-39.2)	84/134	62.7%(54.2-70.5)	
Safe excreta disposal							
Proportion of households that use:							
An improved excreta disposal facility (improved toilet facility, 1 household)	180/425	42.4%(37.7-47.1)	115/341	33.7%(28.9-38.9)	53/134	39.6%(31.6-48.1)	
A shared family toilet (improved toilet facility, 2 households)	29/425	6.8%(4.8-9.7)	29/341	8.5%(6.0-12.0)	13/134	9.7%(5.7-16.0)	
A communal toilet (improved toilet facility, 3 households or more)	5/425	1.2%(0.5-2.8)	30/341	8.8%(6.2-12.3)	4/134	3.0%(1.1-7.7)	
An unimproved toilet (unimproved toilet	211/425	49.6%(44.9-54.4)	167/341	49.0%(43.7-54.3)	64/134	47.8%(39.4-56.2)	

[6] In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.

facility or public toilet)							
MOSQUITO NET COVERAGE							
Mosquito net ownership							
Proportion of households owning at least one LLINT	93/425	21.9%(18.2-26.1)	90/341	26.4%(22.0-31.3)	32/134	23.9%(16.9-32.0)	**Target of >80%**
Average number of persons per LLINT (mean)		2.4		2.5		1.7	**2 person/ LLIN**
Mosquito Net Utilisation							
Proportion of household members (all ages) who slept under an LLINT	554/1395	39.7%(37.2-42.3)	517/1335	38.7%(36.1-41.4)	133/430	30.9%(26.7-35.5)	
Proportion of children 0-59 months who slept under an LLINT	137/276	49.6%(43.6-55.7)	125/248	50.4%(44.0-56.8)	30/56	53.6%(39.7-67.0)	
Proportion of pregnant women who slept under an LLINT	15/32	46.9%(29.1-65.3)	10/21	47.6%(25.7-70.2)	3/6	50.0%(11.8-88.2)	
Mortality							
Crude mortality rate (CDR) Deaths/10,000/day		0.2%(0.1-0.4)		0.7%(0.4-1.1)		0.5%(0.2-1.2)	Very serious if $\geq$1
Under five mortality (U5M) Deaths/10,000/day		1.6%(0.8-3.2)		1.2%(0.6-2.6)		0.7%(0.1-3.9)	Very serious if $\geq$2

	Palorinya Refugee Settlement		Palabek Refugee Settlement		Bidibid Refugee Settlement		Classification of public health significance or target (where applicable)
	Number /Total	% (95% CI)	Number /Total	% (95% CI)	Number /Total	% (95% CI)	
CHILDREN 6-59 months							
Acute Malnutrition (WHO 2006 Growth Standards)							
Global Acute Malnutrition (GAM)	27/244	11.1%(7.7 - 15.6)	54/438	12.3 %(9.6 - 15.7	48/408	11.8 %(9.0 - 15.3	**Critical if ≥15%**
Moderate Acute Malnutrition (MAM)	26/244	10.7%(7.4 - 15.2)	52/438	11.9 %(9.2 - 15.2	47/408	11.5 %(8.8 - 15.0	
Severe Acute Malnutrition (SAM)	1/244	0.4 %(0.1 - 2.3)	2/438	0.5 %(0.1 - 1.6	1/408	0.2 %(0.0 - 1.4)	
Oedema							
Mid Upper Arm Circumference (MUAC)							
MUAC <125mm and/or oedema	24/244	9.8%(6.7-14.3)	19/438	4.3%(2.8-6.7)	29/408	7.1%(5.0-10.0)	
MUAC 115-124 mm	20/244	8.2%(5.3-12.4)	15/438	3.4%(2.1-5.6)	23/408	5.6%(3.8-8.3)	
MUAC <115 mm and/or Oedema	4/244	1.6%(0.6-4.3)	4/438	0.9%(0.3-2.4)	6/408	1.5%(0.7-3.2)	
Stunting7 (WHO 2006 Growth Standards)							
Total Stunting	40/241	16.6%(12.4 - 21.8)	96/438	21.9 %(18.3 - 26.0)	65/404	16.1 %(12.8-20.0)	
Severe Stunting	1/241	0.4 %(0.1 - 2.3)	10/438	2.3 %(1.2 - 4.2)	6/404	1.5 %(0.7 - 3.2)	
Programme coverage							
Measles vaccination with card or recall (9-59 months)	203/229	88.6%(83.8-92.4)	342/411	83.2%(79.3-86.5)	324/376	86.2%(82.3-89.3)	**Target of ≥ 95%**
Vitamin A supplementation within past 6 months with card or recall	216/244	88.5%(83.9-92.0)	344/438	78.5%(74.4-82.1)	371/408	90.9%(87.7-93.4)	**Target of ≥ 90%**
De-worming coverage in the past 6 months with card or recall (children aged 24-59 months)	215/244	88.1%(83.4-91.6)	329/438	75.1%(70.8-78.9)	345/408	84.6%(80.7-87.8)	
Therapeutic feeding program (based on all admission criteria WHZ, oedema and MUAC)	0/244	0%(0-0)	1/438	0.2%(0.0-1.6)	0/408	0%(0-0)	
TSFP (based on all admission criteria WHZ and MUAC)	46/244	18.9%(14.4-24.3)	7/438	1.6%(0.8-3.3)	5/408	1.2%(0.5-2.9)	
Blanket SFP (children aged ??-?? months)	30/244	12.3%(8.7-17.2)	0/438	0.2%(0.0-1.6)	0/408	0%(0-0)	

[7] Note that z-scores for height-for-age require accurate ages to within two weeks (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).

Diarrhoea							
Diarrhoea in last 2 weeks	34/244	13.9%(10.1-18.9)	107/438	24.4%(20.6-28.7)	54/408	13.2%(10.3-16.9)	
Anaemia (children aged 6-59 monhts)							
Total Anaemia (Hb<11 g/dl)	119/244	48.8%(42.5-55.0)	201/438	45.9%(41.3-50.6)	231/408	56.6%(51.8-61.4)	**Critiacl if ≥40%**
Mild (Hb 10-10.9)	55/244	22.5%(17.7-28.2)	90/438	20.5%(17.0-24.6)	122/408	29.9%(25.7-34.5)	
Moderate (Hb 7-9.9)	50/244	20.5%(15.9-26.0)	99/438	22.6%(18.9-26.8)	98/408	24.0%(20.1-28.4)	
Severe (Hb<7)	14/244	5.7%(3.4-9.5)	12/438	2.7%(1.6-4.8)	11/408	2.7%(1.5-4.8)	
CHILDREN 0-23 months							
IYCF indicators							
Timely initiation of breastfeeding	76/105	72.4%(63.0-80.1)	105/152	69.1%(61.3-75.9)	120/172	69.8%(62.5-76.2)	
Exclusive breastfeeding under 6 months	18/27	66.7%(46.9-81.9)	11/13	84.6%(53.2-96.4)	12/20	60(37.4-79.0)	
Continued Breastfeeding At 1 Year	14/16	87.5%(60.1-97.0)	28/29	96.6%(78.5-99.5)	31/32	96.9%(80.3-99.6)	
Continued Breastfeeding At 2 Years	9/10	90%(50.3-98.8)	20/26	76.9%(56.7-89.5)	25/33	75.8%(58.1-87.6)	
Introduction of Solid, Semi-Solid or Soft Foods (aged 6-8 months)	11/22	50%(29.8-70.2)	12/32	37.5%(22.4-55.4)	23/40	57.5%(41.7-71.9)	
Consumption of iron-rich or iron-fortified foods	80/85	94.1%(86.6-97.5)	142/151	94.0%(88.9-96.9)	146/158	92.4%(87.1-95.6)	
Bottle feeding	29/112	25.9%(18.6-34.8)	27/164	16.5%(11.5-23.0)	16/178	9.0%(5.6-14.2)	
WOMEN 15-49 years							
Anaemia (non-pregnant)							
Total Anaemia (Hb<12 g/dl)	77/228	33.8%(27.9-40.2)	172/364	47.3%(42.2-52.4)	95/346	27.5%(23.0-32.4)	**Critiacl if ≥40%**
Mild (Hb 11-11.9)	42/228	18.4%(13.9-24.0)	103/364	28.3%(23.9-33.2)	52/346	15.0%(11.6-19.2)	
Moderate (Hb 8-10.9)	29/228	12.7%(9.0-17.7)	57/364	15.7%(12.3-19.8)	40/346	11.6%(8.6-15.4)	
Severe (Hb<8)	6/228	2.6%(1.2-5.7)	12/364	3.3%(1.9-5.7)	3/346	0.9%(0.3-2.7)	
Prevalence of Malnutrition Based on MUAC among women of reproductive age (non-pregnant)	15/308	4.9%(3.0-7.9)	8/445	1.8%(0.9-3.6)	10/439	2.3%(1.2-4.2)	
Program coverage pregnant women							
Pregnant women currently enrolled in the ANC	46/80	57.5%(46.4-67.9)	51/81	63.0%(51.9-72.8)	65/93	69.9%(59.8-78.4)	
Pregnant women currently receiving Iron-folic acid pills	35/80	43.8%(33.3-54.8)	57/81	70.4%(59.5-79.3)	61/93	65.6%(55.3-74.6)	
FOOD SECURITY							
Average number of days general food	23.2days, 6.2 SD		21.9 days, 5.8 SD		22.4days, 7.5 SD		

ration lasts out of [30] days8 (mean, SD or range)							
Negative household coping strategies							
Proportion of households reporting using none of the coping strategies over the past month	90/122	73.8%(65.2-80.8)	165/406	40.6%(36.0-45.5)	230/297	77.4%(72.3-81.8)	
Household dietary diversity							
Average HDDS (mean, SD/ range)	4.3 Mean, 1.2 SD		3.6 Mean, 1.6 SD		4.4 Mean, 1.7 SD		
WASH							
Water quality							
Proportion of households using improved drinking water source	122/122	100%	396/406	97.5%(95.5-98.7)	248/297	83.5%(78.8-87.3)	
Water quantity							
Proportion of households that use:							
≥ 20 lpppd	46/122	37.7%(29.5-46.6)	277/406	68.2%(63.5-72.6)	70/297	23.6%(19.1-28.7)	
15 - <20 lpppd	57/122	14.8%(9.5-22.2)	57/406	14.0%(11.0-17.8)	35/297	11.8%(8.6-16.0)	
<15 lpppd	72/122	47.5%(38.8-56.4)	72/406	17.7%(14.3-21.8)	192/297	64.6%(59.0-69.9)	
Average consumption: Litres per person per day (LPPPD)		18.1		27.2		14.4	UNHCR target is ≥20 lpppd
Satisfaction with drinking water supply							
Proportion of households that say they are satisfied with drinking water supply	71/122	58.2%(49.2-66.6)	303/406	74.6%(70.2-78.6)	82/297	27.6%(22.8-33.0)	
Safe excreta disposal							
Proportion of households that use:							
An improved excreta disposal facility (improved toilet facility, 1 household)	52/122	42.6%(34.1-51.6)	176/406	43.3%(38.6-48.2)	68/297	22.9%(18.5-28.0)	
A shared family toilet (improved toilet facility, 2 households)	3/122	2.5%(0.8-7.4)	16/406	3.9%(2.4-6.3)	15/297	5.1%(3.1-8.2)	
A communal toilet (improved toilet facility, 3 households or more)	6/122	4.9%(2.2-10.5)	83/406	20.4%(16.8-24.7)	5/297	1.7%(0.7-4.0)	
An unimproved toilet (unimproved toilet facility or public toilet)	61/122	50%(41.2-58.8)	131/406	32.3%(27.9-37.0)	209/297	70.4%(64.9-75.3)	
MOSQUITO NET COVERAGE							

[8] In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.

Mosquito net ownership							
Proportion of households owning at least one LLINT	77/122	63.1%(54.2-71.2)	262/406	64.5%(59.7-69.0)	110/297	37.0%(31.7-42.7)	**Target of >80%**
Average number of persons per LLINT (mean)		2.3		1.9		2.6	**2 person/ LLIN**
Mosquito Net Utilisation							
Proportion of household members (all ages) who slept under an LLINT	439/672	65.3%(61.6-68.8)	1096/2078	52.7%(50.6-54.9)	641/1504	42.6%(40.1-45.1)	
Proportion of children 0-59 months who slept under an LLINT	119/167	71.3%(63.8-77.9)	247/434	56.9%(52.1-61.6)	143/309	46.3%(40.6-52.0)	
Proportion of pregnant women who slept under an LLINT	12/15	80.0%(51.9-95.7)	23/46	50.0%(34.9-65.1)	22/31	70.9%(51.9-85.8)	
Mortality							
Crude mortality rate (CDR) Deaths/10,000/day		0.0%(0.0-0.5)		0.4%(0.21-0.81)		0.3%(0.2-0.6)	Very serious if $\geq$1
Under five mortality (U5M) Deaths/10,000/day		0.0%(0.0-2.3)		4.3(2.6-7.1)		0.6%(0.2-1.8)	Very serious if $\geq$2

	Kampala Urban	
	Number /total	**% (95% CI)**
CHILDREN 6-59 months		
Acute Malnutrition (WHO 2006 Growth Standards)		
Global Acute Malnutrition (GAM)	24/267	9.0 %(6.1 - 13.0)
Moderate Acute Malnutrition (MAM)	24/267	9.0 %(6.1 - 13.0)
Severe Acute Malnutrition (SAM)	0/267	0.0 %(0.0 - 1.4)
Oedema		
Mid Upper Arm Circumference (MUAC)		
MUAC <125mm and/or oedema	36/268	13.4%(9.8-18.1)
MUAC 115-124 mm	33/268	12.3%(8.9-16.8)
MUAC <115 mm and/or Oedema	3/268	1.1%(0.4-3.4)
Stunting9 (WHO 2006 Growth Standards)		
Total Stunting	53/268	19.8 %(15.4 - 25.0)
Severe Stunting	6/268	2.2 %(1.0 - 4.8)
Programme coverage		
Measles vaccination with card or recall (9-59 months)	186/252	73.8%(68.0-78.9)
Vitamin A supplementation within past 6 months with card or recall	171/268	63.8%(57.9-69.4)
De-worming coverage in the past 6 months with card or recall (children aged 24-59 months)	164/268	61.2%(55.2-66.9)
Therapeutic feeding program (based on all admission criteria WHZ, oedema and MUAC)	0/268	0%(0-0)
TSFP (based on all admission criteria WHZ and MUAC)	133/268	49.6%(43.7-55.6)
Blanket SFP (children aged ??-?? months)	6/268	2.2%(1.0-4.9
Diarrhoea		
Diarrhoea in last 2 weeks	1/268	0.4%(0.1-2.6)
Anaemia (children aged 6-59 months)		
Total Anaemia (Hb<11 g/dl)	98/268	36.6%(31.0-42.5)
Mild (Hb 10-10.9)	54/268	20.1%(15.8-25.4)
Moderate (Hb 7-9.9)	40/268	14.9%(11.1-19.7)
Severe (Hb<7)	4/268	1.5%(0.6-3.9)
CHILDREN 0-23 months		
IYCF indicators		

[9] Note that z-scores for height-for-age require accurate ages to within two weeks (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).

Timely initiation of breastfeeding	`	79.6%(70.9-86.2)
Exclusive breastfeeding under 6 months	10/15	66.7%(39.6-85.9)
Continued Breastfeeding At 1 Year	19/26	73.1%(52.8-86.8)
Continued Breastfeeding At 2 Years	16/18	88.9%(63.7-97.3)
Introduction of Solid, Semi-Solid or Soft Foods (aged 6-8 months)	9/13	69.2%(39.7-88.5)
Consumption of iron-rich or iron-fortified foods	99/105	94.3%(87.8-97.4)
Bottle feeding	44/120	36.7%(28.5-45.7)
WOMEN 15-49 years		
Anaemia (non-pregnant)		
Total Anaemia (Hb<12 g/dl)	45/169	26.6%(20.5-33.8)
Mild (Hb 11-11.9)	28/169	16.6%(11.7-23.0)
Moderate (Hb 8-10.9)	17/169	10.1%(6.3-15.6)
Severe (Hb<8)	0/169	0%(0-0)
Prevalence of Malnutrition Based on MUAC among women of reproductive age (non-pregnant)	12/243	4.9%(2.8-8.5)
Program coverage pregnant women		
Pregnant women currently enrolled in the ANC	39/74	52.7%(41.3-63.8)
Pregnant women currently receiving Iron-folic acid pills	40/74	54.1%(42.6-65.1)
FOOD SECURITY		
Average number of days general food ration lasts out of [30] days10 (mean, SD or range)	13 days,12.5 SD	
Negative household coping strategies		
Proportion of households reporting using none of the coping strategies over the past month	76/270	28.1%(23.1-33.8)
Household dietary diversity		
Average HDDS (mean, SD/ range)	5.2 Mean,1.8 SD	
WASH		
Water quality		
Proportion of households using improved drinking water source	212/270	78.5%(73.2-83.0)
Water quantity		
Proportion of households that use:		
≥ 20 lpppd	161/270	59.6%(53.7-65.3)
15 - <20 lpppd	31/270	11.5%(8.2-15.9)
<15 lpppd	78/270	28.9%(23.8-34.6)
Average consumption: Litres per person per day (LPPPD)		25.0
Satisfaction with drinking water supply		

[10] In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.

Proportion of households that say they are satisfied with drinking water supply	165/270	61.1%(55.2-66.8)
Safe excreta disposal		
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)	102/270	37.8%(32.2-43.7)
A shared family toilet (improved toilet facility, 2 households)	19/270	7.0%(4.5-10.8)
A communal toilet (improved toilet facility, 3 households or more)	128/270	47.4%(41.5-53.4)
An unimproved toilet (unimproved toilet facility or public toilet)	21/270	7.8%(5.1-11.6)
MOSQUITO NET COVERAGE		
Mosquito net ownership		
Proportion of households owning at least one LLINT	66/270	24.4%(19.7-30.0)
Average number of persons per LLINT (mean)		1.8
Mosquito Net Utilisation		
Proportion of household members (all ages) who slept under an LLINT	254/1303	19.5%(17.4-21.7)
Proportion of children 0-59 months who slept under an LLINT	69/255	15.2%(11.9-18.8)
Proportion of pregnant women who slept under an LLINT	2/21	9.5%(1.3-30.4)
Mortality		
Crude mortality rate (CDR) Deaths/10,000/day		4.8%(3.76-6.18)
Under five mortality (U5M) Deaths/10,000/day		8.7%(5.61-13.18)

INTERPRETATION OF RESULTS

The tables below show the WHO public health significance malnutrition classification

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

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

Nutrition status

- The anthropometric findings as assessed based on WFH Z-Scores among children aged 6-59 months old indicated that GAM prevelance ranges from 3.2% in Kyangwali to 12.3% in Palabek. Settlements in West Nile region presented with higher GAM prevelance above 10% (11.8% Adjumani, 10.3% Arua, 11.8% Bidibidi and 11.1% Palorinya) classified as "SERIOUS" level as per WHO classification.
- The GAM prevelance in South West settlements were <5% within the acceptable limits based on the emergency nutrition thresholds. The prevelance were at 4.0% Kyaka II, 4.1% Oruchinga, 3.8% Nakivale, 3.8% Rwamwanja and 3.2% Kyangwali.
- The highest prevalence of malnutrition due to MUAC was recorded in Kampala urban refugee programme at 13.4%, this was followed by Kiryandongo (9.8%) and Palorinya (9.8%), Kyaka II (9.3%) and Oruchinga (9.3%).
- Excluding Palabek (21.9%), stunting in West Nile and Kampala was in the acceptable ranges according to the WHO public health significance, it ranged from 8.4% in Kiryandongo to 17.9% in Lobule. Other settlement with stunting were; Oruchinga (27.9%) and Rwamwana (25.0%).
- Weighted prevalence for all settlement for the global acute malnutrition had increased from 7.2% in 2016 to 9.5% in 2017 and malnutrition based on MUAC also increased from 3.9% in 2016 to 7.3% in 2017. The prevalence of weighted stunting had reduced to 16.4% in 2017 from 19.1% in 2016. The prevalence of the weighted total anaemia among children (6-59 months) reduced to 45.0% in 2017 from 54.4% in 2016; similarly the prevalence of total anaemia among non-pregnant women at reproductive age (15-49 years) had reduced to 29.9% in 2017 from 46.6% in 2016. Poor feeding practices, and especially lack of adequate proteins, low nutrient density intake due to poor provisions of complementary feeding to younger children, including Vitamin A and Iron results into poor nutritional status among children.
- In this report ARUA (includes Rhinocamp and Imvepi settlements); a separate analysis was carried out for the two settlements on acute malnutrition (*anthropometrics*). Findings show that Imvepi settlement had higher global acute malnutrition at 12.4% (8.9-17.2 95% CI), moderate actute malnutrition 12.0% (8.5-16.7 95% CI) and severe acute malnutrition 0.4% (0.1- 2.3 95% CI). The total sample for Imvepi was 241. Analysis for Rhinocamp indicated that the global acute malnutrition rate had actuall reduced from 14.2% in 2016

to 7.7% (4.7-12.2 95% CI) in 2017. The moderate acute malnutrition was 7.1% (4.3-11.6 95% CI) and severe acute malnutrition was 0.5% (0.1- 2.8 95% CI). The total sample size for Rhinocamp was 196.

- Overall, the nutritional status remains to be monitored as the prevalence of malnutrition though continue improving are indicative of presence of malnutrition among refugee population. This calls for further strengthening of the ongoing interventions to address public health gaps, malnutrition, food security and livelihood in the settlements. These values call for further strengthening of the ongoing: livelihood, nutrition, food security, water, and sanitation and hygiene programs.
- Increase coverage of targeted supplementary feeding programme, outpatient therapeutic feeding programme, blanket supplementary feeding programme among children 6-23 months and reduce defaulters from the feeding programmes.
- The feeding programme in the settlements should endeavor to reach the recommended coverage of above >90% in the settlements. Efforts to prevent, track back defaulter cases should be maintained and routine nutrition screening at all contact points at the health facility should be improved. All health and nutrition workers should be trained to assess, identify and refer malnourished children to appropriate nutrition programme.
- It is recommended that stakeholders on health and nutrition should plan adequately, mobilize resources and disburse, monitor and report distributions, consumptions and utilizations of nutrition supplies (RUTF, F-75, F-100, Resomal and the tools – weighing scales, height boards and MUAC tapes).

Anaemia among children 6-59 months and women 15 – 49 years old

- Out of the 13 surveyed locations, only two settlements had anaemia prevalence less than 40% (Nakivale (36.8%) and Oruchinga (33.6%) in Isingiro district). Anaemia prevalence among children aged 6-59 months is classified as "high" by the WHO public health significance when it is above 40%. The prevelanve of severe anaemia in the settlements ranges from 1.4-5.7% (highest being 5.7% in Palorinya) and requires screening, detection, referral and treatment through existing health care.
- The total anaemia among non-pregnant women was recorded highest in Palabek (47.3%), this was followed by Kyaka II (38.8%), Adjumani (34.4%) and Palorinya (33.8%). The prevelance of severe anaemia in the settlement ranges between 0.5-3.3% (highest 3.3% in Palabek) and requires screening, detection, referral and treatment through existing health care.UNHCR programming targets on anaemia among children 6-59 months of age and women 15 – 49 years is <20%.
- Integrate activities related to identifications, referrals and enrollment of cases of micronutrients i.e. severe anaemia cases in routine programme where cases will be treatmented. Increase coverage of iron and folic tablets among pregnant women attending antenatal care and adherence to swallowing the tablets.

Infant and young child feeding practices

- Indicators for infant and young child feeding practices continue improving and still requires attention. Exclusive breastfeeding ranged from 55.6% in Kyangwali to 89.2% in Adjumani. Timely initiation of breastfeeding for children aged 6-23 months ranged from 66.4% in Palabek to 92.9% in Rwamwanja. Introduction of solid, semi solid or soft foods at 6-8 months old was higher in Oruchinga (71.4%) and Kampala (69%) whereas in the most settlements it was below 50%, rate of bottle feedig reported high in Kampala 36.7%, Oruchinga 34.3%, Nakivale 29.6%, Kiryandongo 28.4%, Palorinya 25.9%, Lobule 22.1%, Rwamwanja 23.6% and Palabek 16.5%
- Consumption of iron-rich or iron-fortified foods was found high almost in all settlements;

it raned from (92%) Adjumani to (97.3%) in Nakivale; while in Oruchinga it was recorded at (96.6%). The highest proportion of bottle feeding was reported in Oruchinga (38.9%), Kampala (37%) and Kiryandongo (32.3%).

- Health and nutrition teams should further investigate bottle feeding practices in the settlements, addressing infant and young child feeding challenges in the community is essential, improving feeding practices among young children need to be improved. Further roll out of the UNHCR multi-sectoral IYCF friendly framework in all the refugee settlements is required and should be considered for 2018. Counselling on exclusive and initiation of breastfeeding is important in the community.

Food security

- The average number of days the food ration lasted ranged from 13 days in Kyaka II to 23 days in Palorinya. Settlements that reported food ration lasted for a longer period were Arua, Bidibidi and Palabek where food ration lasted for 22 days.
- Most households used reduced coping mechanisms, stressful, crisis and emergency coping strategies in order to acquire food for their households. In Nakivale (94.7%), Kampala (82.6%), Palabek (79.1%) and Oruchinga (73.3%) of the households relied on less preferred, less expensive food. 60% of households in Kyangwali reported that food ration lasted the entire duration of the cycle, while in Rwamwanja (86.1%), Nakivale (84.9%), Lobule (84.6%) and Kyaka II (84.4%) households reported that the food ration lasted less than ≤75% of the cycle reported highest.
- Households in Lobule settlement had a diets / meals with a 5.2 dietary score out of 12 food groups. Other settlements which had the Mean HDDS higher than 4 (4.5 Kyaka II, 4.4 Rwamwanja, 4.4 Bidibidi, 4.3 Aruaand 4.3 Palorinya) however their meals were dominated by higher consumption of cereals and beans (pulses).
- The general food distribution in the settlements should continue embracing its four principles; fairness: where refugee households receive the same food composition and quantities; accountability: food distribution are monitored, household food lists are verified and the food quantities and ration are monitored; transparency: populations are informed of the food ration and composition and duration; and the general food distribution considers gender relations and roles with a focus on children and women.
- Expand the cash transfer for food and cash based interventions for other basic needs supports, with the view to diversify livelihood opportunities, and self-reliance, household own food and livestock production including small animal and poultry keeping.
- Conduct a GoU/WFP/UNHCR Joint Assessment mission in the refugee settlements so as to make critical decisions and recommendations on in-kind food distributions, cash transfer for food, cash based interventions for other basic needs and services in the settlements.

Health related

- The highest coverage of measles vaccination was recorded in Rwamwanja (96.1%) while and the lowest coverage was recorded in Kampala (73.8%). Rwamwanja had the highest coverage of measles vaccination confirmed with card (82.1%) implying that majority of the children possess vaccination cards and health workers record the antigens on the vaccination card. In Aruas had only 22.6% measles confirmed by card. The Arua situation is shared also with Palabek with vaccination coverage by card recorded at 34.1% and the combined coverage between measles by card and verbal confirmation recorded at 83.2%. The programme target coverage for vitamin A supplementation is >95%.
- Rwamwanja (94.4%) and Kyaka II (92.1%) had the highest coverage of vitamin A supplementation while Adjumani, Oruchinga and Kiryandongo settlements had almost 91% coverage of vitamin A supplementations. The programme target coverage for vitamin

A supplementation is >95%.

- Prevalence of diarrhoea among children assessed in the last two weeks superseded the survey was highest in Palabek (24.4%), followed by Arua (15.3%), Kiryandongo (14.4%) and Nakivale (14.3%) and Palorinya 13.9%.
- Rwamwanja settlement had the highest DPT3 vaccination coverage at 97.0%. Using DPT3 as a measure for fully vaccinated, Rwamwanja settlement attained the recommended programme target coverage of 95% in emergency settings. Other settlements, which recorded higher coverage, include Kyaka II (94.6%), Adjumani (91.4%), Kiryandongo (91.2%), Oruchinga (90.7%) and Nakivale (90.5%). Kyangwali had the lowest DPT3 coverage which was recorded at 76.1%.
- The highest coverage of deworming programme among children aged 12 to 59 months was recorded in Palorinya (88.1%). This was followed by Adjumani (87.7%), Oruchinga (86.6%), Kiryandongo (85.6%), Bidibidi (84.6%) and Kyaka II (84.6%).
- Ownership of at least one mosquito net was highest in Palabek (97%) settlement, followed by Oruchinga (84.9%), Palorinya (78.7%) and Rwamwanja (65.7%) settlements. Households in Kyaka II (14.8%) and Kyangwali (17.5%) had the lowest proportion of owning at least one mosquito net. The ownership of Long Lasting Insecticide Treated (LLINT) mosquito net was high in Oruchinga (84.7%), Palorinya (66.4%) and Palabek (65.0%). Settlements with low ownership of LLINT were Kyaka II (9.6%) and Kyangwali (11.8%).
- Sick children should be encouraged to eat though they will have no appetite, sick children should be given foods little by little at a time. Children below 6 months should be kept on exclusive breastfeeding to avoid diarrhoea related diseases. Young children, 6-23 months with diarrhoea should be given extra fluid to help prevent dehydration. At the same time since diarrhoea diseases are linked to increase under five mortality, the child needs to be taken to a health worker for evaluation and treatment.
- Child health: Children who are immunized are protected from preventable diseases such as, (diphtheria, pertussis, tetanus, polio, and measles) which most often, lead to disability or death. Information should be passed to parents for them to know why, when, where and how many times the child should be immunized, receive vitamin A supplementation and de-wormed. Parents also should know that it is safe to immunize the child
- Strengthen implementation of growth monitoring and promotion where children are weighed, and the weight is plotted on the child growth chart, during growth monitoring mothers receive counselling on child care, family planning. It is also further encouraged that on each visit to a health centre, the weight/height of every child should be measured using accurate tools. Recording the weight and height of children serve three important purposes:(a) help to detect children at high risk of developing malnutrition; (b) used to follow and monitor the growth of an individual child; (c) used to track passed records on child illness and the treatment.

Water, Sanitation and Hygiene

- The proportion of households using an improved drinking water source was low in Arua (61%), Kiryandongo (75.2%), and Kampala (78.5%). All refugee households interviewed in Lobule and Palorinya reported using improved drinking water sources. The use of a covered or narrow necked container for storing drinking water was highest in Kampala (81.1%) and Palabek (76.6%). The settlements which had the lowest use of covered or narrow necked container for storing drinking water were; Kyaka II (14.0%), Nakivale (19.1%), and Kyangwali (21.2%).
- Refugee households in Oruchinga (81.2%) had higher coverage of owning and using a latrine without sharing with another family. In other settlements less than 50% of the

households owned latrines which were not shared by another household. In Kampala 47.4% refugee households use communal latrines

- Stakeholders in the water, sanitations and hygiene sector are encouraged to dig more deep boreholes to increase population access to improved water sources in the settlements. The quantity of water per capita per day should be increased to meet the recommended programme target of 20 litres per day.
- Households are encouraged to live in hygiene environment as this will prevent communicable diseases that in most cases are the result of poor sanitation and unclean environment. Proper disposal of human waste will serve to prevent diseases. Access to clean toilets which everyone household member uses is critical and it must be properly constructed and in good position.

RECOMMENDATIONS

Immediate

- To strengthen the delivery of quality nutrition programme in the settlements through advance training of health and nutrition workers of new innovations in the emergency nutrition sector; this includes; the use of nutrition products; nutrition surveillance, monitoring and reporting; management of severe acute malnutrition at stabilization centers and at community level.
- MoH, WHO, UNHCR, WFP and UNICEF should systematically provide joint supervision and monitoring of the nutrition programme; findings should be technically analysed and presented for discussions and feedback to the relevant stakeholders.
- Since the causes of malnutrition and anaemia are multifactorial, it is imperative that the communiation, coordination, and linkages of nutrition programem with other services reproductive health, HIV and Tuberculosis, prevention and curative health care, water, sanitation and hyigiene livelihood, food security and protection are systematically initiated and or strenghted .
- Since the number of partners implementing the nutrition programme in the settlements and districts hosting refugees continue increasing due to the fact that three UN sister agencies (UNHCR, UNICEF and WFP) continue signing different partners to implement only parts of the nutrition programmes; and also the presence of the operational partners which have their own funding; a coordinated approach is required so that nutrition programs are implemented under one partner in one geographical location (one programme partnership agreement will improve budgeting, supervisions and monitoring and reporting). UNHCR, UNICEF and WFP should explore a better way to manage the nutrition programme.
- To consider nutritional screening based on MUAC, Oedema, and WHZ among children U5, and MUAC among PLW at reception centres /provision of treatment for SAM and MAM, and support IYCF practices. By using WHZ among new arrivals more SAM and MAM cases will be identified and enrolled for treatment.
- To establish referral mechanism between entry points/reception centres/settlement to avoid double counting/reporting of SAM and MAM cases and avoid double distribution of RUTF and RUSF to SAM and MAM cases.
- Last JAM conducted in 2014, following the UNHCR/WFP recommendation to conduct JAM every 2 years, and it was supposed to take place in 2016. It is imperative to ensure that the current planned OPM, WFP and UNHCR is organised and implemented; recommendations draws evidence from nutrition surveys, vulnerability studies and joint plan of action is formulated to cover the coming 2 years.
- Maintain provision of food assistance to new arrivals at entry points and reception centres which should be systematically implemented along with nutritional screening among new arrivals children under 5 years, pregnant and lactating women, detection of severe acute malnutrition and moderate acute malnutrition; that should go alone with treatment and rehabilitation.
- Support the promotion and protection of infant and young child feeding programme in the settlements; the current role out of the IYCF framework in the settlement should bring all nutrition actors together so that resources are allocated and utilized in a coordinated manner.
- In coordination with the health and nutrition stakeholders, MoH, UNHCR, UNICEF and WFP should endeavour to conduct an inventory of the IYCF related activities currently implemented in the districts hosting refugees. Mapping of the ongoing IYCF interventions at the district level will assist partners to understand the key bottlenecks and gaps and this will

inform the government the IYCF needs, which in turn support the national IYCF-E capacity development plan.

- Provide health and nutrition education to pregnant women, emphasize on the recommended schedule for ANC visits through pregnancy up to 6 months of postnatal period. Provide prenatal key messages including; timely initiation of breastfeeding (giving colostrum), exclusive breastfeeding from birth up to 6 months (avoid other liquids and food, including water). Focusing on good attachment and positioning and place baby skin-to-skin with mother
- Ensure that 100% of pregnant women enrolled in the ANC receive and take the Iron-Folic Acid tablets daily as prescribed by clinicians. Ensure that pregnant women attending ANC receive LLINT and regularly sleep under LLINT to prevent malaria in pregnancy.
- In collaboration with water, sector stakeholders provide adequate, safe and clean water supply meeting daily demands of the populations. Adequate provisions of safe and clean water will reduce water born related diseases in the community.
- Promote environmental health activities in the communities and at household level, emphasizing on hand washing practices with soap and proper disposal of human faecal matters including that of children.

Medium

- Deliberate efforts toward on women's utilization of ANC service should be stepped up. Women having good knowledge about maternal health services increases up take and use ANC services. Efforts should also be reinforced for mothers to complete the four ANC visits. Though pregnancy can be considered natural, seeking preventive ANC services is better than waiting to cure negative outcomes due to non-attendance to ANC services. Providing focused and sustained reproductive health education through maternal and child health services will enhance women knowledge and improve antenatal service utilization.
- Promote early health seeking behaviour especially in rural areas, equip health facilities with adequate malaria diagnostic tools and supplies, and technical human resources, and adequate medications to treat fever of malaria origin
- Intensify implementation of intermittent preventive treatment of malaria in pregnancy immediately from the second trimester. Monitor and report the implementation of the national malaria in pregnancy policy, guidelines, job aids and behavioural communication change materials that supports uptake of intermittent preventive treatment of malaria in pregnancy.
- Support food production, initiate petty business, and other forms of self-reliance activities to support refugee households' food security and also improve the level of income generated at household level.
- Upgrade and extend exiting water pipes where feasible based; consistently implement water quality monitoring and surveillance and mobilizing and training community-based volunteers to monitor water facilities

Long term

- In the last 2 years, the refugee operation experienced general food ration reductions (50%-75% for old caseload); delays in some cycle of food distribution and missing of some food commodities; this might have contributed to some negative impact on the food security and nutrition situation of the refugees in settlements. It is recommended that; jointly WFP/UNHCR to intensify its advocacy strategies so that the required funding for food assistance is realised, food is mobilised and timely delivered. As it has been the case maintaining

prioritisation of new arrivals and vulnerable refugees, the two organisations should harmonise there criteria for identifying vulnerable individuals/households.

- Pre-positioning of food commodities to avoid delays in the cycle of general food distribution.
- Well advance communication with the refugee communities in case of shortfalls or delays in the cycle. Complete the registration and food assistance guideline.
- Review the current food and cash transfer for food assistance targeting procedures of food assistance to the refugees in Uganda.
- Continue implementing post food distribution and food basket monitoring exercises, this is the responsibility of both WFP and UNHCR once the general food distribution is completed
- Distribution of long lasting insecticide treated mosquito nets. Social marketing on the retention and frequent use of long lasting insecticide treated mosquito nets, prior distribution coordinate hang up campaign in the community and future plans on indoor residual spray should include districts hosting refugees as have high malaria prevalence as well. Initiate vector programs with environmental health management teams and control sources of larval.
- Work close with the Ministry of Agriculture and Livestock, FAO and development partners supporting livelihood activities that includes; vegetable and fruits productions, that will improve production of vitamin A rich vegetables, dark green leafy vegetables, fruits and tubers.
- Support and improve rearing of small ruminant animals and poultry keeping in order increasing supply and availability of animal protein (eggs and meat) and micronutrients (vitamins and minerals) in the community.

