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, Bidibidi, Rhino-camp and Lobule

Data Collected: December 2016

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ACRONYMS AND ABBREVIATIONS

ANC	Ante Natal Clinic
CMR	Crude Mortality 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
SFP	Supplementary Feeding Programme
SMART	Standardised Monitoring & Assessment of Relief & Transitions

TFP	Therapeutic Feeding Programme
U5MR	Under-five Mortality Rate
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

- In 2016, the food security, health and nutrition indicators in refugee settlements were stable comparable to findings the past three years. Improvement was observed in prevalence of GAM for all settlements except Rhino Camp and Lobule, **Table 1**.

Table 1: Trend of GAM, Stunting and Underweight, Refugee Settlements, 2014 - 2016

	GAM			Stunting			Underweight		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Nakivale	3.6%	5.5%	3.2%	39.8%	37.7%	23.0%	11.7%	11.2%	7.2%
Oruchinga	4.3%	4.5%	4.0%	44.4%	17.6%	34.2%	17.3%	4.8%	8.6%
Kyaka II	6.0%	6.8%	3.3%	45.7%	31.2%	35.7%	13.7%	6.8%	8.3%
Kyangwali	3.2%	4.4%	2.1%	47.7%	20.7%	39.6%	13.9%	4.4%	6.9%
Rwamwanja	3.4%	4.3%	1.6%	45.1%	40.2%	39.8%	16.6%	4.3%	9.1%
Kiryandongo	8.6%	9.7%	8.2%	13.3%	17.7%	6.5%	7.7%	17.7%	4.4%
Rhino Camp	5.2%	10.5%	14.2%	11.4%	15.1%	7.5%	4.8%	11.2%	4.7%
Adjumani	6.9%	11.0%	9.6%	17.6%	16.7%	12.7%	8.8%	14.1%	7.2%
Lobule	1.9%	2.6%	7.5%	29.4%	27.2%	9.8%	7.8%	11.0%	3.0%
Bidibidi	-	-	7.6%	-	-	18.4%	-	-	10.1%

- Anaemia prevalence is still high in all settlements (being above the 40% of public health significance in 8 settlements out of 10) and the trend is mixed. Total anemia seems to be declining in only Nakivale while it is worsening in Lobule and Kiryandongo. Moderate and severe anaemia however, generally exhibits a downward spiral in the majority of the settlements except in Lobule and Kiryandongo, **Table 2**.

Table 2: Trend of Anaemia in Children and Mothers in Refugee Settlements, 2014-2016

	Total Anaemia in children 6-59			Moderate and Severe Anaemia in children 6-59			Anaemia in women 15-49 years		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Nakivale	36.5%	41.0%	26.1%	19.5%	18.9%	2.5%	26.9%	27.8%	44.4%
Oruchinga	43.1%	39.4%	39.1%	20.0%	19.2%	23.2%	20.4%	30.4%	34.9%
Kyaka II	48.3%	52.2%	51.1%	30.6%	21.4%	23.2%	30.4%	43.2%	42.1%
Kyangwali	52.5%	41.1%	44.8%	32.2%	19.2%	19.6%	37.5%	30.8%	23.1%
Rwamwanja	49.2%	50.2%	51.7%	29.7%	31.5%	28.0%	25.1%	33.8%	47.8%
Kiryandongo	41.1%	43.9%	59.3%	22.2%	23.7%	26.5%	42.3%	37.3%	39.4%
Rhino Camp	67.7%	49.8%	65.0%	40.8%	27.9%	37.5%	58.6%	37.5%	38.5%
Adjumani	59.7%	54.2%	47.7%	35.3%	33.3%	29.2%	38.2%	35.6%	48.1%
Lobule	64.5%	63.9%	72.2%	36.2%	37.7%	40.8%	39.1%	30.0%	21.8%
Bidibidi	-	-	72.4%	-	-	48.1%	-	-	56.5%

Table 3: Summary of Results SENS - 2016

	Nakivale Settlement		Oruchinga Settlement		Kyaka II 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)	20/621	3.2% (2.0- 5.2)	12/298	4.0% (2.5- 6.3)	18/546	3.3% (1.9- 5.7)	**Critical if ≥ 15%**
Moderate Acute Malnutrition (MAM)	20/621	3.2% (2.0- 5.2)	12/298	4.0% (2.5- 6.3)	18/546	3.3% (1.9- 5.7)	
Severe Acute Malnutrition (SAM)	0/621	0.0% (0.0- 0.0)	0/298	0.0% (0.0- 0.0)	0/546	0.0% (0.0- 0.0)	
Oedema	0	0.0%	0	0.0%	0	0.0%	
Mid Upper Arm Circumference (MUAC)							
MUAC <125mm and/or oedema	19/637	3.0 % (1.5 - 5.8)	4/300	1.3 % (0.5 - 3.3)	17/559	3.0 % (1.7 - 5.2)	
MUAC 115-124 mm	17/637	2.7 % (1.3 - 5.4)	3/300	1.0 % (0.3 - 3.1)	13/559	2.3 % (1.2 - 4.4)	
MUAC <115 mm and/or Oedema	2/637	0.3 % (0.1 - 1.3)	1/300	0.3 % (0.0 - 2.9)	4/559	0.7 % (0.3 - 1.9)	
Stunting1 (WHO 2006 Growth Standards)							
Total Stunting	141/613	23.0% (18.2-28.6)	100/292	34.2% (26.7-42.6)	191/535	35.7% (30.4-41.4)	**Critical if ≥ 40%**
Severe Stunting	36/613	5.9% (4.2- 8.2)	26/292	8.9% (5.4-14.3)	57/535	10.7% (8.9-12.7)	
Programme coverage							
Measles vaccination with card or recall (9-59 months)	589/605	97.4% (96.1 - 98.6)	279/282	98.9% (97.7 - 100.1)	508/532	95.5% (93.7 - 97.3)	**Target of ≥ 95%**
Vitamin A supplementation within past 6 months with card or recall	588/637	92.3% (90.2 - 94.4)	255/297	85.9% (81.9 - 89.8)	513/563	91.1% (88.8 - 93.5)	**Target of ≥ 90%**
Household with ration cards	518/569	91.0% (87.4 -94.1)	331/362	91.4% (85.2 – 95.3)	522/556	93.9% (90.0 – 97.7)	
Diarrhoea							
Diarrhoea in last 2 weeks	171/682	25.1% (21.8 - 28.3)	24/341	7% (4.3 - 9.8)	90/606	14.9% (12.0 - 17.7)	
Anaemia (children 6 – 59 months)							
Total Anaemia (Hb<11 g/dl)	166/637	26.1% (22.6 - 29.5)	116/297	39.1% (33.5 - 44.6)	236/462	51.1% (46.5 - 55.6)	**Critical if ≥ 40%**
Mild (Hb 10-10.9)	150/637	23.5% (20.3 - 26.9)	47/297	15.8% (11.7 - 20)	129/462	27.9% (23.8 - 32)	
Moderate (Hb 7-9.9)	13/637	2.0% (0.9 - 3.1)	66/297	22.2% (17.5 - 26.9)	100/462	21.6% (17.9 - 25.4)	
Severe (Hb<7)	3/637	0.5% (-0.1 - 1)	3/297	1% (-0.1 - 2.2)	7/462	1.5% (0.4 - 2.6)	
CHILDREN 0-23 months							
IYCF indicators							
Timely initiation of breastfeeding	215/228	94.3% (91.3 - 97.3)	135/141	95.7% (92.4 - 99.1)	189/207	91.3% (87.5 - 95.1)	
Exclusive breastfeeding under 6 months	32/44	72.7% (59.6 - 85.9)	40/44	90.9% (67.6 - 92.4)	38/43	88.4% (78.8 - 97.9)	
Consumption of iron-rich or iron-fortified foods	166/209	79.4% (75.6 - 86.4)	89/99	89.9% (84 - 95.8)	125/207	60.4% (53.7 - 67.1)	
Bottle feeding	33/250	13.2% (9 - 17.4)	3/143	2.1% (-0.2 - 4.5)	36/238	15.1% (10.6 - 19.7)	
WOMEN 15-49 years							
Anaemia (non-pregnant)							

[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).

	Nakivale Settlement		Oruchinga Settlement		Kyaka II Settlement		Classification of public health significance or target (where applicable)
	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	
Total Anaemia(Hb<12 g/dl)	229/516	44.4% (40.1 - 48.7)	76/218	34.9% (28.3 - 41.2)	174/413	42.1% (37.4 - 46.9)	**High if ≥ 40%**
Mild (Hb 11-11.9)	138/516	26.7% (22.9 - 30.6)	46/218	21.1% (15.7 - 26.5)	92/413	22.3% (18.3 - 26.3)	
Moderate (Hb 8-10.9)	89/516	17.2% (14 - 20.5)	28/218	12.8% (8.4 - 17.3)	76/413	18.4% (14.7 - 22.1)	
Severe (Hb<8)	2/516	0.4% (-0.2 - 0.9)	2/218	0.9% (-0.4 - 2.2)	6/413	1.5% (0.3 - 2.6)	
Negative household coping strategies							
Proportion of households reporting using none of the coping strategies over the past month	212/572	37.1% (33.1 - 41)	130/362	35.9% (31 - 40.9)	224/556	40.3% (36.2 - 44.4)	
Household dietary diversity							
Average HDDS (mean, SD/ range)	3.8 Mean 1.7 SD		3.3 Mean 1.4 SD		3.7 Mean 1.8 SD		
Water quality							
Proportion of households using improved drinking water source	546/572	95.5% (93.7 - 97.2)	327/362	90.3% (87.3 - 93.4)	547/556	98.4% (97.3 - 99.4)	
Water quantity							
Proportion of households that use:							
≥ 20 lpppd	135/571	23.6% (20.2 - 27.1)	85/360	23.6% (19.2 - 28)	140/556	25.2% (21.6 - 28.8)	
15 - <20 lpppd	67/571	11.7% (9.1 - 14.4)	53/360	14.7% (11.1 - 18.4)	80/556	14.4% (11.5 - 17.3)	
<15 lpppd	369/571	64.6% (60.7 -68.5)	222/360	61.7% (56.7 - 66.7)	336/556	60.4% (56.4 - 64.5)	
Average consumption: Litres per person per day (LPPPD)	563	Mean 13.4 SD 7.7	313	Mean 14.1 SD 9.1	531	Mean 13.5 SD 7.7	**UNHCR target is ≥20 lpppd**
Satisfaction with drinking water supply							
Proportion of households that say they are satisfied with drinking water supply	261/572	45.6% (41.6 - 49.1)	195/362	53.9% (48.7 - 59)	450/556	80.9% (77.7 - 84.2)	
Safe excreta disposal							
Proportion of households that use:							
An improved excreta disposal facility (improved toilet facility, 1 household)	284/572	49.7% (45.6 - 53.8)	245/362	67.7% (62.9 - 72.5)	285/556	51.3% (47.1 - 55.4)	
A shared family toilet (improved toilet facility, 2 households)	86/572	15% (12.1 - 18)	58/362	16% (12.2 - 19.8)	70/556	12.6% (9.8 - 15.3)	
A communal toilet (improved toilet facility, 3 households or more)	14/572	2.4% (1.2 - 3.7)	4/362	1.1% (0 - 2.2)	1/556	0.2% (-0.2 - 0.5)	
An unimproved toilet (unimproved toilet facility or public toilet)	188/572	32.9% (12.4 - 18.3)	55/362	15.2% (11.5 - 18.9)	200/556	36% (32 - 40)	
MOSQUITO NET COVERAGE							
Mosquito net ownership							
Proportion of households owning at least one LLIN	362/572	63.2% (59.2 - 67.1)	266/362	73.5% (68.9 - 78)	257/556	46.2% (42.1 - 50.4)	**Target of >80%**
Average number of persons per LLIN (mean)	3.23		2.78		3.47		**2 person/ LLIN**

	Nakivale Settlement		Oruchinga Settlement		Kyaka II Settlement		Classification of public health significance or target (where applicable)
	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	
MORTALITY							**Deaths/10000/day**
Crude Mortality rate (CMR)	0.10 (0.03 – 0.32)		0.20 (0.06-0.60)		0.04 (0.00-0.28)		**>1 = Serious condition**
Underfive mortality rate (U5MR)	0.10 (0.02-0.43)		0.00 (0.00-0.00)		0.00 (0.00-0.00)		**>2 = Serious trouble**