BACKGROUND

Current Status

Uganda, as at the end of October 2017, has been hosting about 1.4 million refugees across 12 districts in Uganda. The refugees live alongside their Ugandan hosts in the settlements. The total refugees and asylum seekers in each refugee settlement was: 226,449 Adjumani, 222,639 Arua, 101,333 Kampala, 57,202 Kiryandongo, 27,583 Kyaka II, 35,791Kyangwali, 123,985 Palorinya, 101,403 Nakivale, 6,852 Oruchinga, 75,852Rwamwanja, 285,969 Bidibidi and 30,292 Palabek and 4,441 Lobule. At the end of October 2017, the mean crude mortality rate was 0.1 deaths per 1000 population per month, the under 5 years mortality rate was 0.2 deaths per 1000 population per month and the infant mortality rate was 12.2 deaths / 1000 live-births / month. At the end of October 2017, the total consultation was nearly 1,000,000 across the settlements. 30% of the consultations were nationals. The leading causes of morbidity were: malaria 34%, respiratory tract infections 23%, watery diarrhoea 6%, skin infection 5%, intestinal worms 4%, and eye disease 2%. The burden of diseases is apparent as an important contributing factor in the current levels of malnutrition across the operation. At the end of 2016 the incidence rates of the top 5 childhoods illness was recorded at 36% upper respiratory infections, 54% malaria, 9% watery diarrhoea and 11% lower respiratory infection. In the month of October 2017, the target coverage for the immunization programme was to reach 20340 children. At the end of the month the coverage was: 61.5% BCG, 72.0% Polio, 70.1% DPT and 76.1% measles and 67.1% fully vaccinated.

The burden of iron deficiency anaemia in the refugee settlement remain apparent among children below 5 years, where more than 40% of these children are anaemic as per the 2016 nutrition survey results and 20% of the non-pregnant women. The HIV programme is integrated in the nutrition interventions where the infant and young child-feeding programme in the HIV context is implemented. Voluntary counselling and testing stood at 100%, all pregnant women booking in the maternal and child health programme receive HIV counselling. The proportion of partners who received post-test counselling and result is also 99%. The proportion of mothers who swallowed ARV during delivery was 93%; the proportion of new-born's that were given ARV within 72 hours of birth and the ratio of mother-new-borns pairs that received ARV from HIV positive live births was also 87%.

The 2016 annual anthropometric nutrition survey results indicated that the prevalence of acute malnutrition was higher in Arua with the global acute malnutrition (GAM) at 14.2% classified as "serious" according to WHO classification. The GAM prevalence for Adjumani was at 9.6%, Kiryandongo 8.2%, Bidibidi 7.6% and Lobule 7.5% classified as "poor". The GAM prevalence for rest of the settlements was within the "acceptable" levels below 5%.

The prevalence of anaemia in children aged 6-59 months and in non-pregnant women of reproductive age (15-49 years) in the ten settlements remained above WHO threshold of 40% for defining public health significance problems. With an exception of Oruchinga (39.1%) and Nakivale (26.1%), the rest of the settlements presented high anaemia prevalence. The highest prevalence of anaemia among refugee children was recorded in Bidibidi at 72.4%. This was followed by Lobule at 72.2%. Anaemia among women at reproductive age was recorded highest in Bidibidi at 56.5%, and Adjumani at 48.1%.

Early initiation of breastfeeding within one hour post-delivery was recorded 94.3% Nakivale, 95.7% Oruchinga, 91.3% Kyaka II, 74.6% Kyangwali, 85.8% Rwamwanja, 97.6% Kiryandongo, 97.1% Rhinocamp, 87.2% Adjumani, 81.5% Lobule and 68.2% Bidibidi. Access to land for food production was the lowest in Bidibidi at 2%, Arua at 6.7% and Nakivale recorded at 39.9%.
On the maternal and child health related aspect, in 2016, about 93.0% of the women in Rwamwanja

were enrolled in the ANC, and 81.7% of them had received Iron folic acid; 89.1% in Adjumani were enrolled and 89.1% had received iron folic acid, 87.9% in Kiryandongo were enrolled in the ANC and 87.9% of them had received iron folic acid. In all settlements, more than three quarters of children assessed reportedly received Vitamin A. With the exception of Bidibidi where 71.1% of the children reportedly received the DPT 3 vaccine, more than 75% in the rest of the settlements received the DPT3 vaccine. Bidibidi at 68.3% and Kiryandongo at 73.3% had the lowest proportion of children who had been dewormed.

On water and sanitation; across the settlements, 53% of households in Bidibidi settlement reported to receive less than the recommended 15 litres/person/day of safe water for domestic use. Most refugees in West Nile region were more likely to receive less than 15 litres of water/person/day: 40.4% Adjumani, 34.1% Arua and 33.3% Lobule another settlement that reported relatively high proportion was Kyangwali with 33%.

Lobule refugee settlement had the highest coverage of refugee households using improved latrines with 86.9% (improved toilet facility, 1 household), this was followed by Oruchinga with 67.7% and 49.7% Nakivale. Use of unimproved toilet or public toilets was more apparent in the following settlements with: 72.7% Kyangwali, 57.1% Rhino-camp, 45.8% Kiryandongo, and 36% Kyaka II and 32.9% Nakivale. In these settlements, a significant number of households reported not owning an improved household latrine.

General objectives of the survey

The overall objective of the food security and nutrition assessment was to assess the general nutrition and health status of refugees and formulate workable recommendations for appropriate nutritional and public health interventions. It is imperative to note that the list of the objectives presented herewith is adapted from the UNHCR standardized expanded nutrition survey guidelines.

Specific primary objectives:

a. To determine the prevalence of acute malnutrition among children 6-59 months.
b. To determine the prevalence of stunting among children 6-59 months.
c. To assess the prevalence of anaemia among children aged 6-59 months and non- pregnant women of reproductive age (15- 49 years).
d. To assess the two-week period prevalence of diarrhoea, fever and ARI among children 6-59 months.
e. To determine the coverage of vitamin A supplementation in the last six months among children 6-59 months.
f. To determine the coverage of de-worming in the last six months among children 24-59 months.
g. To determine the coverage of measles vaccination in children 9- 59 months and DPT3 vaccination.
h. To investigate IYCF practices among children 0-23 months.
i. To determine the ownership and utilization of mosquito nets (all types and long- lasting insecticidal nets (LLINs)) in households especially children 0-59 months, and pregnant women
j. To determine the population's access to, and use of improved water, sanitation and hygiene facilities.
k. To determine the coverage of ration cards and the duration the general food ration lasts for recipient households.
l. To determine the extent to which negative coping strategies are used by households.

m. To assess household dietary diversity.
n. To identify priority areas in programme implementation and propose informed recommendations for future programming to both the government and refugee settlements.

Secondary objectives

a. To determine the coverage of enrollment in selective feeding programmes (SC, OTP, BSFP and TSFP) for children 6-59 months.
b. To determine enrolment into Antenatal Care clinic and coverage of iron-folic acid supplementation in pregnant women.
c. To assess the nutritional status of women at reproductive age (pregnant women excluded) measuring mid upper arm circumference.
d. To assess crude and under-five mortality rates in the camps in the last three months.

Methodology

In all refugee settlements, cross-sectional survey were conducted in each designated refugee settlement where systematic random sampling because houses are orderly, arranged in roads or streets, and an updated list of houses was available for each refugee settlement. The sampling unit were the houses which were pre-identified in each block, a separate; list was prepared and the houses were verified and labelled by the Village Health Teams (VHTs). To reduce non-response rate and ensure results are representative of refugee people actually living in the settlements at the time of the survey, unoccupied houses, as verified through neighbours and refugee leadership hierarchy were not included in the sampling frame. The VHTs in the settlements were allocated specific number of households to cover during outreaches.

Sampling procedure: Selecting households and target individual samples

Using the list generated from the physical counting and confirmed houses in the settlements by the VHTs, sampling interval for each settlement was calculated by dividing the total number of verified and confirmed households by the calculated sample. At the beginning of the data collection in the settlements, determination of the first household was done using the random number tables. Houses were counted to the end of the randomly selected direction and were numbered in papers. Papers were folded and applying a lottery method, randomly a number was picked this number became the sampling interval. The sampling interval was used across the sampling frame to generate a list of households that were visited during data collection.

Based on these sampling intervals the lists of households were prepared for each survey day, printed and given to the survey teams. Teams revisited individuals or households when were found absent, it was agreed that teams would return to the household or revisit the absent individual up to two times on the same survey day. In case household or individual visited, were found absent were recorded absent and were not replaced. Individuals or households that declined to be interviewed, there decision were respected and were not replaced with another individual or household. Children with disabilities whose physical impairments could not allow some anthropometric measurements to be taken, they were included in the assessment of the other indicators. Sampled households found without eligible children, such households were assessed for the household's questionnaires, women at reproductive age found in those houses were assessed accordingly.

The survey teams visited children who were at the health or nutrition centres receiving care, their measurements and information was recorded. Efforts were made to reach all areas, however, in

situations which proved impossible to visit the centre, such children were issued with specific identity and were listed as absent and were not replaced. The survey team produced a brief note stating that the child was receiving care in the nutrition or health centre when the survey team visited. This recommendation differs from the standard SMART recommendation, which considers nutrition surveys that are usually conducted in large geographic areas and where it is often not possible to go to the nutrition or health centres for measurement of the children receiving care at health centres.

Sample size

The sample sizes were calculated using Standardized Monitoring and Assessment of Relief and Transitions (ENA for SMART version July 9th, 2015) software following UNHCR SENS guidelines for refugee populations version 2 (2013). All 6 modules of UNHCR SENS were used (1. Anthropometric and health, 2. Anaemia, 3. Infants and Young Child Feeding, 4. Food Secfurity with adaptation to local context, 5. WASH, 6. Mosquito Net Coverage), with additional module on mortality from SMART methodology). The sample sizes were estimated based on the September 2017 UNHCR Pro-Gres database monthly report. Other parameters for calculating the sample sizes were obtained from the December 2016 nutrition surveys. In South West, Mid-West and West Nile settlements, the December 2016 nutrition survey results, upper limits confidence intervals were used to calculate the sample sizes. The total population, percentage of under-5 and average household size were obtained from the September 2017 UNHCR ProGres demographic data. A non-response rate of 10% was added in all settlements. Following SENS recommendation correction for small population size were made in ENA for Lobule, Kiryandongo, Oruchinga, Kyaka II, Kyangwali, and Palabek settlements where the total U5 population were <10,000. Then the tables below should be updated accordingly.

Sample size calculations for the cross sectional anthropometric survey – October 2017

Name of settlement	Total population	Total households	Average household size	Estimated prevalence of malnutrition %	Total Under 5 yrs	± desired precision %	% children under 5 yrs	6-59 months old children / household	% of non-response households	Children to be sampled	Household sample
Adjumani	226,303	40,411	5.6	11.8	32,674	3.5	16.4%	1.6	10	326	439
Rhinocamp	215,062	36,451	5.9	22.8	36,393	4.8	17.2%	1.7	10	293	358
Nakivale	96,716	16,393	5.9	5.2	15,772	3.0	17.6%	1.8	10	237	320
Rwamwanja	64,772	12,221	5.3	3.2	12,970	2.5	16.2%	1.7	10	190	274
Bidibidi	284,927	49,987	5.7	10.1	58,060	3.5	17.8%	1.9	10	285	346
Palorinya	111,581	18,912	5.9	10.1	20,002	3.5	16.2%	1.7	10	285	368
Kampala	98,759	19,752	5.0	2.9	17,255	3.0	14.0%	1.2	10	173	305

The settlements below have less than 10,000 under5 years children; sample sizes were calculated using the correction factor for small small population size for both children 6-59 months and households to be sampled

Name of settlement	Total population	Total households	Average household size	Estimated prevalence of malnutrition %	Total Under 5 yrs	± desired precision %	% children under 5 yrs	6-59 months old children / household	% of non-response households	Children to be sampled Calculated with correction small pulation size	Households to be sampled Calculated with correction small pulation size
Lobule	6059	1,165	5.8	12.9	363	3.5	18.9%	1.4	10	263	296
Kiryandongo	56,789	10,921	5.7	11.5	8,457	3.5	16.8%	1.6	10	308	397
Oruchinga	5,787	1,181	5.2	6.3	989	3.0	15.7%	1.5	10	193	292
Kyaka II	26,526	4,912	5.4	5.7	4,399	3.0	16.9%	1.8	10	217	294
Kyangwali	48,543	8,668	5.6	3.5	8,131	3.0	15.8%	1.7	10	141	197
Palabek	30,292	5,715	5.9	11.8	1,917	3.5	16.8%	1.6	10	305	380

Sample size calculations for the cross-sectional mortality survey – October 2017 (Note: higher values obtained from ENA calculations were used)

Name of settlement	Total population	Total households	Average household size	Estimated mortality rate/1000/day	± desired precision /1000/day	Recall period	% of non-response HHs	Population to be included	# of HHs to be included
Adjumani	226,303	40,411	5.6	1.5	0.8	90	10	1000	439
Arua	215,062	36,451	5.9	1.5	0.8	90	10	1000	358
Lobule	6059	1,165	5.8	1.5	0.9	90	10	1000	296
Kiryandongo	56,789	10,921	5.7	1.5	0.8	90	10	1000	397
Nakivale	96,716	16,393	5.9	1.5	0.9	90	10	1000	320
Oruchinga	5,787	1,181	5.2	1.5	0.8	90	10	1000	292
Rwamwanja	64,772	12,221	5.3	1.5	0.8	90	10	1000	274
Kyaka II	26,526	4,912	5.4	1.5	0.8	90	10	1000	294
Kyangwali	48,543	8,668	5.6	1.5	0.7	90	10	1000	197
Bidibidi	284,927	49,987	5.7	1.5	0.7	90	10	1000	346
Palorinya	111,581	18,912	5.9	1.5	0.7	90	10	1000	368
Palabek	30,292	5,715	5.9	1.5	0.8	90	10	1000	380
Kampala	98,759	19,752	5.0	1.5	0.8	90	10	1000	305

Table 4: Total Number of Households Sampled in each Module in Refugee Settlements, October 2017, Uganda

Survey Modules	HHHs to be included for Anthropometry and Health module and mortality (ENA for SMART)	Households to be included for children Anaemia module (UNHCR SENS guidelines)	Households to be included for IYCF module (UNHCR SENS Guidelines)	Households to be included for WASH module (UNHCR SENS Guidelines)	Households to be included for Food security (UNHCR SENS Guidelines)	Households to be included for Mosquito (UNHCR SENS Guidelines)	Retrospective mortality survey in settlements
Adjumani	439	439	439	220	220	220	439
Arua	358	358	358	129	129	129	358
Nakivale	296	296	296	223	223	223	296
Oruchinga	397	397	397	199	199	199	397
Kyaka II	320	320	320	160	160	160	320
Rwamwanja	292	292	292	191	191	191	292
Kyangwali	274	274	274	137	137	137	274
Lobule	294	294	294	147	147	147	294
Kiryandongo	197	197	197	99	99	99	197
Bidibidi	346	346	346	173	173	173	346
Palorinya	368	368	368	137	137	137	368
Palabek	380	380	380	190	190	190	380
Kampala	305	305	305	152	152	152	305

Questionnaire, Training and Supervision

Questionnaires

The comprehensive questionnaires are included in

APPENDIX 1**.** The original questionnaires was obtained from the UNHCR Standardised Expanded Nutrition Survey website (http://sens.unhcr.org/) of which was in English language, other translated versions used included Swahili, Arabic, Somalis and French, in some instances the questionnaires were administered in Dinka and Neur languages via translators particularly in West-Nile where the South Sudanese refugees are hosted. The questionnaires were pre-tested prior commencement of the data collections.

The Uganda Food Security and Nutrition Assessment adheres to the UNHCR SENs methodology, additional questions in different modules are added to suit the Uganda context among the six modules of the UNHCR standardised expanded nutrition survey questionnares of which were designed to allow collection of information on the relevant indicators of the different target groups as indicated in the survey objectives. An additional module on retrospective mortality was added with the view to collate the mortality data reported monthly through the health information system. The last three surveys were conducted in the month of November and December, this was survey was conducted in month of October across the settlements which an intention that that results would feed into the OPM, UNHCR and WFP Joint Assessment planed to take place in February 2018 and the findings will also be factored into the UNHCR country operation plan for 2018-2020.

The six module questionnaires including the additional one (on retrospective mortality) covered the following thematic areas and the following measurements:

Module 1: Children 6-59 months:
This included questions and measures on children aged 6-59 months. Individual measurements and information were collected on children anthropometric status, oedema, and enrolment in selective feeding programmes, immunisation (DPT-3 and measles), vitamin A supplementation and de-worming in last six months. This module also assessed child morbidity from diarrhoea in past two weeks.

Module 2: Anaemia: Children 6-59 months:
All children assessed for anthropometric measurements had their haemoglobin levels measured.
For women at reproductive age (15 – 49 years): Information about their pregnancy status, coverage of iron-folic acid pills, ante-natal and post-natal clinic attendance for pregnant and post-natal women, vitamin A supplementation, and haemoglobin measurement for non-pregnant women were assessed.

Module 3: Infant and Young Child Feeding
This module included questions on infant and young child feeding practices for children aged 0 - 23 months. The SENs module on IYCF was used which is in line with the WHO safe and appropriate infant and young child feeding, by protecting, promoting and supporting exclusive breastfeeding for the first six months of life and continued breastfeeding for two years or beyond, with timely and correct use of adequate complementary foods.

Module 4: Food Security
This module was adapted in close consultations with WFP. The module included questions negative coping mechanisms used by household members and household dietary diversity. Questions on crop productions, livelihood and self-reliance related opportunities and cash interventions were included.

Module 5: Mosquito net coverage
This assessed the ownership of mosquito nets, determine the utilisation of mosquito nets. The set

of questions in this module will be asked at the household level.

Module 6: WASH
This module looked into water, sanitation and hygiene. Questions were framed to understand the coverage of improved and unimproved drinking water sources and improved and unimproved excreta disposal. Upon analysis the core quantitative indicators for monitoring WASH programmes at the household level were presented.

Addition Survey Parameters
Mortality: An individual-level mortality form similar to the SMART sample was used to capture data on deaths that had occurred. Data entry and analysis were done in ENA for SMART with the household-level summary data derived from the form by hand.

Measurement Methods
Household-Level Indicators
Food security: The standard questionnaire from the UNHCR's Standardised Expanded Nutrition Survey Guidelines for Refugee Populations Version 2 (2013) was adopted allowing more questions to be added in the areas of land ownership, crop production, livestock and other self-reliance / livelihood activities.

Water, sanitation and hygiene: The questionnaire used was obtained from the UNHCR's Standardised Expanded Nutrition Survey Guidelines for Refugee Populations Version 2 (2013).
Mosquito net coverage: The questionnaire used was from UNHCR's Standardised Expanded Nutrition Survey Guidelines for Refugee Populations Version 2 (2013).

Individual-Level Indicators
Sex of children
Gender was recorded as male or female.

Birth date or age in months for children 0-59 months;
The exact date of birth (day, month, and year) was recorded from either an EPI card, child health card or birth notification if available. If no reliable proof of age was available, age was estimated in months using a local event calendar or by comparing the selected child with a sibling whose age was known, and recorded in months on the questionnaire. If the child's age was not absolutely determined by using a local events calendar or by probing, the child's length/height was used as criteria to include the child in the study; children measured between 65 cm and 110 cm had their measurement assessed. Other documents were not used to determine the age of the children including the UNHCR manifest owing to the fact they does not reflect the correct birthdate.

Age of women 15-49 years
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). Children were weighed nude and only very light underwear were allowed. In some instances, weight was taken inside the houses where the floor was much more levelled and allowed for privacy. The mother-baby option of weighing the young children was applied when young children were unable to stand on their own and unable to follow the instructions.

Height/Length of children 6-59 months
Children's height or length were measured to the closest millimetre using a wooden height board

(Shorr Productions). In situations where documents showing the age of the child were not available, height was used to include the child in the survey. 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 in children was assessed by applying gentle thumb pressure on to the tops of both feet of the child for an estimated period of three seconds and thereafter observing for the presence or absence of an indent. All oedema cases reported by the survey teams were verified by the survey supervisors and were referred immediately to the nearest health facility for further management.

MUAC of children 6-59 months and women of reproductive age 15-49 years (non-pregenant)

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 (Green, yellow and red taps UNICEF taps). MUAC was recorded in centimetres.

Child enrolment in selective feeding programme for children 6-59 months
Selective feeding programme coverage was assessed for the targeted supplementary feeding programme and therapeutic feeding programme and for the blanket supplementary feeding programme. Caregivers were asked to present the feeding programme enrolment cards or were shown some images of the products given in the programme they referred (for e.g. PlumpyNut, CSB++ sachet).

Measles vaccination in children 6-59 months
Measles vaccination was assessed by checking for the measles vaccine on the EPI card if available; where EPI cards were not available caregivers were asked to recall if the child had previously received measles shot. Also, the third dose of Diphtheria Toxoid, Tetanus Toxoid and Pertussis containing vaccines (DPT-3) was assessed from the cards. All children aged 6-59 months were assessed for measles and its analysis was limited on children aged 9-59 months. Children 0 to 23 months were assessed for DPT-3 and its analysis was presented accordingly.

Vitamin A supplementation in last 6 months in children 6-59 months.
This was assessed and recorded from the EPI card where the card was available. In a situation where the card was not available caregivers were subjected into a recall interview. In the process a vitamin A capsule image was shown by the team to the caregivers to assist with recall.

Deworming
Records on child received a deworming tablet over the past six months were recorded from the EPI card where were available otherwise the caregivers were asked to recall where cards were not available. Teams showed the deworming tablet-image 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 fingertip through a capillary blood sample and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser. Children found with < 7.0 Hb and women found with < 8.0 Hb reading were referred to the nearest health facility for further managements as such cases are considered suffering from severe anaemia.

Diarrhoea in last 2 weeks in children 6-59 months
For the purposes of this study 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, iron and folic acid pills coverage
Pregnant women found during the survey were assessed whether were enrolled in the ANC programme and were asked if had received iron-folic acid pills. To assist respondents to remember and respond appropriately, an iron-folic acid pill image were shown to them when asked to recall.

Infant and young child feeding practices in children 0-23 months
Infant and young child feeding practices were assessed based on UNHCR Standardised Expanded Nutrition Survey Guidelines for Refugee Populations (2013)

Referrals
Children aged 6-59 months were referred to the nearest health facilities for further management when MUAC was found < 12.5 cm, when WHZ was found <-2 z-score, when oedema was found present, or when haemoglobin was < 7.0 g/dl. Women of reproductive age were also referred to the nearest health facility when haemoglobin was < 8.0 g/dl

Case Definitions and Calculations
Mortality
The crude death rate (CDR) and the U5 death rate (U5DR) is expressed as the number of deaths per 10,000 people per day. The formula below was applied:
Crude Death Rate (CDR) = 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 is defined using WFH 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 5: Definitions of 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 is defined using height-for-age index values and is classified as severe or moderate based on the cut-offs shown below. Main results are reported according to the WHO Growth Standards 2006.

Table 6: Definitions of Stunting Using Height-For-Age In Children 6–59 Months

Categories of stunting	Z-scores (WHO Growth Standards 2006 and NCHS Growth Reference 1977)
Stunting	<-2 z-scores
Moderate stunting	<-2 z-score and >=-3 z-score
Severe stunting	<-3 z-scores

Underweight is 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 7: Definitions Of Underweight Using Weight-For-Age In Children 6–59 Months

Categories of underweight	Z-scores (WHO Growth Standards 2006 and NCHS Growth Reference 1977)
Underweight	<-2 z-scores
Moderate underweight	<-2 z-scores and >=-3 z-scores
Severe underweight	<-3 z-scores

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

Table 8: Low MUAC Values Cut-Offs In Children 6-59 Months

Categories of low MUAC values
<12.5 cm
≥ 11.5 cm and <12.5 cm
< 11.5 cm

Child enrolment in selective feeding programme for children 6-59 months:
Feeding programme 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 (%)

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

Coverage of TFP programme (%)

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

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 2 (2013)) that are based on WHO recommendations (WHO, 2007 as follows:

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

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

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)

$$= \frac{Infants\ 0-5\ months\ of\ age\ who\ received\ only\ breast\ milk\ during\ the\ previous\ day}{Infants\ 0-5\ months\ of\ age}$$

Continued breastfeeding at 1 year

Proportion of children 12–15 months of age who are fed breast milk

$$= \frac{Children\ 12-15\ months\ of\ age\ who\ received\ breast\ milk\ during\ the\ previous\ day}{Children\ 12-15\ months\ of\ age}$$

Introduction of solid, semi-solid or soft foods

Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods

$$= \frac{Infants\ 6-8\ months\ of\ age\ who\ received\ solid, semi-solid\ or\ soft\ foods\ during\ the\ previous\ day}{Infants\ 6-8\ months\ of\ age}$$

Children ever breastfed

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

$$= \frac{Children\ born\ in\ the\ last\ 24\ months\ who\ were\ ever\ breastfed}{Children\ born\ in\ the\ last\ 24\ months}$$

Continued breastfeeding at 2 years

Proportion of children 20–23 months of age who are fed breast milk

$$= \frac{Children\ 20-23\ months\ of\ age\ who\ received\ breast\ milk\ during\ the\ previous\ day}{Children\ 20-23\ months\ of\ age}$$

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.

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

Bottle feeding

Proportion of children 0-23 months of age who are fed with a bottle

$$= \frac{Children\ 0-23\ months\ of\ age\ who\ were\ fed\ with\ a\ bottle\ during\ the\ previous\ day}{Children\ 0-23\ months\ of\ age}$$

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

Anaemia is classified according to the following cut-offs in children 6-59 months and non-pregnant women of reproductive age. Anaemia cut-offs for pregnant women should be adjusted depending on the stage of pregnancy (gestational age). Pregnant women are not included in routine UNHCR nutrition surveys for the assessment of anaemia due sample size issues (usually a small number of pregnant women is found) as well as the difficulties in assessing gestational age in pregnant women.

Table 9: 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 10: 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's target for the prevalence of global acute malnutrition (GAM) for children 6-59 months of age by camp, country and region is < 10% and the target for the prevalence of severe acute malnutrition (SAM) is <2%. The table below shows the classification of public health significance of the anthropometric results for children under-5 years of age according to WHO.

Table 11: Classification of Public Health Significance for Children Under 5 Years of Age

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

Selective feeding programmes

UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 includes the following indicators. The table below shows the performance indicators for malnutrition treatment programmes according to UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 (same as Sphere Standards).

Table 12: Performance Indicators for Selective Feeding Programme (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012) *

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

* Also meet SPHERE standards for performance

Measles and third dose of Diphtheria Toxoid, Tetanus Toxoid and Pertussis vaccination coverage UNHCR recommends target coverage of 95% for measles as recommended by Sphere Standards. Also, it recommends ≥ 90% for routine immunization indicator coverage for the third dose of Diphtheria Toxoid, Tetanus Toxoid and Pertussis Containing Vaccines (DPT-3).

Vitamin A Supplementation Coverage in Children

UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the 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 the table below.

Table 13: Classification of Public Health Significance (WHO 2000)

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

Survey teams, training and supervisions

The survey was coordinated from the outset of planning to finalization by the Ministry of Health in close collaboration with UNHCR, UNWFP and UNICEF at Kampala level while in the field the OPM, MOH, District Health Offices and UNHCR led the process where the technical staff supervised and monitored the entire process and offered technical support to the teams where required. UNHCR implementing partners and other operational partners implementing health and nutrition projects interventions in the settlements fully participated in the data collection processes. Training was organized at the MoH headquarters in Kampala for survey team supervisors and members. The MoH, UNHCR and WFP led and facilitated the training.

The training session's lasted for five days covering the objectives of the nutrition survey; anthropometrical measurements: height/length, weight and MUAC techniques and precautions on taking measurements; age assessment: use of local calendar and how to use local calendar to assist mother to recall the age of their children; assessment of health status of the child (illness), immunization, IYCF and mortality data; hemoglobin measurement, use of a blood analyzer machine (HemoCue); standardization exercise for anthropometric and hemoglobin measurements; assessment for food security, mosquito nets and WASH; data collection and interview techniques, procedures and data recording procedure and precautions ethical considerations of assessment and sampling procedures.

A total of 130 enumerators and supervisors participated in the data collection in the 14 assessment settlements. Each settlement had its team of 15 enumerators and 2 supervisors. The supervisors were the team leaders, and were responsible for taking measurements and recording the measurements, they assisted by 2 two measurers, i.e. weight and height and haemoglobin. The translator(s), village health teams served as community mobilisers for each village or block. In addition, joint supervision and coordination were done daily by the Ministry of Health senior managers and UNHCR, WFP and UNICEF in all locations. Some of the techniques the teams employed in the field included: age determination, reading of health cards for the vaccinations, vitamin A and de-worming.

Data Analysis

Open Data Kit (ODK) electronic platform using smart phones was used to collect quantitative data. The electronic tool permitted use of data checks and skip patterns to minimize spurious entries by data collectors. Key variables that are prone to error like age were carefully assessed based on child health cards. In the absence of cards, care was taken to discuss with the mother/caregiver using a calendar of local events developed for the assessment. Anthropometric data for children 6-59 months and mortality were entered in ENA for SMART software for conversion into z-scores and analysis. Later, all data was aggregated into EPIINFO, cleaned and analysed. Plausibility Reports were generated for each settlement in order to check the quality of the anthropometric data. A summary of the key quality criteria are annexed to the report.

The Food Security and Nutrition Assessment questionnaires was programmed and were uploaded in the smartphones with an Android platform to be compatible with the Open Data Kit which were used to capture the data during the surveys. On a daily basis data from the phones were transferred through a secure network to a UNHCR server. Active mobile network connection was required to collect and save data. The data were then exported to excel readable a format compatible with ENA for SMART and EPIINFO hybrid analysis software. Anthropometric data were aggregated in ENA for SMART and cleaned after which plausibility reports and results were produced based on SMART flags. The first section of each plausibility check is annexed to the main report for reference.

Ethical consideration and community consent

Due to the comprehensive nature of the survey and taking of peripheral blood, consent was sought prior start of interviews from the parents of the child or adult woman. During community mobilisation the population and the community leaders were informed of the different procedures during the survey. All concerned population members were informed about the reason for taking blood and measurement of haemoglobin. The team informed the HHs members that their children would not be at risk of harm while being measured and the information were kept confidentially. The participants/ HHs were informed that they could withdraw from the assessment at any time from the very beginning without giving reason.

LIMITATIONS

a. **The quality of age data for 6 – 59 months old children:** Across the settlements approximately 8%-10% of the children did not have the child health cards that would have assisted the survey team to determine their birthdate or age. Age calendar was used by the survey teams to estimate the age in months of the children. However, due to incurrancy in estimating age the height for age calculation of the z-scores for height-for-age (HFA) might have affected this indicator. Henceforth, stunting results (HFA) are to be interpreted with caution.

b. **Survey fatigue:** due to the sizes of the settlements, teams had to walk long distances in search of the next household each time after finishing one interview. Teams estimated 10 minutes of walking from one house to another. The settlements are very large; teams took a lot time to collect data, a minimum of 5 days were spent in one settlement to collect data. Though additional logistics support was provided transport was always not enough to meet the survey demands.

c. **Volume of the questionnaire:** Although the UNHCR SENS modules allow adaptations of the modules; particularly to this survey as previously reported the food security part of the questionnaire remain very long. This might have affected the quality of the data collected due long discussions and exhaustion between teams and respondents. Concerned partners should agree on objectives, review the questionnaire and agree on specific questions. Some of the questions asked could not easily be correlated with the key questions in Food security.

d. **Survey Expectations:** Some heads of households or respondents did not consent for some modules to be assessed to their family members i.e. on hemoglobin measurements. Reglious reasons were mentioned. Households were assured that the shared information would be kept with confidentiality and would remain only with the survey teams.

e. **Recall bias:** This is an important consideration in any retrospective survey of mortality and the one month's recall period on food security related questions. The recall period of 3 months was used with the hope that this would minimizes the potential recall bias the probable days death had occured. This applies to the 7 days food sources and consumption patterns and the 30 days recall period for the expenditures and debts.

f. The infant and young child module resulted with smaller number of children or infants that were included in the analysis. Indicators such as "introduction of complementary food at age 6-8 months", and "continued breastfeeding at 1 year" and the "continued breastfeeding at 2 years" indicators, the number of children were small hence findings should be causialy interprented.

RESULTS

In the settlements, the greater majority of the households are headed by men (71.4%), Of the interviewed men (61.5%) of them reported to be married while of the interviewed women (64.8%) reported to be married. 19.5% of the Men were Widowers and 15.8% were Widows. 64.9% of the men were aged 20-39 years old while women were 53.5%. Only 37.6% of the Women interviewed had attained primary school, 15.1% had completed Secondary education and 7.1% had completed advanced secondary education. There were more women, 5.5% who attained university from the interviewed households.

Table 14: Demographic Information for Refugee Settlement, Uganda, October 2017

Gender of Household Head	**Male**	**Female**
	71.4%	28.6%
Marital Status of Household Head	**Male**	**Female**
Married	61.5%	64.8%
Single	8.4%	10.8%
Widowed	19.5%	15.8%
Separated/Divorced	10.6%	8.7%
Age (Years) of Household Head	**Male**	**Female**
14-19	0.6%	1.9%
20-39	64.9%	53.5%
40-59	30.2%	38.4%
60-79	3.5%	5.8%
80 and Above	0.7%	0.3%
Education (Completed Years of Education)	**Male**	**Female**
No Formal Education	39.0%	31.5%
Primary Education	41.4%	37.6%
Secondary Education	13.3%	15.1%
Advanced Secondary Ed	3.5%	7.1%
Diploma	1.3%	3.2%
University	1.5%	5.5%
Family Size of HH (Number of People Eating Together)	**Male**	**Female**
1	3.4%	5.3%
2	7.2%	7.1%
3	11.7%	10.6%
4	13.4%	13.3%
5	13.1%	13.2%
6	14.0%	10.6%
7	10.0%	13.7%
8	8.1%	8.5%
9+	19.2%	17.7%

Table 15: Demographic Characteristics of the Study Population, Refugee Settlements, Uganda, October 2017

Settlement	Total House hold Surveyed	Total Population Surveyed	Total U5 Surveyed (0-59mo)	Average Household Size	% of U5
Nakivale	430	2023	471	4.8	23.3%
Oruchinga	404	1579	415	3.9	26.3%
Kyaka II	385	1101	445	5.1	40.4%
Kyangwali	297	944	303	5.6	32.1%
Rwamwanja	198	1009	405	5.1	40.1%
Kiryandongo	149	637	227	4.8	35.6%
Arua	341	1335	474	8.2	35.5%
Adjumani	425	1395	561	6.7	40.2%
Lobule	134	430	346	6.3	80.5%
Kampala	270	1303	283	4.8	21.7%
Palabek	406	2078	446	5.3	21.5%
Palorinya	368	672	271	6.4	40.3%
Bidibidi	297	1504	428	8.5	28.5%

Children 6-59 Months

Table 16: Sample Size Target and Surveyed Children 6-59 months, Refugee Settlements, Uganda, October 2017

Settlement	Target (No.) (children 6-59 months)	Total Surveyed (children 6-59 mo) (No.)	% of the Target
Nakivale	237	453	191%
Oruchinga	193	388	199%
Kyaka II	217	429	197%
Kyangwali	141	285	202%
Rwamwanja	190	372	195%
Kiryandongo	308	215	143%
Arua	293	437	149%
Adjumani	326	537	164%
Lobule	263	281	93%
Kampala	173	268	154%
Palabek	305	438	143%
Palorinya	285	271	95%
Bidibidi	285	408	143%

Table 13 and 14 presents selected basic demographic information related to the total household surveyed, total population reached by the survey, total under 5 years reached and and the average family sizes in each settlement.

Table 17: Children 6-59 Months - Distribution of Age and Sex of Sample, Refugee Settlements, Uganda, October 2017

	Boys		Girls		Total		Ratio
AGE (mo)	**No.**	**%**	**No.**	**%**	**No.**	**%**	**Boy:Girl**
6-17	669	52.5%	606	47.5%	1,275	26.8%	1.1
18-29	548	47.3%	610	52.7%	1,158	24.4%	0.9
30-41	528	50.3%	522	49.7%	1,050	22.1%	1.0
42-53	485	49.0%	505	51.0%	990	20.8%	1.0
54-59	139	49.3%	143	50.7%	282	5.9%	1.0
Total	2,369	49.8%	2386	50.2%	4,755	100.0%	1.0

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

Nutrition Status

Wasting (Children 6 – 59 months)

Acute malnutrition is very evident in the refugee settlements. The results of the nutritional survey in z-scores as assessed based on weight for height among children aged 6-59 months old across the refugee settlements indicate that Global Acute Malnutrition (GAM) (<-2 z scores weight-for-height and/or oedema, severe acute malnutrition (SAM) is defined as <-3z scores weight-for-height and/or oedema) ranges from 3.2% in Kyangwali to 12.3% in Palabek. Settlements in West Nile region presented with higher GAM prevalence above 10% (11.8% Adjumani, 10.3% Arua, 11.8% Bidibidi and 11.1% Palorinya). These prevalence are higher than the emergency nutritional thresholds of <10% for GAM. Based on the WHO classification on public health significance for children under 5 years of age, these rates are classified as "poor". The values call for further strengthening of the ongoing: livelihood, nutrition, food security, water, and sanitation and hygiene programs. The GAM rates in the refugee settlements in South West were within the acceptable limits based on the emergency nutrition thresholds. The prevalence were found at 4.0% Kyaka II, 4.1% Oruchinga, 3.8% Nakivale, 3.8% Rwamwanja and 3.2% Kyangwali. These rates were within the acceptable rates of below 5% in a stable community. In all locations, Severe Acute Malnutrition (SAM) was below 1%. These values are indicative of the presence of malnutrition in some pockets of the population that calls for further strengthening of the ongoing interventions to address malnutrition in the settlements (See Table 18). The weighted global acute malnutrition in 2017 has increased to 9.5% compared to 7.2% in 2016. This calls for further improvements of the nutrition interventions, additional resources, and more coordination of the partners working in health and nutrition, food security and livelihoods and Water, saniation and hygiene.

Table 18: Prevalence of Acute Malnutrition Based on Weight-For-Height Z-Scores, Refugee Settlements, Uganda, October 2017

Settlement	Global Malnutrition (<-2 z-score and/or oedema)	Moderate Malnutrition (<-2 z-score and >=-3 z-score, no oedema)	Severe Malnutrition (<-3 z-score and/or oedema)
Nakivale(n=453)	(17) 3.8 %(2.4 - 5.9)	(16) 3.5 %(2.2 - 5.7)	(1) 0.2 %(0.0 - 1.2)
Oruchinga(n=386)	(16) 4.1 %(2.6 - 6.6)	(15) 3.9 %(2.4 - 6.3)	(1) 0.3 %(0.0 - 1.4)
Kyaka II(n=429)	(17)4.0%(2.5 - 6.3)	(17) 4.0 %(2.5 - 6.3)	(0) 0.0 %(0.0 - 0.9)
Kyangwali(n=285)	(9) 3.2 %(1.7 - 5.9)	(9) 3.2 %(1.7 - 5.9)	(0) 0.0 %(0.0 - 1.3)
Rwamwanja(372)	(14) 3.8 %(2.3 - 6.2)	(13) 3.5 %(2.1 - 5.9)	(1) 0.3 %(0.0 - 1.5)
Kiryandongo(n=214)	(16) 7.5 %(4.7 - 11.8)	(15) 7.0 %(4.3 - 11.2)	(1) 0.5 %(0.1 - 2.6)
Arua(n=437)	(45) 10.3 %(7.8 - 13.5)	(43) 9.8 %(7.4 - 13.0)	(2) 0.5 %(0.1 - 1.7)
Adjumani(n=535)	(63) 11.8 %(9.3 - 14.8)	(60) 11.2 %(8.8 - 14.2)	(3) 0.6 %(0.2 - 1.6)
Lobule(n=280)	(17) 6.1 %(3.8 - 9.5)	(16) 5.7 %(3.5 - 9.1)	(1) 0.4 %(0.1 - 2.0)
Kampala(n=267)	(24) 9.0 %(6.1 - 13.0)	(24) 9.0 %(6.1 - 13.0)	(0) 0.0 %(0.0 - 1.4)
Palorinya(n=244)	(27) 11.1 %(7.7 - 15.6)	(26) 10.7 %(7.4 - 15.2)	(1) 0.4 %(0.1 - 2.3)
Palabek(n=438)	(54) 12.3 %(9.6 - 15.7)	(52) 11.9 %(9.2 - 15.2)	(2) 0.5 %(0.1 - 1.6)
Bidibidi(n=408)	(48) 11.8 %(9.0 - 15.3	(47) 11.5 %(8.8 - 15.0)	(1) 0.2 %(0.0 - 1.4)

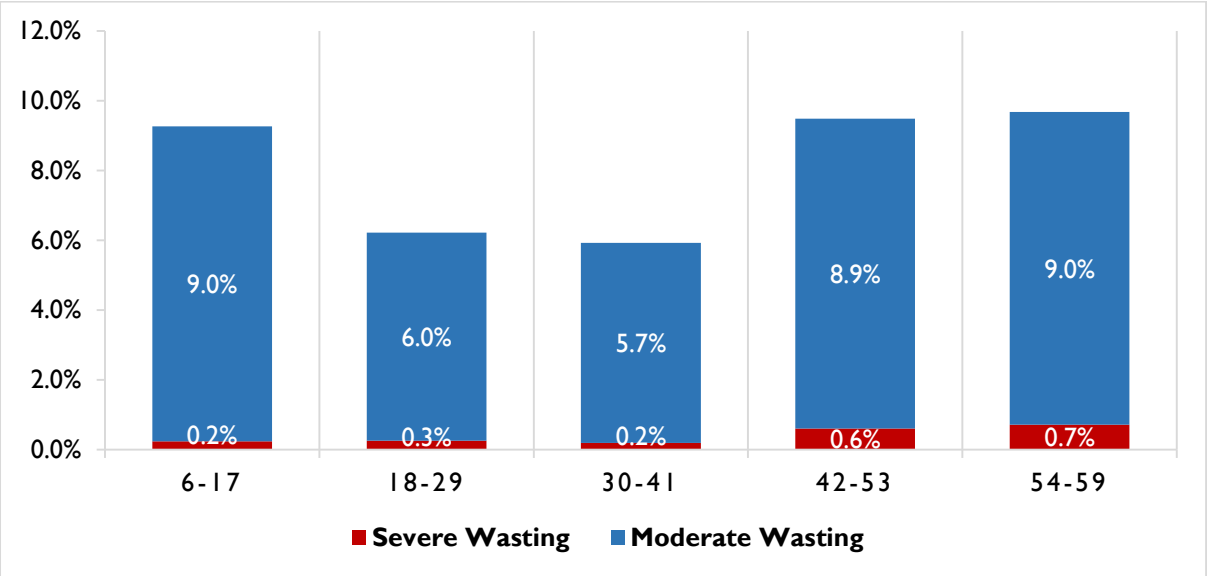

Figure 1: Distribution of Wasting by Age and Sex for Children 6-59 Months, Refugee Settlements, Uganda, October 2017

From Figure 1, Acute malnutrition was highest in children aged 54-59 months old with a prevelance rate of 9.7%, 42-53 months old (9.4%) and. 6-17 months old (9.2%), and lowest at 30-41 Months at 5.9%. However, younger children were found much more affected by acute malnutrition, given the fact that by numbers are the majority compared to the older children. From the study younger (6-17 months old) were almost 5 times much more when compared with the older ones.

Table 19: Prevalence of Acute Malnutrition by Age, Based on Weight-For-Height Z-Scores And/Or Oedema, Refugee Settlements, Uganda, October 2017

		Severe Wasting (<-3 z-score)		Moderate Wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	1274	3	0.2	115	9.0	1156	90.7	0	0.0
18-29	1157	3	0.3	69	6.0	1085	93.8	0	0.0
30-41	1046	2	0.2	60	5.7	984	94.1	0	0.0
42-53	991	6	0.6	88	8.9	897	90.5	0	0.0
54-59	279	2	0.7	25	9.0	252	90.3	0	0.0
Total	4747	16	0.3	357	7.5	4374	92.1	0	0.0

Mid Upper Arm Circumference Malnutrition (MUAC) Children 6 – 59 months

In the refugee settlements in Uganda, Mid Upper Arm Circumference (MUAC) is among the anthropometric indicators that is used to assess acute malnutrition - wasting. Children aged 6-59 months are screened for acute malnutrition at various health and nutrition contact points in the settlements, this includes: at way stations, reception centers, health facilities, mass screening, during home visiting, community gatherings and during outreach programmes and during the assessment clinical manifestations of pitting oedema was investigated. In the nutrition survey children had their left mid upper arm circumference measured using the UNICEF three colour MUAC tape. A measurement in the green section of the tape is interpreted that the child is normal, not malnourished. The yellow section it is interpreted that the child is modetate malnourished while when it captures the is in red section it means the child is severe acutely malnourished. The WHO informs that MUAC is a better indicator of mortality risk associated with acute malnutrition.

The highest prevalence of Malnutrition Based on MUAC was recorded in Kampala urban refugee programme at 13.4%, this was followed by Kiryandongo (9.8%) and Palorinya (9.8%), Kyaka II (9.3%) and Oruchinga (9.3%). The lowest rates were in Rwamwanja (4.3%) and Bidibidi (7.1%). Lobule settlement had the highest rate of malnutrition based on MUAC measurement at 2.5%, followed by Kyaka II (1.9%) and Rwamwanja (1.9%). Kiryandongo (9.3%) settlement had the higest malnutrition based on MUAC measurement; while the following had also relatively high malnutrition based on MUAC measurement; Oruchinga (8.8%), Nakivale (8.2%) and Palorinya (8.2%). The refugee programme in Uganda uses MUAC to admit children in the selective feeding programme (See Table 20). The weighted malnutrition based on MUAC measurement was found to have increased from 3.9% in 2016 to 7.3% in 2017, this may have been a result of increased number of refugee new arrivals in West Nile settlements where also most of the new settlements are situated.

Table 20: Prevalence of Malnutrition Based on MUAC Measurement in Children, Refugee Settlements, Uganda, October 2017

Settlement	Global Malnutrition (< 125 mm and/or oedema)	Moderate Malnutrition (< 125 mm and >= 115 mm, no oedema)	Severe Malnutrition (< 115 mm and/or oedema)
Nakivale(n=453)	(38) 8.4%(6.2-11.3)	(37) 8.2%(6.0-11.1)	(1) 0.2%(0.0-1.6)
Oruchinga(n=388)	(36) 9.3%(6.8-12.6)	(34) 8.8%(6.3-12.0)	(2) 0.5%(0.1-2.0)
Kyaka II(n=429)	(40) 9.3%(6.9-12.5)	(32)7.5%(5.3-10.4)	(8) 1.9%(0.9-3.7)
Kyangwali(n=285)	(18) 6.3%(4.0-9.8)	(18) 6.3%(4.0-9.8)	(0) 0%(0-0)
Rwamwanja(n=372)	(25) 6.7%(4.6-9.8)	(18) 4.8%(3.1-7.6)	(7) 1.9%(0.9-3.9)
Kiryandongo(n=215)	(21) 9.8%(6.4-14.5)	(20) 9.3%(6.1-14.0)	(1) 0.5%(0.1-3.2)
Arua(n=437)	(35) 8.0%(5.8-11.0)	(32) 7.3%(5.2-10.2)	(3) 0.7%(0.2-2.1)
Adjumani(n=537)	(47) 8.8%(6.6-11.5)	(39) 7.3%(5.3-9.8)	(8) 1.5%(0.7-3.0)
Lobule(n=281)	(23) 8.2%(5.5-12.0)	(16) 5.7%(3.5-9.1)	(7) 2.5(1.2-5.1)
Kampala(n=268)	(36) 13.4%(9.8-18.1)	(33) 12.3%(8.9-16.8)	(3) 1.1%(0.4-3.4)
Palorinya(n=244)	(24) 9.8%(6.7-14.3)	(20) 8.2%(5.3-12.4)	(4) 1.6%(0.6-4.3)
Palabek(n=438)	(19) 4.3%(2.8-6.7)	(15) 3.4%(2.1-5.6)	(4) 0.9%(0.3-2.4)
Bidibidi(n=408)	(29) 7.1%(5.0-10.0)	(23) 5.6%(3.8-8.3)	(6) 1.5%(0.7-3.2)

Table 21: Prevalence of Malnutrition Based on MUAC Measurement by Age, Based on MUAC Cut Off's and/Or Oedema, Refugee Settlements, Uganda, October 2017

		MUAC < 115 mm		MUAC >= 115 mm and < 125 mm		MUAC > = 125 mm		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	1,275	0	0.0%	88	6.9%	1,187	93.1%	0	0.0%
18-29	1,158	8	0.7%	70	6.0%	1,080	93.3%	0	0.0%
30-41	1,050	15	1.4%	73	7.0%	962	91.6%	0	0.0%
42-53	990	20	2.0%	79	8.0%	891	90.0%	0	0.0%
54-59	282	11	3.9%	27	9.6%	244	86.5%	0	0.0%
Total	4,755	54	1.1%	337	7.1%	4,364	91.8%	0	0.0%

Older children were found to malnutrition based on MUAC measurement more than the younger children. Severe malnutrition based on MUAC measurement was 2.0% and 3.9% among children aged 42-53 months and 54-59 months old. Similarly children in the same age category had much more malnutrition based on MUAC measurement due to moderate malnutrition.

Underweight

Low weight for age in children reflects a current condition resulting from inadequate food intake, past episodes of under nutrition or poor health conditions. Palabek (16.7%) had the highest prevalence of underweight among children 6-59 months of age. Other settlements which had high prevalence of low eight for age <-2 z-scoes were: Bidibidi (9.6%), Lobule (10.0%), Paolorinya (9.0%) and Arua (8.2%).

Table 22: Prevalence of Underweight Based on Weight-For-Age Z-Scores, Refugee Settlements, Uganda, October 2017

Settlement	Prevalence of Underweight (<-2 z-score)	Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	Prevalence of severe underweight (<-2 z-score and >=-3 z-score)
Nakivale(n=453)	(29) 6.4 % (4.5 - 9.0)	(28) 6.2 % (4.3 - 8.8)	(1) 0.2 % (0.0 - 1.2)
Oruchinga(n=388)	(26) 6.7 % (4.6 - 9.6)	(25) 6.4 % (4.4 - 9.3)	(1) 0.3 % (0.0 - 1.4)
Kyaka II (n=429)	(29) 6.8 % (4.7 - 9.5)	(28) 6.5 % (4.6 - 9.3)	(1) 0.2 % (0.0 - 1.3)
Kyangwali (n=285)	(20) 5.4 % (3.5 - 8.2)	(18) 4.8 % (3.1 - 7.5)	(2) 0.5 % (0.1 - 1.9)
Rwamwanja(n=372)	(26) 4.3 % (2.9 - 6.2)	(23) 3.8 % (2.5 - 5.6)	(3) 0.5 % (0.2 - 1.4)
Kiryandongo(n=215)	(15) 7.0 % (4.3 - 11.2)	(13) 6.0 % (3.6 - 10.1)	(2) 0.9 % (0.3 - 3.3)
Arua(n=437)	(36) 8.2 %(6.0 - 11.2)	(32) 7.3 %(5.2 - 10.2)	(4) 0.9 %(0.4 - 2.3)
Adjumani(n=537)	(31) 5.8 % (4.1 - 8.1)	(28) 5.2 % (3.6 - 7.4)	(3) 0.6 % (0.2 - 1.6)
Lobule (n=281)	(28) 10.0 % (7.0 - 14.0)	(27) 9.6 % (6.7 - 13.6 9)	(1) 0.4 % (0.1 - 2.0)
Kampala(n=268)	(20) 7.5 % (4.9 - 11.2)	(20) 7.5 % (4.9 - 11.2)	(0) 0.0 % (0.0 - 1.4)
Parolinya(n=244)	(22) 9.0 % (6.0 - 13.3)	(22) 9.0 % (6.0 - 13.3)	(0) 0.0 % (0.0 - 1.6)
Palabek(n=438)	(73) 16.7 %(13.5 - 20.4)	(70) 16.0 %(12.8 - 19.7)	(3) 0.7 %(0.2 - 2.0)
Bidibidi(n=408)	(39) 9.6 %(7.1 - 12.8	(37) 9.1 %(6.7 - 12.3)	(2) 0.5 %(0.1 - 1.8)

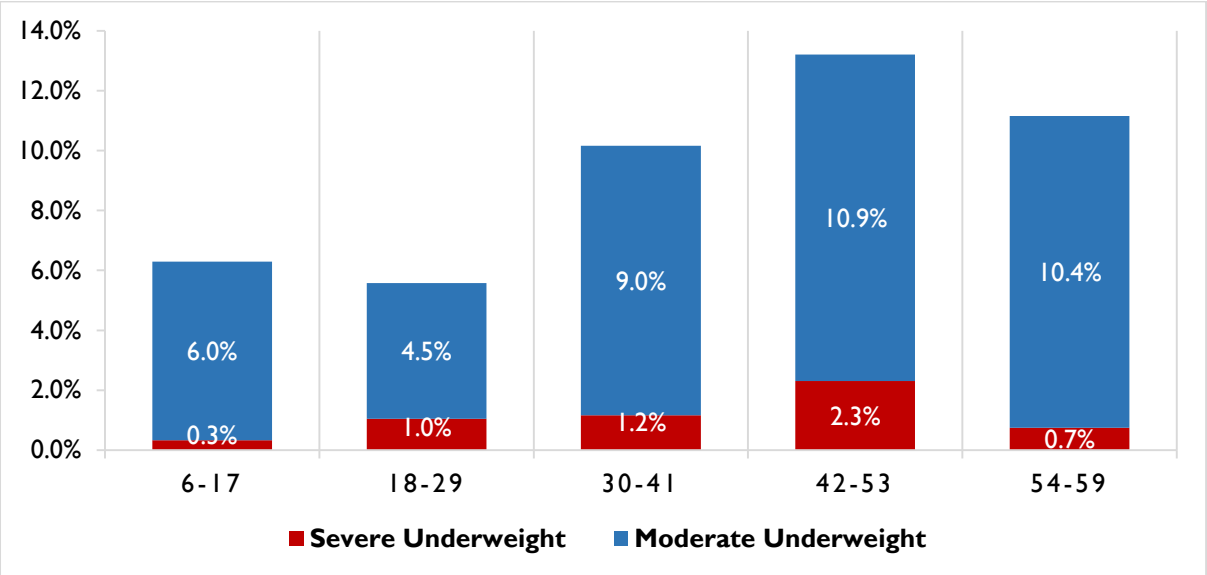

Figure 2: Distribution of Underweight by Age and Sex for Children 6-59 Months, Refugee Settlements, Uganda, October 2017

Older children had higher prevalence of under weight; 30-41 months (10.2%), 42-53 months (13.2%) and 54-59 months (1.11%).

Stunting

Kyangwali settlement (32.6%) had the highest prevalence of stunting among children aged 6-59 months across the refuge settlements, classified as "serious" by WHO classification. Children aged 6-59 months in South west settlements were more likely to have stunting when compared to their fellow in West Nile. Again, while stunting prevalence is remaining stable or decreasing, the increase in the number of under-5 year's children in the population due has also increased the absolute numbers of children with stunting among refugee children. Stunting in West Nile and Kampala was in the acceptable ranges according the WHO public health significance, in these locations it

ranged from 8.4% in Kiryandongo to 17.9% in Lobule with 19.8% in Kampala. Stunting was significant different in Kiryandongo, Arua and Adjumani to the refugee settlements of Nakivale, Oruchinga, Kyangwali and Rwamwanja in South West (Figure 2).

Table 21: Prevalence of stunting based on height-for-age z-scores, Refugee Settlements, Uganda, October 2017

Settlement	Prevalence of stunting (<-2 z-score)	Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	Prevalence of severe stunting (<-3 z-score)
Nakivale(n=453)	(98) 21.6 %(18.1 - 25.7)	(89) 19.6 %(16.2 - 23.6)	(9) 2.0 %(1.0 - 3.7)
Oruchinga(n=387)	(108) 27.9 %(23.7 - 32.6)	(93) 24.0 %(20.0 - 28.5)	(15) 3.9 %(2.4 - 6.3)
Kyaka II(n=426)	(95) 22.3 %(18.6 - 26.5)	(90) 21.1 %(17.5 - 25.3)	(5) 1.2 %(0.5 - 2.7)
Kyangwali (n=282)	(92) 32.6 %(27.4 - 38.3)	(75) 26.6 %(21.8 - 32.0)	(17) 6.0 %(3.8 - 9.4)
Rwamwanja (n=372)	(93) 25.0 %(20.9 - 29.6)	(87) 23.4 %(19.4 - 27.9)	(6) 1.6 %(0.7 - 3.5)
Kiryandongo(n=215)	(18) 8.4 %(5.4 - 12.8)	(16) 7.4 %(4.6 - 11.7)	(2) 0.9 %(0.3 - 3.3)
Arua(n=436)	(40) 9.2 %(6.8 - 12.3)	(33) 7.6 %(5.4 - 10.4)	(7) 1.6 %(0.8 - 3.3)
Adjumani (n=537)	(75) 14.0 %(11.3 - 17.2)	(68) 12.7 %(10.1 - 15.7)	(7) 1.3 %(0.6 - 2.7)
Lobule (n=279)	(50) 17.9 %(13.9 - 22.8)	(46) 16.5 %(12.6 - 21.3)	(4) 1.4 %(0.6 - 3.6)
Kampala(n=268)	(53) 19.8 %(15.4 - 25.0)	(47) 17.5 %(13.5 - 22.5)	(6) 2.2 %(1.0 - 4.8)
Parolinya(n=241)	(40) 16.6 %(12.4 - 21.8)	(39) 16.2 %(12.1 - 21.4)	(1) 0.4 %(0.1 - 2.3)
Palabek(n=438)	(96) 21.9 %(18.3 - 26.0)	(86) 19.6 %(16.2 - 23.6)	(10) 2.3 %(1.2 - 4.2)
Bidibidi(n=405)	(65) 16.1 %(12.8 - 20.0)	(59) 14.6 %(11.5 - 18.4)	(6) 1.5 %(0.7 - 3.2)

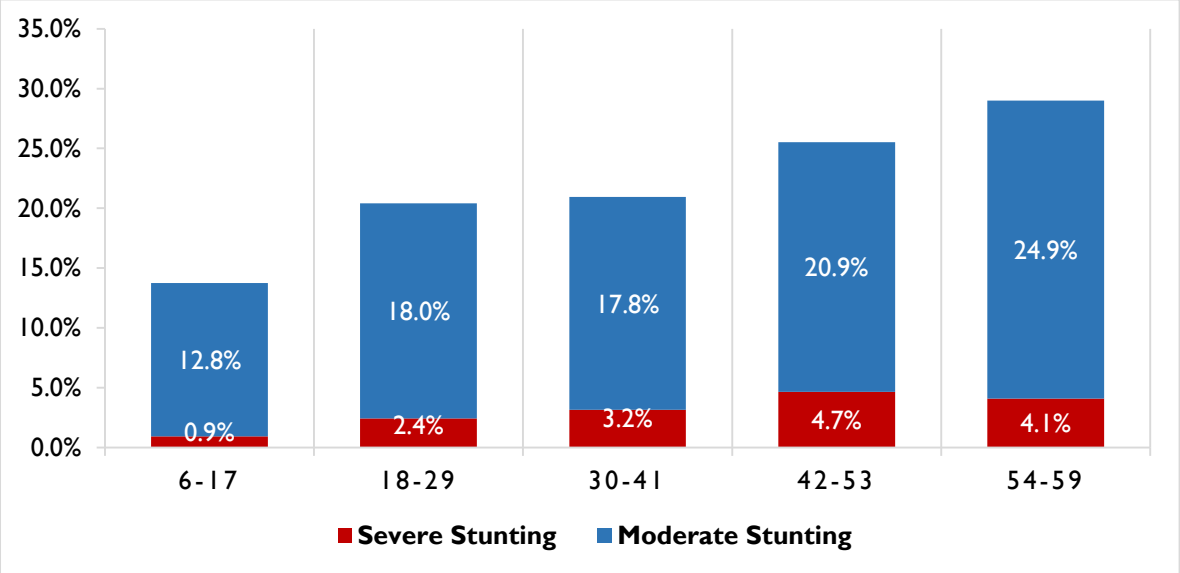

Figure 3: Distribution of Stunting by Age and Sex for Children 6-59 Months, Refugee Settlements, Uganda, October 2017

20.4% of children aged 18-29 months were stunted, 25% of the children aged 42-53 months old were found stunted while 29.0% of the 54-59 months old children were stunted. Stunting increased significantly immediately after age 2 owning to the fact that most of children were likely to be not breastfeeding and inadequate or poor complementarly food were given to them.

Table 23: Prevalence of Stunting by Age, Based On Weight-For-Height Z-Scores and/Or Oedema, Refugee Settlements, Uganda, October 2017

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	1185	11	0.9	152	12.8	1022	86.2
18-29	1108	27	2.4	199	18.0	882	79.6
30-41	1012	32	3.2	180	17.8	800	79.1
42-53	944	44	4.7	197	20.9	703	74.5
54-59	269	11	4.1	67	24.9	191	71.0
Total	4518	125	2.8	795	17.6	3598	79.6

Feeding Programme Coverage

The refugee operation implements intergrated community based management of acute malnutrition in the settlements. The nutrition programme which are implemented includes; in-patient and outpatient management of severe acute malnutrition; targeted supplementary feeding programme, martenal and child health nutrition programme and blanket supplementary feeding programme during the emergency phase. To measure coverage of these programes mothers or gurdians of the children, aged 6 to 59 months were asked if the child (ren) was enrolled in any of the feeding programmes mentioned above. The survey teams presented to the mothers or guardins packs of RUTF (OTP), RUSF , or CSB++ or CSB+ so that they ascertain the programme the child was enrolled. Enrolment to the feeding programme was confirmed when parents or guardins presented the registration card of the children to the programme. However, owing to small numbers of children who were sampled the findings need to be interpreted cautiously. Palorinya settlement had 18.9% coverage of Targeted SFP whereas the rest of the settlements had less than 10% coverage. The highest coverage recorded for the therapeutic feeding programme was in Kiryandongo (28.4%). The highest coverage of the Maternal and child health nutrition programme was in Arua (55.6%) and Oruchinga (38.1%). In the refugee settlements the recommended coverage is >90% as per WHO guidelines.

Table 24: Programme Coverage for selective feeding programme (TFP, BSFP, and TSFP) Children aged 6-59 months, Refugee Settlements, Uganda, October 2017

Settlement	Supplementary Feeding Programme		Therapeutic Feeding Programme		Blanket Supplementary Feeding Programme	
	Number /Total	% (95% CI)	Number /Total	% (95%CI)	Number /Total	% (95% CI)
Nakivale	4/453	0.9% (0.3-2.3)	0/453	0%(0-0)	0/453	0%(0-0)
Oruchinga	7/388	1.8%(0.9-3.7)	1/388	0.3%(0.0-1.8)	148/388	38.1%(33.4-
Kyaka II	10/429	2.3%(1.3-4.3)	2/429	0.5(0.1-1.8)	5/429	1.2%(0.5-2.8)
Kyangwali	0/285	0%(0-0)	1/285	0.4%(0.0-2.5)	0/285	0%(0-0)
Rwamwanja	11/372	3.0%(1.6-5.3)	0/372	0%(0-0)	8/372	2.2%(1.1-4.2)
Kiryandongo	6/215	2.8%(1.3-6.1)	61/215	28.4%(22.7-	42/215	19.5%(14.8-
Arua	13/437	3.0%(1.7-5.1)	0/268	0.9%(0.3-2.4)	243/437	55.6%(50.9-
Adjumani	7/537	1.3%(0.6-2.7)	3/537	0.6%(0.2-1.7	3/537	0.6%(0.2-1.7)
Lobule	1/281	0.4%(0.0-2.5)	13/281	4.6%(2.7-7.8)	9/281	3.2%(1.7-6.0)
Kampala	0/268	0%(0-0)	0/268	0%(0-0)	0/268	0%(0-0)
Palorinya	46/244	18.9%(14.4-	0/244	0%(0-0)	30/244	12.3%(8.7-17.1)
Palabek	7/438	1.6%(0.8-3.3)	1/438	0.2%(0.0-1.6)	0/438	0.2%(0.0-1.6)
Bidibidi	5/408	1.2%(0.5-2.9)	0/408	0%(0-0)	0/408	0%(0-0)

Vaccination Coverage

Child health is implemented in the settlements; one important programme is Expanded Programme for Immunisation (EPI). Immunization coverage was assessed to ascertain achievements registered in the child health preventive programs. The survey collected information on vaccination coverage in two ways: (a) from vaccination cards and (b) from the mother or guardian through recall questions verbal confirmation was recorded. If the cards was available, the interview team recorded direct the information from the card and int he absence of the vaccination card or if there was no record of the vaccine on the card as being given, the respondent was asked to recall the vaccines given to her child.

Measles Vaccination Coverage

The highest coverage of measles vaccination was in Rwamwanja (96.1%), followed by Kyaka II (94.4%) and Oruchinga (92.6%) whereas Kampala (73.8%) and Palabek (83.2%) had the lowest coverage of measles. In refugee settings, Sphere standards for humanitarian response recommend providing measles coverage to ≥95 percentages. Rwamwanja had the highest coverage of measles vaccination with card (82.1%) this implies that majority of the children possess vaccination cards, and the health workers where keen in recording to the cards whenever measles shot was administered to the children. This was not the case for Arua where the coverage of measles by card was only 22.6% with the combined coverage raising to (87.2%) implying that either vaccination cards are lost with rthe families or health workers did not record whene administered measles vaccinations to children. The Arua situation is shared also with Palabek with vaccination coverage by card recorded at 34.1% and the combined measles coverage by card and verbal confirmation increased to 83.2%.

Table 25: Measles Vaccination Coverage for Children Aged 9-59 Months, Refugee Settlements, Uganda, October 2017

Settlement	Measles (with cards)	Measles (with card or confirmation from mother)
Nakivale(n=422)	(258) 61.1% (56.4-65.7)	(369) 87.4% (83.9-90.3)
Oruchinga(n=367)	(257) 70.0% (65.1-74.5)	(340) 92.6% (89.5-94.9)
Kyaka II(n=391)	(288) 73.7% (69.1-77.8)	(369) 94.4% (91.6-96.3)
Kyangwali(n=263)	(168) 63.9% (57.9-69.5)	(228) 86.7% (82.0-90.3)
Rwamwanja(n=330)	(271) 82.1% (77.6-85.9)	(317) 96.1% (93.3-97.7)
Kiryandongo(n=203)	(126) 62.1% (55.2-68.5)	(181) 89.2% (84.1-92.8)
Arua(n=407)	(92) 22.6% (18.8-26.9)	(355) 87.2% (83.6-90.1)
Adjumani(n=502)	(347) 69.1% (64.9-73.0)	(452) 90.0% (87.1-92.3)
Lobule(n=268)	(127) 47.4% (41.5-53.4)	(233) 86.9% (82.3-90.5)
Kampala(n=252)	(71) 28.1% (23.0-34.1)	(186) 73.8% (68.0-78.9)
Palorinya(n=229)	(119) 52.0% (45.5-58.4)	(203) 88.6% (83.8-92.2)
Palabek(n=411)	(140) 34.1% (29.6-38.8)	(342) 83.2% (79.3-86.5)
Bidibidi(n=376)	(190) 50.5% (45.5-55.6)	(324) 86.2% (82.3-89.3)

Vitamin A Supplementation Coverage

Vitamin A deficiency contributes to increased under 5 years mortality rate, it causes visual night blindness and reduces body immunity; promotes risks associated with illness and mortality from childhood infections such as measles and those causing diarrhoea. Vitamin A supplement is used in the treatments of exophthalmia, measles and severe acute malnutrition. In the settlements, children 6-59 months receive Vitamin A supplements twice in a year at an interval of 6 months as per national guidelines. Vitamin A the blue pods, 100000 IU is given to younger children aged 6 - 11 months while the red pods, 200000 IU is given to children aged 12 - 59 months. From the study, the highest coverage was in Rwamwanja (94.4%) and Kyaka II (92.1%). Four settlements had almost 91% coverage of vitamin A supplementations, these were; Adjumani, Oruchinga and Kiryandongo. The programme target is to attain >95% coverage of vitamin A supplementation.

Table 26: Vitamin A Supplementation for Children Aged 6-59 Months Within Past 6 Months, Refugee Settlements, Uganda, October 2017

Settlement	Vitamin A (with cards)	Vitamin A (with card or confirmation from mother)
Nakivale(n=453)	(263) 58.1% (53.5-62.5)	(361) 79.7% (75.7-83.2)
Oruchinga (n=388)	(275) 70.9% (66.2-75.2)	(352) 90.7% (87.4-93.2)
Kyaka II (n=429)	(310) 72.3% (67.8-76.3)	(395) 92.1% (89.1-94.3)
Kyangwali (n=285)	(175) 61.4% (55.6-66.9)	(229) 80.4% (75.3-84.6)
Rwamwanja (n=372)	(301) 80.9% (76.6-84.6)	(351) 94.4% (91.5-96.3)
Kiryandongo (n=215)	(128) 59.5% (52.8-65.9)	(195) 90.7% (86.0-93.9)
Arua (n=437)	(100) 22.9% (19.2-27.1)	(374) 85.6% (82.0-88.6)
Adjumani (n=537)	(374) 69.6% (65.6-73.4)	(487) 90.7% (87.9-92.9)
Lobule (n=281)	(130) 6.3% (40.5-52.1)	(241) 85.8% (81.2-89.4)
Kampala (268)	(75) 28.0% (22.9-33.7)	(171) 63.8% (57.9-69.4)
Palorinya(n=244)	(122) 50% (43.7-56.3)	(216) 88.5% (83.9-92.0)
Palabek(n=438)	(140) 32.0% (27.8-36.5)	(344) 78.5% (74.4-82.1)
Bidibidi(n=408)	(214) 52.5% (47.6-57.3)	(371) 90.9% (87.7-93.4)

Diarrhoea

Diarrhoea is defined as having three or more loose or watery stools per day. Children losing body fluids through diarrhoea are likely to suffer dehydration and electrolyte imbalance. Children aged 6-59 months were assessed for diarrhoea in the last two weeks. The recommended coverage in the settlement is >90%. The study found that Palabek (24.4%) reported more cases of children suffered diarrhoea in the last two weeks superceeded the survey; Arua (15.3%), Kiryandongo (14.4%) and Nakivale (14.3%) and Palorinya 13.9% followed this.

Table 27: Prevalence of Diarrhoea in the Last Two Weeks, Refugee Settlements, Uganda, October 2017

Settlement	Number/total	% (95% CI
Nakivale	65/453	14.3% (11.4-17.9)
Oruchinga	42/388	10.8% (8.1-14.3)
Kyaka II	41/429	9.6% (7.1-12.7)
Kyangwali	31/285	10.9% (7.7-15.1)
Rwamwanja	44/372	11.8% (8.9-15.5)
Kiryandongo	31/215	14.4% (10.3-19.8)
Arua	67/437	15.3% (12.2-19.0)
Adjumani	56/537	10.4%1(8.1-13.3)
Lobule	30/281	10.7% (7.6-14.9)
Kampala	1/268	0.4% (0.1-2.6)
Palorinya	34/244	13.9% (10.1-18.9)
Palabek	107/438	24.4% (20.6-28.7)
Bidibidi	54/408	13.2% (10.3-16.9)

Diphtheria, Pertussis (whooping cough) and Tetanus coverage

Emphasis to attain universal childhood immunization programme remains a priority with all stakeholders implementing "Child Health" in the settlements. A child is considered fully vaccinated if she or he has received BCG vaccination against tuberculosis; three doses of polio vaccine; three doses of vaccine to prevent diphtheria, pertussis, and tetanus; and one dose of measles vaccine. The MoH recommends that the child receive the vaccines within appropriate schedule during the first year of life. Rwamwanja settlement had the highest coverage of DPT3 at 97.0%. Using DPT3 as a measure for fully vaccinated, Rwamwanja settlement had attained the Sphere recommended coverage of 95% in emergency settings. Other settlements, which recorded higher coverage, include Kyaka II (94.6%), Adjumani (91.4%), Kiryandongo (91.2%), Oruchinga (90.7%) and Nakivale (90.5%). Kyangwali had the lowest DPT3 coverage which was recorded at 76.1%.

Table 28: DPT3 with Card, Refugee Settlements, Uganda, October 2017

Settlement	DPT3 (with cards)	DPT3 (with card or confirmation from mother)
Nakivale(n=453)	64.2%(59.7-68.5)	90.5% (87.4-92.9)
Oruchinga(n=388)	71.9%(67.2-76.2)	90.7% (87.4-93.2)
Kyaka II(n=429)	74.4%(70.0-78.3)	94.6% (92.1-96.4)
Kyangwali(n=285)	63.9%(58.1-69.2)	76.1% (70.8-80.7)
Rwamwanja(n=372)	83.6%(79.5-87.0)	97.0% (94.7-98.4)
Kiryandongo(n=215)	63.7%(57.1-69.9)	91.2% (86.5-94.3)
Arua(n=437)	24.0%(20.2-28.3)	87.2% (83.7-90.0)
Adjumani(n=537)	71.1%(67.2-74.8)	91.4% (88.7-93.5)
Lobule(n=281)	47.7%(41.9-53.5)	85.1% (80.4-88.8)
Kampala(n=268)	32.8%(27.5-38.7)	75.7% (70.2-80.5)
Palorinya(n=244)	51.6%(45.4-57.9)	89.8% (85.3-93.0)
Palabek(n=438)	38.8%(34.4-43.5)	84.5% (80.8-87.6)
Bidibidi(n=408)	56.1%(51.3-60.9)	80.1% (76.0-83.7)

Note; The challenges faced by the expanded programme for immunization in the settlements includes: weak cold chain systems, shortages of child health cards, register books and tally books for child health programme, inadequate staff (vaccinators) and shortages of vaccines and its related supplies.

Deworming Coverage

Soil transmitted helminths are wide spread in areas with poor sanitations, poor environmental conditions, poor water supplies and in communities with poor health awareness and seeking behaviours. Other communities affected with worm infestations are those with poor coverage of toilets and walking barefoot. Chronic worm infestations are associated with stunting, anaemia, impaired physical and cognitive development. Palorinya (88.1%) had the highest coverage of de-worming among children aged 12 to 59 months. Similarly, other settlements, which had relatively higher coverage, were Adjumani (87.7%), Oruchinga (86.6%), Kiryandongo (85.6%), Bidibidi (84.6%) and Kyaka II (84.6%). The lowest coverage was recorded in Kampala (61.2%) among refugees. Confirmation of de-worming by cards was very low in Arua (18.5%), Kampala (23.9%) and Palabek (29.5%). Proper recording in the child health cards and register books of preventive interventions given to children during child health days and growth monitoring will improve coverage of child health interventions including de-worming.

Table 29: Deworming with Card, Refugee Settlements, Uganda, October 2017

Settlement	Deworming (with cards)	Deworming (with card or confirmation from mother)
Nakivale (n=453)	50.8% (46.2-55.4)	72.6% (68.3-76.5)
Oruchinga (n=388)	67.0% (62.2-71.5)	86.6% (82.8-89.6)
Kyaka II (n=429)	44.1% (39.4-48.8)	84.6% (80.9-87.7)
Kyangwali (n=285)	61.1% (55.3-66.6)	81.1% (76.1-85.2)
Rwamwanja (n=372)	64.5% (59.5-69.2)	83.9% (79.8-87.3)
Kiryandongo (n=215)	53.5% (46.8-60.1)	85.6% (80.2-89.7)
Arua (n=437)	18.5% (15.2-22.5)	78.9% (74.9-82.5)
Adjumani (n=537)	66.1% (62.0-70.0)	87.7% (84.6-90.2)
Lobule (n=281)	43.1% (37.4-48.9)	81.5% (76.5-85.6)
Kampala(n=268)	23.9% (19.1-29.4)	61.2% (55.2-66.9)
Palorinya(n=244)	50% (43.7-56.3)	88.1% (83.4-91.6)
Palabek(n=438)	29.5% (25.4-33.9)	75.1%(70.8-78.9)
Bidibidi(n=408)	47.8% (43.0-52.7)	84.6% (80.7-87.8)

Anaemia in Children 6-59 Months

Determination of Haemoglobin Concentration was achieved with HemoCue Hb 301 analyser that provides quick and accurate concentrations of haemoglobin. HemoCue machine analyser is the best alternative tool in the field that produces the best results without compromising accuracy results from the laboratory.