	Kyangwali Settlement		Rwamwanja Settlement		Kiryandongo 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)	11/530	2.1% (1.2- 3.5)	6/381	1.6% (0.8- 3.2)	37/453	8.2% (5.7-11.5)	**Critical if ≥ 15%**
Moderate Acute Malnutrition (MAM)	11/530	2.1% (1.2- 3.5)	6/381	1.6% (0.8- 3.2)	35/453	7.7% (5.5-10.8)	
Severe Acute Malnutrition (SAM)	0/530	0.0% (0.0- 0.0)	0/381	0.0% (0.0- 0.0)	2/453	0.4% (0.1- 1.7)	
Oedema	0	0.0%	0	0.0%	0	0.0%	
Mid Upper Arm Circumference (MUAC)							
MUAC <125mm and/or oedema	21/536	3.9 % (2.6 - 6.0)	11/390	2.8 % (1.5 - 5.3)	6/461	1.3 % (0.6 - 3.0)	
MUAC 115-124 mm	18/536	3.4 % (2.1 - 5.4)	10/390	2.6 % (1.3 - 5.0)	3/461	0.7 % (0.2 - 2.1)	
MUAC <115 mm and/or Oedema	3/536	0.6 % (0.2 - 1.8)	1/390	0.3 % (0.0 - 2.1)	3/461	0.7 % (0.2 - 2.7)	
Stunting2 (WHO 2006 Growth Standards)							
Total Stunting	208/525	39.6% (35.6-43.8)	150/377	39.8% (34.5-45.3)	29/449	6.5% (4.3- 9.6)	**Critical if ≥ 40%**
Severe Stunting	73/525	13.9% (11.3-16.9)	52/377	13.8% (9.4-19.7)	0/449	0.0% (0.0- 0.0)	
Programme coverage							
Measles vaccination with card or recall (9-59 months)	525/581	90.4% (88 - 92.8)	358/372	96.2% (94.3 - 98.2)	360/453	79.5% (75.6 - 83.2)	**Target of ≥ 95%**
Vitamin A supplementation within past 6 months with card or recall	467/607	76.9% (73.6 - 80.3)	379/389	97.4% (95.9 – 99.0)	342/468	73.1% (69.1 - 77.1)	**Target of ≥ 90%**
Household with ration cards	365/580	62.9% (57.6 – 66.9)	419/435	96.3% (94.4 -98.2)	360/369	97.6% (94.8 – 99.6)	
Diarrhoea							
Diarrhoea in last 2 weeks	57/657	8.7% (6.5 - 10.8)	80/432	18.5% (14.9 - 22.2)	57/500	11.4% (8.6 - 14.1)	
Anaemia (children 6 – 59 months)							
Total Anaemia (Hb<11 g/dl)	268/598	44.8% (40.8 - 48.8)	194/375	51.7% (46.7 - 56.8)	192/324	59.3% (53.9 - 64.6)	**Critical if ≥ 40%**
Mild (Hb 10-10.9)	151/598	25.3% (21.8 - 28.7)	89/375	23.7% (19.4 - 28)	106/324	32.7% (27.6 - 37.8)	
Moderate (Hb 7-9.9)	109/598	18.2% (15.1 - 21.3)	93/375	24.8% (20.4 - 29.2)	79/324	24.4% (19.7 - 29.1)	
Severe (Hb<7)	8/598	1.3% (0.4 - 2.3)	12/375	3.2% (1.4 – 5)	7/324	2.2% (0.6 - 3.7)	
CHILDREN 0-23 MONTHS							
IYCF indicators							
Timely initiation of breastfeeding	173/232	74.6% (69 - 80.2)	127/148	85.8% (80.2 - 91.4)	124/127	97.6% (95 - 100)	
Exclusive breastfeeding under 6 months	33/50	66% (52.8 - 79.1)	31/42	73.8% (60.5 - 87.1)	20/28	71.4% (54.7 - 88.2)	
Consumption of iron-rich or iron-fortified foods	79/216	36.6% (30.1 - 43)	74/130	56.9% (48.4 - 65.4)	83/131	63.4% (55.1 - 71.6)	
Bottle feeding	26/248	10.5% (6.7 - 14.3)	16/158	10.1% (5.4 - 14.8)	34/145	23.4% (16.6 - 30.4)	

[2] 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).

	Kyangwali Settlement		Rwamwanja Settlement		Kiryandongo Settlement		Classification of public health significance or target (where applicable)
	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	
WOMEN 15-49 years							
Anaemia (non-pregnant)							
Total Anaemia(Hb<12 g/dl)	108/467	23.1% (19.3 - 27)	175/366	47.8% (42.7 - 52.9)	104/264	39.4% (33.5 - 45.3)	**High if ≥ 40%**
Mild (Hb 11-11.9)	46/467	9.9% (7.2 - 12.6)	84/366	23% (18.6 - 27.3)	54/264	20.5% (15.6 - 25.3)	
Moderate (Hb 8-10.9)	60/467	12.8% (9.8 - 15.9)	82/366	22.4% (18.1 - 26.7)	47/264	17.8% (13.2 - 22.4)	
Severe (Hb<8)	2/467	0.4% (-0.16 - 1)	9/366	2.5% (0.9 - 4.1)	3/264	1.1% (-0.1 - 2.4)	
Negative household coping strategies							
Proportion of households reporting using none of the coping strategies over the past month	363/581	62.5% (71.6 - 79.3)	180/435	41.4% (36.8 - 46)	151/369	40.9% (35.9 - 45.9)	
Household dietary diversity							
Average HDDS (mean, SD/ range)	3.6 Mean 1.5 SD		3.7 Mean 1.4 SD		3.9 Mean 1.8 SD		
WASH							
Water quality							
Proportion of households using improved drinking water source	580/582	99.7% (99.2 - 100.1)	434/435	99.8% (99.3 - 100.2)	368/369	99.7% (99.2 - 100.3)	
Water quantity							
Proportion of households that use:							
≥ 20 lpppd	191/580	32.9% (29.1 - 36.7)	101/435	23.2% (19.2 - 27.2)	102/364	28% (23.4 - 32.6)	
15 - <20 lpppd	130/580	22.4% (19 - 25.8)	41/435	9.4% (6.7 - 12.2)	36/364	9.9% (6.8 - 13)	
<15 lpppd	259/580	44.7% (40.6 - 48.7)	293/435	67.4% (62.9 - 71.8)	226/364	62.1% (57.1 - 67.1)	
Average consumption: Litres per person per day (LPPPD)	553	Mean 15.1 SD 19.0	432	Mean 13.0 SD 8.5	354	Mean 16.4 SD 17.2	**UNHCR target is ≥20 lpppd**
Satisfaction with drinking water supply							
Proportion of households that say they are satisfied with drinking water supply	452/582	77.7% (74.3 - 81)	289/435	66.4% (62 - 70.9)	67/369	18.2% (62.6 - 71.4)	
Safe excreta disposal							
Proportion of households that use:							
An improved excreta disposal facility (improved toilet facility, 1 household)	138/580	23.7% (20.3 - 27.1)	235/435	54% (49.3 - 58.7)	134/369	36.3% (31.4 - 41.2)	
A shared family toilet (improved toilet facility, 2 households)	17/580	2.9% (1.5 - 4.3)	70/435	16.1% (12.6 - 19.5)	52/369	14.1% (10.5 - 17.6)	
A communal toilet (improved toilet facility, 3 households or more)	4/580	0.7% (0 - 1.4)	1/435	0.2% (0 - 0.7)	14/369	3.8% (1.8 - 5.7)	

	Kyangwali Settlement		Rwamwanja Settlement		Kiryandongo Settlement		Classification of public health significance or target (where applicable)
	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	
An unimproved toilet (unimproved toilet facility or public toilet)	423/580	72.7% (69.1 - 76.3)	129/435	29.7% (25.4 - 33.9)	169/369	45.8% (40.7 - 50.9)	
MOSQUITO NET COVERAGE							
Mosquito net ownership							
Proportion of households owning at least one LLIN	234/580	40.1% (36.2 - 44.1)	152/435	34.9% (30.4 - 39.3)	130/369	35.1% (30.3 - 40)	**Target of >80%**
Average number of persons per LLIN (mean)	3.11		3.21		3.55		**2 person/ LLIN**
MORTALITY							**Deaths/10000/day**
Crude Mortality rate (CMR)	0.16 (0.07-0.37)		0.29 (0.13-0.65)		0.14 (0.04-0.44)		**>1 = Serious condition**
Underfive mortality rate (U5MR)	0.11 (0.01-0.83)		0.06 (0.01-0.48)		0.20 (0.03-1.46)		**>2 = Serious trouble**

	Adjumani Settlement		Rhino Camp Settlement		Lobule Settlement		Bidibidi Settlement		Classification of public health significance or target (where applicable)
	Number /total	% (95% CI)	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)	58/607	9.6% (7.7-11.8)	33/232	14.2% (8.5-22.8)	32/424	7.5% (4.3-12.9)	41/542	7.6% (5.6-10.1)	**Critical if ≥ 15%**
Moderate Acute Malnutrition (MAM)	49/607	8.1% (6.3-10.2)	29/232	12.5% (7.4-20.4)	28/424	6.6% (3.7-11.6)	34/542	6.3% (4.4- 8.9)	
Severe Acute Malnutrition (SAM)	9/607	1.5% (0.9- 2.5)	4/232	1.7% (0.7- 4.2)	4/424	0.9% (0.4- 2.4)	7/542	1.3% (0.4- 3.9)	
Oedema	0	0.0%	0	0.0%	0	0.0%	4/542	0.7%	
Mid Upper Arm Circumference (MUAC)									
MUAC <125mm and/or oedema	20/611	3.3 % (2.1 - 5.2)	3/237	2.6 % (0.9 - 7.3)	23/427	5.4 % (2.9 - 9.8)	35/553	6.3 % (4.5 - 8.9)	
MUAC 115-124 mm	16/611	2.6 % (1.5 - 4.5)	7/237	3.0 % (1.2 - 7.3)	14/427	3.3 % (1.8 - 6.0)	22/553	4.0 % (2.2 - 7.1)	
MUAC <115 mm and/or Oedema	4/611	0.7 %(0.3 - 1.3)	0/237	0.0 % (0.0 - 0.0)	9/427	2.1 % (0.9 - 4.7)	13/553	2.4 % (1.5 - 3.7)	
Stunting3 (WHO 2006 Growth Standards)									
Total Stunting	75/590	12.7% (10.0-16.0)	17/228	7.5% (4.1-13.0)	41/418	9.8% (7.3-13.1)	99/538	18.4% (13.4-24.7)	**Critical if ≥ 40%**
Severe Stunting	13/590	2.2% (0.9- 5.3)	3/228	1.3% (0.5- 3.6)	1/418	0.2% (0.0- 1.9)	26/538	4.8% (2.9- 8.1)	
Programme coverage									
Measles vaccination with card or recall (9-59 months)	554/578	95.8% (94.2 - 97.5)	199/210	94.8% (91.8 - 97.8)	412/423	97.4% (95.9 - 98.9)	380/544	69.9% (66 - 73.7)	**Target of ≥ 95%**
Vitamin A supplementation within past 6 months with card or recall	571/604	94.5% (92.7 - 96.4)	210/221	95.0% (92.1 - 97.9)	415/433	95.8% (94 - 97.7)	394/567	69.5% (65.7 - 73.3)	**Target of ≥ 90%**
Household with ration cards	481/486	99.0% (97.7 – 100)	176/180	97.8% (94.8 – 99.7)	311/313	99.4% (97.1 – 100)	474/482	98.3% (98.1 – 100)	
Diarrhoea									
Diarrhoea in last 2 weeks	119/655	18.2% (15.2 - 21.1)	27/220	12.3% (7.9 - 16.6)	66/453	14.6% (11.3 - 17.8)	147/605	24.3% (20.9 - 27.7)	
Anaemia (children 6 – 59 months)									
Total Anaemia (Hb<11 g/dl)	201/421	47.7% (43 - 52.5)	52/80	65% (54.5 - 75.4)	306/424	72.2% (67.9 - 76.4)	406/561	72.4% (68.7 - 76.1)	**Critical if ≥ 40%**
Mild (Hb 10-10.9)	78/421	18.5% (14.8 - 22.2)	22/80	27.5% (17.7 - 37.3)	133/424	31.4% (26.9 - 35.8)	136/561	24.2% (20.7 - 27.8)	
Moderate (Hb 7-9.9)	118/421	28% (23.7 - 32.3)	26/80	32.5% (22.2 - 42.8)	162/424	38.2% (33.6 - 42.8	217/561	38.7% (34.7 - 42.7)	
Severe (Hb<7)	5/421	1.2% (0.1 - 2.2)	4/80	5% (0.2 - 9.8)	11/424	2.6% (1.1 - 4.1)	53/561	9.4% (7 - 11.9)	
CHILDREN 0-23 months									
IYCF indicators									
Timely initiation of breastfeeding	197/226	87.2% (82.8 - 91.5)	68/70	97.1% (93.2 - 101)	101/124	81.5% (74.6 - 88.3)	118/173	68.2% (61.3 - 75.2)	
Exclusive breastfeeding under 6 months	38/48	79.2% (67.7 - 90.7)	10/12	83.3% (62.2 - 104)	16/18	88.9% (74.4 - 103.4)	14/27	51.9% (33 - 70.7)	
Consumption of iron-rich or iron-fortified foods	163/201	81.1% (75.7 - 86.5)	33/66	50% (37.9 - 62.1)	60/120	50% (41.1 - 58.9)	100/198	50.5% (43.6 - 57.5)	

[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).