The study found that Oruchinga (37.1%), Kampala (36.6%) and Nakivale (24.7%) had prevalence of anaemia less than 40%. The highest prevalence of anaemia was found in Bidibidi (56.6%) and Lobule (53%); the highest mild, moderate and severe anaemia were in Bidbidi (29.9%), Bidibidi (24%) and Palorinya (5.7%). The target is to achieve total anaemia prevalence among children 6-59 months of age <20% (Table 30)

Table 30: Prevalence of Total Anaemia, Anaemia Categories, And Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group, Refugee Settlements, Uganda, October 2017

Settlement	Total (Hb<11.0 g/dL)	Mild (Hb 10.0-10.9 g/dL)	Moderate (7.0-9.9 g/dL)	Severe (<7.0 g/dL)
Kampala(n=268)	36.6%(31.0-42.5)	20.1%(15.8-25.4)	14.9%(11.1-19.7)	1.5%(0.6-3.9)
Arua(n=437)	46.0%(41.4-50.7)	20.4%(16.8-24.4)	22.9%(19.2-27.1)	2.7%(1.6-4.8)
Rwamwanja(n=372)	43.0%(38.1-48.1)	23.7%(19.6-28.2)	15.6%(12.2-19.6)	3.8%(2.2-6.3)
Adjumani(n=537)	42.3%(38.2-46.5)	17.9%(14.9-21.4)	22.7%(19.4-26.5)	1.7%(0.9-3.2)
Oruchinga(n=388)	37.1%(32.4-42.0)	20.6%(16.9-24.9)	13.4%(10.4-17.2)	3.1%(1.8-5.4)
Nakivale(n=453)	24.7%(21.0-28.9)	12.4%(9.6-15.7)	10.4%(7.9-13.5)	2.0%(1.0-3.8)
Kiryandongo(n=215)	41.4%(35.0-48.1)	26.5%(21.0-32.8)	13.5%(9.5-18.8)	1.4%(0.4-4.2)
Kyaka II(n=429)	44.1%(39.4-48.8)	26.6(22.6-31.0)	14.9%(11.8-18.6)	2.6%(1.4-4.6)
Palorinya(n=244)	48.8%(42.5-55.0)	22.5%(17.7-28.2)	20.5%(15.9-26.0)	5.7%(3.4-9.5)
Palabek(n=438)	45.9%(41.3-50.6)	20.5%(17.0-24.6)	22.6%(18.9-26.8)	2.7%(1.6-4.8)
Bidibidi(n=408)	56.6%(51.8-61.4)	29.9%(25.7-34.5)	24.0%(20.1-28.4)	2.7%(1.5-4.8)
Kyangwali(n=285)	41.8%(36.2-47.6)	21.1%(16.7-26.2)	16.5%(12.6-21.3)	4.2%(2.4-7.3)
Lobule(n=281)	53.0%(47.2-58.8)	29.5%(24.5-35.1)	19.2%(15.0-24.3)	4.3%(2.4-7.4)

Mean haemoglobin concentration in children 6-59 months

The mean Hb was calculated in each settlement, findings suggest that 11 settlements had equal or higher than 11.0 g/dL mean Hb. Of these, a relatively higher Standard Deviation (SD) was noticed in Adjumani (2.2 SD), Arua (2.1 SD), Lobule (2.1 SD) and Palorinya (2.0 SD), the rest of the settlements had 1.4 to 1.9 SD. There was not much difference between the minimum and maximum haemoglobin concentration between settlements, haemoglobin concentration ranged from 6.1 to 15.9 g/dL.

Table 30: Mean Haemoglobin Concentration in Children 6-59 Months of Age and by Age Group, Refugee Settlements, Uganda, October 2017

Settlement	Mean Hb (g/dL) (SD / 95% CI) [range]
Nakivale(n=453)	11.9 g/dL (1.9 SD) [6.1 Min, 15.9 Max]
Oruchinga(n=388)	12.3 g/dL (1.7 SD) [6.5 Min, 15.8 Max]
Kyaka II(n=429)	11.4 g/dL (1.9 SD) [6.2 Min, 15.0 Max]
Kyangwali(n=285)	11.2 g/dL (2.0 SD) [6.1 Min, 15.7 Max]
Rwamwanja(n=372)	11.3 g/dL (2.1 SD) [6.2 Min, 15.0 Max]
Kiryandongo(n=215)	11.1 g/dL (1.4 SD) [6.7 Min, 15.2 Max]
Arua(n=437)	11.2 g/dL (2.1 SD) [6.1 Min, 15.0 Max]
Adjumani(n=537)	11.3 g/dL (2.2 SD) [6.1 Min, 15.0 Max]
Lobule(n=281)	11.0 g/dL (2.1 SD) [6.1 Min, 15.0 Max]
Kampala(n=268)	11.6 g/dL (1.9 SD) [6.1 Min, 15.0 Max]
Palorinya(n=244)	11.0 g/dL (2.0 SD) [6.4 Min, 15.6 Max]
Palabek(n=438)	11.0 g/dL (1.9 SD) [6.1 Min, 15.9 Max]
Bidibidi(n=408)	10.7 g/dL (1.7 SD) [6.3 Min, 15.2 Max]

Moderate and Severe Anaemia in children 6-59 months of age and by age group

The prevalence of moderate and severe anaemia among younger children 6-23 months was calculated for each settlement; this was found highest in Bidibidi (32.3%) and Arua (31.9%) indicating that younger children in Arua and Bidibidi are at high risk of anaemia. Other settlements which had higher prevalence of combined moderate and severe anaemia were; Adjumani 24.9%, Rwamwanja 24.2%, Lobule 23.4%, Kiryandongo 20.5%. The prevalence of combined moderate and severe anaemia was lower in Kyangwali (13.3%), Nakivale (12.2%), Kampala (11.4%), and Palabek (7.9%). The analysis by settlement showed that prevalence of combined moderate and severe anaemia among children aged 24-59 months was significant higher in Palabek (34.5%); Palorinya (30.8%); Kyangwali (25.6%) and Adjumani (24.1%). In these settlements, children aged 24-59 months were more likely to have anaemia where prevalence of combined moderate and severe anaemia was almost double to the younger children within the settlements. Similar patterns were observed where combined moderate and severe anaemia were high in Palabek (25.3%), Arua (25.6%), Palorinya (26.2%) and Bidibidi (26.7%) (See Table 31).

Table 31: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and by Age Group, Refugee Settlements, Uganda, October 2017

Settlements	Moderate and Severe Anaemia (Hb<10.0 g/dL)		
	6-59 months	6-23 months	24-59 months
Kampala	16.4%(12.4-21.4)	11.4%(6.6%-19.1)	19.6%(14.2-26.5)
Arua	25.6%(21.7-29.9)	31.9%(25.3-39.4%)	21.8%(17.2-27.1)
Rwamwanja	19.4%(15.6-23.7)	24.2%(17.9-31.7)	16.1%(11.9-21.6)
Adjumani	24.4%(20.9-28.2)	24.9%(19.1-31.6)	24.1%(20.0-28.9)
Oruchinga	16.5%(13.1-20.5)	18.2%(12.8-25.3)	15.4%(11.4-20.6)
Nakivale	12.4%(9.6-15.7)	12.2%(8.4-17.4)	12.5%(8.9-17.2)
Kiryandongo	14.9%(10.7-20.3)	20.5%(13.1-30.6)	11.4%(7.0-18.0)
Kyaka II	17.5%(14.2-21.4)	17.3%(12.4-23.7)	17.6%(13.4-22.7)
Palorinya	26.2%(21.1-32.1)	17.6%(10.9-27.3)	30.8%(24.1-38.4)
Palabek	25.3%(21.5-29.6)	7.9%(4.6-13.5)	34.5%(29.2-40.2)
Bidibidi	26.7%(22.6-31.2)	32.3%(25.4-40.0)	23.2%(18.4-28.9)
Kyangwali	20.7%(16.4-25.8)	13.3%(8.1-20.9)	25.6%(19.6-32.6)
Lobule	23.5%(18.9-28.8)	23.4%(15.9-33.1)	23.5%(18.0-30.2)

Children 0-23 Months

This study priortised assessment of infant and young child feeding indicators; findings indicated that timely initation of breastfeeding for children aged 0-23 months continue to improve as it ranged from 66.9% in Palabek to 90.0% in Rwamwanja. Kyaka II (89.5%) had the second highest proportions of mothers' timely initiating breastfeeding after giving birth. The proportions of exclusive breastfeeding was highest in Arua 87.5% and this was followed by; Palabek 84.6%, Adjumani 83.3% and Oruchinga at 81.5%. Continued breastfeeding at 1 year was high in Kiryandongo 100%, Adjumani 98 percentage and the lowest rate was in Kampala (Urban) at 73.1% while continued breastfeeding at 2 years was low in Kyangwali 55%, Arua 72% and Kyaka II at 72%.

Introduction of solid, semi solid or soft foods at 6-8 months old was higher in Kampala (69.2%) and Nakivale (65.5%) whereas was below 50% in Palabek (37.5%), KyakaII (45.8%), Kiryandongo and Kyangwali (46.7%) and Adjumani (47.1%). The proportion of young children reported to consume iron-rich or iron-fortified foods was high in Bidibidi (92.4%), Adjumani (93%), Nakivale (97.1%), Arua and Lobule (95%). From the findings, there is an indication that bottle-feeding continue happening in the settlements. The highest proportion of bottle-feeding was in Kampala (36.7%), Oruchinga (34.3%) and Nakivale (29.6%).

Table 32: Prevalence of Infant and Young Child Feeding Practices Indicators, Refugee Settlements, Uganda, October 2017

Indicator	Timely Initiation of Breastfeeding	Exclusive Breastfeeding Under 6 Months	Continued Breastfeeding At 1 Year	Continued Breastfeeding At 2 Years	Introduction of Solid, Semi-Solid or Soft Foods	Consumption of Iron-Rich or Iron-Fortified Foods	Bottle Feeding
Months	**0-23**	**0-5**	**12-15**	**20-23**	**06-08**	**06-23**	**0-23**
Nakivale	84.1%	77.8%	89.6%	76.1%	65.5%	97.1%	29.6%
Oruchinga	77.8%	81.5%	93.1%	91.7%	60.7%	94.6%	34.3%
Kyaka II	89.5%	75.0%	93.5%	72.0%	45.8%	94.8%	4.2%
Kyangwali	85.6%	55.6%	90.0%	55.0%	46.7%	94.7%	9.9%
Rwamwanja	90.0%	78.8%	96.6%	76.2%	61.1%	93.2%	23.6%
Kiryandongo	83.9%	58.3%	100.0%	83.3%	46.7%	94.0%	28.4%
Arua	85.7%	87.5%	91.7%	72.5%	63.0%	95.8%	6.1%
Adjumani	82.0%	83.3%	98.0%	80.0%	47.1%	93.0%	3.8%
Lobule	77.2%	73.7%	94.4%	89.5%	50.0%	95.7%	22.1%
kampala	79.6%	66.7%	73.1%	88.9%	69.2%	94.3%	36.7%
Palorinya	72.3%	66.7%	87.5%	90.0%	50.0%	94.1%	25.9%
Palabek	69.1%	84.6%	96.6%	76.9%	37.5%	94.0%	16.5%
Bidibidi	69.8%	60.0%	96.9%	75.8%	57.5%	92.4%	9.0%

Infant Formula

Application of infant formula in children aged 0-23 months was relatively significant in some locations. Locations which had higher proportions of children fed on infant formula were; Kampala (32.5%) and Kiryandongo (37.9%). It is imperative that stakeholders implementing health and nutrition interventions to step up infant and young child feeding practices in the settlements so that infants and young children are not fed on infant formulawithout thorough assessment. Infant formulas are expensive and lack adequate required nutrients by the children, and require a hygiene environment during preparation that is difficult to susitain in the settlements.

Table 33: Infant Formula Intake in Children Aged 0-23 Months, Refugee Settlements, Uganda, October 2017

Settlement	Number/total	% (95% CI
Kampala	39/120	32.5%(24.7-41.4)
Arua	11/198	5.6(3.1-9.8)
Rwamwanja	21/182	11.5%(7.6-17.1)
Adjumani	11/209	5.3%(2.9-9.3)
Oruchinga	46/175	26.3%(20.3-33.3)
Nakivale	65/223	29.1%(23.5-35.5)
Kiryandongo	36/95	37.9%(28.7-48.1)
Kyaka II	13/189	6.9%(4.0-11.5)
Palorinya	25/112	22.3%(15.5-31.0)
Palabek	15/164	9.1%(5.6-14.6)
Bidibidi	13/178	7.3%(4.3-12.2)
Kyangwali	24/131	18.3%(12.6-25.9)
Lobule	21/113	18.6%(12.4-26.9)

Fortified Blended Foods

Significant intake of fortified blended food in children aged 6-23 months old varied among settlements, this ranged from 57.0% in Bidibidi to 89.7% in Adjumani. Kiryandongo (89.2%) refugee settlement had also very high proportions of children who consumed fortified blended food; other settlements were Kyaka II (87.9%), Palabek (86.1%), Oruchinga (83.8%), Kampala (83.8%), and Arua (83.1%). The higher consumption of fortified blended foods could be a result of the ongoing distributions of corn soy blend (CSB) in the monthly general food distributions.

Table 34: Super Cereal Plus Intake in Children Aged 6-23 Months, Refugee Settlements, Uganda, October 2017

Settlement	Number/total	% (95% CI
Kampala	88/105	83.8%(75.4-89.7)
Arua	138/166	83.1%(76.6-88.1)
Rwamwanja	116/149	77.9%(70.5-83.8)
Adjumani	166/185	89.7%(84.4-93.4)
Oruchinga	124/148	83.8%(76.9-88.9)
Nakivale	163/205	79.5%(73.4-84.5)
Kiryandongo	74/83	89.2%(80.4-94.3)
Kyaka II	152/173	87.9%(82.1-92.0)
Palorinya	59/85	69.4%(58.8-78.3)
Palabek	130/151	86.1%(79.6-90.8)
Bidibidi	90/158	57.0%(49.1-64.5)
Kyangwali	89/113	78.8%(70.2-85.4)
Lobule	74/94	78.7%(69.2-85.9)

Intake of Corn Soy Blend plus

Intake of fortified blended food (CSB++) with additional minerals, vitamins and animal products was assessed in the settlements. Five settlements reported relatively higher intake of CSB++; Rwamwanja (30.9%) and Kiryandongo (19.3%). Households should be encouraged to continue feeding CSB++ their 6-23 months children as complementary feeding for their better growth.

Table 35: FBF++ Intake in Children Aged 6-23 Months, Refugee Settlements, Uganda, October 2017

Settlement	Number/total	% (95% CI
Kampala	13/105	12.4%(7.3-20.2)
Arua	26/166	15.7%(10.9-22.0)
Rwamwanja	46/149	30.9%(24.0-38.8)
Adjumani	14/185	7.6%(4.5-12.4)
Oruchinga	14/148	9.5%(5.7-15.4)
Nakivale	35/205	17.1%(12.5-22.9)
Kiryandongo	16/83	19.3%(12.1-29.3)
Kyaka II	16/173	9.2%(5.7-14.6)
Palorinya	13/85	15.3%(9.1-24.7)
Palabek	12/151	7.9%(4.6-13.5)
Bidibidi	28/113	17.7%(12.5-24.5)
Kyangwali	17/113	15.0%(9.5-22.9)
Lobule	13/94	13.8%(8.2-22.4)

Women 15-49 years

Table 36: Prevalence of Malnutrition Based on MUAC Measurement in Women, Refugee Settlement, Uganda, October 2017

	Total Malnutrition	Mild malnutrition (< 22 cm and >= 21.5 cm)	Moderate malnutrition (< 21.5 cm and >= 21 cm)	Severe malnutrition (< 21 cm)
Kampala	4.9% (2.8-8.5)	3.7% (1.9-7.0)	1.2% (0.4-3.8)	0% (0-0)
Arua	1.8% (0.8-3.6)	0.8% (0.2-2.3)	1% (0.4-2.6)	0% (0-0)
Rwamwanja	3.8% (2.3-6.3)	2.0% (1.0-4.0)	1.8% (0.9-3.7)	0% (0-0)
Adjumani	3.8% (2.5-5.7)	1.4% (0.7-2.8)	2.2% (1.2-3.8)	0.2%(0.0-1.3)
Oruchinga	4.3% (2.7-6.7)	2.9% (1.6-5.0)	1.4% (0.6-3.2)	0% (0-0)
Nakivale	1.8% (1.0-3.5)	1.2% (0.6-2.7)	0.6% (0.2-1.9)	0% (0-0)
Kiryandongo	5.5% (3.3-8.9)	2.2% (1.0-4.8)	3.3% (1.7-6.2)	0% (0-0)
Kyaka II	2.1% (1.0-4.3)	1.2% (0.4-3.1)	0.9% (0.3-2.7)	0% (0-0)
Palorinya	4.9% (3.0-7.9)	2.3% (1.1-4.7)	2.6% (1.3-5.1)	0% (0-0)
Palabek	1.8% (0.9-3.6)	1.1% (0.5-2.7)	0.7% (0.2-2.1)	0% (0-0)
Bidibidi	2.3% (1.2-4.2)	1.1% (0.5-2.7)	1.1% (0.5-2.7)	0% (0-0)
Kyangwali	6.2% (4.0-9.7)	4.2% (2.4-7.2)	2.1% (0.9-4.5)	0% (0-0)
Lobule	4.2% (2.6-6.7)	2.9% (1.6-5.1)	1.3% (0.5-3.1)	0% (0-0)

Malnutrition based on MUAC measurement was less than 5% prevalence, was higher in Kyangwali (6.2%), Kiryandongo (5.5%) and Kampala (4.9%).

Table 37: Women Physiological Status and Age, Refugee Settlements, Uganda, October 2017

Settlement	Non-pregnant		Pregnant	
	Number/total	%	Number/total	%
Nakivale	89/487	18.3%	398/487	81.7%
Oruchinga	74/418	17.7%	344/418	82.3%
Kyaka II	156/339	46.0%	183/339	54.0%
Kyangwali	100/289	34.6%	189/289	65.4%
Rwamwanja	73/391	18.7%	318/391	81.3%
Kiryandongo	56/275	20.4%	219/275	79.6%
Arua	196/400	49.0%	204/400	51.0%
Adjumani	115/557	20.6%	442/557	79.4%
Lobule	105/382	27.5%	277/382	72.5%
Kampala	74/243	30.5%	169/243	69.5%
Palorinya	80/308	26.0%	228/308	74.0%
Palabek	81/445	18.2%	364/445	81.8%
Bidibidi	93/439	21.2%	346/439	78.8%

Table 38: Women Physiological Status and Age, Refugee Settlements, Uganda, October 2017

Settlement	Mean Age (Range)
Nakivale	28.7 Years (15 Min-49 Max)
Oruchinga	29.1 Years (15 Min-49 Max)
Kyaka II	27.9 Years (15 Min-49 Max)
Kyangwali	30.5 Years (15 Min-49 Max)
Rwamwanja	29.0 Years (15 Min-49 Max)
Kiryandongo	28.4 Years (15 Min-48 Max)
Arua	25.4 Years (15 Min-48 Max)
Adjumani	28.0 Years (15 Min-49 Max)
Lobule	31.0 Years (15 Min-49 Max)
Kampala	30.1 Years (15 Min-49 Max)
Palorinya	30.8 Years (15 Min-49 Max)
Palabek	27.8 Years (15 Min-49 Max)
Bidibidi	26.7 Years (15 Min-49 Max)

Non-pregnant women of reproductive age with anemia

The women ages 15 to 49 years were screened for Hemoglobin Concentration, those found with less than 12g/dL were considered anaemic by WHO. The prevalence of 'mild' anaemia was higher in some settlements when compared to moderate anaemia. The total anaemia among non-pregnant women was recorded highest in Palabek (47.3%), this was followed by Kyaka II (38.8%), Adjumani (34.4%) and Palorinya (33.8%). UNHCR Strategic Plan for Nutrition and Food Security (2008-2010) states that the targets for the prevalence of anaemia in women 15-49 years of age should be low i.e. <20%. In this survey, all settlements had higher anaemia prevalence than UNHCR target. In Palabek, mild (28.3%) anaemia was higher than the moderate (15.7%) anaemia. In Kyaka II, mild anaemia was 24% while the moderate category was 13.7%. Nakivale settlement had the 19.3% mild anaemia while the moderate category was 9.8%.

Table 39: Prevalence of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years), Refugee Settlements, Uganda, October 2017

Settlement	Total Anaemia (<12.0 g/dL)	Mild Anaemia (11.0-11.9 g/dL)	Moderate Anaemia (8.0-10.9 g/dL)	Severe Anaemia (<8.0 g/dL)
Nakivale(n=398)	(118) 29.6% (25.4-34.3)	(77) 19.3% (15.8-23.5)	(39) 9.8% (7.2-13.1)	(2) 0.5% (0.1-2.0)
Oruchinga(n=344)	(93) 27.0% (22.6-32.0)	(44) 12.8% (9.7-16.8)	(42) 12.2% (9.1-16.1)	(7) 2.0% (1.0-4.2)
Kyaka II(n=183)	(71) 38.8% (32.0-46.1)	(44) 24.0% (18.4-30.8)	(25) 13.7% (9.4-19.5)	(2) 1.1% (0.3-4.3)
Kyangwali(n=189)	(58) 30.7% (24.5-37.6)	(26) 13.8% (9.5-19.5)	(28) 14.8% (10.4-20.6)	(4) 2.1% (0.8-5.5)
Rwamwanja(n=318)	(99) 31.1% (26.3-36.4)	(42) 13.2% (9.9-17.4)	(50) 15.7% (12.1-20.2)	(7) 2.2% (1.1-4.6)
Kiryandongo(n=219)	(67) 30.6% (24.8-37.0)	(32) 14.6% (10.5-20.0)	(31) 14.2% (10.1-19.4)	(4)1.8% (0.7-4.8)
Arua(n=204)	(50) 24.5% (19.1-30.9)	(34) 16.7% (12.1-22.4)	(15) 7.4% (4.5-11.9)	(1) 0.5% (0.1-3.4)
Adjumani(n=442)	(152) 34.4% (30.1-38.9)	(78) 17.6% (14.4-21.5)	(68) 14.3% (11.3-17.86)	(11) 2.5% (1.4-4.4)
Lobule(n=277)	(83) 30.0% (24.8-35.6)	(39) 14.1% (10.5-18.7)	(41) 14.8% (11.1-19.5)	(3) 1.1% (0.3-3.3)
Kampala(n=169)	(45) 26.6% (20.5-33.8)	(28) 16.6% (11.7-23.0)	(17) 10.1% (6.3-15.6)	0% (0-0)
Palorinya(n=228)	(77) 33.8% (27.9-40.2)	(42) 18.4% (13.9-24.0)	(29) 12.7% (9.0-17.7)	(6) 2.6% (1.2-5.7)
Palabek(n=364)	(172) 47.3% (42.2-52.4)	(103) 28.3% (23.9-33.2)	(57) 15.7% (12.3-19.8)	(12) 3.3% (1.9-5.7)
Bidibidi(n=346)	(95) 27.5% (23.0-32.4)	(52) 15.0% (11.6-19.2)	(40) 11.6% (8.6-15.4)	(3) 0.9% (0.3-2.7)

Mean haemoglobin concentration in non-pregnant women of reproductive age

The mean haemoglobin concentration levels ranged from 12.1 g/dL in Palabek to 13.6% in Oruchinga. In Kiryandongo, Lobule, Kampala and Nakivale had 13.5 g/dL, 13.2g/dL, 13.2g/dL and 13.0 g/dL respectively. These mean haemoglobin concentration were relatively higher than the rest of the settlements. Non-pregnant women in Kyaka II, Kyangwali and Arua had lower mean haemoglobin concentrations of 12.6, 12.7 and 12.7 g/dL respectively. The prevalence of severe anaemia was 1.1% Kyaka II, 2.1% Kyangwali and 0.5% Arua.

Table 38: Mean Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years), Refugee Settlements, Uganda, October 2017

Settlement	**Mean Hb (g/dL) (SD / 95% CI) [range]**
Nakivale (n=398)	13.0 g/Dl (1.7 SD) [7.7 Min, 16.9 Max]
Oruchinga(n=344)	13.6 g/Dl (2.3 SD) [7.2 Min, 16.9 Max]
Kyaka II (n=183)	12.6 g/Dl (1.8 SD) [7.3 Min, 17.2 Max]
Kyangwali (n=189)	12.7 g/Dl (2.0 SD) [7.1 Min, 17.1 Max]
Rwamwanja(n=318)	12.9 g/Dl (2.1 SD) [7.1 Min, 16.9 Max]
Kiryandongo(n=219)	13.5 g/Dl (2.2 SD) [7.4 Min, 16.9 Max]
Arua (n=204)	12.7 g/Dl (1.4 SD) [7.3 Min, 16.9 Max]
Adjumani (n=442)	12.9 g/Dl (2.0 SD) [7.1 Min, 16.9 Max]
Lobule (n=277)	13.2 g/Dl (2.1 SD) [7.1 Min, 16.9 Max]
Kampala(n=169)	13.2 g/Dl (1.8 SD) [8.2 Min, 16.9 Max]
Palorinya(n=228)	12.9 g/Dl (2.2 SD) [7.1 Min, 17.5 Max]
Palabek(n=364)	12.1 g/Dl (1.6 SD) [7.1 Min, 16.9 Max]
Bidibidi(n=346)	12.9 g/Dl (1.7 SD) [7.1 Min, 16.9 Max]

Utilization of antenatal care

The refugee reproductive health programme adheres to the World Health Organization and Ministry of Health recommends at least four visist to the MCH by a pregnant woman for checkups. The normal expected weeks of four visits should happen at 16, 24–28, 32, and 36 weeks. Antenatl care visits allows the healthworkers to detect, treat, and prevent pregnancy-related coplications which can be life-threatening conditions. ANC visits provide opportunities in timely referrals to the higher level health facilities; ensures birth preparedness and addresses obstetric emergencies; the antennal care offers; tetanus toxoid immunization, iron tablets, de-worming tablets to all pregnant women, and malaria prophylaxis where necessary.

Despite ongoing efforts to promote maternal health service utilization, wide disparities prevail among pregnant women seeking antenatal care services in the settlements. Kyangwali (89.0%) refugee had the highest proportions of pregnant women who were enrolled in the martenal child health and nutrition. Adjumani (70.4%), Bidibidi (69.9%), Rwamwanja (68.5%), and Nakivale (68.5%) followed this. The lowest proportion of pregnant women enrolled in the ANC programe was recorded in Oruchinga ta 39.2%. Kiryandongo (50.0%), Oruchinga (50.5%) and Arua (51.0%) followed this. The proportions of pregnant women who had received Iron-Folic tablets was the highest in Nakivake (74.2%). The second highest settlement with high propoertions of pregnant women received Iron-Folic tabelts was Palabek (70.4%), Rwamwanja 69.9%), Bidibidi (65.6%) and Kyangwali (65.0%).

Table 39: ANC Enrolment and Iron-Folic Acid Pills Coverage Among Pregnant Women (15-49 Years), Refugee Settlements, Uganda, October 2017

Settlement	Currently enrolled in ANC programme		Currently Receiving Iron-Folic Acid Pills	
	Number/ Total	% (95% CI	Number/ Total	% (95% CI
Nakivale	61/89	68.5% (58.1-77.4)	55/61	90.2%(79.7-95.5)
Oruchinga	29/74	39.2% (28.7-50.8)	13/29	44.8%(27.8-63.1)
Kyaka II	84/156	53.8% (46.0-61.5)	65/84	77.4%(67.1-85.1)
Kyangwali	89/100	89% (81.2-93.8)	59/89	66.3%(55.8-75.4)
Rwamwanja	50/73	68.5% (56.9-78.1)	39/50	78.0%(64.3-87.5)
Kiryandongo	28/56	50% (37.1-62.9)	15/28	53.6%(35.1-71.1)
Arua	100/196	51.0% (44.0-58.0)	59/100	59.0%(49.1-68.2)
Adjumani	81/115	70.4% (61.4-78.1)	62/81	76.5%(66.0-84.6)
Lobule	53/105	50.5% (41.0-60.0)	35/53	66.0%(52.3-77.6)
Kampala	39/74	52.7% (41.3-63.8)	26/39	66.7%(50.4-79.7)
Palorinya	46/80	57.5% (46.4-67.9)	22/46	47.8%(33.8-62.2)
Palabek	51/81	63.0% (51.9-72.8)	37/51	72.5%(58.7-83.1)
Bidibidi	65/93	69.9% (59.8-78.4)	46/65	70.8%(58.5-80.6)

Food Security

Table 40: Food Security Sampling Information, Refugee Settlements, Uganda, October 2017

Settlement	Planned	Actual	% of Target
Nakivale	223	430	192.8%
Oruchinga	206	404	196.1%
Kyaka II	160	385	240.6%
Kyangwali	137	297	216.8%
Rwamwanja	191	198	103.7%
Kiryandongo	120	149	124.2%
Arua	176	341	193.6%
Adjumani	220	425	193.2%
Lobule	155	134	86.5%
Kampala	153	270	176.5%
Palorinya	137	122	89.1%
Palabek	214	406	189.7%
Bidibidi	173	297	171.7%

Reported duration of the general food ration

The study also looked at the duration of food ration against the theoretical duration food lasted among households. This question was only directed to households received full ration at time of the assessment. The highest average duration (%) in relation to the theoretical duration of the food ration was reported in Palorinya (77.3%). Other households in the settlements reported an average duration of: Bidibidi (74.7%), Arua (73.9%) and Palabek (73.0%), and Kiryandongo (67.7%). In general, the average number of days the food ration lasted ranged from 13 days in Kyaka II to 23 days in Palorinya. Settlements, which had the food ration, lasted for a longer period were Arua, Bidibidi and Palabek where the food ration lasted for 22 days.

Table 41: Reported Number of Days of General Food Ration, Refugee Settlements, Uganda, October 2017

Settlement	Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration
Nakivale(n=127)	16.8days C.I(15.5-18.1),7.3 SD	56.1%
Oruchinga(n=82)	18.3days C.I(16.3-20.2),9.1 SD	60.9%
Kyaka II(n=30)	13.9days C.I(10.9-16.9),8.4 SD	46.3%
Kyangwali(n=7)	19.4days C.I(11.2-27.6),11.1 SD	64.8%
Rwamwanja(n=95)	16.4days C.I(15.0-17.9),7.1 SD	54.8%
Kiryandongo(n=26)	20.3days C.I(16.6-24.0),9.6 SD	67.7%
Arua(n=165)	22.2days C.I(21.1-23.2),6.7 SD	73.9%
Adjumani(n=50)	19.5days C.I(17.4-21.6),7.5 SD	64.9%
Lobule(n=12)	16.3days C.I(12.8-19.9),6.3 SD	54.4%
Kampala(n=4)	13 days C.I(0.7-25.3),12.5 SD	43.3%
Palorinya(n=102)	23.2days C.I(21.9-24.4),6.2 SD	77.3%
Palabek(n=368)	21.9days C.I(21.3-22.5),5.8 SD	73.0%
Bidibidi(n=137)	22.4days C.I(21.1-23.7),7.5 SD	74.7%

Duration of general food ration

The proportion of households reporting that the food ration lasted for 30 days (entire duration of the cycle) was calculated based on the previous general food distribution across the settlements. Findings from this survey suggest that about 60% of households in Kyangwali reported that food ration lasted for 30 days covering the entire distribution cycle. The proportion of households reporting that the food ration lasted less than 23 days (which is equivqlent to ≤75% of the cycle) was highest in Rwamwanja (86.1%) and this was followed by: Nakivale (84.9%), Lobule (84.6%) and Kyaka II (84.4%). Settlements that reported higher proportion of households reporting that the food ration lasted more than 23 days (>75% of the cycle days) were Kyangwali (60%), this was followed by; Arua (48.9%), Kiryandongo (46.2%) and Palorinya (45.6%).

Table 42: Reported Duration of General Food Ration, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of households reporting that the food ration lasts the entire duration of the cycle	Proportion of households reporting that the food ration lasted (% of target)	
		≤75% of the cycle [30 days]	>75% of the cycle [30 days]
Nakivale(n=146)	7.5% (4.2-13.1)	84.9% (78.1-89.9)	15.1% (10.1-21.9)
Oruchinga(n=84)	11.9% (6.5-20.8)	79.8% (69.8-87.1)	20.2% (12.9-30.2)
Kyaka II(n=32)	9.4% (3.0-25.7)	84.4% (67.2-93.4)	15.6% (6.6-32.8)
Kyangwali(n=10)	60% (28.3-85.1)	40% (14.9-71.7)	60% (28.3-85.1)
Rwamwanja(n=101)	9.9% (5.4-17.5)	86.1% (77.9-91.6)	13.9% (8.4-22.1)
Kiryandongo(n=26)	34.6% (18.8-54.7)	53.8% (34.7-71.9)	46.2% (28.1-65.3)
Arua(n=176)	22.7% (17.1-29.5)	51.1% (43.8-58.5)	48.9% (41.5-56.2)
Adjumani(n=70)	20% (12.2-31.1)	68.6% (56.7-78.4)	31.4% (21.6-43.3)
Lobule(n=13)	0% (0-0)	84.6% (53.4-96.4)	15.4% (3.6-46.6)
Kampala(n=4)	25% (2.4-82.0)	75% (18.0-97.6)	25% (2.4-82.0)
Palorinya(n=103)	26.2% (18.6-35.6)	54.4% (44.7-63.8)	45.6% (36.2-55.3)
Palabek(n=374)	11% (8.2-14.6)	57.0% (51.9-61.9)	43.0% (38.1-48.1)
Bidibidi(n=157)	28.0% (21.5-35.6)	55.4% (47.5-63.0)	44.6% (37.0-52.5)

Coping Strategies

Uganda has one of the best refugee management policy in the world, however, refugees in the settlements have various concerns that challenge their efforts toward attaining self reliance and food security. Hoseuholds were assessed on the applications of reduced coping mechanisms that had applied in the last 7 days prior to the assessment. In each settlement, different levels of proportions were recorded on households that used each of the coping mechanism. Households that relied on less preferred, less expensive food were highest in Nakivale (94.7%), Kampala (82.6%), Palabek (79.1%) and Oruchinga (73.3%). The second most coping mechanism was, reduced the number of meals eaten per day; the highest reports were from Nakivale (76.7%) and Kampala (76.7%). Reduced portion size of meals was still important in Nakivale (70.7%) and this was followed by Oruchinga (59.7%). Another coping mechanism that households applied was reduction in the quantities consumed by adults (mothers) for young children, on this, the highest proportion was recorded in Kampala (55.9%), this was followed by Nakivale (52.3%), Rwamwanja (44.9%) and Kiryandongo (43.0%). This coping mechanms was less used in Adjumani (22.6%), Kyangwali (23.9%) and Arua (24.0%).

Table 43: Proportion of Households that Used Each of the Coping Mechanisms in the Last 7 Days Prior to the Survey Date, Refugee Communities, Uganda, October 2017

Settlement	Relied on less preferred, less expensive food	Borrowed food or relied on help from friends or relatives	Reduced the number of meals eaten per day	Reduced portion size of meals	Reduction in the quantities consumed by adults/mothers for young children
Nakivale(n=430)	94.7% (92.1-96.4)	56.5% (51.8-61.1)	76.7% (72.5-80.5)	70.7% (66.2-74.8)	52.3% (47.6-57.0)
Oruchinga(n=404)	73.3% (68.7-77.4)	41.8% (37.1-46.7)	61.0% (56.0-65.5)	59.7% (54.8-64.3)	40.3% (35.7-45.2)
Kyaka II(n=385)	34.0% (29.5-38.9)	29.6% (25.3-34.4)	32.2% (27.7-37.0)	33.0% (28.5-37.8)	28.8% (24.5-33.6)
Kyangwali(n=297)	46.5% (40.9-52.2)	32.0% (26.9-37.5)	37.0% (31.7-42.7)	33.7% (28.5-39.2)	23.9% (19.4-29.1)
Rwamwanja(n=198)	71.2% (64.5-77.1)	38.4% (31.9-45.4)	56.1% (49.1-62.8)	49% (42.1-55.9)	44.9% (38.1-52.0)
Kiryandongo(n=149)	54.4% (46.3-62.2)	37.6% (30.2-45.6)	49.7% (41.7-57.7)	47.7% (39.7-55.7)	43.0% (35.2-51.0)
Arua(n=341)	32.6% (27.8-37.7)	19.4% (15.5-23.9)	30.5% (25.8-35.6)	33.7% (28.9-38.9)	24.0% (19.8-28.9)
Adjumani(n=425)	33.9% (29.5-38.5)	20.0% (16.5-24.1)	34.4% (30.0-39.0)	27.5% (23.5-32.0)	22.6% (18.9%-26.8)
Lobule(n=134)	47.0% (38.7-55.5)	41.8% (33.7-50.3)	46.3% (38.0-54.8)	46.3% (38.0-54.8)	35.1% (27.4-43.5)
Kampala(n=270)	82.6% (77.6-86.7)	56.7% (50.7-62.5)	76.7% (71.2-81.3)	75.9% (70.5-80.7)	55.9% (49.9-61.7)
Palorinya(n=122)	42.6% (34.1-51.6)	19.7% (13.5-27.7)	51.6% (42.8-60.4)	45.9% (37.2-54.8)	29.5% (22.1-38.2)
Palabek(n=406)	79.1% (74.8-82.8)	57.1% (52.3-61.9)	66.3% (61.5-70.8)	59.1% (54.2-63.8)	34.0% (29.5-38.7)
Bidibidi(n=297)	43.4% (37.9-49.1)	13.5% (10.0-17.9)	43.4% (37.9-49.1)	38.0% (32.7-43.7)	29.6% (24.7-35.1)

Households that used none of the coping mechanisms in the last 7 days

The highest proportion of households that used none of the coping mechanism in the last 7 days prior to the survey days was in Kyaka II (73.6%), Adjumani (58.6%), Arua (57.8%), Kyangwali (51.5%), and Bidibidi (46.1%). Nakivale settlement had only 2.1% of the households that did use any of the coping mechanism in the last 7 days; Palabek followed this with 6.7% of the households reported to have not used any coping mechanisms.

Table 44: Proportion of Households that Used None of the Coping Mechanisms in the Last 7 Days Prior to the Survey Dates, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of households reporting using none of the coping strategies over the past 7 days
Nakivale(n=430)	2.1% (1.1-4.0)
Oruchinga(n=404)	22.3% (18.5-26.6)
Kyaka II(n=385)	63.6% (58.7-68.3)
Kyangwali(n=297)	51.5% (45.8-57.1)
Rwamwanja(n=198)	19.7% (14.7-25.8)
Kiryandongo(n=149)	41.6% (33.9-49.7)
Arua(n=341)	57.8% (52.5-62.9)
Adjumani(n=425)	58.6% (53.8-63.2)
Lobule(n=134)	44.0% (35.8-52.6)
Kampala(n=270)	11.5% (8.2-15.9)
Palorinya(n=122)	24.6% (17.7-33.0)
Palabek(n=406)	6.7% (4.6-9.5)
Bidibidi(n=297)	46.1% (40.5-51.8)

Coping Strategies Used over the Past Month

Households used various coping strategies over the last 30 days prior the nutrition survey in the settlements. The most used strategies were; borrowed cash, food or other items with or without interest whereby the following settlements were highly coping on this mechanism compared with other settlements; Kampala (43.3%), Lobule (39.6%), Oruchinga (39.6%), Palabek (35.2%) and Nakivale (35.1%). The second most coping strategy was "Begging", on this; the highest proportions were recorded in Nakivale (39.5%), Kampala (37.8%) and Palabek (33.7%). Across the settlements, very low proportions of households were engaged in potentially risky or harmful activities; for example, Lobule, Palorinya, Kiryandongo and Rwamwanja reported none of the households engaged in potentially risky or harmful activities.

Table 45: Coping Strategies Used by the Surveyed Population Over the Past Month, Refugee Settlements, Uganda, October 2017

Settlement	Sold more animals (non-productive than usual)	Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	Spent savings	Borrowed cash, food or other items with or without interest	Sold productive assets or means of transport
Nakivale(n=430)	3.5%	5.1%	6.3%	35.6%	2.6%
Oruchinga(n=404)	9.4%	3.0%	1.2%	40.6%	24.8%
Kyaka II(n=385)	2.6%	1.0%	6.5%	23.1%	1.1%
Kyangwali(n=297)	9.1%	8.4%	22.6%	33.3%	11.8%
Rwamwanja(n=198)	7.6%	6.0%	4.0%	25.7%	4.0%
Kiryandongo(n=149)	12.0%	2.0%	6.1%	12.8%	2.0%
Arua(n=341)	2.4%	12.6%	9.1%	20.4%	5.6%
Adjumani(n=425)	2.1%	1.4%	2.1%	9.2%	4.0%
Lobule(n=134)	7.4%	9.0%	15.7%	39.6%	3.7%
Kampala(n=270)	0.4%	15.6%	17.8%	43.3%	3.7%
Palorinya(n=122)	0.0%	2.4%	5.7%	10.7%	1.6%
Palabek(n=406)	0.9%	19.6%	23.4%	35.9%	6.9%
Bidibidi(n=297)	3.7%	1.3%	3.7%	9.4%	0.0%

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

Settlement	Reduced essential non-food expenditures such as education, health etc	Consume seed stock held for next season	Sold house or land	Begged	Engaged in potentially risky or harmful activities
Nakivale(n=430)	21.6%	13.0%	0.0%	39.5%	1.8%
Oruchinga(n=404)	24.5%	1.2%	1.4%	22.8%	0.7%
Kyaka II(n=385)	6.0%	17.6%	0.3%	20.8%	1.0%
Kyangwali(n=297)	17.8%	28%	3.3%	28.2%	3.7%
Rwamwanja(n=198)	4.5%	12.6%	4.0%	3.5%	2.0%
Kiryandongo(n=149)	9.4%	10.8%	0.7%	13.5%	0.7%
Arua(n=341)	12.1%	7.1%	0.9%	11.7%	1.2%
Adjumani(n=425)	4.0%	4.9%	2.2%	10.5%	0.2%
Lobule(n=134)	14.1%	20.1%	2.2%	17.2%	0%
Kampala(n=270)	27.8%	0.4%	0.0%	37.8%	3.7%
Palorinya(n=122)	5.7%	1.6%	0.0%	14.8%	0.8%
Palabek(n=406)	15.0%	15.1%	0.2%	35.7%	0.2%
Bidibidi(n=297)	2.7%	4.0%	0.0%	11.8%	0.3%

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

Some of the households did not apply coping strategies over the past one month prior the survey. The proportion of households that reported using none of the coping strategies over the past one month before the survey was reported highest in Adjumani (80%), Bidibidi (77.4%), Palorinya (73.8%), Kiryandongo (70.5%) whereas Kampala (28.1%) reported lowest the proportions of household that did not use the coping strategies; this was followed by Nakivale (33.3%) and Oruchinga (33.9%).

Livelihood Coping Strategies Index

The study also looked into livelihood coping strategies where households were asked about the applications of the various coping strtageies in the last 30 days prior to the assessament day. Households were asked if any of their family members was engaed in any of the following activities "stressful" coping mechanisms because there was not enough food or money to buy food in the household. The proportions that used the "Stressful" coping mechanism was diferent from settlement to another; for example; selling of more animals (non-productive than usual) was more prevalent in Oruchinga (41.3%) while the highest used coping mechanism in Palabek (22.9%) was "spent saving". Oruchinga (24.3%) settlement sold productive assets or means of transport; Oruchinga (38.6%) again reduced essential non-food expenditures such as education and health. Kyangwali (25.2%) settlement consumed seed stock held for next season. More households in Oruchinga (41.3%) sold either house or land in to cater for food at household level.

Coping Strategies Used Over the Past Month

Households were assessed on the applictions of the three main (a)- stress – sold more animals, sold household goods, spent saving and borrowed money), (b) crisis-sold productive asserts, consumed seeds and redued spending on naon food items) and (c) emergency: did illegal activites coping mechanism over the past 30 days. Overall, the proportion of households reporting using a stress coping mechanism was highest in Oruchinga (55.2%), this was by Palabek (47.8%), Lobule (41.8%) and Nakivale (41.4%); while the lowest proportions were reported in Adjumani (10.4%) and Bidibidi (14.8%) and Palorinya (16.4%). The proportion of hosueholds rporting using a crisis coping mechanism was the highest in Oruchinga (45.8%), Kyangwali (35.7%) and Kampala (29.3%). Bidibid (6.1%) and Adjumani (7.8%) had the lowest proportion of household that used a crisis coping mechanism settlement when compared with other settlements. The proportion of households reporting using an emergency coping mechanism across the settlements was lower compared to the first two though Nakivale had the highest propotions at 40.7%. Other settlements depicted higher proportions of using emergency coping mechanism were; Kampala (37.8%) and Palabek (33.7%) and the lowest proportions were reported in Rwamwanja (4.0%), Adjumani (9.9%) and Arua (12.3%).

Table 46: Coping Strategies Used by the Surveyed Population Over the Past Month, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of households reporting using a stress coping mechanism (1-4)	Proportion of households reporting using a crisis coping mechanism (5-7)	Proportion of households reporting using an emergency coping mechanism (8-10)	Proportion of households reporting not to have used any coping startegy
Kampala (n=270)	19%	16%	38%	28%
Rwamwanja (n=198)	19%	13%	10%	58%
Palabek (n= 406)	16%	9%	36%	39%
Oruchinga (n=404)	13%	30%	24%	32%
Nakivale (n=430)	11%	15%	41%	33%
Lobule (n=134)	11%	19%	18%	52%
Kiryandongo (n=149)	10%	7%	13%	69%
Kyangwali (n=297)	9%	19%	30%	42%
Rhino Camp (n=341)	9%	13%	13%	65%
Bidi-Bidi (n=297)	8%	3%	12%	77%
Kyaka II (n=385)	7%	6%	21%	67%
Adjumani (n=425)	6%	5%	11%	78%
Palorinya (n=122)	4%	7%	16%	73%

Household Dietary Diversity (HDDS)

It measures dietary diversity by counting the number of food groups that households consumed over the last 24 hours. The indicator consists of twelve food groups: cereals; roots and tubers; vegetables; fruits; meat, poultry, and offal; eggs; fish and seafood; pulses, legumes, and nuts; dairy products; oils and fats; sugar and honey; and miscellaneous, such as condiments. Dietary diversity refers to the variety of foods consumed by individuals or households. When measured on a household level dietary diversity is related to the socio-economic position of the household and food security, and when measured on an individual level it is linked to dietary quality and nutritional status. It is expected that as people become aware of their health and nutritional status they switch from starch-dominated diets to more varied diets that includes meat, dairy products, vegetables and fruits.

The study found that HHs in Lobule settlement had much more diversified diets/meals[11] with a 5.2 dietary score. Other settlements which had the Mean HDDS higher than 4 (4.5 Kyaka II, 4.4 Rwamwanja, 4.4 Bidibidi, 4.3 Aruaand 4.3 Palorinya) however their meals were dominated by higher consumption of cereals and beans (pulses). Similarly, consuming any vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products remained relatively stable with increasing food access especially on the vegetables and fruits. Though the consumptions of animal products such as; meat, fish and eggs, and milk products had low frequencies improved the households scores. These food products when included in the meals have significant impact on macro and micro nutrient intake among household members.

[11] Note: Additional data collection and analysis on the Food Consumption Score is on-going and will be shared as an addendum to this full report in the first quarter of 2018

Table 47: Average HDDS, Refugee Settlements, Uganda, October 2017

Settlement	Mean
Nakivale	Mean 3.9, CI (3.7-4.1), 1.9 SD
Oruchinga	Mean 4.2, CI (4.0-4.4), 1.7 SD
Kyaka II	Mean 4.5, CI (4.2-4.8), 1.9 SD
Kyangwali	Mean 3.8, CI (3.5-4.1), 1.7 SD
Rwamwanja	Mean 4.4, CI (4.1-4.7), 1.9 SD
Kiryandongo	Mean 3.6, CI (3.2-4.0), 2.0 SD
Arua	Mean 4.3, CI (4.0-4.6), 1.7 SD
Adjumani	Mean 3.8, CI (3.6-4.0), 1.7 SD
Lobule	Mean 5.2, CI (4.8-5.6), 1.8 SD
Kampala	Mean 1.7, CI (1.6-1.8), 0.8 SD
Palorinya	Mean 4.3, CI (4.1-4.5), 1.2 SD
Palabek	Mean 3.6, CI (3.4-3.8), 1.6 SD
Bidibidi	Mean 4.4, CI (4.1-4.7), 1.7 SD

* Maximum HDDS is 12.

Main Food Sources

0verall, market purchase with cash was the most important source of food among households in settlements across the operation. Though Palabek (58.1%) had the lowest proportions of households, reporting their main source of food was market purchase with cash. For the rest of the settlements it was recorded high at 74.3% in Adjumani to 97.0% in Kampala. The introduction and expansion of the cash transfer for food programme by World Food Programme and introduction of cash transfer for other basic needs by partners such as Dan Church Aid, LWF and DRC in some settlements has increased the reliance of markets as one of main source of food.

Table 48: Main Food Source, Refugee Settlement, Uganda, October 2017

	Own Production	Fishing/ Hunting	Gathering	Borrowed	Market (Purchase with Cash)	Market (Purchase with Credit)	Beg for Food	Exchange Labour	Gift from Family	Food Aid/NGOs
Nakivale	21.9%	17.0%	4.9%	53.5%	81.2%	11.9%	7.2%	15.6%	8.1%	80.2%
Oruchinga	28.7%	56.4%	6.4%	35.4%	93.1%	5.2%	4.2%	8.2%	8.2%	72.3%
Kyaka II	68.8%	30.1%	16.7%	59.1%	86.6%	23.1%	4.8%	7.0%	3.8%	3.2%
Kyangwali	40.5%	43.7s%	10.8%	53.8%	96.2%	14.6%	7.0%	9.5%	2.5%	1.3%
Rwamanja	29.3%	67.7%	24.2%	57.1%	93.9%	17.7%	1.0%	4.5%	4.5%	12.6%
Kiryandongo	42.4%	31.3%	16.2%	70.7%	79.8%	2.0%	3.0%	4.0%	17.2%	76.8%
Arua	36.5%	13.5%	4.5%	68.0%	87.1%	3.4%	2.8%	5.6%	3.4%	94.4%
Adjumani	58.9%	4.5%	8.4%	62.4%	74.3%	1.5%	3.0%	2.0%	7.9%	85.1%
Lobule	75.6%	12.8%	8.1%	67.4%	95.3%	18.6%	0.0%	7.0%	10.5%	1.2%
Kampala	0.7%	4.1%	3.3%	91.4%	97.0%	8.6%	1.9%	3.3%	8.2%	4.5%
Palorinya	87.9%	0.0%	0.0%	14.0%	80.4%	2.8%	0.0%	0.0%	2.8%	98.1%
Palabek	75.1%	6.4%	5.4%	37.2%	58.1%	3.9%	5.9%	22.2%	7.4%	97.5%
Bidibidi	52.5%	1.1%	0.6%	62.6%	84.4%	2.2%	5.0%	6.1%	2.8%	99.4%

Note: the sources of the main sources will exceed 100%

Consumption of Micronutrient Rich Foods

The consumption of animal source foods provides a variety of micronutrients that are difficult to obtain in adequate quantities from plant source foods alone. Negative health outcomes associated with inadequate intake of these nutrients include anaemia, poor growth, rickets, impaired cognitive performance, blindness, neuromuscular deficits and increased chances of deaths. Household members were asked about consumption of either a plant or animal source of vitamin A; the findings suggest that refugees in Rwamwanja 67.7%, newly established settlement of Palabek 63.8% and Nakivale 60% were more likely to consume plant or animal sources of vitamin A. Vitamin A is important for human vision, improves the immune system, and supports reproduction. It improves performances of some of visceral organs; heart, lungs and kidneys.

The proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron) was relatively recorded high in Lobule (21.6%) and Rwamwanja 20.2% with the rest of households in other settlements reporting very low at less than 20%. Currently, iron deficiency is the most common diet related health problem in the settlements. As noted from the findings, more households reported consuming vegetables than animal meat sources; hence, they consumed more of non-heme iron from plant sources. However, anaemia has multi-factorial causes, consumptions of more vegetables than animal red meat could partly explain the reported high rates of anaemia in the settlements.

It is also important to mention that this survey was conducted during the annual lean season, during which the overall food availability in the community was limited. It is therefore likely that the household dietary diversity score was found lower than it would have been during the harvesting seasons.

Table 49: Consumption of Micronutrient Rich Foods by Households, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	Proportion of households consuming either a plant or animal source of vitamin A	Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)
Nakivale(n=430)	31.9% (27.6-36.4)	60.0% (55.3-64.5)	14.9% (11.8-18.6)
Oruchinga(n=404)	32.4% (28.0-37.2)	54.5% (49.6-59.3)	9.9% (7.3-13.2)
Kyaka II(n=385)	59.7% (54.8-64.5)	37.7% (33.0-42.6)	10.4% (7.7-13.9)
Kyangwali(n=297)	56.2% (50.5-61.8)	33.7% (28.5-39.2)	8.8% (6.0-12.6)
Rwamwanja(n=198)	21.7% (16.5-28.0)	67.7% (60.8-73.84)	20.2% (15.2-26.4)
Kiryandongo(n=149)	51.0% (43.0-59.0)	43.6% (35.9-51.7)	10.1% (6.1-16.1
Arua(n=341)	61.0% (55.7-66.0)	33.4% (28.6-38.6)	12.0% (9.0-15.9)
Adjumani(n=425)	70.1% (65.6-74.3)	24.9% (21.1-29.3)	4.5% (2.9-6.9)
Lobule(n=134)	44.0% (35.8-52.6)	53.7% (45.2-62.0)	21.6% (15.5-29.4)
Kampala(n=270)	87.4% (82.9-90.87)	12.2% (8.8-16.7)	0.4% (0.1-2.6)
Palorinya(n=122)	40.2% (31.8-49.1)	57.4% (48.4-65.9)	5.7% (2.8-11.6)
Palabek(n=406)	25.6% (21.6-30.1)	63.8% (59.0-68.3)	13.8% (10.8-17.5)
Bidibidi(n=297)	57.2% (51.5-62.8)	31.6% (26.6-37.2)	11.1% (8.0-15.2)

Main Income Source

Like the case of last year, refugees in West Nile settlements had lower proportions of at least one family member earning an income in the household. The lowest proportions were recorded in Adjumani (15.3%), Kiryandongo (15.4%), Arua (19.4%), Bidibidi (22.2%), Palorinya (26.2%) and Palabek (33.5%). The demographic structures in West Nile settlement is composed of higher number of children and women who may not necessarily be able to seek for labour in order to earn income. The level of at least one income earner in a household has increased in 2017 to 45.6% compared to last year, which was 36.5%.

Overall, the level of income earners among households in South West settlements had increased compared to 2016 while that of West Nile had decreased. The highest settlements with at least one-income earners were Rwamwanja (89.4%), Oruchinga (88.9%), Kampala (74.1%) and Nakivale (72.1%).

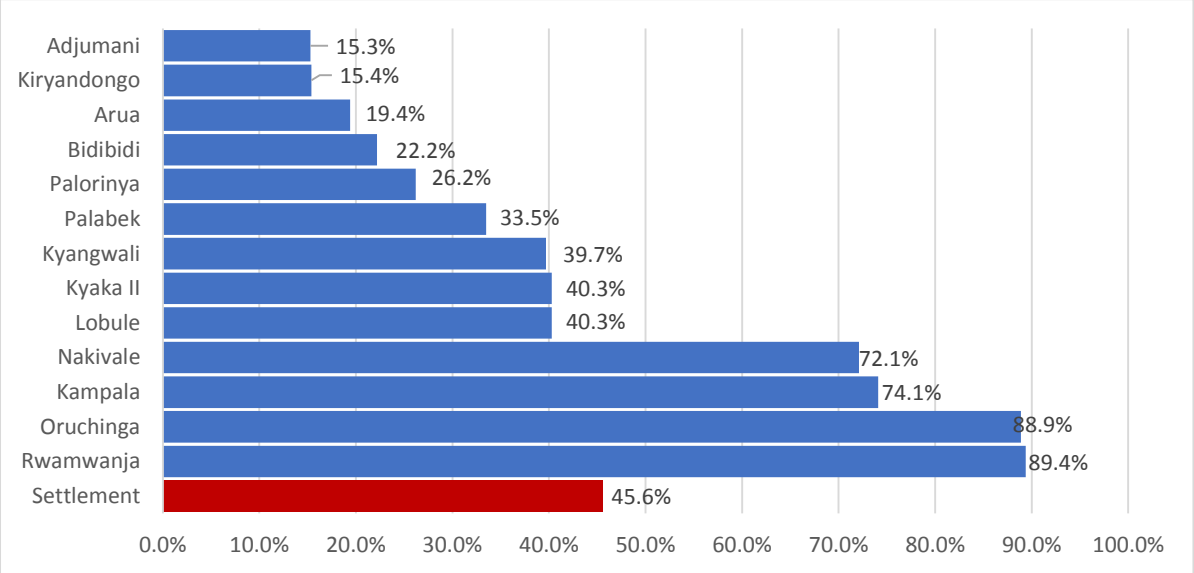

Figure 4: Showing the Proportion of Households With At Least One Income Earner in Refugee Settlement, October 2017

Settlements with more income earners were Rwamwanja (89.4%), Oruchinga (88.9%), Kampala (74.1%), and Nakivale (71.9%).

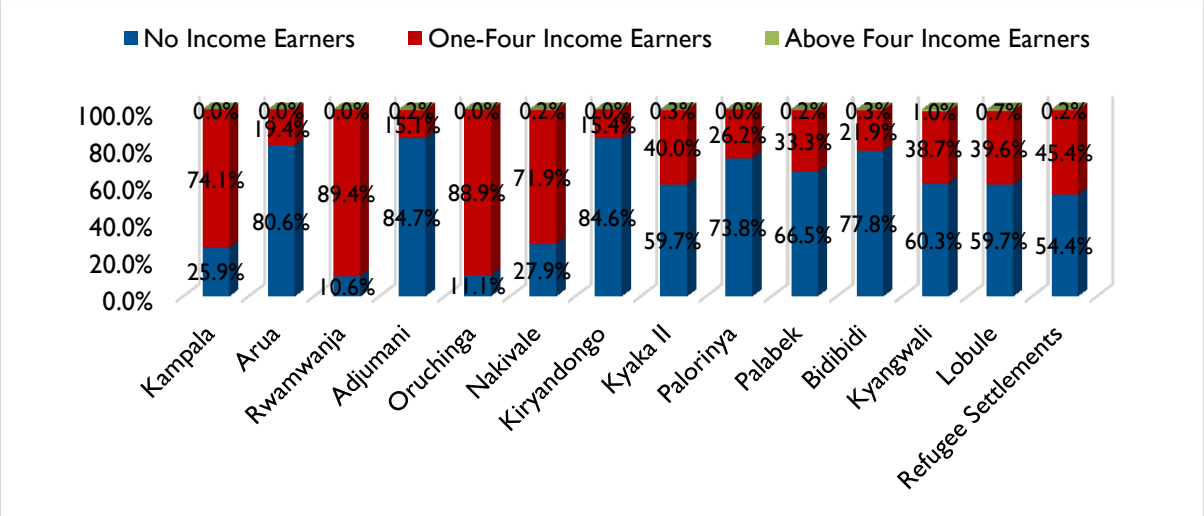

Figure 5: More than One Income Earners at Household Levels

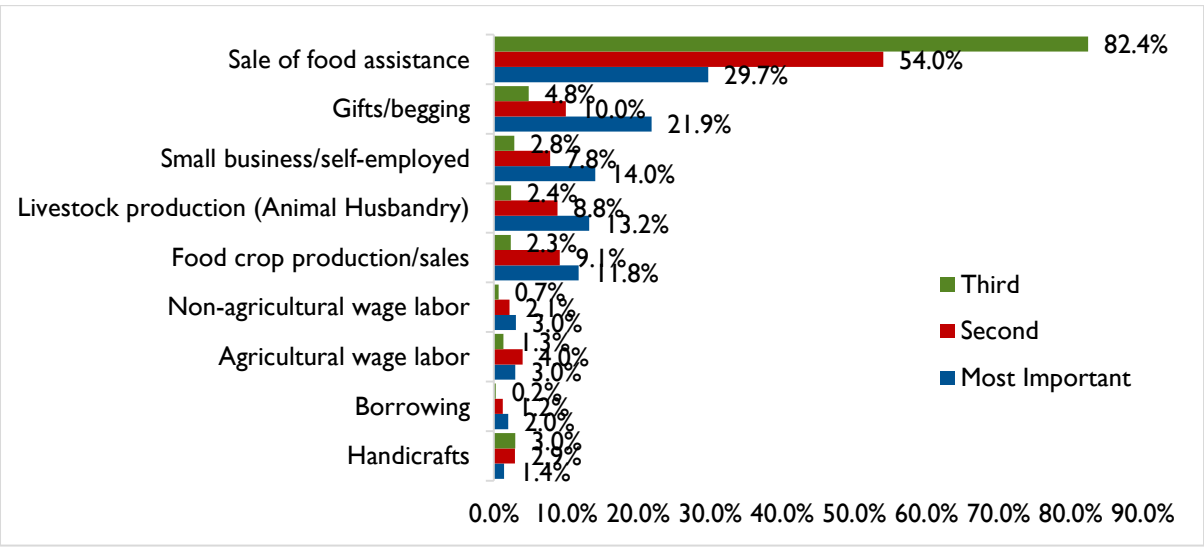

Figure 6: Livelihood Income Sources, Refugee Settlement, October 2017

Expenditures and Debt

Overall, in refugee settlements 23% of the households had loans or credit to pay back. Indebtedness is a form of protecting households and allows households to respond to some shocks. In the settlements, the highest proportions of the refugee families reported to have debts were in Rwamwanja (54.5%), Oruchinga (39.9%) and Nakivale (39.1%). The lowest proportions of households that had debts in the settlements were in Kampala (1.1%), Kiryandongo (7.4%), Adjumani (8.2%) and Palorinya (8.2%).

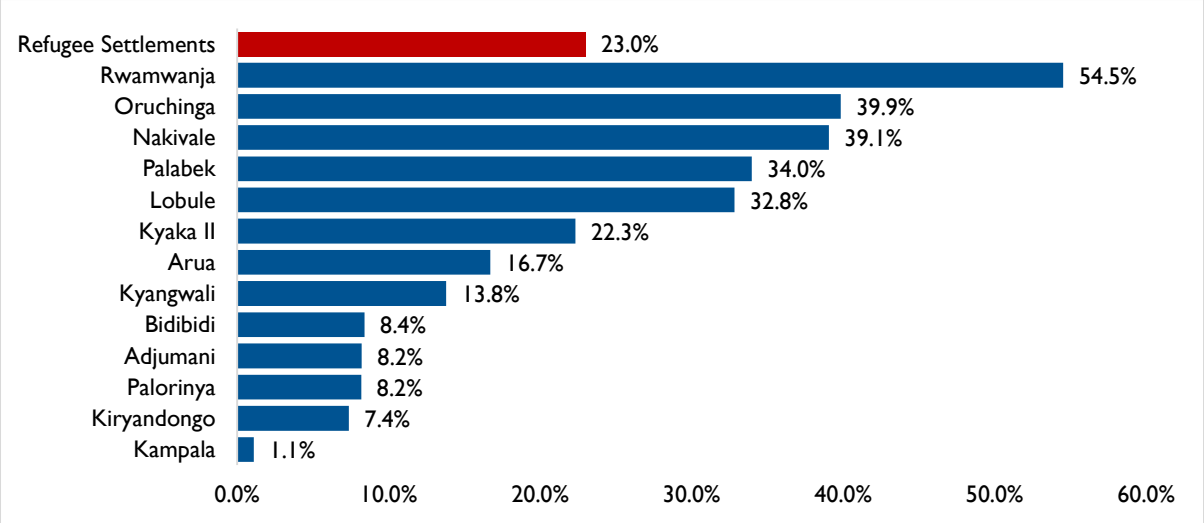

Figure 7: Showing the Proportion of Households With A Debt To Repay in Refugee Settlements, October 2017

Debt to Repay Less Than UGS 30,000.00

Findings suggested that significant proportion of households had debts less than 30,000.00 Ugandan shillings to repay back. The highest percent of household with at least 30,000.00 Ugandan shillings to repay was reported in Palabek (28.8%), Nakivale (18.6%) and Rwamwanja (16.2%).

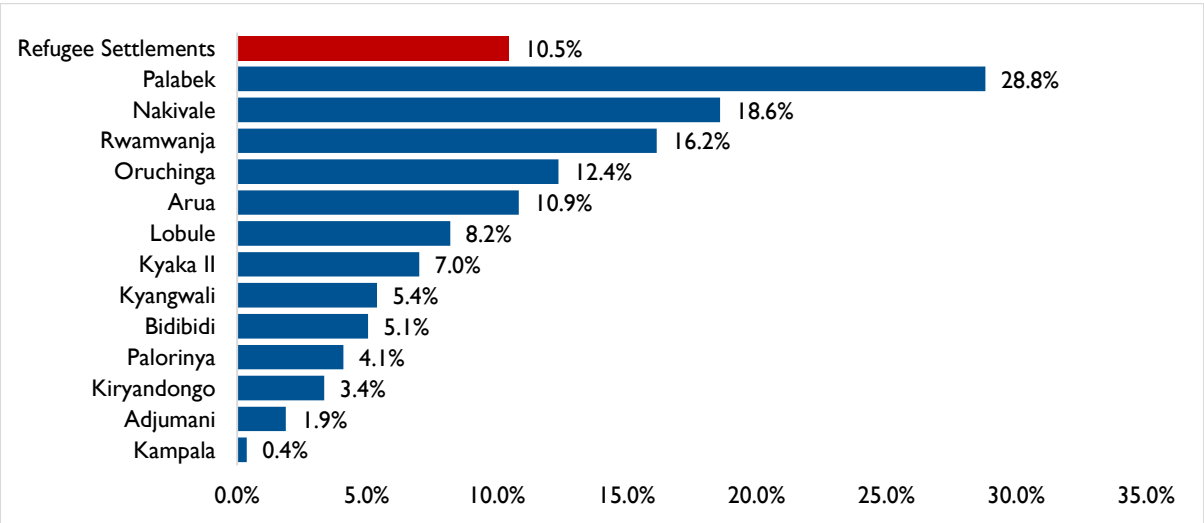

Figure 8: The Proportion of Households With Debt Less than 30,000.00 Ugandan Shillings To Repay, October 2017, Uganda

Main Source of Credit for all Debts and Loans

Overall, about 880 households reported to have taken loans or credit from various sources during the surveys in the settlements. The main source of loans and credit was from relatives where 41% of the household interviewed had taken loans or credit from their relatives. The second most important source of income was from traders and shopkeepers where 33.7% of the sampled households reported to have used this means. Financial institutions were the third most important source income where 13.5% of the households had received income from the banks and micro-credit financial institutions.

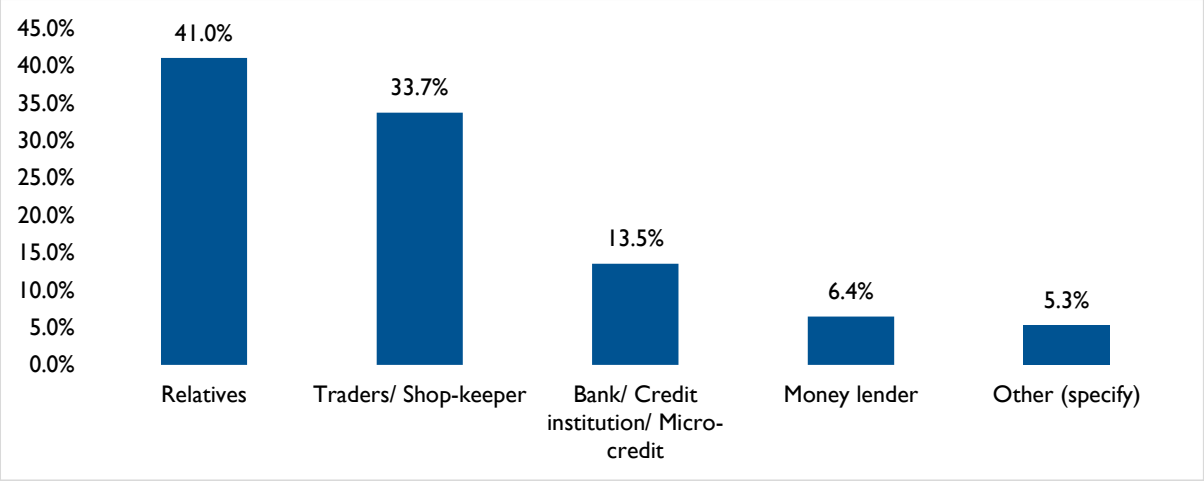

Figure 9: Main Source of Credit for All Debts and Loans in Settlements, October 2017, Uganda

Reasons for obtainging debts or credit

The main reasons for acquiring loans or credit was to buy food (55.1%), from above refugees reported to eat more frequently staples, legumes, vegetables, fruits and oil, this could be a reason for them to obtain more debts. Other reasons for obtaining debts is to cover health expenses (14.1%), to pay for school and other education related costs (12.5%). Buying for agricultural inputs (3.6%) and investing or opening of new business (2.6%).

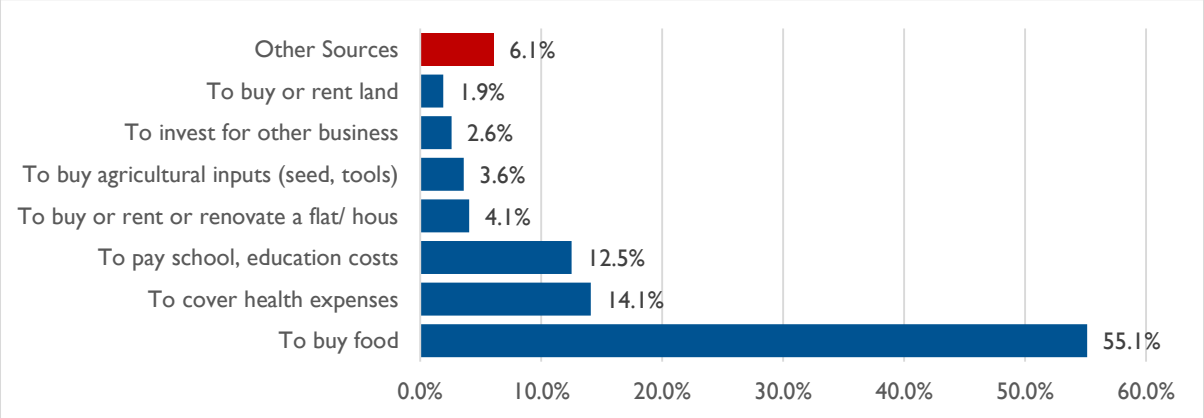

Figure 10: Showing the Main Reasons for Obtaining Debts or Credit in Settlements, October 2017, Uganda

Livestock Production

Livestock ownership is not common among refugees across the refugee settlements. With an exception of refugees in Kampala, refugees in the settlement were more likely to own poultry / chicken (47.0%) compared to other livestocks. Ownership of pigs and goats was low at 28.1% and 8.0% in different settlement. As it was the case in 2016, the refugees rarely reported cattle, donkeys and sheep. Livestock ownership is not common among refugees across the refugee settlements.

Table 50: Livestock Ownership by Type

	Cattle	Sheep	Pig	Goat	Poultry	Donkey
Kampala	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Arua	0.0%	0.0%	15.2%	0.0%	72.7%	0.0%
Rwamwanja	14.0%	3.2%	33.3%	9.7%	67.7%	1.1%
Adjumani	3.1%	0.0%	47.7%	1.5%	66.2%	0.0%
Oruchinga	3.2%	0.8%	42.7%	19.4%	48.4%	0.0%
Nakivale	11.3%	1.6%	45.2%	12.9%	61.3%	0.0%
Kiryandongo	3.2%	1.6%	30.6%	16.1%	38.7%	0.0%
Kyaka II	3.2%	1.6%	22.6%	24.2%	43.5%	0.0%
Palorinya	6.9%	3.4%	41.4%	3.4%	75.9%	0.0%
Palabek	3.6%	1.8%	28.6%	1.8%	76.8%	0.0%
Bidibidi	2.0%	2.0%	34.7%	0.0%	77.6%	0.0%
Kyangwali	2.1%	2.1%	66.0%	29.8%	76.6%	0.0%
Lobule	3.7%	14.8%	53.7%	0.0%	81.5%	0.0%
Refugee Settlements	3.7%	1.8%	28.1%	8.0%	47.0%	0.1%

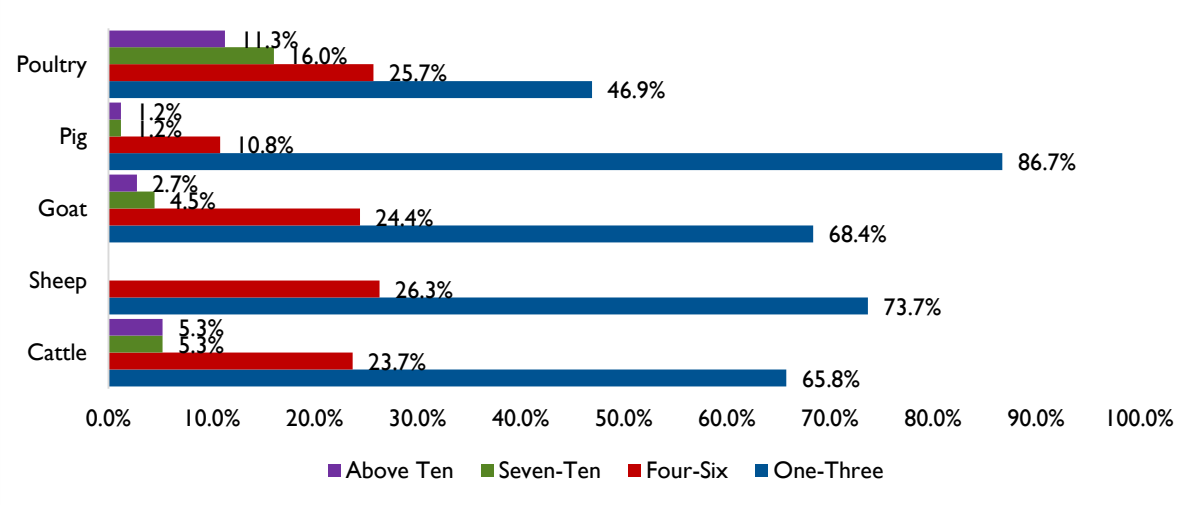

Figure 11: Showing the Proportions of Households Owning Livestock and Poultry in the Settlements, October 2017

Food Availability

Access to Agricultural Land

All settlement reported to have access to agricultural land though at different rates. On average access to agricultural land was 43.5% across the settlements. The highest access to land was reported in Palabek (82.5%). Agricultural land contributes to food security as households cultivate various food crops, which in turn when harvested and consumed are expected to improve the nutritional status of the population. Majority of households reported to have access to flat arable land for agriculture activities. Higher access to flat land was mostly reported in Palabek 100%, 99.2% Arua and 96.5% Adjumani. In Nakivale settlement (57.7%) reported to have less access to flat land for agricultural activities, however, the land refugee household accessed in acreages in Nakivale was 1.3 acreages relative larger pieces of land compared to other settlements.

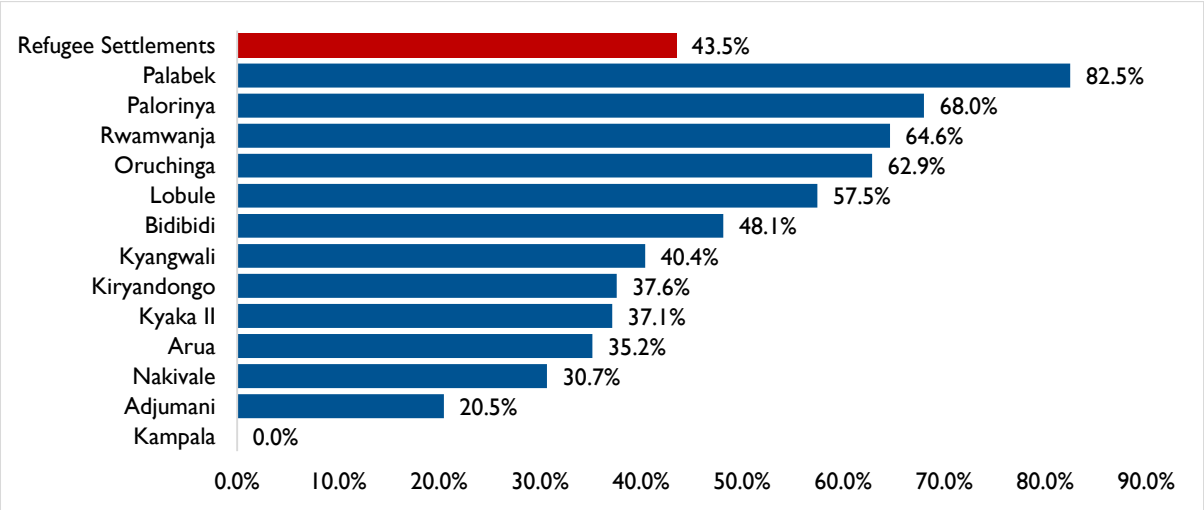

Figure 12: Refugee Households with Access to Agricultural Land – Arable Land for Cultivation, October 2017

Majority of refugee hoseuholds that reported to have accessed agriculurat land in the settlements accessed flat land for small gardens. Overall 88.2% of the refugee households confirmed to have accessed flat land. In Palabek (100%) and Palorinya (100%) refugee households reported to have accessed flat land for small gardens. Other settlements that reported higher proportions of households accessing flat land for small gardens agricurtural activities was Rhinocamp (99.2%), Bidibidi (98.6%) and Adjumani (96.5%).