	Adjumani Settlement		Rhino Camp Settlement		Lobule Settlement		Bidibidi Settlement		Classification of public health significance or target (where applicable)
	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	
Bottle feeding	15/234	6.4% (3.3 - 9.6)	11/73	15.1% (6.9 - 23.8)	21/130	16.2% (9.8 - 22.5)	17/195	8.7% (4.8 - 12.7)	
WOMEN 15-49 years									
Anaemia (non-pregnant)									
Total Anaemia(Hb<12 g/dl)	156/324	48.1% (42.7 - 53.6)	40/104	38.5% (29.1 - 47.8)	52/238	21.8% (16.6 - 27.1)	245/434	56.5% (51.8 - 61.1	**High if ≥ 40%**
Mild (Hb 11-11.9)	81/324	25% (20.3 - 29.7)	24/104	23.1% (15 - 31.2)	33/238	13.9% (9.5 - 18.3)	94/434	21.7% (17.8 - 25.5)	
Moderate (Hb 8-10.9)	73/324	22.5% (18 - 27.1)	14/104	13.5% (6.9 - 20)	19/238	8% (4.5 - 11.4)	135/434	31.1% (26.8 - 35.5)	
Severe (Hb<8)	2/324	0.6% (-0.2 - 1.5)	2/104	1.9% (-0.7 - 4.6)	0/238	0% (0 - 0)	16/434	3.7% (1.9 - 5.5)	
Negative household coping strategies									
Proportion of households reporting using none of the coping strategies over the past month	203/486	41.8% (37.4 - 46.2)	129/180	71.7% (65.1 - 78.3)	58/313	18.5% (14.2 - 22.8)	353/483	73.1% (69.1 - 77)	
Household dietary diversity									
Average HDDS (mean, SD/ range)	4.1 Mean 1.4 SD		3.4 Mean 1.2 SD		4.2 Mean 1.6 SD		2.2 Mean 1.4 SD		
WASH									
Water quality									
Proportion of households using improved drinking water source	484/486	99.6% (90 - 100.2)	180/180	100%	313/313	100%	433/482	89.8% (87.1 - 92.5)	
Water quantity									
Proportion of households that use:									
≥ 20 lpppd	192/475	40.4% (36 - 44.8)	61/179	34.1% (27.1 - 41)	104/312	33.3% (28.1 - 38.6)	254/482	52.7% (42.8 - 57.2)	
15 - <20 lpppd	62/475	13.1% (10 - 16.1)	67/179	11.7% (9.1 - 14.4)	71/312	22.8% (18.1 - 27.4)	55/482	11.4% (8.6 - 14.3)	
<15 lpppd	221/475	46.5% (42 - 51)	101/179	56.4% (49.2 - 63.7)	137/312	43.9% (38.4 - 49.4)	173/482	35.9% (31.6 - 40.2)	
Average consumption: Litres per person per day (LPPPD)	466	Mean 19.4 SD 16.2	173	Mean 15.4 SD 11.2	305	Mean 15.8 SD 7.4	471	Mean 20 SD 53.3	**UNHCR target is ≥20 lpppd**
Satisfaction with drinking water supply									
Proportion of households that say they are satisfied with drinking water supply	245/486	50.4% (46 - 54.9)	28/180	15.6% (10.3 - 20.9)	254/313	81.2% (76.8 - 85.5)	262/482	54.4% (48.3 – 60.1)	
Safe excreta disposal									
Proportion of households that use:									
An improved excreta disposal facility (improved toilet facility, 1 household)	194/486	39.9% (35.6 - 44.3)	20/77	26% (16.2 - 35.8)	271/312	86.9% (83.1 - 90.6)	19/482	3.9% (2.2 - 5.7)	

	Adjumani Settlement		Rhino Camp Settlement		Lobule Settlement		Bidibidi Settlement		Classification of public health significance or target (where applicable)
	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	Number /total	% (95% CI)	
A shared family toilet (improved toilet facility, 2 households)	141/486	29% (25 - 33)	11/77	14.3% (6.5 - 22.1)	36/312	11.5% (8 - 15.1)	35/482	7.3% (4.9 - 9.6)	
A communal toilet (improved toilet facility, 3 households or more)	30/486	6.2% (4 - 8.3)	2/77	2.6% (-0.9 - 6.1)	2/312	0.6% (-0.2 - 1.5)	280/482	58.1% (53.7 - 62.5)	
An unimproved toilet (unimproved toilet facility or public toilet)	121/486	24.9% (21.1 - 28.7)	44/77	57.1% (46.1 - 68.2)	3/312	1% (-0.1 - 2)	148/482	30.7% (26.5 - 34.8)	
MOSQUITO NET COVERAGE									
Mosquito net ownership									
Proportion of households owning at least one LLIN	405/486	83.2% (79.8 - 86.5)	78/180	43.3% (36.1 - 50.6)	209/313	66.8% (61.5 - 72)	137/483	28.3% (24.3 - 32.3)	**Target of >80%**
Average number of persons per LLIN (mean)	3.11		3.46		4.10		3.88		**2 person/ LLIN**
MORTALITY									**Deaths/10000/day**
Crude Mortality rate (CMR)	0.09 (0.01-0.67)		0.17 (0.09-0.35)		0.06 (0.01-0.53)		0.23 (0.01-0.45)		**>1 = Serious condition**
Underfive mortality rate (U5MR)	0.00 (0.00-0.00)		0.06 (0.01-0.44)		0.00 (0.00-0.00)		0.13 (0.02-0.24)		**>2 = Serious trouble**

INTERPRETATION OF RESULTS

Nutrition, Anaemia and IYCF

The anthropometric findings show that the prevalence of acute malnutrition varied from settlement to settlement; with Rhino Camp presenting the highest prevalence of 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 classified as "acceptable", below 5%.

Stunting prevalence was "serious" among children in Rwamwanja at 39.8%, Kyangwali 39.6%, Kyaka II 35.7%, and Oruchinga 34.2%, while Nakivale 23.0% was classified as "poor". The rest of the settlements had below 20% a situation classified as "acceptable".

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 the 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 of reproductive age was recorded highest in Bidbidi at 56.5%, followed by Adjumani at 48.1%.

Early initiation of breastfeeding within one hour post-delivery was at 94.3% in Nakivale, 95.7% Oruchinga, 91.3% Kayaka II, 74.6% Kyangwali, 85.8% Rwamwanja, 97.6% Kiryandongo, 97.1% Rhinocamp, 87.2% Adjumani, 81.5% Lobule and 68.2% Bidibidi. Bottle-feeding was being carried out in a number of settlements and was highest in Kiryandongo at 23.4%. Bottle-feeding is likely to impact on breastfeeding.

Food Security

Overall, 55% of the refugee households across the settlements had access to arable land**.** Only 2% of the households in Bidibidi, 6.7% in Rhino Camp and 39.9% in Nakivale accessed agricultural land. Access to land allows households to farm, harvest and finally consume the food at household levels.

Like in 2015, Refugee households (47.9%) engaged in agriculture reported to have harvested much less compared to a similar season the previous year. About 87% of the refugee households in Oruchinga, 69% Nakivale, 54.7% Adjumani, and 50.0% Rhino Camp reportedly have harvested much less compared to a similar season the previous year.

Over 90% of the households in all the Settlements had ration cards. Most of the households without the ration cards had either lost them, were not registered or were not eligible. Of the households that got full rations in the previous month, the average (SD) duration of the ration was 18.0 (8.1%) days for Nakivale, 16.7 (11.2%) Oruchinga, 15.6 (7.0%) Kyaka II, 13.4 (9.3%) Kyangwali, 15.2 (6.1%) Rwamwanja, 19.1 (8.6%) Kiryandongo, 21.8 (7.6%) Rhino Camp, 23.0 (8.5%) Adjumani, and 20.5 (8.0%) Bidibidi.

Refugee household ownership of livestock and poultry was low. Poultry was the most common (25%) for all settlements followed by goats (15.6%). Cattle, goats and donkey are not widely kept by refugees. Refugee households should be encouraged to own some livestock and poultry as a source of protein

and haem iron.

The Settlements in Southwest and in the Midwest were more likely to have a member of their households earning some income as compared to those in West Nile Region, except Lobule. This suggests a relatively higher economic access to food in Southwest and in the Midwest refugee settlements.

Almost 35.9% of the households in the refugee settlements had a debt to repay at the time of the survey. The proportions of households among refugee communities with the debt to repay were highest in Rwamwanja at 66.4%, followed by Lobule at 62.3%, and Nakivale at 52.8% and 9.9% Bidibidi. While debt is not necessarily bad for households (as it can potentially be used to augment agricultural production and other income generating activities), it is indicative of stress when used to meet essential household needs, including for purchase of food.

From the survey, most of the households in the settlements had medium levels of dietary diversity. A more diversified diet is expected to improve outcomes in areas such as birth weight, child anthropometric status, and improved hemoglobin concentrations, and is highly correlated with such factors as caloric and protein adequacy, percentage of protein from animal sources (high quality protein), and household income. However, on average the proportions of households that did not consume any vegetables, fruits, and meat, eggs, fish and milk/milk products in the last 24 hours before the survey was high across the settlements with an average of 31.1%.

Over 80% of the households in all the settlements except Oruchinga (76%) and Bidibidi (45%) had acceptable food consumption scores. The most commonly applied food consumption coping strategies were the reliance on less preferred, less expensive food (highest in Oruchinga at 91%), reduction in number of meals per day (highest in Rwamwanja at 72%), borrowing of food (highest in Oruchinga at 62.7%) and reduction in the quantities consumed by adults/mothers for young children was the most preferred option in Kiryandongo at 60.3%.

Health related

Pregnancy leads to increased demands and exposes the woman to higher risk of micronutrient deficiency anaemia and hence the recommendation for supplementation with iron and folic acid. 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**.** Access to quality Antenatal Care (ANC) is important in order to screen for the pregnancy related complications and provide appropriate interventions that result in positive birth outcomes for both the mother and baby.

Immunisation of children against the vaccine preventable diseases is among the high impact interventions to prevent child morbidity and mortality. The child in Uganda is fully immunized after receiving a single dose of the BCG vaccine, 3 doses of the Pentavalent (DPT+HepB+Hib), and one dose of the Measles vaccine. And the provision to children under the age five, of scheduled Vitamin A supplements and medicines for treatment of intestinal worms are among the recommended high impact interventions for reducing morbidity among this age group. More than three quarters of the children in all 10 refugee settlements were reportedly immunised against measles, with evidence from card or confirmation from the mother. 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.

Diarrhea prevalence was rather high in some of the Settlements in the two-weeks preceding the survey. Settlements such as Nakivale, Bidibidi, Rwamwanja and Adjumani had a diarrhoea prevalence of 25.1%, 24.3%, 18.5%, and 18.2%, respectively, which should be controlled through sensitisation on improvement of domestic and personal hygiene.

Water, Sanitation and Hygiene

Good household level water, sanitation and hygiene practices contribute towards improved health of mothers and children. The level of satisfactions with the supply of water differed from one settlement to another. Findings indicated that refugees in Lobule and Kyaka II were more satisfied when compared with other settlements at 81.2% and 80.9% respectively. Other settlements recorded high satisfactions at: 77.7% Kyangwali and 66.4% Rwamwanja.