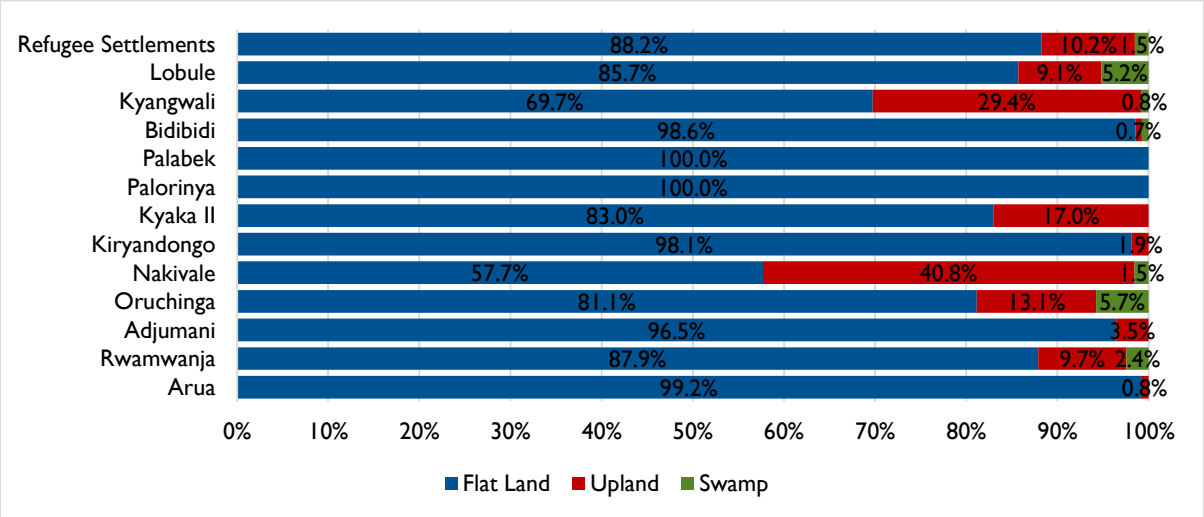

Figure 13: Type of Land Accessed by Refugee Households Across Settlements, October 2017

On average majority of the households accessed 0.6 acreas of flat land for small gardens, 1.0 acreas for upland cultivation and 0.5 acreas swamp.

Table 51: Average Land Size in Access per Refugee Household in Acreages, October 2017

	Flatland for Small Garden	Upland for Cultivation	Swamp
Nakivale	1.3	1.7	0.8
Oruchinga	1.0	0.5	0.6
Kyaka II	0.9	0.5	0.0
Kyangwali	0.8	1.1	2.0
Rwamwanja	0.7	0.4	0.1
Kiryandongo	1.0	2.0	0.0
Arua	0.3	0.1	0.0
Adjumani	0.8	0.3	0.0
Lobule	0.4	0.5	0.2
Palorinya	0.3	0.0	0.0
Palabek	0.3	0.0	0.0
Bidibidi	0.2	0.3	0.2
Refugee Settlements	0.6	1.0	0.5

Household Food Production

Production of food crops mainly concentrated on staple food in the refugee settlements; 65.6% of the refugee households that were engaged in food production produced maize, 47.5% produced beans, and 20.2% produced cassava, and 13.9% produced potatoes.

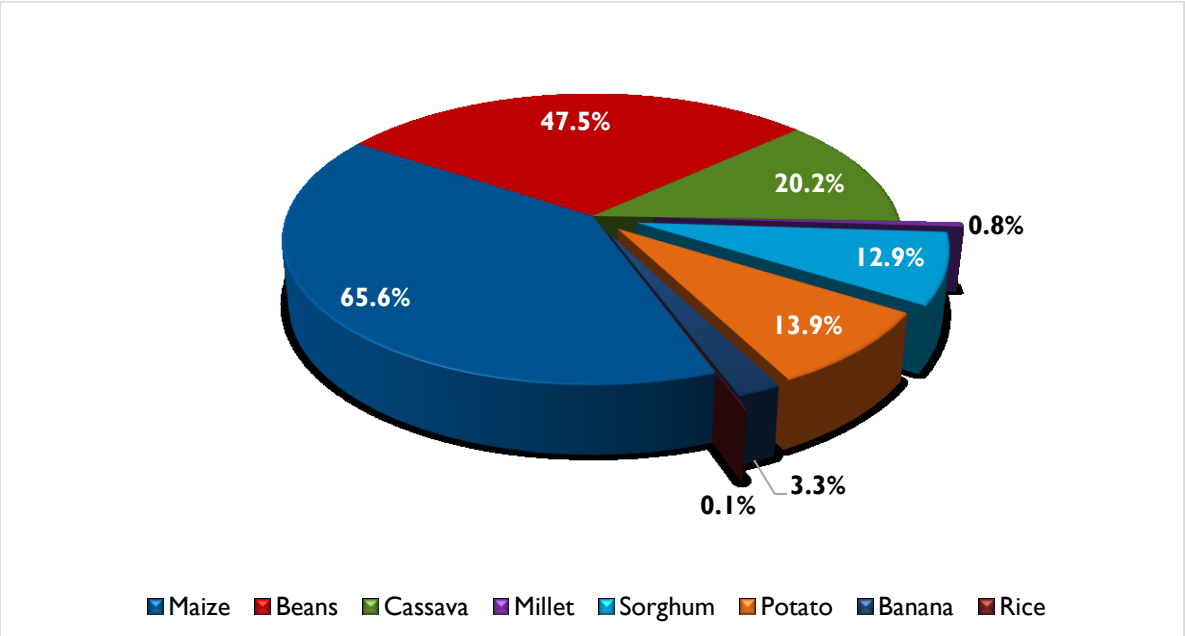

Figure 14: Showing Average Type of Crops Cultivated Last Season in Refugee Settlements, October 2017

Land Occupied by Cultivated Crops

The land that was occupied by crops cultivated last season as reported by heads of households in refugee settlements was: 94.0% sweet potatoes, 90.9% banana, 80.7% beans, 69.6% maize, 60.2%

cassava, 50% rice, 46.2% millet and 30.4% sorghum. Comparing the proportion of households that reported to produce lower yield this season and the growing needs of additional food, there is still a high production potential available in case that the production management would be optimal and inputs for food crops would be available and utilised.

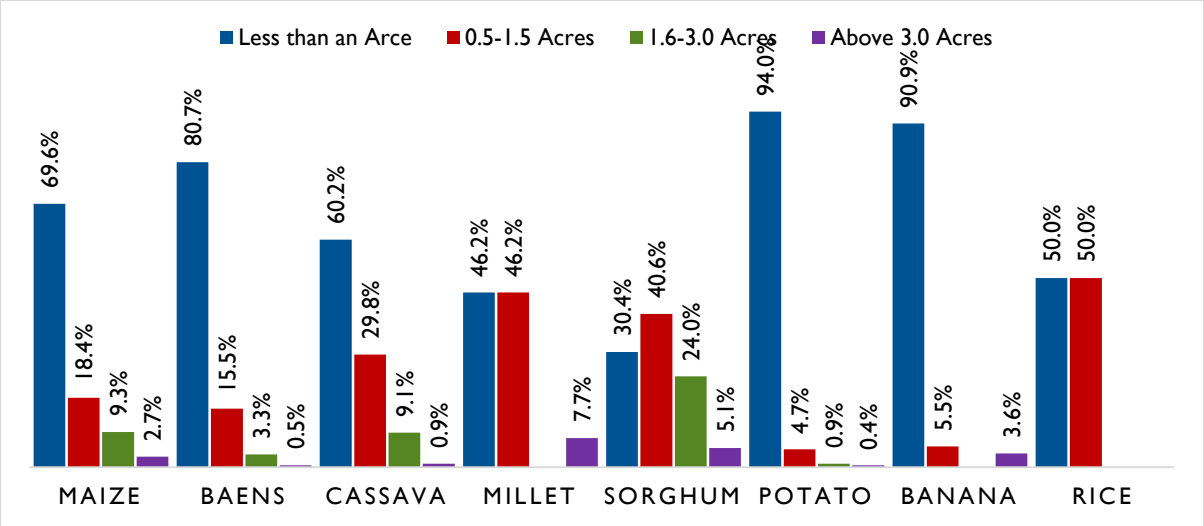

Figure 15: Showing the Land Sizes in Acreage Occupied by Crops the Previous Farming Season, October 2017

Across the refugee settlements, 35.5% of the households reported to have produced much less than the previous year; 22.2% somewhat less than last year, 13.2% somewhat greater than what they produced last year while at least 10.5% reported to have produced much greater than the previous season last year.

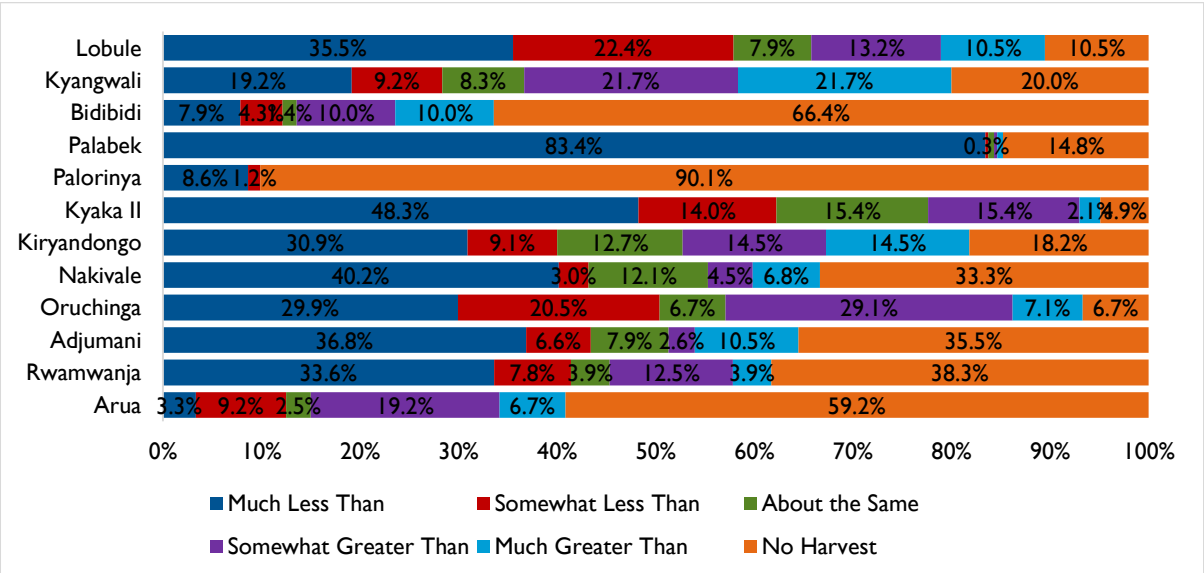

Figure 16: Refugee Households Compared Amount of Food Produced in the 2016/2017 Farming Seasons

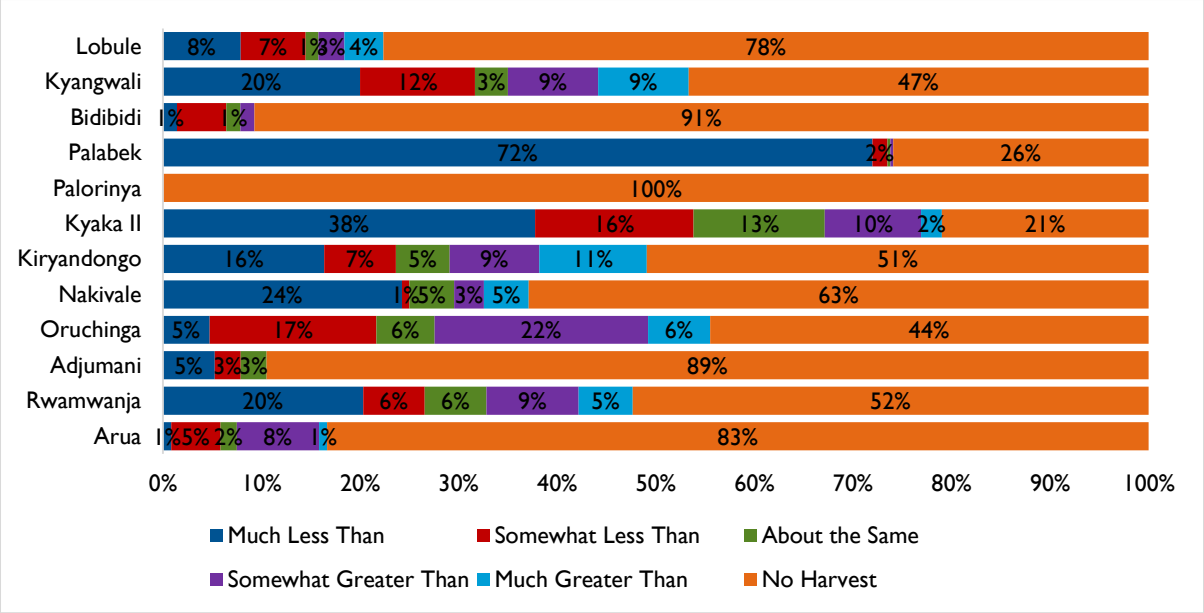

Figure 17: Refugee Households Comparing Amount of Food Sold from the Harvests of the two Seasons, October 2017

Overall, the main constraints to agriculture activities that were reported by sampled hosueholds in the past 6 months in the settlements was drought and low rainfall (36.7%) and land infertility (13.8%) was reported second. Insecurity was much more in Palabek (53.0%), while land infertility was much more acute in Bidibidi; in Arua 15.8% inadequate tools and seeds were an important constraint. The main constraint that was reported in Lobule (17.1%) was sickness or physically inability.

Table 52: Main Constraints to Agriculture in the Past 6 Months

	Refugee Settlements												Refugee Settlements
	Arua	Rwamwanja	Adjumani	Oruchinga	Nakivale	Kiryandongo	Kyaka II	Palorinya	Palabek	Bidibidi	Kyangwali	Lobule	
Insecurity	0.0%	2.3%	0.0%	2.0%	1.5%	5.5%	2.1%	1.2%	53.0%	0.0%	1.7%	0.0%	11.8%
I have been prohibited by the clan/my husband	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.2%
The land is infertile	25.8%	14.1%	5.3%	5.9%	6.1%	12.7%	16.8%	22.2%	7.5%	49.3%	3.3%	7.9%	13.8%
I have been prohibited by the government	0.0%	2.3%	0.0%	1.2%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.6%
Sickness or physically inability	0.0%	9.4%	6.6%	1.2%	4.5%	7.3%	8.4%	2.5%	1.8%	3.6%	9.2%	17.1%	4.8%
I did not have adequate seeds and tools	15.8%	3.9%	5.3%	1.6%	3.0%	5.5%	1.4%	8.6%	0.9%	8.6%	1.7%	3.9%	4.1%
I do not have sufficient family/ household labour	0.8%	0.8%	1.3%	0.0%	2.3%	3.6%	2.8%	8.6%	0.6%	0.7%	0.8%	2.6%	1.5%
Land conflicts	0.8%	3.1%	0.0%	3.1%	5.3%	0.0%	7.0%	2.5%	0.0%	4.3%	5.8%	7.9%	3.1%
Drought/Low rainfall	19.2%	43.0%	38.2%	76.8%	71.2%	9.1%	44.8%	27.2%	4.8%	10.7%	60.0%	23.7%	36.7%
Lack of household storage facilities	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Pests and Diseases	5.8%	0.0%	10.5%	0.4%	0.0%	41.8%	1.4%	6.2%	0.0%	3.6%	4.2%	9.2%	3.8%
Small land	15.0%	11.7%	19.7%	1.6%	2.3%	3.6%	2.1%	7.4%	25.6%	5.0%	1.7%	9.2%	10.1%
Too Much Rain/Floods	0.0%	0.0%	1.3%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.6%	0.4%
Other (Specify)	16.7%	7.8%	11.8%	5.9%	0.8%	10.9%	13.3%	13.6%	5.7%	13.6%	11.7%	10.5%	9.1%

Water and Sanitation

Poor water, sanitation and hygiene have serious consequences for the health and nutrition status of persons of concern to UNHCR. The main aim of this section is to determine the population's access to, and use of, improved water and sanitation and hygiene facilities. The survey teams reached the targeted sample sizes, with an exception of Lobule (86%) and Palorinya (89%), while some settlements were able to collect the required samples few susperssed the target.

Table 53: WASH Sampling Information, Refugee Settlements, Uganda, October 2017

Settlement	Planned	Actual	% of Target
Nakivale	223	430	192.8%
Oruchinga	206	404	196.1%
Kyaka II	160	385	240.6%
Kyangwali	137	297	216.8%
Rwamwanja	191	198	103.7%
Kiryandongo	120	149	124.2%
Arua	176	341	193.6%
Adjumani	220	425	193.2%
Lobule	155	134	86.5%
Kampala	153	270	176.5%
Palorinya	137	122	89.1%
Palabek	214	406	189.7%
Bidibidi	173	297	171.7%

Acess To Safe Drinking Water

The refugee programme in Uganda endeavours to provide safe water and adequate sanitation facilities and hygiene services in the settlements. Creation of demand and provisions of supplies for the sector services during the implementation is through the sector wide WASH stakeholders. During the assessment, households were asked about their WASH services; ownership, utilization and satisfaction with the view to establish its coverage. The findings indicated that the proportion of households using an improved drinking water source was low in Arua (61%), Kiryandongo 75.2% and Kampala (78.5%). All refugee households interviewed in Lobule and Palorinya reported suing improved drinking water sources. The proportion of households that use a covered or narrow necked container for storing their drinking water was reported highest in Kampala (81.1%) and Palabek (76.6%) whereas the rest of the settlements had less than 50%. The settlements, which had the lowest use of covered or narrow necked container for storing their drinking water, were Kyaka II (14.0%, Nakivale (19.1%), and Kyangwali (21.2%).

Table 54: Water Quality, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of households using an improved drinking water source	Proportion of households that use a covered or narrow necked container for storing their drinking water
Nakivale(n=430)	87.2% (83.7-90.1)	19.1% (15.6-23.1)
Oruchinga(n=404)	88.4% (84.9-91.2)	45.8% (41.0-50.7)
Kyaka II(n=385)	84.4% (80.4-87.7)	14.0% (10.9-17.9)
Kyangwali(n=297)	86.2% (81.8-89.7)	21.2% (16.9-26.2)
Rwamwanja(n=198)	100%	37.9% (31.4-44.8)
Kiryandongo(n=149)	75.2% (67.6-81.5)	31.5% (24.6-39.5)
Arua(n=341)	61% (55.7-66.0)	43.1% (37.9-48.4)
Adjumani(n=425)	91.1% (87.9-93.4)	40.5% (35.9-45.2)
Lobule(n=134)	100%	48.5% (40.1-57.0)
Kampala(n=270)	78.5% (73.2-83.0)	81.1% (76.0-85.4)
Palorinya(n=122)	100%	48.4% (39.6-57.2)
Palabek(n=406)	97.5% (95.5-98.7)	76.6% (72.2-80.5)
Bidibidi(n=297)	83.5% (78.8-87.3)	34.7% (29.5-40.3)

On average 50.4% of the households interviewed reports that were satisfied with the water supply in their settlements. 16.1% were partially satisfied.

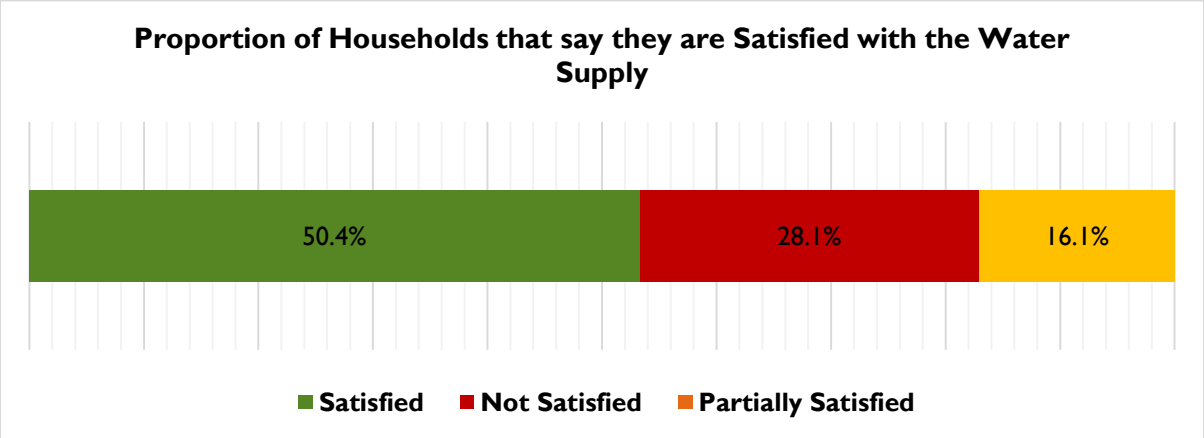

Figure 18: Showing the Proportions of Refugee Households that Say Were Satisfied with the Water Supply, October 2017, Uganda

28.1% were not satisified and the main reasons for not satisfied were; bad quality of water (19.5%), not enough water quantity (19.1%), irregular supply of water (17.7%) and long distance to the water siurce (13.3%).

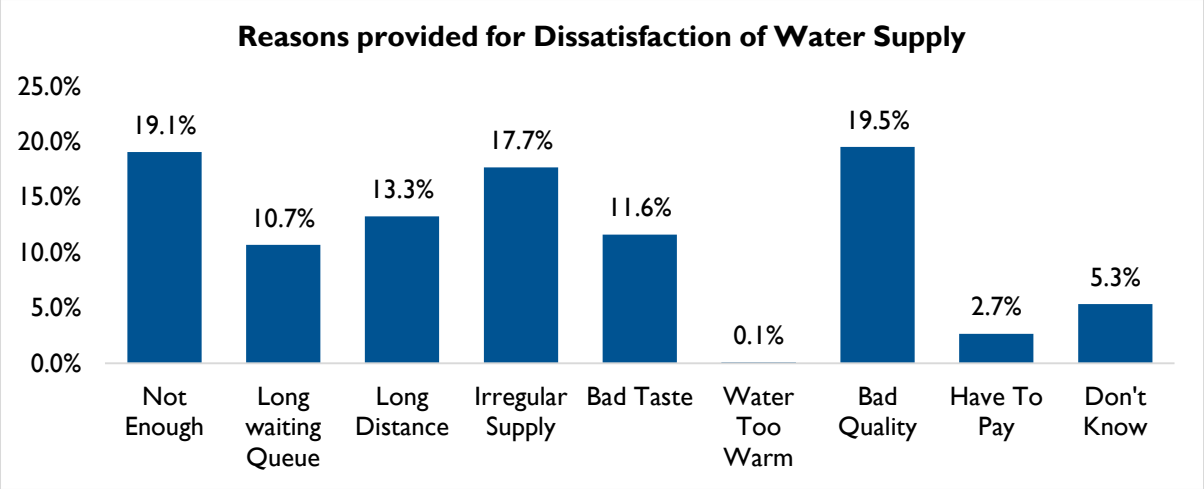

Figure 19: Showing the Main Reasons for Not being Satisfied with the Water Supply, Refugee Households October 2017, Uganda

Access to safe drinking water supply in the settlements continues to be a challenge, despite ongoing efforts by the humanitarian response at improving coverage. During the emergency response in West Nile the level of investment in water had increased, it was hoped that access to adequate, safe and clean water would also increase. The assessment looked into water ulitilizations whereby the share of refugees that uses at least ≥ 20 litres of water per person per day was mostly below 50% to most of the settlements. For example; households reported to use ≥ 20 litres of water per person per day were; Kyaka II (20%), Bidibidi (23.6%), Adjumani (25.9%) and Kyangwali (26.9%).

Two locations that reported using more than 20 litres of water per person per day were Palabek (68.2%) and Kampala (59.6%). High proportions of the refugee population were found using less than 15 litres of water per person per day, this was more apparent in 6 refugee settlements, namely; Kyaka II (74.0%), Adjumani (64.7%), Bidibidi (64.6%), Kyangwali (64.6%), Arua (57.0%), Nakivale (57.0%) and Rwamwanja (55.6%). The Humanitarian response in the WASH sector was challenged by increased demand for adequate, safe and clean water by refugee population, which supersede 1.3 million refigees. Water trucking, dirlling of new boreholes and maintaining of the overused old boreholes were the main challenges the sector encountered, this was more apparent in new refugee settlements.

Table 55: Water Quantity, Amount of Litres of Water Used Per Person Per Day, Refugee Settlements, Uganda, October 2017

Proportion of households that use:			
Settlement	**≥ 20 lpppd**	**15 – <20 lpppd**	**<15 lpppd**
Nakivale(n=430)	29.1% (25.0-33.5)	14.0% (11.0-17.6)	57.0% (52.2-61.6)
Oruchinga(n=404)	41.6% (36.9-46.46)	12.1% (9.3-15.7)	46.3% (41.5-51.2)
Kyaka II(n=385)	20% (16.3-24.3)	6.0% (4.0-8.8)	74.0% (69.4-78.2)
Kyangwali(n=297)	26.9% (22.2-32.3)	8.4% (5.7-12.2)	64.6% (59.0-69.9)
Rwamwanja(n=198)	32.8% (26.6-39.7)	11.6% (7.8-16.9)	55.6% (48.6-62.3)
Kiryandongo(n=149)	40.3% (32.7-48.4)	15.4% (10.5-22.2)	44.3% (36.5-52.4)
Arua(n=341)	37.0% (32.0-42.2)	6.2% (4.0-9.3)	57.0% (51.6-62.1)
Adjumani(n=425)	25.9% (21.9-30.3)	9.4% (7.0-12.6)	64.7% (60.0-69.1)
Lobule(n=134)	38.1% (30.2-46.6)	13.4% (8.6-20.3)	48.5% (40.1-57.0)
Kampala(n=270)	59.6% (53.7-65.3)	11.5% (8.2-15.9)	28.9% (23.8-34.6)
Palorinya(n=122)	37.7% (29.5-46.6)	14.8% (9.5-22.2)	47.5% (38.8-56.4)
Palabek(n=406)	68.2% (63.5-72.6)	14.0% (11.0-17.8)	17.7% (14.3-21.8)
Bidibidi(n=297)	23.6% (19.1-28.7)	11.8% (8.6-16.0)	64.6% (59.0-69.9)

The main reason for not satisfied refgee household mentioned was water was: bad quality (19.5%), not enough (19.1%) and irregular supply (17.7%) and long distance (13.3%) was the fourth mostimportant reason for not satisfied with the water supply in settlements.

Table 56: Satisfaction With Water Supply, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of households that say they are satisfied with the drinking water supply
Nakivale(n=430)	26.3% (22.3-30.7)
Oruchinga(n=404)	82.9% (78.9-86.3)
Kyaka II(n=385)	48.8% (43.9-53.8)
Kyangwali(n=297)	43.4% (37.9-49.1)
Rwamwanja(n=198)	77.3% (70.9-82.6)
Kiryandongo(n=149)	18.8% (13.3-25.9)
Arua(n=341)	34.0% (29.2-39.2)
Adjumani(n=425)	42.1% (37.5-46.9)
Lobule(n=134)	62.7% (54.2-70.5)
Kampala(n=270)	61.1% (55.2-66.8)
Palorinya(n=122)	58.2% (49.2-66.6)
Palabek(n=406)	74.6% (70.2-78.6)
Bidibidi(n=297)	27.6% (22.8-33.0)

Household Safe Disposal of Human Excreta: Latrine Coverage and Ownership

Safe disposal of human excreta is an essential factor to break the chain of disease transmission. Proper disposal of human faeces ensure that the environment is not contaminated. Regardless of method, the safe disposal of human faeces is one of the principal ways of breaking the faecal–oral disease transmission cycle. This study endervored to investigate if refugees were living in a safe and clean environment; in order to understand this situation; refugee households were asked about owning and using toilet facility in disposing their droppings. The findings varied from each settlement: Refugee households in Oruchinga (81.2%) had the higher coverage of household that reported owning and using a latrine without sharing with another family. In the rest of the settlements, less than 50% of the households owned and used latrines, which were not shared by another household. Refugee households in Kampala (47.4%) reported to use communal latrines.

Owning and use of unimproved toilet or public toilets was very high in the following settlements Kyaka II (73%), Bidibdi (70.4%), Kiryandongo (67.8%) and Rwamwanja (60.1%). The higher coverage of unimproved toilets increases the risk of morbidity and mortality, especially in protracted and new refugee settlements where toilets facilities are necessary. The persistence of the low coverage of improved toilets (1 households and shared by 2 households) in the refugee settlements may have other underlying factors. The following factors needs to be looked at (a) convenience of water access for using in the toilet where anal cleansing with water is practiced after using the toilet. (b) Significant refugee households even in older settlements have no toilets (c) How much open defecation is happening this could be more important in new settlements though even in old settlements with low household latrines that are not shared; (d) Functionality of the toilet facility must be adequate, acceptable, and appealing to users for correct and consistent usage to occur.

Table 57: Safe Excreta Disposal, Refugee Settlements, Uganda, October 2017

	Proportion of Households That Use			
Settlement	**Improved toilet facility, 1 household**	**Improved toilet facility, 2 households**	**Communal improved toilet facility, 3 households or more**	**An unimproved toilet or Public toilet**
Nakivale(n=430)	51.6% (46.9-56.3)	4.0% (2.5-6.3)	2.6% (1.4-4.6)	41.9% (37.3-46.6)
Oruchinga(n=404)	81.2% (77.1-84.7)	5.9% (4.0-8.7)	4.2% (2.6-6.7)	8.7% (6.3-11.8)
Kyaka II(n=385)	19.0% (15.3-23.2)	5.2% (3.4-7.9)	2.6% (1.4-4.8)	73.2% (68.6-77.4)
Kyangwali(n=297)	50.2% (44.5-55.8)	0% (0-0)	0% (0-0)	49.8% (44.2-55.5)
Rwamwanja(n=198)	37.9% (31.4-44.8)	0% (0-0)	2.0%(0.8-5.3)	60.1% (53.1-66.7)
Kiryandongo(n=149)	28.2% (21.5-36.0)	2.7% (1.0-7.0)	1.3% (0.3-5.2)	67.8% (59.8-74.8)
Arua(n=341)	33.7% (28.9-38.9)	8.5% (6.0-12.0)	8.8% (6.2-12.3)	49.0% (43.7-54.3)
Adjumani(n=425)	42.4% (37.7-47.1)	6.8% (4.8-9.7)	1.2% (0.5-2.8)	49.6% (44.9-54.4)
Lobule(n=134)	39.6% (31.6-48.1)	9.7% (5.7-16.0)	3.0% (1.1-7.7)	47.8% (39.4-56.2)
Kampala(n=270)	37.8% (32.2-43.7)	7.0% (4.5-10.8)	47.4% (41.5-53.4)	7.8% (5.1-11.6)
Palorinya(n=122)	42.6% (34.1-51.6)	2.5% (0.8-7.4)	4.9% (2.2-10.5)	50% (41.2-58.8)
Palabek(n=406)	43.3% (38.6-48.2)	3.9% (2.4-6.3)	20.4% (16.8-24.7)	32.3% (27.9-37.0)
Bidibidi(n=297)	22.9% (18.5-28.0)	5.1% (3.1-8.2)	1.7% (0.7-4.0)	70.4% (64.9-75.3)

Faeces of children below 3 years of age are less likely to be safely disposed off than ththat of adults. Safe disposal of children faeces in the toilet is critical for achieving sanitary conditions given that pathogens related to diarrhoea are likely to be produced by the young and ill. The findings indicate that the households with children under three years old that dispose of faeces safely were very high; it ranged from 87.5% in Kiryandongo to 95.5% in Palorinya. However, this did not augur well with the low coverage of improved household toilets in the settlements.

Table 58: Proportion of Households With Children Under Three Years Old that Dispose Off Faeces Safely, Refugee Settlements, Uganda, October 2017

Settlement	% 95 C.I.
Nakivale(n=430)	95.0% (91.2-97.1)
Oruchinga(n=404)	98.3% (94.9-99.5)
Kyaka II(n=385)	89.1% (82.7-93.4)
Kyangwali(n=297)	94.0% (86.4-97.5)
Rwamwanja(n=198)	91.6% (86.1-95.1)
Kiryandongo(n=149)	87.5% (78.2-93.2)
Arua(n=341)	93.1% (87.6-96.3)
Adjumani(n=425)	98.4% (95.2-99.5)
Lobule(n=134)	92.1% (77.9-97.5)
Kampala(n=270)	90.1% (83.9-94.0)
Palorinya(n=122)	95.5% (88.4-98.3)
Palabek(n=406)	93.5% (89.8-95.9)
Bidibidi(n=297)	96.9% (92.8-98.7)

The main method of disposing stools of children below 3 years was to put or rinse in latrines (79.5%) this was followed by burying the stools (8.2%) and about 6.2% of the children used latrines.

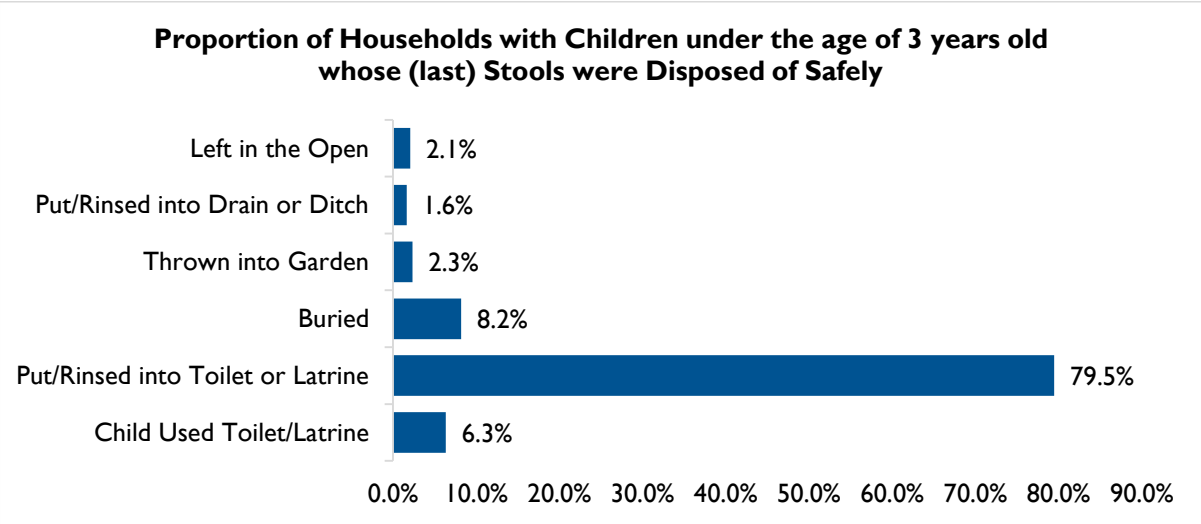

Figure 20: Showing Households With Children < 3 Years Old whose (Last) Stools were Disposed Safely, Refugee Settlements, October 2017

Mosquito Net Coverage

Malaria is endemic in most of the districts hosting refugees with year-round transmission of malaria. The most common parasite species is Plasmodium falciparum. In the settlements, malaria is the leading cause of morbidity and mortality. Overall, there have been 601,015 cases of malaria both suspected (124,213) and confirmed (476,802) in the settlements from January to October 2017. Due to the wide spread of malaria almost all 1.3 million refugees in Uganda are at risk of malaria. Children under age 5 and pregnant women are the groups most vulnerable to illness and death from malaria infection in the settlements. With exceptions of Palorinya (89.1%) and Lobule (86.5%), the rest of the settlement sampled closer to two times the required samples (Table 59).

Table 59: Mosquito Net Coverage Sampling Information, Refugee Settlements, Uganda, October 2017

Total Households Surveyed for Mosquito Net Coverage			
Settlement	**Planned**	**Actual**	**% of Target**
Nakivale	223	430	192.8%
Oruchinga	206	404	196.1%
Kyaka II	160	385	240.6%
Kyangwali	137	297	216.8%
Rwamwanja	191	198	103.7%
Kiryandongo	120	149	124.2%
Arua	176	341	193.6%
Adjumani	220	425	193.2%
Lobule	155	134	86.5%
Kampala	153	270	176.5%
Palorinya	137	122	89.1%
Palabek	214	406	189.7%
Bidibidi	173	297	171.7%

Mosquito Net Ownership

Households were asked whether own a mosquito net and, the number of owned mosquito nets were established shows the percentage of households with any mosquito net, and long-lasting insecticidal net, by settlements. Possession of LLITNs among surveyed households, measures access to effective personal protection from malaria parasite-carrying mosquitoes. Approximately, 97% of the households interviewed in Palabek settlement owned at least one mosquito net, this was the highest coverage across the settlements. This was followed by Oruchinga (84.9%), Palorinya (78.7%) and Rwamwanja (65.7%) settlements. Households in Kyaka II (14.8%) and Kyangwali (17.5%) had the lowest proportion of owning at least one mosquito net. Impressively the ownership of Long Lasting Insecticide Treated (LLINT) mosquito net was very high in Oruchinga (84.7%), almost at the same rate of mosquito net of any type. The same situation was also found in Palorinya (66.4%) and Palabek (65.0%).

The higher the proportion of total households owning at least one LLINT in the settlements it implies that more households would be sleeping under LLINT type of mosquito net. Ownership of LLINT was very low in Kyaka II (9.6%) and Kyangwali (11.8%) settlements. The refugees receive free new LLINT as they are part of the MoH efforts to achieve universal ownership of LLINs within a population. Evidence suggests that when large numbers of people use LLINs to protect themselves while sleeping, the burden of malaria can be reduced, resulting in a reduction

in child mortality among other benefits.

Table 60: Household Mosquito Net Ownership, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of total households owning at least one mosquito net of any type	Proportion of total households owning at least one LLINT
Nakivale(n=430)	46.3% (41.5-51.1)	34.9% (30.5-39.5)
Oruchinga(n=404)	84.9% (81.0-88.2)	84.7% (80.8-87.9)
Kyaka II(n=385)	14.8% (11.4-18.8)	9.6% (7.0-13.0)
Kyangwali(n=297)	17.5% (13.4-22.3)	11.8% (8.6-16.0)
Rwamwanja(n=198)	65.7% (58.6-72.2)	44.4% (37.7-51.4)
Kiryandongo(n=149)	32.2% (24.8-40.4)	26.2% (19.7-33.8)
Arua(n=341)	38.1% (32.9-43.5)	26.4% (22.0-31.3)
Adjumani(n=425)	35.8% (31.2-40.5)	21.9% (18.2-26.1)
Lobule(n=134)	32.1% (24.3-40.7)	23.9% (16.9-32.0)
Kampala(n=270)	50.7% (44.6-56.8)	24.4% (19.7-30.0)
Palorinya(n=122)	78.7% (70.4-85.6)	63.1% (54.2-71.2)
Palabek(n=406)	96.6% (94.3-98.1)	64.5% (59.7-69.0)
Bidibidi(n=297)	60.6% (54.8-66.2)	37.0% (31.7-42.7)

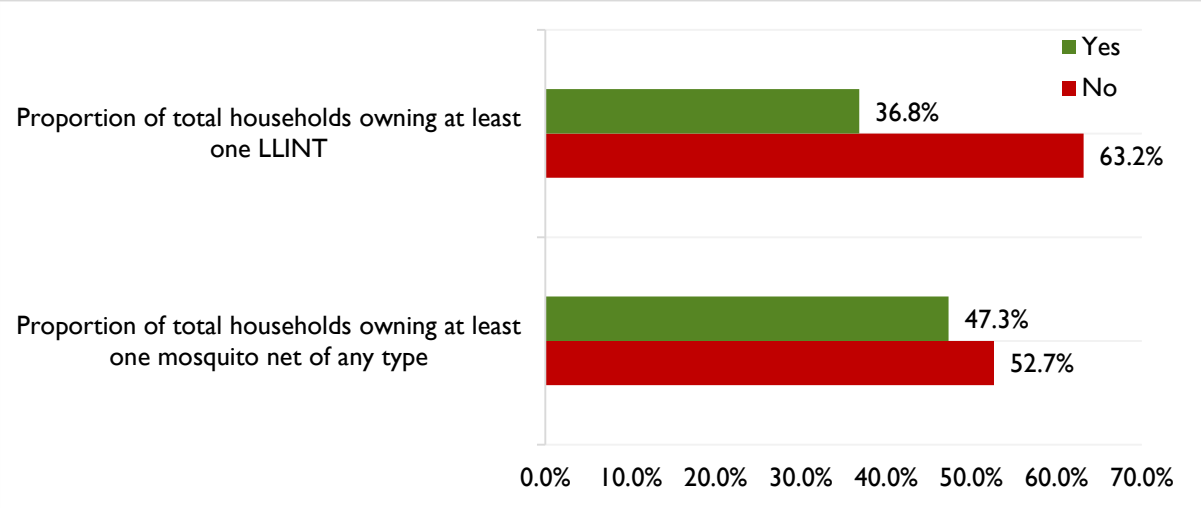

Figure 21: Showing Households Owning At Least One LLINT and Mosquito Net Of Any Type, Refugee Settlements, October 2017

Number of Mosquito Net Owned by Households

The average number of LLINTs per household in the settlements ranged from 1.4 in Kyaka II to 2.6 in Bidibidi. The majority of mosquito nets in the settlements are expected to be LLINs. In each settlement, there was at least one net for more than two persons who stayed in the household the night before the survey. Settlements that had higher number of people per LLINT were Lobule (4.6%) and Arua (4.2%) where about 4 people were expected to use LLINT.

Table 61: Number of Nets, Refugee Settlements, Uganda, October 2017

Settlement	Average number of LLINTs per household	Average number of persons per LLINT
Nakivale	1.6	3.7
Oruchinga	1.8	2.4
Kyaka II	1.4	3.7
Kyangwali	1.6	3.4
Rwamwanja	1.5	3.6
Kiryandongo	2.2	2.9
Arua	2.5	4.2
Adjumani	2.4	3.1
Lobule	1.7	4.6
Kampala	1.8	3.7
Palorinya	2.3	3.4
Palabek	1.9	2.8
Bidibidi	2.6	3.7

Slept Under Net of Any Type

On the night that superseded the assessment, Palabek settlement (87.1%) had the highest proportion of household's members that had slept under mosquito net of any type. Palorinya (83.5%) and Oruchinga (81.3%) followed this. The proportion of children 0-59 months that had slept under mosquito net of any type was recorded highest in Palabek (94.5%), Palorinya (91.6%), Oruchinga (85.8%) and Bidibidi (84.8%). The proportion of pregnant women slept under mosquito net of any type was also recorded high in the above three settlements; Palabek (97.8%), Bidibidi (93.5%), Palorinya (86.5%) and Oruchinga (84.0%).

Proportion of total population that slept under mosquito net of any type was recorded very low in Kyangwali settlement (17.3%) and Kyaka II (20.8%). Similarly, the proportion of children 0-59 months who slept under mosquito net of any type was low in the Kyangwali settlement (21.1%) and Kyaka II (22.7%). It is expected that proportions of population, children and pregnant women sleeping under mosquito net of any type reduce with increasing coverage of LLINTs. Refugee settlements in close coordination with the National Malaria Control Programme distribute long-lasting insecticidal nets (LLINs) through universal coverage campaigns in the settlements. Targeted distribution of LLINT to specific categories such pregnant women also takes place in the maternal child health programmes. Households are considered to be covered if they own at least one LLITN.

Oruchinga had the highest rates of people slept under LLINT across the settlements. The highest proportion of total population (all ages) that had slept under the LLINT was recorded in Oruchinga (80.4%); the proportion of children 0-59 months who slept under LLINT at night before the survey was 85.4% and the proportion of pregnant women was 82.0%. Palorinya (80.0%) had the second highest proportion of pregnant women who slept under LLINT the previous night superseded the survey. The second highest proportion of less than 5 children who slept under LLITN was recorded in Palorinya (71.3%). From January to October 2017, malaria incidence (suspected) among children below 5 years was reported at 16.8% and among adults was 11.6% with total cases 38,288 under 5 years and 124,213 adults respectively. Similarly, the incidence of malaria (confirmed) among children below 5 years was 67.5% while that of all ages was 44.5%; with total under 5 years recorded at 153,751 whereas that of all ages was 476,802. The percentage of pregnant women who received IPTp was 89.0% across the settlements.

Table 62: Slept Under Net Of Any Type, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No	%	Total No	%	Total No	%
Nakivale	2023	35.3%	375	47.7%	43	67.4%
Oruchinga	1579	81.3%	323	85.8%	50	84.0%
Kyaka II	1101	20.8%	309	22.7%	38	34.2%
Kyangwali	944	17.3%	190	21.1%	27	62.9%
Rwamwanja	1009	38.9%	256	43.8%	26	61.5%
Kiryandongo	637	33.4%	159	39.6%	14	64.3%
Arua	1335	58.1%	248	68.5%	21	76.2%
Adjumani	1395	53.8%	276	64.5%	22	68.8%
Lobule	430	45.6%	56	58.9%	6	50.0%
Kampala	1303	37.7%	255	55.7%	21	57.1%
Palorinya	672	83.5%	167	91.6%	15	86.7%
Palabek	2078	87.1%	434	94.5%	46	97.8%
Bidibidi	1504	74.8%	309	84.8	31	93.5%

Table 63: Slept Under LLINT, Refugee Settlements, Uganda, October 2017

Settlement	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No	%	Total No	%	Total No	%
Nakivale	2023	24.0%	375	36.8%	43	55.8%
Oruchinga	1579	80.4%	323	85.4%	50	82.0%
Kyaka II	1101	13.3%	309	13.9%	38	21.1%
Kyangwali	944	11.8%	190	14.7%	27	55.6%
Rwamwanja	1009	31.4%	256	37.5%	26	57.7%
Kiryandongo	637	27.3%	159	32.7%	14	35.7%
Arua	1335	38.7%	248	50.4%	21	47.6%
Adjumani	1395	39.7%	276	49.6%	32	46.9%
Lobule	430	30.9%	56	53.6%	6	50.0%
Kampala	1303	19.5%	255	15.2%	21	9.5%
Palorinya	672	65.3%	167	71.3%	15	80.0%
Palabek	2078	52.7%	434	56.9%	46	50.0%
Bidibidi	1504	42.6%	309	46.3%	31	70.9%

Retrospective Mortality

Table 64: Mortality Assessment in the Past 90 Days, Refugee Settlements, Uganda, October 2017

	Current HH members – total	Current HH members - < 5	Current HH members who arrived during recall (exclude births)	Current HH members who arrived during recall - <5	Past HH members who left during recall (exclude deaths)	Past HH members who left during recall - < 5	Births during recall	Total deaths	Deaths < 5	CMR [Death/ 10,000 people/day]	U5MR [death in under five children/10,000 /day]
Kampala	1418	279	174	68	31	12	34	59	19	4.8(3.8-6.2)	8.7(5.6-13.2)
Arua	2907	571	532	87	645	138	79	18	6	0.7(0.4-1.1)	1.2(0.6-2.6)
Rwamwanja	1053	277	87	10	18	14	16	4	10	0.4(0.2-1.1)	4.0(2.2-7.3)
Adjumani	2889	611	547	87	118	30	82	4	8	0.2(0.0-0.4)	1.6(0.8-3.2)
Oruchinga	1632	346	17	2	15	2	10	2	10	0.1 (0.04-0.50)	3.2(1.8-5.8)
Nakivale	2113	445	49	18	32	2	32	19	2	1 (0.7-1.6)	0.53(1.8-5.8)
Kiryandongo	1033	224	83	19	55	10	32	3	0	0.3(0.1-1.0)	0.0(0.0-2.1)
KyakaII	2018	527	121	22	66	11	18	15	4	0.8(0.5-1.4)	0.9(0.3-2.2)
Palorinya	785	190	7	10	7	3	11	0	0	0.0(0.0-0.5)	0.0(0.0-2.3)
Palabek	2322	489	369	286	75	37	16	8	14	0.4(0.2-0.8)	4.3(2.6-7.1)
Bidibidi	2624	548	241	39	201	29	26	7	3	0.3(0.2-0.6)	0.6(0.2-1.8)
Kyangwali	1767	386	143	47	82	14	2	14	16	1.0(0.5-1.5)	4.7(2.9-7.6)
Lobule	898	158	70	16	137	26	12	4	1	0.5(0.2-1.2)	0.7(0.1-3.9)

The perceptions of refugees about mortality were highest in Kampala even challenging the agreed standard under emergency. The repored crude mortality rate was 4.8 deaths / 10,000 popualtion / day while the under 5 years mortality rate was even very high at 8.7 deaths/ 10,000 populations / day. Higher rates among under 5 years mortality rates were reported in Rwamwanja 4.0 deaths / 10,000 population / 1 day; Palabke 4.3 deaths / 10,000 population / day, 4.7 deaths / 10,000 population / day.

CONCLUSION AND RECOMMENDATIONS

The results obtained broadly agree with previous assessments conducted in settlements where children are malnourished and anaemic. A holistic approach is important in addressing the key universal determinant of malnutrition, which is undoubtedly inadequate livelihood opportunities, the most problem of the settlements today.

However, to have sustainable livelihood interventions that will improve food security and nutrition of the communities in the settlements, the order of programmes designs, resource allocations and its implementation plans need to be reviewed.
Adequate provisions of basic needs are another key element that will contribute in reversing the higher prevelance of GAM in West Nile and anaemia in all settlements. Universal coverage long lasting treated insecticide mosquito nets is critical in the settlements, the current partial coverage of LLITN has proved to be not beneficial as incidence of malaria have remained high among children and adults in the settlements.

The available IYCF programme in the settlements is not fully utilized by the refugees owing to inadequate knowledge by refugees on IYCF. Social behavioural communication change have to be incooperated in the interventions related to IYCF and to roll out the UNHCR multi-sectoral IYCF friendly framework actions

A set of strategies were identified within the Mult-sectoral programme whose implementation would lead to the achievement of planned targets, including:

Immediate

- To strengthen the delivery of quality nutrition programme in the settlements through advance training of health and nutrition workers of new innovations in the emergency nutrition sector; this includes; the use of nutrition products; nutrition surveillance, monitoring and reporting; management of severe acute malnutrition at stabilization centers and at community level.
- MoH, WHO, UNHCR, WFP and UNICEF should systematically provide joint supervision and monitoring of the nutrition programme; findings should be technically analysed and presented for discussions and feedback to the relevant stakeholders.
- Since the causes of malnutrition and anaemia are multifactorial, it is imperative that the communiation, coordination, and linkages of nutrition programem with other services reproductive health, HIV and Tuberculosis, prevention and curative health care, water, sanitation and hyigiene livelihood, food security and protection are systematically initiated and or strenghted.
- Since the number of partners implementing the nutrition programme in the settlements and districts hosting refugees continue increasing due to the fact that three UN sister agencies (UNHCR, UNICEF and WFP) continue signing different partners to implement only parts of the nutrition programmes; and also the presence of the operational partners which have their own funding; a coordinated approach is required so that nutrition programs are implemented under one partner in one geographical location (one programme partnership agreement will improve budgeting, supervisions and monitoring and repording). UNHCR, UNICEF and WFP should explore a better way to manage the nutrition programme.
- To consider nutritional screening based on MUAC, Oedema, and WHZ among children U5, and MUAC among PLW at reception centres /provision of treatment for SAM and MAM,

and support IYCF practices. By using WHZ among new arrivals more SAM and MAM cases will be identified and enrolled for treatment.

- To establish referral mechanism between entry points/reception centres/settlement to avoid double counting/reporting of SAM and MAM cases and avoid double distribution of RUTF and RUSF to SAM and MAM cases.
- Last JAM conducted in 2014, following the UNHCR/WFP recommendation to conduct JAM every 2 years, and it was supposed to take place in 2016. It is imperative to ensure that the current planned OPM, WFP and UNHCR is organised and implemented; recommendations draws evidence from nutrition surveys, vulnerability studies and joint plan of action is formulated to cover the coming 2 years.
- Maintain provision of food assistance to new arrivals at entry points and reception centres which should be systematically implemented along with nutritional screening among new arrivals children under 5 years, pregnant and lactating women, detection of severe acute malnutrition and moderate acute malnutrition; that should go alone with treatment and rehabilitation.
- Support the promotion and protection of infant and young child feeding programme in the settlements; the current role out of the IYCF framework in the settlement should bring all nutrition actors together so that resources are allocated and utilized in a coordinated manner.
- In coordination with the health and nutrition stakeholders, MoH, UNHCR, UNICEF and WFP should endeavour to conduct an inventory of the IYCF related activities currently implemented in the districts hosting refugees. Mapping of the ongoing IYCF interventions at the district level will assist partners to understand the key bottlenecks and gaps and this will inform the government the IYCF needs, which in turn support the national IYCF-E capacity development plan.
- Provide health and nutrition education to pregnant women, emphasize on the recommended schedule for ANC visits through pregnancy up to 6 months of postnatal period. Provide prenatal key messages including; timely initiation of breastfeeding (giving colostrum), exclusive breastfeeding from birth up to 6 months (avoid other liquids and food, including water). Focusing on good attachment and positioning and place baby skin-to-skin with mother
- Ensure that 100% of pregnant women enrolled in the ANC receive and take the Iron-Folic Acid tablets daily as prescribed by clinicians. Ensure that pregnant women attending ANC receive LLINT and regularly sleep under LLINT to prevent malaria in pregnancy.
- In collaboration with water, sector stakeholders provide adequate, safe and clean water supply meeting daily demands of the populations. Adequate provisions of safe and clean water will reduce water born related diseases in the community.
- Promote environmental health activities in the communities and at household level, emphasizing on hand washing practices with soap and proper disposal of human faecal matters including that of children.

Medium

- Deliberate efforts toward on women's utilization of ANC service should be stepped up. Women having good knowledge about maternal health services increases up take and use ANC services. Efforts should also be reinforced for mothers to complete the four ANC visits. Though pregnancy can be considered natural, seeking preventive ANC services is better than waiting to cure negative outcomes due to non-attendance to ANC services. Providing focused and sustained reproductive health education through maternal and child health services will

enhance women knowledge and improve antenatal service utilization.

- Promote early health seeking behaviour especially in rural areas, equip health facilities with adequate malaria diagnostic tools and supplies, and technical human resources, and adequate medications to treat fever of malaria origin
- Intensify implementation of intermittent preventive treatment of malaria in pregnancy immediately from the second trimester. Monitor and report the implementation of the national malaria in pregnancy policy, guidelines, job aids and behavioural communication change materials that supports uptake of intermittent preventive treatment of malaria in pregnancy.
- Support food production, initiate petty business, and other forms of self-reliance activities to support refugee households' food security and also improve the level of income generated at household level.
- Upgrade and extend exiting water pipes where feasible based; consistently implement water quality monitoring and surveillance and mobilizing and training community-based volunteers to monitor water facilities

Long term

- In the last 2 years, the refugee operation experienced general food ration reductions (50%-75% for old caseload); delays in some cycle of food distribution and missing of some food commodities; this might have contributed to some negative impact on the food security and nutrition situation of the refugees in settlements. It is recommended that; jointly WFP/UNHCR to intensify its advocacy strategies so that the required funding for food assistance is realised, food is mobilised and timely delivered. As it has been the case maintaining prioritisation of new arrivals and vulnerable refugees, the two organisations should harmonise there criteria for identifying vulnerable individuals/households.
- Pre-positioning of food commodities to avoid delays in the cycle of general food distribution.
- Well advance communication with the refugee communities in case of shortfalls or delays in the cycle. Complete the registration and food assistance guideline.
- Review the current food and cash transfer for food assistance targeting procedures of food assistance to the refugees in Uganda.
- Continue implementing post food distribution and food basket monitoring exercises, this is the responsibility of both WFP and UNHCR once the general food distribution is completed
- Distribution of long lasting insecticide treated mosquito nets. Social marketing on the retention and frequent use of long lasting insecticide treated mosquito nets, prior distribution coordinate hang up campaign in the community and future plans on indoor residual spray should include districts hosting refugees as have high malaria prevalence as well. Initiate vector programs with environmental health management teams and control sources of larval.
- Work close with the Ministry of Agriculture and Livestock, FAO and development partners supporting livelihood activities that includes; vegetable and fruits productions, that will improve production of vitamin A rich vegetables, dark green leafy vegetables, fruits and tubers.
- Support and improve rearing of small ruminant animals and poultry keeping in order increasing supply and availability of animal protein (eggs and meat) and micronutrients (vitamins and minerals) in the community.

APPENDIX 1: Plausibility Checks

ORUCHINGA Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.3 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=1.000)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.006)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (9)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**10** (44)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.06)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.25)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.16)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**17** %

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

PALABEK Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.181)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**2** (p=0.058)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (10)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (9)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**10** (37)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.01)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.17)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**5** (-0.71)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**21** %

The overall score of this survey is 21 %, this is acceptable.

PALORINYA Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.898)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.808)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (12)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (0)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**5** (1.11)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.18)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.22)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**8** %

The overall score of this survey is 8 %, this is excellent.

KAMPALA URBAN Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.4 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.392)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.115)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (10)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (10)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**10** (38)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.05)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.27)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.26)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**16** %

The overall score of this survey is 16 %, this is acceptable.

NAKIVALE Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.742)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (0)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.07)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.14)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**3** (-0.46)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**13** %

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

LOBULE Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.4 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**2** (p=0.064)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.821)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (8)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (12)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (0)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.01)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.03)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**3** (-0.44)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**9** %

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

BIDIBIDI Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.804)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.233)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**4** (18)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**10** (43)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**5** (1.10)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.21)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**3** (-0.43)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**23** %

The overall score of this survey is 23 %, this is acceptable.

ARUA Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.473)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.026)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (8)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (8)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**10** (43)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.08)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.26)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.29)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**20** %

The overall score of this survey is 20 %, this is acceptable.

ADJUMANI Refugee Settlement
Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.4 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.635)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.374)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (12)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (0)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**5** (1.14)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.14)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.38)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**8** %

The overall score of this survey is 8 %, this is excellent.

KYAKA II Refugee Settlement
Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.809)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.001)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (8)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (0)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.07)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.15)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**3** (-0.44)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**9** %

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

KIRYANDONGO Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.5 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.733)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.026)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (10)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (9)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (0)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**5** (1.14)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.11)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**3** (-0.47)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**16** %

The overall score of this survey is 16 %, this is acceptable.

KYANGWALI Refugee Settlement

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.678)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.189)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (12)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**4** (15)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (0)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (0.98)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.11)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.33)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**7** %

The overall score of this survey is 7 %, this is excellent.

RWAMWANJA Refugee Settlement
Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.756)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.007)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (8)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (0)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.06)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.16)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.31)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**7** %

The overall score of this survey is 7 %, this is excellent.

APPENDIX 2: Result Tables for NCHS Growth Reference 1977

Kiryandongo Refugee Settlements

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Kiryandongo Settlement

	All n = 214	Boys n = 110	Girls n = 104
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(16) 7.5 % (4.7 - 11.8 95% C.I.)	(6) 5.5 % (2.5 - 11.4 95% C.I.)	(10) 9.6 % (5.3 - 16.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(15) 7.0 % (4.3 - 11.2 95% C.I.)	(6) 5.5 % (2.5 - 11.4 95% C.I.)	(9) 8.7 % (4.6 - 15.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.5 % (0.1 - 2.6 95% C.I.)	(0) 0.0 % (0.0 - 3.4 95% C.I.)	(1) 1.0 % (0.2 - 5.2 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Kiryandongo Settlement

	All n = 215	Boys n = 110	Girls n = 105
Prevalence of underweight (<-2 z-score)	(15) 7.0 % (4.3 - 11.2 95% C.I.)	(8) 7.3 % (3.7 - 13.7 95% C.I.)	(7) 6.7 % (3.3 - 13.1 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(13) 6.0 % (3.6 - 10.1 95% C.I.)	(8) 7.3 % (3.7 - 13.7 95% C.I.)	(5) 4.8 % (2.1 - 10.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(2) 0.9 % (0.3 - 3.3 95% C.I.)	(0) 0.0 % (0.0 - 3.4 95% C.I.)	(2) 1.9 % (0.5 - 6.7 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Kiryandongo settlement

	All n = 215	Boys n = 110	Girls n = 105
Prevalence of stunting (<-2 z-score)	(18) 8.4 % (5.4 - 12.8 95% C.I.)	(12) 10.9 % (6.4 - 18.1 95% C.I.)	(6) 5.7 % (2.6 - 11.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(16) 7.4 % (4.6 - 11.7 95% C.I.)	(10) 9.1 % (5.0 - 15.9 95% C.I.)	(6) 5.7 % (2.6 - 11.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(2) 0.9 % (0.3 - 3.3 95% C.I.)	(2) 1.8 % (0.5 - 6.4 95% C.I.)	(0) 0.0 % (0.0 - 3.5 95% C.I.)

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	214	-0.33±1.14	1.00	0	1
Weight-for-Age	215	-0.66±0.91	1.00	0	0
Height-for-Age	215	-0.77±1.09	1.00	0	0

* contains for WHZ and WAZ the children with edema.

Kyaka II Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Kyaka II Settlement

	All n = 429	Boys n = 212	Girls n = 217
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(17) 4.0 % (2.5 - 6.3 95% C.I.)	(10) 4.7 % (2.6 - 8.5 95% C.I.)	(7) 3.2 % (1.6 - 6.5 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(17) 4.0 % (2.5 - 6.3 95% C.I.)	(10) 4.7 % (2.6 - 8.5 95% C.I.)	(7) 3.2 % (1.6 - 6.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 - 0.9 95% C.I.)	(0) 0.0 % (0.0 - 1.8 95% C.I.)	(0) 0.0 % (0.0 - 1.7 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Kyaka II Settlement

	All n = 429	Boys n = 212	Girls n = 217
Prevalence of underweight (<-2 z-score)	(29) 6.8 % (4.7 - 9.5 95% C.I.)	(17) 8.0 % (5.1 - 12.5 95% C.I.)	(12) 5.5 % (3.2 - 9.4 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(28) 6.5 % (4.6 - 9.3 95% C.I.)	(17) 8.0 % (5.1 - 12.5 95% C.I.)	(11) 5.1 % (2.9 - 8.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(1) 0.2 % (0.0 - 1.3 95% C.I.)	(0) 0.0 % (0.0 - 1.8 95% C.I.)	(1) 0.5 % (0.1 - 2.6 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Kyaka II Settlement

	All n = 426	Boys n = 212	Girls n = 214
Prevalence of stunting (<-2 z-score)	(95) 22.3 % (18.6 - 26.5 95% C.I.)	(50) 23.6 % (18.4 - 29.7 95% C.I.)	(45) 21.0 % (16.1 - 27.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(90) 21.1 % (17.5 - 25.3 95% C.I.)	(47) 22.2 % (17.1 - 28.2 95% C.I.)	(43) 20.1 % (15.3 - 26.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(5) 1.2 % (0.5 - 2.7 95% C.I.)	(3) 1.4 % (0.5 - 4.1 95% C.I.)	(2) 0.9 % (0.3 - 3.3 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Kyaka II Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	429	-0.12±1.07	1.00	0	0
Weight-for-Age	429	-0.71±0.89	1.00	0	0
Height-for-Age	426	-1.18±1.05	1.00	0	3

* contains for WHZ and WAZ the children with edema.

Kyangwali Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Kyangwali Settlement

	All n = 285	Boys n = 146	Girls n = 139
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(9) 3.2 % (1.7 - 5.9 95% C.I.)	(5) 3.4 % (1.5 - 7.8 95% C.I.)	(4) 2.9 % (1.1 - 7.2 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(9) 3.2 % (1.7 - 5.9 95% C.I.)	(5) 3.4 % (1.5 - 7.8 95% C.I.)	(4) 2.9 % (1.1 - 7.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 - 1.3 95% C.I.)	(0) 0.0 % (0.0 - 2.6 95% C.I.)	(0) 0.0 % (0.0 - 2.7 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Kyangwali Settlement

	All n = 285	Boys n = 146	Girls n = 139
Prevalence of underweight (<-2 z-score)	(19) 6.7 % (4.3 - 10.2 95% C.I.)	(13) 8.9 % (5.3 - 14.6 95% C.I.)	(6) 4.3 % (2.0 - 9.1 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(19) 6.7 % (4.3 - 10.2 95% C.I.)	(13) 8.9 % (5.3 - 14.6 95% C.I.)	(6) 4.3 % (2.0 - 9.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(0) 0.0 % (0.0 - 1.3 95% C.I.)	(0) 0.0 % (0.0 - 2.6 95% C.I.)	(0) 0.0 % (0.0 - 2.7 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Kyangwali Settlement

	All n = 282	Boys n = 146	Girls n = 136
Prevalence of stunting (<-2 z-score)	(92) 32.6 % (27.4 - 38.3 95% C.I.)	(52) 35.6 % (28.3 - 43.7 95% C.I.)	(40) 29.4 % (22.4 - 37.6 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(75) 26.6 % (21.8 - 32.0 95% C.I.)	(39) 26.7 % (20.2 - 34.4 95% C.I.)	(36) 26.5 % (19.8 - 34.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(17) 6.0 % (3.8 - 9.4 95% C.I.)	(13) 8.9 % (5.3 - 14.6 95% C.I.)	(4) 2.9 % (1.1 - 7.3 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Kyangwali Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	285	-0.14±0.98	1.00	0	0
Weight-for-Age	285	-0.89±0.79	1.00	0	0
Height-for-Age	282	-1.46±1.04	1.00	0	3

* contains for WHZ and WAZ the children with edema.

Rwamwanja Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Rwamwanja Settlement

	All n = 372	Boys n = 183	Girls n = 189
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(14) 3.8 % (2.3 - 6.2 95% C.I.)	(6) 3.3 % (1.5 - 7.0 95% C.I.)	(8) 4.2 % (2.2 - 8.1 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(13) 3.5 % (2.1 - 5.9 95% C.I.)	(6) 3.3 % (1.5 - 7.0 95% C.I.)	(7) 3.7 % (1.8 - 7.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.3 % (0.0 - 1.5 95% C.I.)	(0) 0.0 % (0.0 - 2.1 95% C.I.)	(1) 0.5 % (0.1 - 2.9 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Rwamwanja Settlement

	All n = 372	Boys n = 183	Girls n = 189
Prevalence of underweight (<-2 z-score)	(20) 5.4 % (3.5 - 8.2 95% C.I.)	(10) 5.5 % (3.0 - 9.8 95% C.I.)	(10) 5.3 % (2.9 - 9.5 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(18) 4.8 % (3.1 - 7.5 95% C.I.)	(9) 4.9 % (2.6 - 9.1 95% C.I.)	(9) 4.8 % (2.5 - 8.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(2) 0.5 % (0.1 - 1.9 95% C.I.)	(1) 0.5 % (0.1 - 3.0 95% C.I.)	(1) 0.5 % (0.1 - 2.9 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Rwamwanja Settlement

	All n = 372	Boys n = 183	Girls n = 189
Prevalence of stunting (<-2 z-score)	(93) 25.0 % (20.9 - 29.6 95% C.I.)	(55) 30.1 % (23.9 - 37.1 95% C.I.)	(38) 20.1 % (15.0 - 26.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(87) 23.4 % (19.4 - 27.9 95% C.I.)	(51) 27.9 % (21.9 - 34.8 95% C.I.)	(36) 19.0 % (14.1 - 25.2 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(6) 1.6 % (0.7 - 3.5 95% C.I.)	(4) 2.2 % (0.9 - 5.5 95% C.I.)	(2) 1.1 % (0.3 - 3.8 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Rwamwanja Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	372	-0.11±1.06	1.00	0	0
Weight-for-Age	372	-0.73±0.89	1.00	0	0
Height-for-Age	372	-1.18±1.09	1.00	0	0

* contains for WHZ and WAZ the children with edema.

Adjumani Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Adjumani Settlement

	All n = 535	Boys n = 273	Girls n = 262
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(63) 11.8 % (9.3 - 14.8 95% C.I.)	(32) 11.7 % (8.4 - 16.1 95% C.I.)	(31) 11.8 % (8.5 - 16.3 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(60) 11.2 % (8.8 - 14.2 95% C.I.)	(31) 11.4 % (8.1 - 15.7 95% C.I.)	(29) 11.1 % (7.8 - 15.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(3) 0.6 % (0.2 - 1.6 95% C.I.)	(1) 0.4 % (0.1 - 2.0 95% C.I.)	(2) 0.8 % (0.2 - 2.7 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Adjumani Settlement

	All n = 537	Boys n = 274	Girls n = 263
Prevalence of underweight (<-2 z-score)	(31) 5.8 % (4.1 - 8.1 95% C.I.)	(13) 4.7 % (2.8 - 7.9 95% C.I.)	(18) 6.8 % (4.4 - 10.6 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(28) 5.2 % (3.6 - 7.4 95% C.I.)	(12) 4.4 % (2.5 - 7.5 95% C.I.)	(16) 6.1 % (3.8 - 9.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(3) 0.6 % (0.2 - 1.6 95% C.I.)	(1) 0.4 % (0.1 - 2.0 95% C.I.)	(2) 0.8 % (0.2 - 2.7 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Adjumani Settlement

	All n = 537	Boys n = 274	Girls n = 263
Prevalence of stunting (<-2 z-score)	(75) 14.0 % (11.3 - 17.2 95% C.I.)	(40) 14.6 % (10.9 - 19.3 95% C.I.)	(35) 13.3 % (9.7 - 17.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(68) 12.7 % (10.1 - 15.7 95% C.I.)	(37) 13.5 % (10.0 - 18.1 95% C.I.)	(31) 11.8 % (8.4 - 16.2 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(7) 1.3 % (0.6 - 2.7 95% C.I.)	(3) 1.1 % (0.4 - 3.2 95% C.I.)	(4) 1.5 % (0.6 - 3.8 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Adjumani Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	535	-0.43±1.14	1.00	0	2
Weight-for-Age	537	-0.70±0.86	1.00	0	0
Height-for-Age	537	-0.75±1.13	1.00	0	0

* contains for WHZ and WAZ the children with edema.

Lobule Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Lobule Settlement

	All n = 280	Boys n = 125	Girls n = 155
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(17) 6.1 % (3.8 - 9.5 95% C.I.)	(10) 8.0 % (4.4 - 14.1 95% C.I.)	(7) 4.5 % (2.2 - 9.0 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(16) 5.7 % (3.5 - 9.1 95% C.I.)	(10) 8.0 % (4.4 - 14.1 95% C.I.)	(6) 3.9 % (1.8 - 8.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.4 % (0.1 - 2.0 95% C.I.)	(0) 0.0 % (0.0 - 3.0 95% C.I.)	(1) 0.6 % (0.1 - 3.6 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Lobule Settlement

	All n = 281	Boys n = 125	Girls n = 156
Prevalence of underweight (<-2 z-score)	(28) 10.0 % (7.0 - 14.0 95% C.I.)	(17) 13.6 % (8.7 - 20.7 95% C.I.)	(11) 7.1 % (4.0 - 12.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(27) 9.6 % (6.7 - 13.6 95% C.I.)	(17) 13.6 % (8.7 - 20.7 95% C.I.)	(10) 6.4 % (3.5 - 11.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(1) 0.4 % (0.1 - 2.0 95% C.I.)	(0) 0.0 % (0.0 - 3.0 95% C.I.)	(1) 0.6 % (0.1 - 3.5 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Lobule Settlement

	All n = 537	Boys n = 274	Girls n = 263
Prevalence of stunting (<-2 z-score)	(75) 14.0 % (11.3 - 17.2 95% C.I.)	(40) 14.6 % (10.9 - 19.3 95% C.I.)	(35) 13.3 % (9.7 - 17.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(68) 12.7 % (10.1 - 15.7 95% C.I.)	(37) 13.5 % (10.0 - 18.1 95% C.I.)	(31) 11.8 % (8.4 - 16.2 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(7) 1.3 % (0.6 - 2.7 95% C.I.)	(3) 1.1 % (0.4 - 3.2 95% C.I.)	(4) 1.5 % (0.6 - 3.8 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Lobule Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	535	-0.43±1.14	1.00	0	2
Weight-for-Age	537	-0.70±0.86	1.00	0	0
Height-for-Age	537	-0.75±1.13	1.00	0	0

* contains for WHZ and WAZ the children with edema.

Nakivale Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Nakivale Settlement

	All n = 453	Boys n = 230	Girls n = 223
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(17) 3.8 % (2.4 - 5.9 95% C.I.)	(11) 4.8 % (2.7 - 8.4 95% C.I.)	(6) 2.7 % (1.2 - 5.7 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(16) 3.5 % (2.2 - 5.7 95% C.I.)	(10) 4.3 % (2.4 - 7.8 95% C.I.)	(6) 2.7 % (1.2 - 5.7 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.2 % (0.0 - 1.2 95% C.I.)	(1) 0.4 % (0.1 - 2.4 95% C.I.)	(0) 0.0 % (0.0 - 1.7 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Nakivale Settlement

	All n = 453	Boys n = 230	Girls n = 223
Prevalence of underweight (<-2 z-score)	(29) 6.4 % (4.5 - 9.0 95% C.I.)	(17) 7.4 % (4.7 - 11.5 95% C.I.)	(12) 5.4 % (3.1 - 9.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(28) 6.2 % (4.3 - 8.8 95% C.I.)	(17) 7.4 % (4.7 - 11.5 95% C.I.)	(11) 4.9 % (2.8 - 8.6 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(1) 0.2 % (0.0 - 1.2 95% C.I.)	(0) 0.0 % (0.0 - 1.6 95% C.I.)	(1) 0.4 % (0.1 - 2.5 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Nakivale Settlement

	All n = 453	Boys n = 230	Girls n = 223
Prevalence of stunting (<-2 z-score)	(98) 21.6 % (18.1 - 25.7 95% C.I.)	(59) 25.7 % (20.4 - 31.7 95% C.I.)	(39) 17.5 % (13.1 - 23.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(89) 19.6 % (16.2 - 23.6 95% C.I.)	(55) 23.9 % (18.9 - 29.8 95% C.I.)	(34) 15.2 % (11.1 - 20.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(9) 2.0 % (1.0 - 3.7 95% C.I.)	(4) 1.7 % (0.7 - 4.4 95% C.I.)	(5) 2.2 % (1.0 - 5.1 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Nakivale Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	453	-0.16±1.07	1.00	0	0
Weight-for-Age	453	-0.68±0.87	1.00	0	0
Height-for-Age	453	-1.06±1.14	1.00	0	0

* contains for WHZ and WAZ the children with edema.

Arua Refugee Settlement

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

	All n = 437	Boys n = 226	Girls n = 211
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(45) 10.3 % (7.8 - 13.5 95% C.I.)	(28) 12.4 % (8.7 - 17.3 95% C.I.)	(17) 8.1 % (5.1 - 12.5 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(43) 9.8 % (7.4 - 13.0 95% C.I.)	(26) 11.5 % (8.0 - 16.3 95% C.I.)	(17) 8.1 % (5.1 - 12.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(2) 0.5 % (0.1 - 1.7 95% C.I.)	(2) 0.9 % (0.2 - 3.2 95% C.I.)	(0) 0.0 % (0.0 - 1.8 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Arua

	All n = 437	Boys n = 226	Girls n = 211
Prevalence of underweight (<-2 z-score)	(36) 8.2 % (6.0 - 11.2 95% C.I.)	(26) 11.5 % (8.0 - 16.3 95% C.I.)	(10) 4.7 % (2.6 - 8.5 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(32) 7.3 % (5.2 - 10.2 95% C.I.)	(23) 10.2 % (6.9 - 14.8 95% C.I.)	(9) 4.3 % (2.3 - 7.9 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(4) 0.9 % (0.4 - 2.3 95% C.I.)	(3) 1.3 % (0.5 - 3.8 95% C.I.)	(1) 0.5 % (0.1 - 2.6 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Arua

	All n = 436	Boys n = 225	Girls n = 211
Prevalence of stunting (<-2 z-score)	(40) 9.2 % (6.8 - 12.3 95% C.I.)	(21) 9.3 % (6.2 - 13.8 95% C.I.)	(19) 9.0 % (5.8 - 13.6 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(33) 7.6 % (5.4 - 10.4 95% C.I.)	(18) 8.0 % (5.1 - 12.3 95% C.I.)	(15) 7.1 % (4.4 - 11.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(7) 1.6 % (0.8 - 3.3 95% C.I.)	(3) 1.3 % (0.5 - 3.8 95% C.I.)	(4) 1.9 % (0.7 - 4.8 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Arua

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	437	-0.34±1.08	1.00	0	0
Weight-for-Age	437	-0.74±0.92	1.00	0	0
Height-for-Age	436	-0.91±1.02	1.00	0	1

* contains for WHZ and WAZ the children with edema.