The estimated daily water use by refugees varied among settlements. 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% Rhino camp 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.

Recommendations

Immediate:

- The status of refugees in Uganda is under control and the current efforts need to be sustained. In the immediate term there is need to restore full food ration to refugees according to the agreement and recommendations in the 2011 Joint Assessment Mission. Refugee new arrivals should be prioritized to receive 100% full ration (2100 kilocalories/day). This is important because children suffering from stunting are more vulnerable to acute malnutrition during food shortages and are likely to increase mortality due acute malnutrition. A new Joint Assessment Mission should be prioritized in 2017 given the fact that the refugee numbers have significantly increased from 2014.

Mid-term to long-term:

- Ensure sustained and improved identification process from the entry points/collection points of refugee new arrivals, and in the settlements, of children with severe and moderate acute malnutrition in the settlements. Children with MAM should be timely linked and enrolled to TSFP. SAM children with medical complications should be admitted to Inpatient Therapeutic Care (stabilization center), and SAM children without medical complications should be enrolled to Out

Patient Therapeutic Feeding Programme.

- The maternal and child health nutrition programme should continue targeting children 6 – 23 months, as well as pregnant and breastfeeding women until 6 months post-delivery, consistently and systematic to receive super cereal plus, coupled with health education. Selective feeding programs should be evaluated to ascertain its performance and impacts in reducing acute malnutrition and anaemia.
- Ensure sustained iron and folic acid supplements and intermittent preventive treatment for malaria in pregnancy, and that children receive Vitamin A and deworming tablets. Ensure 100% coverage so as to reduce high levels of micronutrient deficiencies particularly anaemia.
- Consider the provision of nutritional support to cases with chronic diseases that have negative consequences to their nutritional status, particularly HIV positive and tuberculosis cases, who are on treatments to improve care and adherences to medications.
- Emphasize the implementation of the comprehensive safe motherhood, targeting women at reproductive age (15-49 years), in order to ensure that adolescent females receive reproductive health support before pregnancy to improve future pregnancy outcomes. This will contribute to reducing future cases of chronic malnutrition, low birth weight cases and under 5 year's mortality rates.
- Consider provision of nutritional support to cases with chronic diseases that have negative consequences to their nutritional status particularly HIV positive and tuberculosis cases who are treatments to improve care and adherences to medications.
- To provide fortified complementary feed (super cereals ++) targeting children 6-23 months of age, pregnant and breastfeeding women up to 6 months post-delivery. This is important because it contributes in reducing rates of severe and moderate acute malnutrition, stunting and anaemia.
- Sustain implementation of comprehensive child health programme. Children should receive, timely, all antigens stated by MoH according to their age schedules in order to prevent all forms of preventable and treatable child disease. Available evidence suggests that children suffering from acute malnutrition are more likely to contract preventable and treatable diseases, which may lead to their deaths.
- Improve food basket monitoring during general food distributions and post distribution monitoring with monthly in the settlements so that refugees are ensured of their food ration entitlements.
- Implement infant and young child feeding programme comprehensively. Formulate and implement anaemia strategy in order to reduce high rates of anaemia. Work with research institutes in order to address prevention, control and treatment of anaemia among children and stunting in the refugee programme.
- Prioritize comprehensive primary health care during refugee influxes. The burden of maternal and childhood mortality and morbidity is apparent during refugee influxes. At this time, access to healthcare is minimal, and community outreach systems are still not organized and developed.

- The programme should aim to reach a universal coverage of 80% of LLITN as recommended by WHO among refugees in the settlements as represents the individuals in populations at risk. Door to door distribution will allow community volunteers to demonstrate on how to hang a net and dialogue with household members on the importance of sleeping under LLITNs.
- With close collaborations with NMCP, Donors, Researchers and other partners, implement a comprehensive behavior change communication to increase LLITN ownership, use and retention among refugee households. This is necessary because appropriate and consistent use of LLITN involves change of behavior and practices around the use of LLITNs among individuals and communities.
- Ensure early referrals to the health facilities of all types of fever, malaria testing to be confirmed prior issuance of malaria medicines.
- Improve the coverage and use of improved household latrines for each family: Promote hygiene at household level to reduce food and water contaminations; Provide soap systematically to ensure hand washing is achieved and health and hygiene education as it is recommended. Hand-washing with soap after visiting the toilet and before eating is crucial in reducing the high prevalence of diarrhoea.
- Address challenges associated with distribution of adequate, safe and clean water among refugees and host communities so as to improve on the health and nutritional status of the general population.

1.0 INTRODUCTION

1.1 Food Security and Nutrition Situation among Refugees

Uganda has been hosting refugees for several decades now. Large influxes of refugees in Uganda have strained the response capacity of the humanitarian partners, causing poor nutritional status and poor environmental conditions (overcrowding, inadequate water, and lack of sanitation), which promote the transmission of infectious diseases. SOUTH WEST and MID WEST: Congolese refugee operation, receiving settlements are Nakivale, Kyaka II and Rwamwanja and Kiryandongo and Kyangwali. Refugee new arrivals continued entering the country since the beginning of the year, 2016. By the end of November 2016 about: 14,610 = Burundians, 33,420 = DR Congolese, 5,883 = Somalis were registered in South West and Mid-West while in West Nile about 389,561 South Sudanese were registered. The total refugee population by the end of November 2016 was estimated at 742,000 across the refugee settlements.

The mean crude mortality rate for the refugee settlements in Uganda as of end October 2016 was 0.1 deaths per 1000 population per month while that of under 5 years was 0.2 deaths per 1000 population per month. The infant mortality rate was 10.5 deaths per 1000 population per month. Comparing these mortality rates to the emergency thresholds this can be said that mortality rates are under control both in the emergency and care and maintenance settlements. The main leading causes of morbidity were: malaria 37%, respiratory tract infections 19%, intestinal worms 6%, skin infection 5%, watery diarrhoea 3%, and eye disease 2% (UNHCR – HIS, October 2016).

The burden of diseases is apparent as an important contributing factor in the current rates of malnutrition across the operation. At the end of 2015 the incidence rates of the top 5 childhood illness was recorded at 48.8% upper respiratory infections, 67.3% malaria, 15.5% watery diarrhoea and 14.1% lower respiratory infection. This survey coincided with the reduction of food ration that started in the month of August 2016 where food ration was reduced to 50% to refugees who have been in the country before July 2016. Refugee that arrived in the country after July 2016 (new arrivals) are kept on full ration. However due to increased number of refugees' general food distribution in some distribution circles is delayed for some days.

The Food Security and Nutrition Assessment in Refugee areas is an annual exercise conducted jointly by the Government of Uganda, UNHCR, UNICEF and UNWFP with the aim to understand the living conditions of refugee households and most of all, the food security and nutrition situation.

1.2 Survey Objectives

Primary Objectives:

a. To measure the prevalence of acute malnutrition in children aged 6-59.
b. To measure the prevalence of stunting in children aged 6-59 months.
c. To determine the coverage of measles and DPT3 vaccination among children aged 9-59 months (or context-specific target group e.g. 9-23 months).
d. To determine the coverage of vitamin A supplementation received during the last 6 months among children aged 6-59 months.
e. To assess the two-week period prevalence of Diarrhea among children aged 6- 59 months.

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

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

h. To determine the coverage of ration cards and the duration the general food ration lasts for recipient households.

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

j. To assess household dietary diversity.

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

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

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

n. To determine the household coverage of indoor residual spraying

o. To establish recommendations on actions to be taken to address the situation in the Uganda refugee operation and host communities

Secondary objectives:

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

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

r. To assess crude and under five mortality rates in Settlements

2.0 METHODOLOGY

This was a cross sectional - standardised expanded nutrition survey (SENS) where data were collected with the view to generate inferences about the refugees in the settlements during the month of December 2016. Previous cross sectional surveys in the refugee settlements in Uganda took place in the month of November 2015 a similar season to the current survey. Systematic random sampling was used to recruit households into the survey. Sampled households were pre-identified in each block with a support of the Office of the Prime Minister (OPM), Health and Nutrition partners and Refugee Welfares Committees (RWC). Only verified occupied households were included in the survey. Refugee Welfares Committees, Community Health Workers and Village Health Teams and neighbourhood verified occupied and un-occupied households in the settlements. These lists were finally used to identify the houses included in the sample.

2.1 Sampling Procedure: Selecting Households and Target Individual Samples

Sampling interval for each settlement were calculated from the final lists established after completion of the physical counting and confirmation of houses in the settlements and neighbourhoods. Sampling interval was established for each settlement by dividing the total number of verified and confirmed households by the calculated sample. Random number table were used to determine the first household to start the survey in each settlement. Houses were counted to the end of the randomly selected direction and were assigned numbers through a lottery method, randomly a number was picked and this number was then used as the sampling interval. The sampling intervals in the 10 settlements locations across the sampling frames were used to generate the list of households visited / sampled.

On each survey day, teams were allocated specific areas or villages based on the generated lists of the households included in the sample. In situations where household members or individuals were not at home teams were instructed to revisit the absent household members / individual up to two times on the same survey day. In case household members or individual visited, were found absent were then recorded non-response and "were not replaced. Some households and individuals refused to be interviewed, survey teams respected their decisions and were recorded as "refusal" such households / individuals also were not replaced with another.

Children with disabilities whose physical impairments obstructed measurements of some anthropometric parameters were assessed for the other indicators that did not require measurements. Households without children or women at reproductive age were assessed for the households' questionnaires (food security, WASH and Mosquito nets). Children who were receiving care at the health centres were visited in each location by the survey teams and had their measurements and information recorded. In situations where it was impossible to have the children assessed while on care, such children were issued a specific note, listed as absent and were not replaced. The survey team produced brief note to the survey coordinator documenting 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 on care at health centres.

2.2 Sample Size

The calculations of sample sizes for each settlement and host community were done using the Standardized Monitoring and Assessment of Relief and Transitions (ENA for SMART version July 9, 2015) software while adhering to UNHCR SENS methodology version 2, 2013. In the settlements, the sample size were estimated based on the "expected prevalence" which were the upper confidence limits and mortality rate of the 2015 nutrition survey for each settlement. The population base, percentage of under-5 and average household size for the sample size estimation was based on the information provided by UNHCR and the OPM obtained from their records and the Health Information System (HIS) reports. A non-response rate of 10% was added in all locations to take care of the non-responses households / individuals.

Table 4: Sample size calculations for the cross sectional anthropometric survey

Name of settlement	Total population	Total households	Average household size	Estimated prevalence of global acute malnutrition %	Total Under 5 years	± desired precision %	% children under 5 years	6-59 months old children / household	% of non-response households	Children to be sampled	Household sample
Adjumani	197,418	38709	5.1	13.7	33166	3.3	16.8%	1.4	10	417	601
Rhinocamp	75,801	17227	5.1	13.3	11445	3.3	16.5%	1.5	10	333	330
Lobule	6059	1,233	5.5	5.6	927	3.0	15.3%	1.5	10	226	331
Kiryandongo	66,935	12170	5.5	12.3	10709	3.5	16.0%	1.5	10	338	475
Nakivale	120,415	29103	5.4	7.4	18062	2.2	18.0%	1.9	10	544	691
Oruchinga	7,971	1626	4.9	6.4	1506	3.0	16.0%	1.3	10	256	403
Rwamwanja	60,922	11715	5.2	6.2	12123	2.5	16.0%	1.8	10	350	517
Kyaka II	29,528	7916	5.0	9.0	4931	3.0	16.7%	1.8	10	350	517
Kyangwali	43,600	11,634	4.4	6.2	7194	2.7	16.0%	1.6	10	306	422
Bidbidi	238,286	42551	5.6	13.7	47656	3.3	16.0%	1.8	10	417	601

Table 5: Sample size calculations for the cross sectional mortality survey

Name of settlement	Total population	Total households	Average household size	Estimated mortality rate / 10000 / day	± desired precision / 10000 / day	Recall period	% of non-response households	Population to be included	Number of household to be included
Adjumani	197,418	38709	5.1	2	0.6	90	10	2371	601
Rhinocamp	75,801	17227	4.4	2	0.7	90	10	1742	530
Lobule	6,059	1,233	5.5	2	0.8	90	10	1334	331
Kiryandongo	66,935	12170	5.5	2	0.6	90	10	2371	475
Nakivale	120,415	29103	5.4	2	0.6	90	10	2371	691
Oruchinga	7,971	1626	4.9	2	0.7	90	10	1742	403
Rwamwanja	60,922	11715	5.2	2	0.7	90	10	1742	517
Kyaka II	29,528	7916	5.0	2	0.7	90	10	1742	517
Kyangwali	43,600	11,634	4.4	2	0.7	90	10	1742	422
Bidbidi	238,286	42551	5.6	2	0.6	90	10	2371	601

From this cross sectional survey higher values of households obtained in the anthropometric or mortality calculations were finally used as the final sample sizes. The table below indicates the final sample sizes that were sampled in each location.

2.3 Questionnaires

The comprehensive questionnaires are included in **Appendix 2.**

The original questionnaires was obtained from the UNHCR Standardised Expanded Nutrition Survey (SENS) website (http://sens.unhcr.org/) of which was in English language, other translated versions used included the 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.

Six module questionnaires as per the UNHCR standardised expanded nutrition survey 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 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 on access and use of the general food distribution (GFD) ration, 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.

2.4 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: 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 supplementary feeding programme and therapeutic 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 or health 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 capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser (HemoCue, Sweden). 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 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

2.5 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 weight-for-height index values or the presence of oedema and classified as show in the table below. Main results are reported after analysis using the WHO 2006 Growth Standards with WHO flags.

Table 6: 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 7: 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 8: 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:

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 (%) = 100 x

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

Coverage of TFP programme (%) = 100 x

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

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

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

Exclusive breastfeeding under 6 months:

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

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

Infants 0–5 months of age

Continued breastfeeding at 1 year:

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

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

Children 12–15 months of age

Introduction of solid, semi-solid or soft foods:

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

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

Infants 6–8 months of age

Children ever breastfed:

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

Children born in the last 24 months who were ever breastfed

Children born in the last 24 months

Continued breastfeeding at 2 years:

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

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

Children 20–23 months of age

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

Proportion of children 6–23 months of age who receive an iron-rich or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

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

Children 6–23 months of age

Bottle feeding:

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

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

Children 0–23 months of age

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

2.6 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	≥15	10-15	5-10	<5
Low height-for-age	≥40	30-39	20-29	<20
Low weight-for-age	≥30	20-29	10-19	<10

Selective feeding programmes: UNHCR Strategic Plan for Nutrition and Food Security 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 (same as Sphere Standards).

Table 12: Performance indicators for selective feeding programme (UNHCR Strategic Plan for Nutrition and Food Security)*

	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 for anaemia (WHO 2000)

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

2.7 Training

The training lasted three days followed by one day of pilot – test in the settlements. The Supervisors were trained in Kampala, at the Makerere University School of Public Health, during the week of November 28, 2016. The training focused on: the purpose and objectives of the survey; roles and responsibilities of each team member, systematic familiarization with the questionnaires by reviewing the purpose for each module and question; interviewing skills and recording of data; interpretation of calendar of events and age determination; how to take anthropometric measurements and haemoglobin measurements. The Supervisors who were trained in Kampala had to train the Enumerators in their respective Settlements.

2.8 Survey Teams and Supervision

A total of 100 enumerators and supervisors conducted the data collection (10 per settlement). Each Settlement had its team of 8 enumerators and 2 supervisors. The supervisors were the team leaders, and were responsible for taking measurements, i.e. weight and height and haemoglobin. There were also Translator(s) and community mobilisers for each village. In addition, joint supervision and coordination were done daily by the Makerere University School of Public Health, UNICEF, UNWFP and UNHCR in all locations.

Each data collection team constituted of the interviewer, two measurers and the village guide. However, the team would work jointly to sample households, determine eligibility of children, age determination, reading of health cards for the vaccinations, vitamin A and de-worming.

2.9 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 were aggregated into SPSS, 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.

2.10 Limitations

- Confirming ages of children was the greatest challenges in most of the settlements but more especially in Bididi and Rhino Camp refugee Settlements where there was new influx of refugees. Our experienced supervisors and enumerators tried to obtain calendars of local events, even those which happened before they flee their home country.

- On going relocations of refugees in Rhino Camp hampered effective sampling and coverage of the estimated sample during the stipulated period of the survey. Nonetheless 75% of the estimated sample was obtained. While interpreting findings from Rhino Camp, the rather wide 95% confidence intervals could be partly attributed to the sample size.

3.0 RESULTS

3.1 Demographics

Of the total households surveyed in the Settlements, 53.4% were female-headed. The majority of the household heads – both male and female – had zero years of formal education or had largely attended primary school **(Table 14)**.

Table 14: Demographic Information for Refugee Settlement, Uganda, December 2016

Gender of Household Head	**Male (N=2019)**	**Female (N=2309)**
	46.6	53.4
Marital Status of Household Head (N=4337)	**Male (N=2019)**	**Female (N=2309)**
Married	92.1%	53.5%
Single	4.7%	8.6%
Widowed	1.6%	22.6%
Separated/Divorced	1.6%	15.3%
Age (Years) of Household Head	**Male (N=2019)**	**Female (N=2309)**
14-19	1.4%	3.7%
20-39	61.4%	68.0%
40-59	30.5%	20.4%
60-79	6.3%	7.3%
80 and Above	0.3%	0.5%
Education (Completed Years of Education)	**Male (N=2019)**	**Female (N=2309)**
No Formal Education	39.7%	57.0%
Primary Education	39.3%	32.4%
Secondary Education	10.7%	7.4%
Higher	5.6%	1.9%
Tertiary	4.2%	1.1%
Family Size of HH (Number of People Eating Together)	**Male (N=2019)**	**Female (N=2309)**
1	4.2%	3.3%
2	6.0%	9.5%
3	13.3%	12.3%
4	16.4%	16.5%
5	14.8%	15.7%
6	14.1%	13.5%
7	11.7%	10.5%
8	7.9%	6.1%
9	4.4%	4.4%
10+	7.4%	8.3%

The number of households and population studied is presented in **Table 15**. The proportion of under-fives surveyed ranged from 19% in Rwamwanja and Rhino Camp to 24% in Lobule and Bidibidi.

Table 15: Demographic Characteristics of the Study Population, Refugee Settlements, Uganda, December, 2016

Settlement	Total House hold Surveyed	Total Population Surveyed	Total U5 Surveyed	Average House hold size	% of U5
Nakivale	570	3,201	682	5.6	21%
Oruchinga	362	1,682	341	4.6	20%
Kyaka II	556	3,033	606	5.5	20%
Kyangwali	582	2,970	658	5.1	22%
Rwamwanja	436	2,281	432	5.2	19%
Kiryandongo	370	2,400	500	6.5	21%
Rhino Camp	180	1,280	243	7.1	19%
Adjumani	487	3,307	655	6.8	20%
Lobule	313	1,926	453	6.2	24%
Bidibidi	483	2,532	605	5.3	24%

3.2 Nutrition Status of Children 6-59 Months

In the majority of the Settlements, more than 80% of the target children were reached **(Table 16).**

Table 16: Target and actual number captured, Refugee Settlements, Uganda, December, 2016

Settlement	Target (No.)	Total Surveyed (No.)	% of the Target
Adjumani	601	487	81%
Rhino Camp	330	243	74%*
Lobule	331	313	95%
Kiryandongo	475	370	78%*
Nakivale	691	570	82%
Oruchinga	403	362	90%
Rwamwanja	517	436	84%
Kyaka II	517	556	108%
Kyangwali	422	582	138%
Bidbidi	601	483	80%

* There was ongoing relocations in Rhino Camp and Kiryandongo that interfered sample size estimates.

Overall, the ratio of boys to girls surveyed was almost even **(Table 17)**.

Table 17: Children 6-59 months - distribution of age and sex of sample, Refugee Settlements, Uganda, December, 2016

AGE (month)	Boys		Girls		Total		Ratio
	No.	%	No.	%	No.	%	Boy:Girl
6-17	633	53.6	548	46.4	1181	25.0	1.2
18-29	529	52.6	476	47.4	1005	21.2	1.1
30-41	549	53.4	480	46.6	1029	21.8	1.1
42-53	526	53.0	466	47.0	992	21.0	1.1
54-59	274	52.3	250	47.7	524	11.1	1.1
Total	2511	53.1	2220	46.9	4731	100.0	1.1

3.2.1 Wasting (Children 6-59 Months)

The anthropometric findings show that the levels of acute malnutrition vary from settlement to settlement; with Rhino Camp presenting the highest prevalence of Global Acute Malnutrition (GAM) at 14.2% classified as **"serious"** according to WHO classification. The GAM rates for Adjumani at 9.6%, Kiryandongo 8.2%, Bidibidi 7.6% and Lobule 7.5% is classified as **"poor**". The GAM rates for rest of the settlements is classified as "acceptable" as remained below 5%. The GAM rates for the different settlements are presented in **Table 18**, and broken down by age group in **Table 19**.

Table 18: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or Oedema), Refugee Settlements, Uganda, December 2016

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 = 629)	(20) 3.2% (2.0- 5.2)	(20) 3.2% (2.0- 5.2)	(0) 0.0% (0.0- 0.0)
(Oruchinga n = 301)	(12) 4.0% (2.5- 6.3)	(12) 4.0% (2.5- 6.3)	(0) 0.0% (0.0- 0.0)
(Kyaka II n = 547)	(18) 3.3% (1.9- 5.7)	(18) 3.3% (1.9- 5.7)	(0) 0.0% (0.0- 0.0)
(Kyangwali n = 538)	(11) 2.1% (1.2- 3.5)	(11) 2.1% (1.2- 3.5)	(0) 0.0% (0.0- 0.0)
(Rwamwanja n = 384)	(6) 1.6% (0.8- 3.2)	(6) 1.6% (0.8- 3.2)	(0) 0.0% (0.0- 0.0)
(Kiryandongo n = 460)	(37) 8.2% (5.7-11.5)	(35) 7.7% (5.5-10.8)	(2) 0.4% (0.1- 1.7)
(Rhino Camp n = 230)	(33) 14.2% (8.5-22.8)	(29) 12.5% (7.4-20.4)	(4) 1.7% (0.7- 4.2)
(Adjumani n = 601)	(58) 9.6% (7.7-11.8)	(49) 8.1% (6.3-10.2)	(9) 1.5% (0.9- 2.5)
(Lobule n = 423)	(32) 7.5% (4.3-12.9)	(28) 6.6% (3.7-11.6)	(4) 0.9% (0.4- 2.4)
(Bidibidi n = 535)	(41) 7.6% (5.6-10.1)	(34) 6.3% (4.4- 8.9)	(7) 1.3% (0.4- 3.9)

Table 19: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or Oedema, Refugee Settlements, Uganda, December 2016

Age (months)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	1,144	3	0.3	82	7.2	1057	92.4	2	0.2
18-29	973	2	0.2	39	4.0	931	95.7	1	0.1
30-41	1,010	0	0.0	39	3.9	971	96.1	0	0.0
42-53	974	1	0.1	51	5.2	921	94.6	1	0.1
54-59	511	2	0.4	36	7.0	473	92.6	0	0.0
Total	4,612	8	0.2	247	5.4	4353	94.4	4	0.1

The distribution of severe acute malnutrition and oedema based on weight-for-height z-scores is presented in **Table 20**. With the exception of Bidibidi, there was no oedema case reported.

Table 20: Distribution of severe acute malnutrition and Oedema based on weight-for-height z-scores, Refugee Settlements, Uganda, December 2016

Settlement	Oedema Present		Oedema Absent	
	Marasmic Kwashiorkor No. 0	Kwashiorkor No. 2	Marasmic No. 0	Not severely malnourished No. 710
Nakivale	(0.0 %)	(0.0 %)	No. 8 (1.3 %)	No. 629 (98.7 %)
Oruchinga	(0.0 %)	(0.0 %)	No. 4 (1.3 %)	No. 301 (98.7 %)
Kyaka II	(0.0 %)	(0.0 %)	No. 13(2.3 %)	No. 547(97.7 %)
Kyangwali	(0.0 %)	(0.0 %)	No. 2 (0.4 %)	No. 538 (99.6 %)
Rwamwanja	(0.0 %)	(0.0 %)	No. 6 (1.5 %)	No. 384 (98.5 %)
Kiryandongo	(0.0 %)	(0.0 %)	No. 3 (0.6 %)	No. 460 (99.4 %)
Rhino Camp	(0.0 %)	(0.0 %)	No. 7 (3.0 %)	No. 230 (97.0 %)
Adjumani	(0.0 %)	(0.0 %)	No. 14 (2.3 %)	No. 601 (97.7 %)
Lobule	(0.0 %)	(0.0 %)	No. 7 (1.6 %)	No. 423 (98.4 %)
Bidibidi	(0.0 %)	No. 4 (0.7 %)	No. 15 (2.7 %)	No. 535 (96.6 %)

3.2.2 Mid Upper Arm Circumference (Children 6-59 Months)

Malnutrition based on measurements of the Mid Upper Arm Circumference (MUAC) was highest in Bidibidi refugee settlement at 6.3%, and lowest in Kiryandongo refugee settlement at 1.3% **(Table 21)**. The breakdown by age group is presented in **Table 22**. The 6 – 17 month age group had more cases of malnourished children than the other age groups.