Oruchinga Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Oruchinga Settlement

	All n = 387	Boys n = 193	Girls n = 194
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(16) 4.1 % (2.6 - 6.6 95% C.I.)	(7) 3.6 % (1.8 - 7.3 95% C.I.)	(9) 4.6 % (2.5 - 8.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(15) 3.9 % (2.4 - 6.3 95% C.I.)	(7) 3.6 % (1.8 - 7.3 95% C.I.)	(8) 4.1 % (2.1 - 7.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.3 % (0.0 - 1.4 95% C.I.)	(0) 0.0 % (0.0 - 2.0 95% C.I.)	(1) 0.5 % (0.1 - 2.9 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Oruchinga Settlement

	All n = 388	Boys n = 194	Girls n = 194
Prevalence of underweight (<-2 z-score)	(26) 6.7 % (4.6 - 9.6 95% C.I.)	(15) 7.7 % (4.7 - 12.4 95% C.I.)	(11) 5.7 % (3.2 - 9.9 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(25) 6.4 % (4.4 - 9.3 95% C.I.)	(14) 7.2 % (4.3 - 11.7 95% C.I.)	(11) 5.7 % (3.2 - 9.9 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(1) 0.3 % (0.0 - 1.4 95% C.I.)	(1) 0.5 % (0.1 - 2.9 95% C.I.)	(0) 0.0 % (0.0 - 1.9 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Oruchinga Settlement

	All n = 387	Boys n = 193	Girls n = 194
Prevalence of stunting (<-2 z-score)	(108) 27.9 % (23.7 - 32.6 95% C.I.)	(57) 29.5 % (23.5 - 36.3 95% C.I.)	(51) 26.3 % (20.6 - 32.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(93) 24.0 % (20.0 - 28.5 95% C.I.)	(50) 25.9 % (20.2 - 32.5 95% C.I.)	(43) 22.2 % (16.9 - 28.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(15) 3.9 % (2.4 - 6.3 95% C.I.)	(7) 3.6 % (1.8 - 7.3 95% C.I.)	(8) 4.1 % (2.1 - 7.9 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Oruchinga Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	387	-0.06±1.06	1.00	0	1
Weight-for-Age	388	-0.68±0.90	1.00	0	0
Height-for-Age	387	-1.16±1.18	1.00	0	1

* contains for WHZ and WAZ the children with edema.

Kampala Urban Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Kampala Refugees

	All n = 267	Boys n = 141	Girls n = 126
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(24) 9.0 % (6.1 - 13.0 95% C.I.)	(16) 11.3 % (7.1 - 17.6 95% C.I.)	(8) 6.3 % (3.3 - 12.0 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(24) 9.0 % (6.1 - 13.0 95% C.I.)	(16) 11.3 % (7.1 - 17.6 95% C.I.)	(8) 6.3 % (3.3 - 12.0 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 - 3.0 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Kampala Refugees

	All n = 268	Boys n = 141	Girls n = 127
Prevalence of underweight (<-2 z-score)	(20) 7.5 % (4.9 - 11.2 95% C.I.)	(12) 8.5 % (4.9 - 14.3 95% C.I.)	(8) 6.3 % (3.2 - 11.9 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(20) 7.5 % (4.9 - 11.2 95% C.I.)	(12) 8.5 % (4.9 - 14.3 95% C.I.)	(8) 6.3 % (3.2 - 11.9 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(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 - 2.9 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Kampala Refugees

	All n = 268	Boys n = 141	Girls n = 127
Prevalence of stunting (<-2 z-score)	(53) 19.8 % (15.4 - 25.0 95% C.I.)	(27) 19.1 % (13.5 - 26.4 95% C.I.)	(26) 20.5 % (14.4 - 28.3 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(47) 17.5 % (13.5 - 22.5 95% C.I.)	(22) 15.6 % (10.5 - 22.5 95% C.I.)	(25) 19.7 % (13.7 - 27.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(6) 2.2 % (1.0 - 4.8 95% C.I.)	(5) 3.5 % (1.5 - 8.0 95% C.I.)	(1) 0.8 % (0.1 - 4.3 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Kampala Refugees

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	267	-0.33±1.05	1.00	0	1
Weight-for-Age	268	-0.73±0.93	1.00	0	0
Height-for-Age	268	-0.93±1.15	1.00	0	0

* contains for WHZ and WAZ the children with edema.

Palabek Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Palabek Settlement

	All n = 438	Boys n = 205	Girls n = 233
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(54) 12.3 % (9.6 - 15.7 95% C.I.)	(28) 13.7 % (9.6 - 19.0 95% C.I.)	(26) 11.2 % (7.7 - 15.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(52) 11.9 % (9.2 - 15.2 95% C.I.)	(27) 13.2 % (9.2 - 18.5 95% C.I.)	(25) 10.7 % (7.4 - 15.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(2) 0.5 % (0.1 - 1.6 95% C.I.)	(1) 0.5 % (0.1 - 2.7 95% C.I.)	(1) 0.4 % (0.1 - 2.4 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Palabek Settlement

	All n = 438	Boys n = 205	Girls n = 233
Prevalence of underweight (<-2 z-score)	(73) 16.7 % (13.5 - 20.4 95% C.I.)	(38) 18.5 % (13.8 - 24.4 95% C.I.)	(35) 15.0 % (11.0 - 20.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(70) 16.0 % (12.8 - 19.7 95% C.I.)	(38) 18.5 % (13.8 - 24.4 95% C.I.)	(32) 13.7 % (9.9 - 18.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(3) 0.7 % (0.2 - 2.0 95% C.I.)	(0) 0.0 % (0.0 - 1.8 95% C.I.)	(3) 1.3 % (0.4 - 3.7 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Palabek Settlement

	All n = 438	Boys n = 205	Girls n = 233
Prevalence of stunting (<-2 z-score)	(96) 21.9 % (18.3 - 26.0 95% C.I.)	(51) 24.9 % (19.5 - 31.2 95% C.I.)	(45) 19.3 % (14.8 - 24.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(86) 19.6 % (16.2 - 23.6 95% C.I.)	(45) 22.0 % (16.8 - 28.1 95% C.I.)	(41) 17.6 % (13.2 - 23.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(10) 2.3 % (1.2 - 4.2 95% C.I.)	(6) 2.9 % (1.3 - 6.2 95% C.I.)	(4) 1.7 % (0.7 - 4.3 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Palabek Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	438	-0.73±1.01	1.00	0	0
Weight-for-Age	438	-1.11±0.88	1.00	0	0
Height-for-Age	438	-1.10±1.09	1.00	0	0

* contains for WHZ and WAZ the children with edema.

Palorinya Refugee Setttlment

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Palorinya Settlement

	All n = 244	Boys n = 121	Girls n = 123
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(27) 11.1 % (7.7 - 15.6 95% C.I.)	(17) 14.0 % (9.0 - 21.4 95% C.I.)	(10) 8.1 % (4.5 - 14.3 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(26) 10.7 % (7.4 - 15.2 95% C.I.)	(16) 13.2 % (8.3 - 20.4 95% C.I.)	(10) 8.1 % (4.5 - 14.3 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.4 % (0.1 - 2.3 95% C.I.)	(1) 0.8 % (0.1 - 4.5 95% C.I.)	(0) 0.0 % (0.0 - 3.0 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Palorinya Settlement

	All n = 244	Boys n = 121	Girls n = 123
Prevalence of underweight (<-2 z-score)	(22) 9.0 % (6.0 - 13.3 95% C.I.)	(13) 10.7 % (6.4 - 17.5 95% C.I.)	(9) 7.3 % (3.9 - 13.3 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(22) 9.0 % (6.0 - 13.3 95% C.I.)	(13) 10.7 % (6.4 - 17.5 95% C.I.)	(9) 7.3 % (3.9 - 13.3 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(0) 0.0 % (0.0 - 1.6 95% C.I.)	(0) 0.0 % (0.0 - 3.1 95% C.I.)	(0) 0.0 % (0.0 - 3.0 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Palorinya Settlement

	All n = 241	Boys n = 119	Girls n = 122
Prevalence of stunting (<-2 z-score)	(40) 16.6 % (12.4 - 21.8 95% C.I.)	(21) 17.6 % (11.8 - 25.5 95% C.I.)	(19) 15.6 % (10.2 - 23.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(39) 16.2 % (12.1 - 21.4 95% C.I.)	(20) 16.8 % (11.2 - 24.5 95% C.I.)	(19) 15.6 % (10.2 - 23.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(1) 0.4 % (0.1 - 2.3 95% C.I.)	(1) 0.8 % (0.1 - 4.6 95% C.I.)	(0) 0.0 % (0.0 - 3.1 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Palorinya Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	244	-0.43±1.11	1.00	0	0
Weight-for-Age	244	-0.84±0.89	1.00	0	0
Height-for-Age	241	-1.01±1.06	1.00	0	3

* contains for WHZ and WAZ the children with edema.

Bidibidi Refugee Settlement

Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Bidibidi Settlement

	All n = 408	Boys n = 202	Girls n = 206
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(48) 11.8 % (9.0 - 15.3 95% C.I.)	(30) 14.9 % (10.6 - 20.4 95% C.I.)	(18) 8.7 % (5.6 - 13.4 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(47) 11.5 % (8.8 - 15.0 95% C.I.)	(29) 14.4 % (10.2 - 19.9 95% C.I.)	(18) 8.7 % (5.6 - 13.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.2 % (0.0 - 1.4 95% C.I.)	(1) 0.5 % (0.1 - 2.8 95% C.I.)	(0) 0.0 % (0.0 - 1.8 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of underweight based on weight-for-age z-scores by sex, Bidibidi Settlement

	All n = 408	Boys n = 202	Girls n = 206
Prevalence of underweight (<-2 z-score)	(39) 9.6 % (7.1 - 12.8 95% C.I.)	(27) 13.4 % (9.4 - 18.7 95% C.I.)	(12) 5.8 % (3.4 - 9.9 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(37) 9.1 % (6.7 - 12.3 95% C.I.)	(27) 13.4 % (9.4 - 18.7 95% C.I.)	(10) 4.9 % (2.7 - 8.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(2) 0.5 % (0.1 - 1.8 95% C.I.)	(0) 0.0 % (0.0 - 1.9 95% C.I.)	(2) 1.0 % (0.3 - 3.5 95% C.I.)

Prevalence of stunting based on height-for-age z-scores and by sex, Bidibidi Settlement

	All n = 404	Boys n = 200	Girls n = 204
Prevalence of stunting (<-2 z-score)	(65) 16.1 % (12.8 - 20.0 95% C.I.)	(39) 19.5 % (14.6 - 25.5 95% C.I.)	(26) 12.7 % (8.8 - 18.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(59) 14.6 % (11.5 - 18.4 95% C.I.)	(36) 18.0 % (13.3 - 23.9 95% C.I.)	(23) 11.3 % (7.6 - 16.3 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(6) 1.5 % (0.7 - 3.2 95% C.I.)	(3) 1.5 % (0.5 - 4.3 95% C.I.)	(3) 1.5 % (0.5 - 4.2 95% C.I.)

Mean z-scores, Design Effects and excluded subjects, Bidibidi Settlement

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	408	-0.45±1.10	1.00	0	0
Weight-for-Age	408	-0.73±0.95	1.00	0	0
Height-for-Age	404	-0.79±1.12	1.00	0	4

* contains for WHZ and WAZ the children with edema.

APPENDIX 3: FSNA Questionnaire

Household ID: |__|__|__|__|__|
(Check and complete during data entry)
(First digit for District; second and third digit for Cluster ID; fourth and fifth digit for household #)

Food Security and Nutrition Assessment in Refugee Settlements 2015

0.1 Date |__|__|/|__|__|/2015

0.2 Interviewer Name: _____ Signature: _____

0.3 Supervisor Name:_____
Signature:_____

0.4 **Settlement: 1-Nakivale 2–Oruchinga 3–Kyaka II 4–Kyangwali 5–Rwamanja 6–Kiryandongo 7–Arua 8-Adjumani/Pakelle - Old caseload (Pre influx) 9 - Adjumani/Pakelle (South Sudan Influx)** ***(skip if not refugees – go to 0.5)***

0.5 Sub county: _____

0.6 District: 1- Isingiro, 2- Kyegegwa, 3- Kamwenge, 4- Hoima, 5- Kiryandongo, 6- Adjumani, 7-Arua, 8- Koboko

0.6 Sub-county…… 0.7 Parish…….. 0.8 Village……..…

0.9 Cluster ID |__|__| **0.10 HH No:** |__|__|

SECTION 1 – HOUSEHOLD AND MOTHER/CAREGIVER INFORMATION

A1. Is the head of household a refugee? Yes = 1 No=2 **(if no go to A3)**

A2. If yes (refugee) from which country: 1: Burundian 2: DRC, 3: Eritrean, 4: Ethiopian, 5: Rwandan, 6: Somalis, 7: South Sudanese 8: Sudanese 9: Others

A3. Is the head of household a Ugandan? Yes = 1 No=2

A4. Household head number of completed years of formal education |__|__|

A5. Is the respondent the head of household? Yes = 1 No=2 **(if no go to A8)**

A6. What is the sex of the household head? Male = 1 Female = 2

A7. What is the age of the household head? (best guess estimate) |__|__| Years

A8. Is the household head on the Extremely Vulnerable Individuals (EVI) Programme?

(Ask to see card) 1= Yes 0=No

A9. What is the sex of the respondent? Male = 1 Female = 2

A10. What is the age of the respondent? |__|__| Years

A11. Do you have a close family member still in the country of origin (only for refugees)? Yes = 1 No=2

A12. What is the marital status of the Head of Household?
1=Married, 2=Single, 3=Widowed 4=Separated / divorced

A13. Do you have any member of your household who is chronically ill? Yes=1 No=2

A14. If yes, is this person the head of the household? Yes=1 No=2

A15. How many people are in your household (eating with you every day) |__|__|

A16. Respondents number of completed years of formal education |__|__|
(If respondent is the household head put as A4)

A17. Please specify the age groups of the people in your household
0-5 year |__|__|, 6-12 years |__|__|, 13-17 years |__|__|, 18-60 years |__|__|, 60 and above |__|__|

SECTION 2: ANTHROPOMETRY AND ANAEMIA STATUS OF WOMEN AT REPRODUCTIVE AGE

A1	A2	A3	A4	A5	A6	A7	A8	A9
WM1	**WMHH2**	**Consent given 1=Yes 2=No 3=Absent**	**Age in Yrs**	**How many live children have you given birth to? *(Ask all women at reproductive age in the HH – 15 – 49 years)***	**Are 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**	**Why you are not enrolled in the ANC? 1. I don't know about the ANC programme 2. Too much time required to participate**	**Are you currently <u>receiving</u> iron-folate pills (*SHOW PILL*)? 1=Yes (STOP NOW)**

							3. The ANC site is too far 4. No transportation to reach the ANC site 5. I had other commitments that prevented enroLLINTg the me in the programme 6. Other – Specify…….	2=No (STOP NOW) 8=Don't know (STOP NOW)

A10	A11	A12	A13
MUAC (15-49 yrs even if mother/caregiver is breastfeeding or pregnant)	WEIGHT (15-49 yrs ONLY if mother/caregiver is NOT pregnant)	HEIGHT (15-49 yrs ONLY if mother/caregiver is NOT pregnant	Hb (g/L or g/dL)

SECTION 3: WATER, SANITATION AND HYGIENE

B1. How many people live in this household and slept here last night? _____

B2. What is the *main* source of drinking water for members of your household?
(Please adapt to context)

01=Piped water;
02=Public tap/standpipe;
03=Tube well/borehole (& pump);
04=Protected dug well;
05=Protected spring;
06=Rain water collection;
07=UNHCR Tanker;
08=Unprotected spring;
09=Unprotected dug well;
10= Small water vendor;
11=Tanker truck;
12=Bottled water;
13=Surface water (e.g. river, pond);
96=Other;
98=Don't know

B3. Are you satisfied with the water supply? If the response is 'Yes', 'Partially' or 'Don't know' surveyor should skip to question B5.
1=Yes;
2=No;
3=Partially;
8=Don't know

B4. What is the *main* reason you are not satisfied with the water supply? (This question only applies to household answering 'No' to B3). (Do not read answers, select one answer only) ***(To be adapted to our context)***

01=Not enough;
02=Long waiting queue;
03=Long distance;
04=Irregular supply;
05=Bad taste;
06=Water too warm;
07=Bad quality;
08=Have to pay;
96=Other;
98=Don't know

B5. Please show me the containers you used yesterday for collecting water.
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)

No	OBSERVATION / QUESTION	ANSWER			
B6.	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	20 L		
		2 E.g. jerry can	10 L		
		3 E.g. jerry can	5 L		
		4 E.g. bucket	20 L		
		5 E.g. bucket	10 L		
		6			
		7			
		Total litres used by household			
B7.	Please show me where you store your drinking water.	Are the drinking water containers covered or narrow necked? None are.....0 Some are.....1 All are.....2			|___|

B8. What kind of toilet facility does this household use? *(To be adapted to our context)*

01=Flush to piped sewer system;
02=Flush to septic system;
03=Pour-flush to pit;
04=VIP/simple pit latrine with floor/slab;
05=Composting/dry latrine;
06=Flush or pour-flush elsewhere;
07=Pit latrine without floor/slab;
08=Service or bucket latrine;
09=Hanging toilet/latrine;
10=No facility, field, bush, plastic bag

B9. How many households share this toilet?
Number of households (including the surveyed household)_____

1=Not shared (**1 HH**)
2=Shared family (**2 HH**)
3=Communal toilet (**3 HH or more**)
4=Public toilet (**in market or clinic etc**.)
8=Don't know

B10. Do you have children under three years old? (The child should be 35 months or younger and might be a young baby).
1=Yes
2=No

B11. The last time [NAME OF YOUNGEST CHILD] passed stools, what was done to dispose of the stools?
01=Child used toilet/latrine;
02=Put/rinsed into toilet or latrine;
03=Buried;
04=Thrown into garbage;
05=Put/rinsed into drain or ditch;
06=Left in the open;
96=Other;
98=Don't know

SECTION 4 – LIVESTOCK PRODUCTION					
				1=Yes 0=No	Number of livestock
	Does your household own any of the following livestock? If '*Yes*', how many of the following livestock does your household currently own?	**C1.**	Cattle	|__|	|__|__|__|
		C2.	Sheep	|__|	|__|__|__|
		C3.	Goat	|__|	|__|__|__|
		C4.	Pig	|__|	|__|__|__|
		C5.	Poultry	|__|	|__|__|__|
		C6.	Donkey	|__|	|__|__|__|
		C7.	Other: Specify		|__|__|__|
C8.	What are the main constraints for livestock and livestock production for your household? *Circle all that apply*	**Main constraints**			
		1=Poor breed		6=Lack of veterinary services	
		2=Parasites/diseases		7=Insecurity	
		3=Inadequate labour		8=Theft	
		4=Shortage of pasture/feed		9=Lack of market for livestock	
		5=Shortage of water		10=Other *(specify)*:	

SECTION 5 – FOOD AVAILABILITY				
D1.	Do you have access to agricultural land (arable land for cultivation)?			1=Yes 0= No ***(if "No" Go to D24)***
D2.	What type and how big is the land do you have access to?	1= Flatland for small garden		acres
		2= Up land for cultivation		acres
		3= Swamp		acres
		4= Other (specify):		acres
D3 – D11	What type of crops did you cultivate last season and how much land each occupy?	**D3.** Maize	1= yes 0=No	acres
		D4. Beans	1= yes 0=No	acres
		D5. Cassava	1= yes 0=No	acres
		D6. Millet	1= yes 0=No	acres
		D7. Sorghum	1= yes 0=No	acres
		D8. Potato	1= yes 0=No	acres
		D9. Banana	1= yes 0=No	acres
		D10. Rice	1= yes 0=No	acres
		D11. Other specify)		Acres
D12.	Compare the amount of food produced this year (last season) to the same season last year **(Circle one response)**	1.Much less than the amount of food produced last year		
		2.Somewhat less than the amount of produced last year		
		3.About the same as the amount of food produced last year		
		4.Somewhat greater than the amount of food produced last year		
		5.Much greater than the amount of food produced last year		
D13.	Compare the amount of food sold from the harvest this year with that sold from the harvest at the same time last year **(Circle one response)**	1.Much less than the amount of food sold last year		
		2.Somewhat less than the amount of food sold last year		
		3.About the same as the amount of food sold last year		
		4.Somewhat greater than the amount of food sold last year		
		5.Much greater than the amount of food sold last year		
D14.	What is the **BIGGEST** constraint to agriculture in the past six months? **(Circle one response)**	1=Insecurity 2=I have been prohibited by the clan/my husband 3=The land is infertile/farming is unproductive 4=I have been prohibited by the government 5=Sickness or physical inability 6=I did not have adequate seeds and tools 7=I do not have sufficient family/household labour 8= Land conflicts; 9= Drought/Low rainfall		

		10= Lack of household storage facility; 11=Other (Specify)

D15 -23.	If household cultivated food in last season, fill in the table below**. For harvested crops, ask the quantity of output; Leave a blank space if crop was not planted**

Crop	Number of Units	Name of Unit	Kilogram per
D15. Maize	|__|__|__|__|__|		|__|__|__|
D16. Bean	|__|__|__|__|__|		|__|__|__|
D17. Cassava	|__|__|__|__|__|		|__|__|__|
D18. Millet	|__|__|__|__|__|		|__|__|__|
D19.	|__|__|__|__|__|		|__|__|__|
D20. Potato	|__|__|__|__|__|		|__|__|__|
D21. Banana	|__|__|__|__|__|		|__|__|__|
D22. Rice	|__|__|__|__|__|		|__|__|__|
D23. Other (specify)	|__|__|__|__|__|		|__|__|__|

D24.	How much food is in your current stock? |__|__|__|__|__|kg
D25.	How long will your stock last? |__|__|.|__| months

D26.	Does your household have a ration card?	Yes..... 1 No..... 0	|___| **IF ANSWER IS 1 GO TO D28**
D27.	If no, 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	|___|
D28.	If yes, how people from your household are registered **on the food ration card**?	Record the number of people registered in the food ration **from the card**	|___|
D30.	Does your household receive full or reduced ration?	None……..……..…0 Half……..……..…...1 Full…….……..….2	|___|
D15.	How many days did the food from the general food aid ration from last month last?	RECORD THE NUMBER OF DAYS IF KNOWN (RECORD 98 IF UNKNOWN)	|___|___|

SECTION 6 : CROSS CUTTING INDICATORS		
E1	In the last 6 months, did this household receive the following from WFP – circle all that apply	1. Food aid 2. Cash 3. No assistance from WFP (If "No Assistance", STOP here)
E2	Regarding the last WFP distribution, Who (men, women or both) decides what to do with the cash/voucher given by WFP, such as when, where and what to buy?	1. Women 2. Men 3. Women and Men Together
E3	Regarding the last WFP distribution, Who (men, women or both) decides what to do with the food given by WFP, such as whether to sell, trade, lend or share a portion of it?	1. Women 2. Men 3. Women and Men Together

E4	How many HH members went (or tried to go) to the WFP programme site during the last 2 months?	|__|
E5	Have any of these HH member(s) experienced safety problems 1) going to WFP programme sites, 2) at WFP programme sites, and/or 3) going from WFP programme sites during the last 2 months?	1=Yes 0= No **(If no, skip question E6)**
E6	If yes, could you let me know where the problem occurred (select all that are relevant):	a) Going to the WFP programme site |__| b) At the WFP programme site |__| c) Going from the WFP programme site |__|

SECTION 7 – MAIN INCOME SOURCE			
F1. - How many members of the household earn an income?			|____|
Please complete the table, one activity at a time *(use income source codes, up to 3 activities)*		During the past 30 days, what were your household's most important livelihood sources? *(use income source codes, up to 3 activities)*	Using proportional piling or 'divide the pie' methods, please estimate the relative contribution to total income of each source **(%)**
F2.	**Most important**	|__|__|	|__|__|__|
F3.	**Second** *(leave blank if none)*	|__|__|	|__|__|
F4.	**Third** *(leave blank if none)*	|__|__|	|__|__|
Income source codes: *1 = Food crop production/sales* *2 = Cash crop production/sale (e.g. coffee)* *3 = Sale of animals or animal products* *4 = Livestock production (Animal Husbandry)* *5 = Agricultural wage labor* *6 = Non-agricultural wage labor*		*7 = Small business/self-employed* *8 = Petty trade (firewood sales, etc.)* *9 = Pension, allowances* *10 = Salary/wages* *11 = Fishing* *12 = Handicrafts* *13 = Gifts/begging*	*14 = Borrowing* *15 = Food assistance* *16 = Skilled Trade* *17 = Sale of food assistance* *19=Government allowance* *20=Remittances* *18 = Other*

SECTION 8– EXPENDITURES AND DEBT			
Food Expenditure			
		G1 – Did you purchase any of the following items during the last 30 days for domestic consumption?	**G2** – During the **last 30 days**, did your household consume the

		If '**no**', enter '0' and proceed to the next food-item. If '**yes**', ask the respondent to estimate the total cash and credit expenditure on the item for **the 30 days.** (*register the expenses according to local currency*)		following foods **without purchasing** them? If so, estimate the value of the non-purchased food items consumed during **the last 30 days**
		(Cash, local currency)	**(Credit, local currency)**	**(Local currency)**
1.	Cereals (maize, rice, sorghum, wheat, bread)			
2.	Tubers (sweet potatoes, cassava)			
3.	Pulses (beans, peas, groundnuts)			
4.	Fruits & vegetables			
5.	Fish/Meat/Eggs/Poultry			
6.	Oil, fat, butter			
7.	Milk, cheese, yogurt			
8.	Sugar/salt			
9.	Tea/Coffee			
10.	Other meals/snacks consumed outside the home			
11.	Matooke			

Non Food expenditure					
G3 – Did you purchase the following items during the **last 30 days** for domestic consumption? ***If none, write 0 and go to next item***		**G4** – Estimate expenditure during the **last 30 days** (*register the expenses according to the currency in which it was done*)	**G5** – In the past **6 months** how much money have you spent on each of the following items or service? ***Use the following table, write 0 if no expenditure.***		**G6**– Estimate expenditure during the **last six months**
		(local currency)			**(local currency)**
1	Rent		10	Medical expenses, health care	
2	Soap & HH items		11	Clothing, shoes	
3	Transport		12	Education, school fees, uniform, etc.	
4	Fuel (wood, paraffin, etc.)		13	Debt repayment	
5	Water		14	Celebrations/social events	
6	Electricity/Lighting		15	Agricultural inputs	

7	Communication (phone)		16	Savings	
9	Alcohol/Palm wine & Tobacco		17	Constructions/house repairs	

G7	Do you have any debt or credit to repay at the moment?	**0**= No **1**= Yes	|___| ***If 'No', go to section 9***
G8	If yes, approximate the amount of current debt in Uganda shiLLINTgs		……..UgX
G9	What was the main reason for new debts or credit? **1**= To buy food **2**= To cover health expenses **3**= To pay school, education costs **4**= To buy agricultural inputs (seed, tools...) **5**= To buy animal feed, fodder, veterinary **6**= To buy or rent land **7**= To buy or rent animals **8**= To buy or rent or renovate a flat/ house **9**= To pay for social events / ceremonies **10**= To invest for other business **11**= Other reason(specify)_____		**Main reason** |____|
G10	Who is the main source of credit for all debts and loans? **1**= Relatives **2**= Traders/shop-keeper **3**= Bank/ Credit institution/Micro-credit project **4**= Money lender **5**= Other (*specify*)		**Main source** |____|

SECTION 9– FOOD SOURCES AND CONSUMPTION

Read: I would now like to ask you a few questions about food consumption in your household (**Ask all the three questions for each row)**

	Food Item	***a.*** *Number of days food item was eaten during last 7 days*	***b.*** *Main Source (use codes at bottom of table)*	***c.*** *Was food item eaten in last 24 hours? 1= Yes 0= No*
H1.	**Cereals and grain:** Rice, bread / cake and / or donuts, sorghum, millet, maize, chapatti.	|__|	|__|	
H2.	**Roots and tubers:** potato, yam, cassava, sweet potato, and / or other tubers	|__|	|__|	
H3.	**Pulses:** beans, cowpeas, lentils, soy, pigeon pea	|__|	|__|	
H4.	**Nuts:** ground nuts, peanuts, sim sim, coconuts or other nuts	|__|	|__|	

H5.	**Orange vegetables (vegetables rich in Vitamin A):** carrot, red pepper, pumpkin, orange sweet potatoes,	|__|	|__|	
H6.	**Green leafy vegetables:**, spinach, broccoli, amaranth and / or other dark green leaves, cassava leaves, bean leaves, pea leaves.	|__|	|__|	
H7.	**Other vegetables:** onion, tomatoes, cucumber, radishes, green beans, peas, lettuce, cabbage, etc.	|__|	|__|	
H8.	**Orange fruits (Fruits rich in Vitamin A):** mango, papaya, apricot, peach	|__|	|__|	
H9.	**Other Fruits:** banana, apple, lemon, tangerine	|__|	|__|	
H10.	**Meat:** goat, beef, chicken, pork *(report only meat consumed in large quantities and not as a condiment)*	|__|	|__|	
H11.	**Liver, kidney, heart and / or other organ meats and blood**	|__|	|__|	
H12.	**Fish / Shellfish:** fish, including canned tuna, and/or other seafood *(report only fish consumed in large quantities and not as a condiment)*	|__|	|__|	
H13.	**Eggs**	|__|	|__|	
H14.	**Milk and other dairy products**: fresh milk / sour, yogurt, cheese, other dairy products *(Exclude margarine / butter or small amounts of milk for tea / coffee)*	|__|	|__|	
H15.	**Oil / fat / butter:** vegetable oil, palm oil, shea butter, margarine, other fats / oil	|__|	|__|	
H16.	**Sugar, or sweet:** sugar, honey, jam, cakes, candy, cookies, pastries, cakes and other sweet (sugary drinks)	|__|	|__|	
H17.	**Condiments / Spices:** tea, coffee / cocoa, salt, garlic, spices, yeast / baking powder, lanwin, tomato / sauce, meat or fish as a condiment, condiments including small amount of milk / tea coffee.	|__|	|__|	
Food source codes *1 = Own production (crops, animal)* *2 = Fishing / Hunting* *3 = Gathering* *4 = Borrowed* *5 = Market (purchase with cash)* *6 = Market (purchase on credit)* *7 = Beg for food*				

8 = Exchange labor or items for food *9 = Gift (food) from family relatives or friends* *10 = Food aid from civil society, NGOs, government, WFP etc*			

SECTION 10– SHOCKS AND COPING

What have been your main **difficulties or shocks** in the past 30 days ***Do <u>NOT</u> list, leave the household answer spontaneously*** *Once done, ask the household to rank the 2 most important ones*	1st Difficulty		2nd Difficulty	
1 = Loss employment/reduced salary/wages 2 = Crop Loss due to Rodents 3 = Death household member/funerals 4 = High food prices 5 = High fuel/transportation prices 6= Debt to reimburse 7 = Floods, heavy rains, drought, land slides 8= Other shock (Specify) 99= No difficulty mentioned	**I1.**	| ___ |	**I2.**	| ___ |

Reduced Coping Strategies Index During the last 7 days, how many times (in days) did your household have to employ one of the following strategies to cope with a lack of food or money to buy it? **READ OUT STRATEGIES**		**Frequency (number of days from 0 to 7)**
I3.	Relied on less preferred, less expensive food	| __ |
I4.	Borrowed food or relied on help from friends or relatives	| __ |
I5.	Reduced the number of meals eaten per day	| __ |
I6.	Reduced portion size of meals	| __ |
I7.	Reduction in the quantities consumed by adults/mothers for young children	| __ |

Livelihood Coping Strategies Index During the last 30 days, did anyone in your household have to engage in any of the following activities because there was not enough food or money to buy food			**1=Yes** **2= No, because it wasn't necessary** **3=No, because i already sold those assets or did this activity and cannot continue** **4=No, because i never had the possibility to do so**
I8.	STRESS	Sold more animals (non-productive) than usual	| __ |
I9.		Sold household goods (radio, furniture, refrigerator, television, jewelry etc..)	| __ |
I10.		Spent savings	| __ |

I11.		Borrowed money	| __ |
I12.	CRISIS	Sold productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, goats, cows, etc.)	| __ |
I13.		Reduced essential non-food expenditures such as education, health, etc.	| __ |
I14.		Consume seed stock held for next season	| __ |
I15.	EME	Sold house or land	| __ |
I16.		Illegal income activities (theft, smuggling, prostitution)	| __ |
I17.		Begged	| __ |

SECTION 11: ANTHROPOMETRIC DATA FORM AND QUESTIONNAIRE FOR CHILDREN 0-59 MONTHS

(*All children in age-range in the household should be assessed)*

Initials	**J1.**	**J2.**	**J3.**	**J4.**	**J5.**	**J6.**	**J7.**	**J8.**	**J9.**	**J10.**				**J.14**	**J15**
	Sex 1= M 2=F	Date of birth (if available) dd/mm/yyyy	Age of child in months	Weight (kg) ±0.1 kg	Height / Length [1](cm) ±0.1cm	Oedema 1=Y 0=N	MUAC ±0.1cm ***(skip if child under 6 months)***	Hemocue g/dl	Feeding program Enrolled 1=SFP 2=TFP 3=BSFP	Has the child received the following 1= Yes (with child health card); 2= Yes (without card); 3= No with card; 4= No without card; 88 = Don't know				Did this child have the diarrhoea in the last 2 weeks 1= YES 0= No, 88 =Don't know)	1 = Diarrhea 2 = If Yes for dirrhoea, did the child receive ORS?
										H10. Measles	**H11.** DPT3 *(only assessed with child card)*	**H12.** De-worming (past 6 months)	**H13.** Vitamin A (In past 6 months)		

Case definition:

- Diarrhoea= any episode of more than three loose stools per day; bloody diarrhoea: any episode of more than three stools per day in which there is presence of blood in stools

Height measurement standing when child is ≥24 months (height proxy ≥87 cm) and lying down when child is < 24 months (< 87 cm)

SECTION 12: INFANT AND YOUNG CHILD FEEDING QUESTIONNAIRE FOR CHILDREN 0-23 MONTHS

(The questionnaire is to be administered to the mother of care giver responsible for feeding the child)

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	Less than one hour..... 1 Between 1 and 23 hours.....2	

	[NAME] to the breast?	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 REDY TO THE CONTEXT (TO BE DONE DURING THE TRAINING)

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	11H……....1 2 8

	YOUNG CHILDREN AVAILABLE IN THE LOCAL SETTING THAT ARE DIFFERENT THAN DISTRIBUTED COMMODITIES AND USE LOCALLY AVAILABLE BRAND NAMES] *(e.g. Cerelac, Weetabix)*		
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	|___|

SECTION 13: MOSQUITO NET COVERAGE

No	QUESTION		ANSWER CODES		
SECTION TN1					
TN1	How many people live in this household and slept here last night? INSERT NUMBER **TOTHH**				|___|___|
TN2	How many children 0-59 months live in this household and slept here last night? INSERT NUMBER **TOTCH**				|___|___|
TN3	How many pregnant women live in this household and slept here last night? INSERT NUMBER **TOTPW**				|___|___|
TN4	Did you have your house sprayed with insecticide in an indoor residual spray campaign in the past I___I months? (OPTIONAL) **HHIRS**		Yes.....1 No 0		|___|
TN5	Do you have mosquito nets in this household that can be used while sleeping? **MOSNETS**		Yes.....1 No 0		|___| **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 **NUMNETS**		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 ARE NOT OBSERVED → CORRECT TN6 ANSWER	NET #|___|	NET #|___|	NET #|___|	NET #|___|
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 LLINT OR OTHER TYPE OF NET OR DK.	1=LLINT 2=Other/ DK |___| **LNTYPE1**	1=LLINT 2=Other/DK |___| **LNTYPE2**	1=LLINT 2=Other/DK |___| **LNTYPE3**	1=LLINT 2=Other/ DK |___| **LNTYPE4**

TN10	**For surveyor/supervisor only (not to be done during interview)**:				

SECTION TN2

Line no	**Household members**	**Sex**	**Age**	**Pregnancy status**	**Slept under net**	**Which net**	**Type of net**
#	**COL1**	**COL 2**	**COL 3**	**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 LLINT OR OTHER / DON'T KNOW (DK) LLINT OTHER/DK

|___|
LLINTs

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	

RECORD THE TOTAL NUMBER OF LLINTs IN HOUSEHOLD BY COUNTING THE NUMBER OF '1' IN TN9. **TOTLN**

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** |___|___| **TOTSLPNT**	For children < 5 (COL3 is '<5'), count the number of '1' in COL5	**TN13** |___|___| **TOTCHNT**	For pregnant women (COL4 is '1'), count the number of '1' in COL5	**TN15** |___|___| **TOTPWNT**
Slept under an LLINT	Count the number of '1' in COL7	**TN12** |___|___| **TOTSLPLN**	For children <5 (COL3 is '<5'), count the number of '1' in COL7	**TN14** |___|___| **TOTCHLN**	For pregnant women (COL4 is '1'), count the number of '1' in COL7	**TN16** |___|___| **TOTPWLN**

SECTION 14: MORTALITY ASSESSMENT IN THE PAST 90 DAYS

L1. Current HH members – total		
L2. Current HH members - < 5		
L3. Current HH members who arrived during recall (exclude births)		
L4. Current HH members who arrived during recall - <5		
L5. Past HH members who left during recall (exclude deaths)		
L6. Past HH members who left during recall - < 5		
L7. Births during recall		
L8. Total deaths		
L9. Deaths < 5		