Table 21: Prevalence of MUAC malnutrition in Children, Refugee Settlements, Uganda, December 2016

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=629)	(19) 3.0 % (1.5 - 5.8)	(17) 2.7 % (1.3 - 5.4)	(2) 0.3 % (0.1 - 1.3)
Oruchinga (n=300)	(4) 1.3 % (0.5 - 3.3)	(3) 1.0 % (0.3 - 3.1)	(1) 0.3 % (0.0 - 2.9)
Kyaka II (n=559)	(17) 3.0 % (1.7 - 5.2	(13) 2.3 % (1.2 - 4.4)	(4) 0.7 % (0.3 - 1.9)
Kyangwali (n=536)	(21) 3.9 % (2.6 - 6.0)	(18) 3.4 % (2.1 - 5.4)	(3) 0.6 % (0.2 - 1.8)
Rwamwanja (n=390)	(11) 2.8 % (1.5 - 5.3)	(10) 2.6 % (1.3 - 5.0)	(1) 0.3 % (0.0 - 2.1)
Kiryandongo (n=461)	(6) 1.3 % (0.6 - 3.0)	(3) 0.7 % (0.2 - 2.1)	(3) 0.7 % (0.2 - 2.7)
Rhino Camp (n=237)	(7) 3.0 % (1.2 - 7.3)	(7) 3.0 % (1.2 - 7.3)	(0) 0.0 % (0.0 - 0.0)
Adjumani (n=611)	(20) 3.3 % (2.1 - 5.2)	(16) 2.6 % (1.5 - 4.5)	(4) 0.7 % (0.3 - 1.3)
Lobule (n=427)	(23) 5.4 % (2.9 - 9.8)	(14) 3.3 % (1.8 - 6.0)	(9) 2.1 % (0.9 - 4.7)
Bidibidi (n=553)	(35) 6.3 % (4.5 - 8.9)	(22) 4.0 % (2.2 - 7.1)	(13) 2.4 % (1.5 - 3.7)

Table 22: Prevalence of MUAC malnutrition by age, based on MUAC cut off's and/or Oedema, Refugee Settlements, Uganda, December 2016

		MUAC < 115 mm		MUAC >= 115 mm and < 125 mm		MUAC > = 125 mm		Oedema	
Age (months)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	1166	24	2.1	76	6.5	1066	91.4	2	0.2
18-29	1002	9	0.9	24	2.4	969	96.7	1	0.1
30-41	1028	1	0.1	11	1.1	1016	98.8	0	0.0
42-53	991	3	0.3	5	0.5	983	99.2	1	0.1
54-59	524	0	0.0	7	1.3	517	98.7	0	0.0
Total	4711	37	0.8	123	2.6	4551	96.6	4	0.1

3.2.3 Underweight (Children 6-59 Months)

The level of underweight varied among the settlements as shown in **Table 23**. The rate of underweight was **"serious"** in Bidibidi and **"poor"** in the rest of the settlements, with the exception of Kiryandongo, Rhino Camp, and Lobule where it was within the **"acceptable"** limits.

Table 23: Prevalence of underweight based on weight-for-age z-scores by Refugee Settlements, Uganda, December 2016

Settlement	Prevalence of Underweight (<-2 z-score)	Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	Prevalence of severe underweight (>=-3 z-score)
Nakivale (n=637)	(45) 7.2% (5.0-10.1)	(35) 5.6% (4.1- 7.5)	(10) 1.6% (0.8- 3.2)
Oruchinga (n=305)	(26) 8.6% (4.5-15.6)	(21) 6.9% (3.9-12.1)	(5) 1.7% (0.5- 4.9)
Kyaka II (n=560)	(46) 8.3% (6.3-10.8)	(45) 8.1% (6.2-10.6)	(1) 0.2% (0.0- 1.4)
Kyangwali (n=540)	(37) 6.9% (5.3- 9.0)	(36) 6.7% (5.1- 8.8)	(1) 0.2% (0.0- 1.5)
Rwamwanja (n=390)	(35) 9.1% (6.2-13.2)	(33) 8.6% (5.8-12.6)	(2) 0.5% (0.1- 3.9)
Kiryandongo (n=463)	(20) 4.4% (3.0- 6.3)	(19) 4.1% (3.0- 5.8)	(1) 0.2% (0.0- 1.8)
Rhino Camp (n=237)	(11) 4.7% (2.6- 8.2)	(9) 3.8% (2.1- 6.9)	(2) 0.8% (0.2- 3.4)
Adjumani (n=615)	(44) 7.2% (5.3- 9.7)	(40) 6.6% (4.9- 8.7)	(4) 0.7% (0.2- 2.0)
Lobule (n=134)	(13) 3.0% (1.6- 5.6)	(12) 2.8% (1.4- 5.4)	(1) 0.2% (0.0- 1.8)
Bidibidi (n = 550)	(55) 10.1% (7.4-13.5)	(44) 8.0% (6.8- 9.5)	(11) 2.0% (0.7- 5.6)

3.2.4 Stunting (Children 6-59 Months)

Stunting rate was **"serious"** among children in Rwamwanja at 39.8%, Kyangwali 39.6%, Kyaka II 35.7%, and Oruchinga 34.2%, while Nakivale 23.0% was classified **"poor".** The rest of the settlements had below 20% a situation classified as **"acceptable" (Table 24)**. Some of the factors responsible for high rates of stunting includes; maternal factors, home environment, poor quality of diet, poor feeding practices, contaminated food and water for domestic use, and continued exposure to infections.

Trends in stunting, shocks and seasonality needs to be analysed for interventions to be tailored addressing such gaps. Children in resources constrained situations such as in refugee settlements are 1.5 to 2 times more likely to be stunted when they have limited access to health care, water, sanitation and hygiene, as well as nutritious food. The rates of stunting were higher in the 18 to 20 and 30 to 41 month age groups as compared to the other age groups **(Table 25)**.

Table 24: Prevalence of stunting based on height-for-age z-scores by Refugee Settlements, Uganda, December 2016

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=613)	(141) 23.0% (18.2-28.6)	(105) 17.1% (13.1-22.1)	(36) 5.9% (4.2- 8.2)
Oruchinga (n=292)	(100) 34.2% (26.7-42.6)	(74) 25.3% (20.1-31.4)	(26) 8.9% (5.4-14.3)
Kyaka II (n=535)	(191) 35.7% (30.4-41.4)	(134) 25.0% (20.9-29.7)	(57) 10.7% (8.9-12.7)
Kyangwali (n=525)	(208) 39.6% (35.6-43.8)	(135) 25.7% (22.3-29.4)	(73) 13.9% (11.3-16.9)
Rwamwanja (n=377)	(150) 39.8% (34.5-45.3)	(98) 26.0% (21.2-31.4)	(52) 13.8% (9.4-19.7)
Kiryandongo (n=449)	(29) 6.5% (4.3- 9.6)	(29) 6.5% (4.3- 9.6)	(0) 0.0% (0.0- 0.0)
Rhino Camp (n=228)	(17) 7.5% (4.1-13.0)	(14) 6.1% (3.5-10.5)	(3) 1.3% (0.5- 3.6)
Adjumani (n=590)	(75) 12.7% (10.0-16.0)	(62) 10.5% (8.2-13.4)	(13) 2.2% (0.9- 5.3)
Lobule (n=418)	(41) 9.8% (7.3-13.1)	(40) 9.6% (7.1-12.8)	(1) 0.2% (0.0- 1.9)
Bidibidi (n = 538)	(99) 18.4% (13.4-24.7)	(73) 13.6% (9.3-19.3)	(26) 4.8% (2.9- 8.1)

Table 25: Prevalence of stunting by age based on height-for-age z-scores, Refugee Settlements, Uganda, December 2016

Age (months)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	1,127	35	3.1	135	12.0	957	84.9
18-29	945	72	7.6	213	22.5	660	69.8
30-41	980	73	7.4	217	22.1	690	70.4
42-53	952	56	5.9	131	13.8	765	80.4
54-59	505	14	2.8	68	13.5	423	83.8
Total	4,509	250	5.5	764	16.9	3495	77.5

3.2.5 Prevalence of malnutrition according the sex of the child

Overall more girls were wasted than boys although the differences were not statistically significant. However, boys were more stunted than girls and the differences were statistically significant **(Table 26)**. Much of the differences in stunting were contributed by the high prevalence in Kyaka II, Rwamwanja and Kyangwali.

Table 26 : Prevalence of malnutrition by sex of the child, according to district, Refugee Settlements, Uganda, December 2016

District	GAM (<-2 z-score)		Stunting (<-2 z-score)	
	Boys	Girls	Boys	Girls
Nakivale	**3.8 %** (1.9 - 7.0)	**2.9 %** (1.0 - 7.1)	**22.9 %** (16.8 - 30.5)	**22.9 %** (16.6 - 30.7)
Oruchinga	**3.0 %** (1.6 - 8.3)	**4.6 %** (2.0 - 9.0)	**35.4 %** (25.7 - 46.5)	**33.3 %** (25.4 - 42.3)
Kyaka II	**2.9 %** (1.1 - 6.1)	**4.2 %** (2.1 - 7.6)	**38.6 %** (32.6 - 45.0)	**29.2 %** (22.0 - 37.6)
Kyangwali	**1.9 %** (0.6 - 4.5)	**2.4 %** (0.8 - 5.3)	**39.9 %** (34.4 - 45.7)	**37.0 %** (31.1 - 43.4)
Rwamwanja	**0.9 %**	**2.9 %**	**45.9 %**	**32.2 %**

District	GAM (<-2 z-score)		Stunting (<-2 z-score)	
	Boys	Girls	Boys	Girls
	(0.2 - 4.7)	(1.2 - 6.4)	(39.0 - 53.0)	(24.2 - 41.5)
Kiryandongo	**6.9 %** (4.3 - 10.7)	**9.7 %** (6.1 - 15.1)	**6.5 %** (3.6 - 11.3)	**6.5 %** (3.5 - 11.8)
Rhino Camp	**11.1 %** (5.6 - 20.9)	**19.2 %** (11.5 - 30.3)	**9.3 %** (6.4 - 16.4)	**6.5 %** (3.3 - 16.0)
Adjumani	**11.4 %** (8.6 - 15.0)	**9.1 %** (6.7 - 12.3)	**14.9 %** (10.5 - 20.8)	**13.0 %** (10.2 - 16.4)
Lobule	**6.3 %** (3.1 - 12.2)	**10.2 %** (5.2 - 18.9)	**10.8 %** (7.8 - 14.8)	**8.7 %** (5.5 - 13.7)
Bidibidi	**8.2 %** (4.8 - 13.6)	**11.2 %** (8.9 - 14.0)	**21.1 %** (14.9 - 28.9)	**16.0 %** (9.4 - 25.9)
Pooled (All Settlements)	**6.8%** (5.6 – 8.0)	**7.9%** (6.9 - 9.3)	**25.6 %** (24.1 – 27.0)	**21.8%** (20.2 – 23.3)

3.3 Feeding Programme Coverage

All children, in the settlement were being covered in one of the feeding programme depending on the condition. With the exception of Lobule where less than one third (23.1%) of the children sampled are on the Blanket Supplementary Feeding program, in the other refugee settlements more than two thirds of the children sampled were on the Blanket Supplementary feeding program **(Table 27)**.

Table 27: Programme coverage for children 6-59 months, Refugee Settlements, Uganda, December 2016

Settlement	Supplementary Feeding Programme		Therapeutic Feeding Programme		Blanket Supplementary Feeding Programme	
	Number /total	% (95% CI)	Number /total	% (95%CI)	Number /total	% (95% CI)
Nakivale	27/637	(27) 4.2% (2.7 - 5.8)	2/637	(2) 0.3% (-0.1 - 0.7)	608/637	(608) 95.4% (93.8 - 97.1)
Oruchinga	75/297	(75) 25.3% (20.3 - 30.2)	0/297	(0) 0% (0 - 0)	222/297	(222) 74.7% (69.8 - 79.7)
Kyaka II	51/563	(51) 9.1% (6.7 - 11.4)	0/563	(0) 0% (0 - 0)	512/563	(512) 90.9% (88.6 - 93.3)
Kyangwali	135/607	(135) 22.2% (18.9 - 25.6)	1/607	(1) 0.2% (-0.2 - 0.5)	471/607	(471) 77.6% (74.3 - 80.9)
Rwamwanja	120/389	(120) 30.8% (26.3 - 35.4)	2/389	(2) 0.5% (-0.2 - 1.2)	267/389	(267) 68.6% (64 - 73.2)
Kiryandongo	5/468	(5) 1.1% (0.1 - 2)	1/468	(1) 0.2% (-0.2 - 0.6)	462/468	(462) 98.7% (97.7 - 99.7)
Rhino Camp	10/221	(10) 4.5% (1.8 - 7.3)	0/221	(0) 0% (0 - 0)	211/221	(211) 95.5% (92.7 - 98.2)
Adjumani	80/604	(80) 13.2% (10.6 - 15.9)	6/604	(6) 1% (0.2 - 1.9)	518/604	(518) 85.8% (82.9 - 88.5)
Lobule	331/433	(331) 76.4% (72.4 - 80.4)	2/433	(2) 0.5% (-0.2 - 1.1)	100/433	(100) 23.1% (19.1 - 27.1)
Bidibidi	84/567	(84) 14.8% (11.9 - 17.7)	3/567	(3) 0.5% (-0.1 - 1.1)	480/567	(480) 84.7% (81.7 - 87.6)

3.4 Immunisation Coverage

Immunisation of children against the vaccine preventable diseases is among the high impact interventions to prevent child morbidity and mortality. The child in Uganda is fully immunized after receiving a single dose of the BCG vaccine, 3 doses of the Pentavalent (DPT+HepB+Hib), and one dose of the Measles vaccine. And the provision to children under the age five, of scheduled Vitamin A supplements and medicines for treatment of intestinal worms are among the recommended high impact interventions for reducing morbidity among this age group. More than three quarters of the children in all 10 refugee settlements were reportedly immunised against measles, with evidence from

card or confirmation from the mother **(Table 28)**. In all settlements, more than three quarters of children assessed reportedly received Vitamin A **(Table 29).** With the exception of Bidibidi where 71.1% of the children reportedly received the DPT3 vaccine, more than 75% in the rest of the settlements received the DPT3 vaccine **(Table 30)**. Bidibidi at 68.3% and Kiryandongo at 73.3% had the lowest proportion of children who had been dewormed as shown in **Table 31**.

Table 28: Measles vaccination coverage for children aged 9-59 months, Refugee Settlements, Uganda, December 2016

Settlement	Measles (with cards)	Measles (with card or confirmation from mother)
Nakivale (605)	(478) 79% (75.8 - 82.3)	(589) 97.4% (96.1 - 98.6)
Oruchinga (282)	(249) 88.3% (84.6 - 92.1)	(279) 98.9% (97.7 - 100.1)
Kyaka II (532)	(355) 66.7% (62.7 - 70.7)	(508) 95.5% (93.7 - 97.3)
Kyangwali (581)	(414) 71.3% (67.5 - 74.9)	(525) 90.4% (88 - 92.8)
Rwamwanja (372)	(211) 56.7% (51.7 - 61.8)	(358) 96.2% (94.3 - 98.2)
Kiryandongo (453)	(190) 41.9% (37.4 - 46.5)	(360) 79.5% (75.6 - 83.2)
Rhino Camp (210)	(158) 75.2% (69.4 - 81.1)	(199) 94.8% (91.8 - 97.8)
Adjumani (578)	(365) 63.1% (59.2 - 67.1)	(554) 95.8% (94.2 - 97.5)
Lobule (423)	(293) 69.3% (64.9 - 73.7)	(412) 97.4% (95.9 - 98.9)
Bidibidi (544)	(136) 25.0% (21.4 - 28.6)	(380) 69.9% (66 - 73.7)
Combined (4612)	(2865) 62.1% (60.1-64.0%)	(4188) 90.8% (89.8 - 92.4)

Table 29: Vitamin A supplementation for children aged 6-59 months within past 6 months, Refugee Settlements, Uganda, December 2016

Settlement	Vitamin A (with cards)	Vitamin A (with card or confirmation from mother)
Nakivale (637)	(474) 74.4% (71.0 - 77.8)	(588) 92.3% (90.2 - 94.4)
Oruchinga (297)	(215) 72.4% (67.3 - 77.5)	(255) 85.9% (81.9 - 89.8)
Kyaka II (563)	(344) 61.1% (57.1 - 65.1)	(513) 91.1% (88.8 - 93.5)
Kyangwali (607)	(371) 61.1% (57.2 – 65.0)	(467) 76.9% (73.6 - 80.3)
Rwamwanja (389)	(228) 58.6% (53.7 - 63.5)	(379) 97.4% (95.9 – 99.0)
Kiryandongo (468)	(194) 41.5% (37.0 - 45.9)	(342) 73.1% (69.1 - 77.1)
Rhino Camp (221)	(166) 75.1% (69.4 - 80.8)	(210) 95.0% (92.1 - 97.9)
Adjumani (604)	(375) 62.1% (58.2 – 66.0)	(571) 94.5% (92.7 - 96.4)
Lobule (433)	(295) 68.1% (63.7 - 72.5)	(415) 95.8% (94 - 97.7)
Bidibidi (567)	(149) 26.3% (22.7 - 29.9)	(394) 69.5% (65.7 - 73.3)
Combined (4818)	(2826) 58.7% (56.8 – 61.0)	(4158) 86.3% (84.2 – 88.4)

Table 30: DPT3 with card, Refugee Settlements, Uganda, December 2016

Settlement	DPT3 (with cards)	DPT3 (with card or confirmation from mother)
Nakivale (637)	(507) 79.6% (76.5 - 82.7)	(622) 97.6% (96.5 - 98.8)
Oruchinga (297)	(266) 89.6% (86.1 - 93)	(296) 99.7% (99.0 - 100.3)
Kyaka II (563)	(390) 69.3% (65.4 - 73.1)	(548) 97.3% (96.0 - 98.7)
Kyangwali (607)	(446) 73.5% (70 - 77)	(563) 92.8% (90.7 - 94.8)
Rwamwanja (389)	(228) 58.6% (53.7 - 63.5)	(379) 97.4% (95.9 - 99)
Kiryandongo (468)	(206) 44% (39.5 - 48.5)	(377) 80.6% (77.0 - 84.2)
Rhino Camp (221)	(168) 76% (70.4 - 81.7)	(210) 95.0% (92.1 - 97.9)
Adjumani (604)	(391) 64.7% (60.9 - 68.6)	(596) 98.7% (97.8 - 99.6)
Lobule (433)	(299) 69.1% (64.7 - 73.4)	(420) 97.0% (95.4 - 98.6)
Bidibidi (567)	(145) 25.6% (22 - 29.2)	(403) 71.1% (67.3 - 74.8)
Combined (4612)	(2902) 62.9% (60.7 – 65.2)	(4259) 92.3% (90.3 -93.9)

Table 31: Coverage of Deworming programme for children, Refugee Settlements, Uganda, December 2016

Settlement	Deworming (with cards)	Deworming (with card or confirmation from mother)
Nakivale (637)	(470) 73.8% (70.4 - 77.2)	(587) 92.2% (90.1 - 94.2)
Oruchinga (297)	(211) 71% (65.9 - 76.2)	(251) 84.5% (80.4 - 88.6)
Kyaka II (563)	(322) 57.2% (53.1 - 61.3)	(490) 87% (84.2 - 89.8)
Kyangwali (607)	(359) 59.1% (55.3 - 63.1)	(456) 75.1% (71.7 - 78.6)
Rwamwanja (389)	(227) 58.4% (53.4 - 63.2)	(379) 97.4% (95.9 - 99)
Kiryandongo (468)	(197) 42.1% (37.6 - 46.6)	(343) 73.3% (69.3 - 77.3)
Rhino Camp (221)	(156) 70.6% (64.6 - 76.6)	(199) 90% (86.1 - 94)
Adjumani (604)	(367) 60.8% (56.9 - 64.7)	(559) 92.5% (90.5 - 94.6)
Lobule (433)	(278) 64.2% (59.7 - 68.7)	(398) 91.9% (89.3 - 94.5)
Bidibidi (567)	(146) 25.7% (22.2 - 29.4)	(387) 68.3% (64.4 - 72.1)
Combined (4818)	(2748) 57.0% (55.1 – 59.0)	(4073) 84.5% (83.0 – 86.0)

There were no major differences in immunisation, deworming and vitamin A supplementation according to sex **(Table 32).**

Table 32: Immunisation, deworming and Vitamin A supplementation coverage (with card and confirmation from mother) according to the sex of the child

District	Measles coverage		DPT 3		Vitamin A supplementation		Deworming	
	Male	Female	Male	Female	Male	Female	Male	Female
Nakivale	97.0%	97.8%	97.9%	98.9%	91.5%	93.3%	91.80%	92.6%
Oruchinga	99.3%	98.5%	100.0%	100.0%	86.2%	85.5%	85.50%	83.3%
Kyaka II	94.9%	96.2%	97.7%	97.0%	91.3%	90.9%	86.80%	87.4%
Kyangwali	90.2%	90.5%	92.2%	94.4%	77.6%	76.2%	75.00%	75.2%
Rwamwanja	96.9%	95.5%	98.5%	98.3%	97.6%	97.2%	97.60%	97.3%
Kiryandongo	78.4%	80.1%	78.8%	80.6%	70.3%	75.9%	70.70%	75.9%
Rhino Camp	93.7%	95.4%	93.7%	97.3%	93.0%	96.6%	90.40%	89.6%
Adjumani	97.0%	94.8%	99.0%	98.6%	94.4%	94.7%	93.10%	92.1%
Lobule	98.2%	96.6%	98.2%	96.6%	98.6%	92.8%	95.10%	88.6%
Bidibidi	71.0%	67.4%	71.3%	69.7%	69.1%	69.4%	67.30%	68.9%
Combined	**90.7%**	**90.9%**	**91.9%**	**92.9%**	**85.9%**	**86.7%**	**84.30%**	**84.8%**

Immunization is a critical aspect for child survival, protecting children against killer diseases, reducing morbidity and effectively, nutrition outcomes. Immunize of children should therefore be maintained and sustained.

3.5 Prevalence of Diarrhoea

The highest episodes of diarrhoea, in the two weeks preceding the survey, were reported in Nakivale at 25.1%, followed by Bidibidi at 24.3% as shown in **Table 33**.

Table 33: Period prevalence of Diarrhoea, Refugee Settlements, Uganda, December 2016

Settlement	Number/total	% (95% CI
Nakivale	171/682	(171) 25.1% (21.8 - 28.3)
Oruchinga	24/341	(24) 7% (4.3 - 9.8)
Kyaka II	90/606	(90) 14.9% (12.0 - 17.7)
Kyangwali	57/657	(57) 8.7% (6.5 - 10.8)
Rwamwanja	80/432	(80) 18.5% (14.9 - 22.2)
Kiryandongo	57/500	(57) 11.4% (8.6 - 14.1)
Rhino Camp	27/220	(27) 12.3% (7.9 - 16.6)
Adjumani	119/655	(119) 18.2% (15.2 - 21.1)
Lobule	66/453	(66) 14.6% (11.3 - 17.8)
Bidibidi	147/605	(147) 24.3% (20.9 - 27.7)

3.6 Anaemia in Children

The prevalence of anaemia in children aged 6-59 months in the ten settlements remained above WHO threshold of 40% for defining public health significance problems. The highest prevalence of anaemia among refugee children was recorded in Bidibidi at 72.4%. This was followed by Lobule at 72.2% **(Table 34)**.

Table 34: Prevalence of total Anaemia, Anaemia categories in children 6-59 months of age, Refugee Settlements, Uganda, December 2016

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)
Nakivale (n = 637)	(166) 26.1% (22.6 - 29.5)	(150) 23.5% (20.3 - 26.9)	(13) 2% (0.9 - 3.1)	(3) 0.5% (-0.1 - 1)
Oruchinga (n = 297)	(116) 39.1% (33.5 - 44.6)	(47) 15.8% (11.7 - 20)	(66) 22.2% (17.5 - 26.9)	(3) 1% (-0.1 - 2.2)
Kyaka II (n = 462)	(236) 51.1% (46.5 - 55.6)	(129) 27.9% (23.8 - 32)	(100) 21.6% (17.9 - 25.4)	(7) 1.5% (0.4 - 2.6)
Kyangwali (n = 598)	(268) 44.8% (40.8 - 48.8)	(151) 25.3% (21.8 - 28.7)	(109) 18.2% (15.1 - 21.3)	(8) 1.3% (0.4 - 2.3)
Rwamwanja (n = 375)	(194) 51.7% (46.7 - 56.8)	(89) 23.7% (19.4 - 28)	(93) 24.8% (20.4 - 29.2)	(12) 3.2% (1.4 - 5)
Kiryandongo (n = 324)	(192) 59.3% (53.9 - 64.6)	(106) 32.7% (27.6 - 37.8)	(79) 24.4% (19.7 - 29.1)	(7) 2.2% (0.6 - 3.7)
Rhino Camp (n = 80)	(52) 65% (54.5 - 75.4)	(22) 27.5% (17.7 - 37.3)	(26) 32.5% (22.2 - 42.8)	(4) 5% (0.2 - 9.8)
Adjumani (n = 421)	(201) 47.7% (43 - 52.5)	(78) 18.5% (14.8 - 22.2)	(118) 28% (23.7 - 32.3)	(5) 1.2% (0.1 - 2.2)
Lobule (n = 424)	(306) 72.2% (67.9 - 76.4)	(133) 31.4% (26.9 - 35.8)	(162) 38.2% (33.6 - 42.8)	(11) 2.6% (1.1 - 4.1)
Bidibidi (n = 561)	(406) 72.4% (68.7 - 76.1)	(136) 24.2% (20.7 - 27.8)	(217) 38.7% (34.7 - 42.7)	(53) 9.4% (7 - 11.9)

With the exception of Nakivale at 36.4% and Oruchinga at 37.4%, the prevalence of anaemia in children aged 6-23 months in the other eight settlements was above WHO threshold of 40% for defining public health significance problems. The highest prevalence of anaemia among refugee children aged 6 – 23 months was recorded in Lobule at 79.2%. This was followed by Bidibidi at 78.1% **(Table 35)**.

Table 35: Prevalence of total Anaemia, Anaemia categories in children 6-23 months of age, Refugee Settlements, Uganda, December 2016

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)
Nakivale (n = 209)	(76) 36.4% (29.8 - 42.9)	(68) 32.5% (26.2 - 38.9)	(6) 2.9% (0.6 - 5.1)	(2) 1% (-0.4 - 2.3)
Oruchinga (n = 99)	(37) 37.4% (27.8 - 46.9)	(14) 14.1% (7.3 - 21)	(22) 22.2% (14 - 30.4)	(1) 1% (-1 - 3)
Kyaka II (n = 174)	(102) 58.6% (51.3 - 65.9)	(55) 31.6% (24.7 - 38.5)	(42) 24.1% (17.8 - 30.5)	(5) 2.9% (0.4 - 5.4)
Kyangwali (n = 212)	(118) 55.7% (49 - 62.3)	(60) 28.3% (22.2 - 34.4)	(54) 25.5% (19.6 - 31.3)	(4) 1.9% (0.1 - 3.7)
Rwamwanja (n = 123)	(68) 55.3% (46.5 - 64.1)	(36) 29.3% (21.2 - 37.3)	(29) 23.6% (16.1 - 31.1)	(3) 2.4% (-0.3 - 5.2)
Kiryandongo (n = 88)	(62) 70.5% (60.9 - 80)	(24) 27.3% (18 - 36.6)	(38) 43.2% (32.8 - 53.5)	(0) 0% (0 - 0)
Rhino Camp (n = 38)	(29) 76.3% (62.8 - 89.8)	(12) 31.6% (16.8 - 46.4)	(15) 39.5% (23.9 - 55)	(2) 5.3% (-1.8 - 12.4)
Adjumani (n = 133)	(75) 56.4% (48 - 64.8)	(29) 21.8% (14.8 - 28.8)	(42) 31.6% (23.7 - 39.5)	(4) 3% (0.1 - 5.9)
Lobule (n = 120)	(95) 79.2% (71.9 - 86.4)	(25) 20.8% (13.6 - 28.1)	(67) 55.8% (46.9 - 64.7)	(3) 2.5% (-0.3 - 5.3)
Bidibidi (n = 196)	(153) 78.1% (72.3 - 83.8)	(40) 20.4% (14.8 - 26.1)	(84) 42.9% (35.9 - 49.8)	(29) 14.8% (9.8 - 19.8)

Mean Hb for children aged 6 – 59 months was highest in Nakivale at 11.47g/dl, and least in Bidibidi at 9.8g/dl **(Table 36)**.

Table 36: Mean haemoglobin concentration in children 6-59 months of age, Refugee Settlements, Uganda, December 2016

Settlement	Mean Hb (g/dL) (SD / 95% CI) [range]
Nakivale (n = 637)	11.47 g/dL (1.2 SD) [5.4 min, 14.8 max]
Oruchinga (n = 297)	11.25 g/dL (1.8 SD) [6.7 min, 14.8 max]
Kyaka II (n = 462)	10.85 g/dL (1.6 SD) [4.8 min, 15 max]
Kyangwali (n = 598)	10.93 g/dL (1.5 SD) [4.6 min, 15 max]
Rwamwanja (n = 375)	10.71 g/dL (1.7 SD) [4 min, 16.2 max]
Kiryandongo (n = 324)	10.68 g/dL (1.7 SD) [2.2 min, 15.8 max]
Rhino Camp (n = 80)	9.92 g/dL (2 SD) [2 min, 13.1 max]
Adjumani (n = 421)	10.56 g/dL (1.6 SD) [6.1 min, 15.1 max]
Lobule (n = 424)	10.18 g/dL (1.6 SD) [4 min, 14.3 max]
Bidibidi (n = 561)	9.8 g/dL (2 SD) [2.2 min, 16.7 max]

Prevalence of moderate and severe anaemia in children aged 6 – 59 months is shown in **Table 37.** The prevalence was highest in Bidibidi at 48.1% and least in Nakivale at 2.5%.

Table 37: Prevalence of moderate and severe Anaemia in children 6-59 months of age, Refugee Settlements, Uganda, December 2016

Settlements	Moderate and Severe Anaemia (Hb<10.0 g/dL)
Nakivale (n = 637)	(16) 2.5% (1.3 - 3.7)
Oruchinga (n = 297)	(69) 23.2% (18.4 - 28)
Kyaka II (n = 462)	(107) 23.2% (19.3 - 27)
Kyangwali (n = 598)	(117) 19.6% (16.4 - 22.7)
Rwamwanja (n = 375)	(105) 28% (23.5 - 32.5)
Kiryandongo (n = 324)	(86) 26.5% (21.7 - 31.3)
Rhino Camp (n = 80)	(30) 37.5% (26.9 - 48.1)
Adjumani (n = 421)	(123) 29.2% (24.9 - 33.6)
Lobule (n = 424)	(173) 40.8% (36.1 - 45.5)
Bidibidi (n = 561)	(270) 48.1% (44 - 52.3)

3.7 Infant and Young Child Feeding, IYCF (Children 0-23 months)

3.7.1 IYCF Indicators

The World Health Organisation and UNICEF recommend initiation of breastfeeding within one hour of the baby's birth, exclusive breastfeeding for the first six months of the baby's life, and continued breastfeeding up to 2 years of age and beyond with adequate and appropriate complementary food starting from 6 months. Early initiation of breastfeeding within one hour post-delivery was at 94.3% in Nakivale, 95.7% in Oruchinga, 91.3% in Kayaka II, 74.6% Kyangwali, 85.8% Rwamwanja, 97.6% Kiryandongo, 97.1% Rhinocamp, 87.2% Adjumani, 81.5% Lobule and 68.2% Bidibidi **(Table 38)**. Exclusive breastfeeding for 0 – 5 month olds was lowest in Bidibidi at 51,9% and highest in Kiryandongo at 97.6%. Bottle-feeding was being carried out in a number of settlements and was highest in Kiryandongo at 23.4%. Bottle-feeding is likely to impact on breastfeeding.

Table 38: Prevalence of infant and young child feeding practices indicators, Refugee Settlements, Uganda, December 2016

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**	**6-23**	**0-23**
Nakivale	94.3%	75.0%	90.2%	39.3%	62.5%	79.4%	13.2%
Oruchinga	95.7%	90.9%	90.9%	75.0%	73.3%	89.9%	2.1%
Kyaka II	91.3%	86.0%	93.3%	71.4%	61.3%	60.4%	15.1%
Kyangwali	74.6%	66.0%	95.7%	56.3%	50.0%	36.6%	10.5%
Rwamwanja	85.8%	76.2%	100.0%	84.6%	58.8%	56.9%	10.1%
Kiryandongo	97.6%	75.0%	89.3%	92.3%	66.7%	63.4%	23.4%
Rhino Camp	97.1%	75.0%	100.0%	62.5%	63.6%	50.0%	15.1%
Adjumani	87.2%	79.2%	92.5%	69.0%	57.7%	81.1%	6.4%
Lobule	81.5%	88.9%	91.7%	90.5%	40.0%	50.0%	16.2%
Bidibidi	68.2%	51.9%	90.9%	85.7%	52.2%	50.5%	8.7%

3.7.2 Infant Formula

The uptake of infant formula was generally low across most settlements. The highest proportion of 31% was reported in Kiryandongo Refugee settlement **(Table 39)**. At 31.0%, Kiryandongo had the highest proportion of infants being fed on infant formula. It was followed by Lobule at 14.6%.

Table 39: Infant formula intake in children aged 0-23 months, Refugee Settlements, Uganda, December 2016

Settlement	Number/total	% (95% CI
Nakivale	6/250	(6) 2.4% (0.5 - 4.3)
Oruchinga	11/143	(11) 7.7% (3.3 - 12.1)
Kyaka II	18/238	(18) 7.6% (4.2 - 10.9)
Kyangwali	1/248	(1) 0.4% (-0.4 - 1.2)
Rwamwanja	6/158	(6) 3.8% (0.8 - 6.8)
Kiryandongo	45/145	(45) 31.0% (23.5 - 38.6)

Settlement	Number/total	% (95% CI
Rhino Camp	9/73	(9) 12.3% (4.8 - 19.9)
Adjumani	3/234	(3) 1.3% (-0.2 - 2.7)
Lobule	19/130	(19) 14.6% (8.6 - 20.7)
Bidibidi	16/195	(16) 8.2% (4.4 - 12.1)

3.7.3 Fortified Blended or Lipid Based Foods

The uptake of fortified blended foods or Lipid based nutritional products (LNP) among children 6-23 months with SAM and /or MAM varied across the settlements as shown in **Table 40. Adjumani** at 90.0% had the highest uptake of enriched foods, while Kyangwali at 15.4% had the least uptake.

Table 40: FBF intake in children aged 6-23 months, Refugee Settlements, Uganda, December 2016

Settlement	Number/total	Percentage
Nakivale	14/16	87.5%
Oruchinga	5/5	100%
Kyaka II	1318	72.2%
Kyangwali	2/13	15.4%
Rwamwanja	11/16	68.8%
Kiryandongo	10/14	71.4%
Rhino Camp	6/10	60.0%
Adjumani	18/20	90.0%
Lobule	11/21	52.4%
Bidibidi	12/23	52.2%

3.7.4 Micronutrient powder uptake

Uptake of Micronutrient Powder (MNP) was generally low across all settlements (**Table 41**).

Table 41: MNP intake in children aged 6-23 months, Refugee Settlements, Uganda, December 2016

Settlement	Number/total	% (95% CI
Nakivale	0/206	(0) 0% (0 - 0)
Oruchinga	8/99	(8) 8.1% (2.7 - 13.5)
Kyaka II	9/195	(9) 4.6% (1.7 - 7.6)
Kyangwali	2/198	(2) 1% (-0.4 - 2.4)
Rwamwanja	8/116	(8) 6.9% (2.3 - 11.5)
Kiryandongo	4/117	(4) 3.4% (0.1 - 6.7)
Rhino Camp	3/61	(3) 4.9% (-0.5 - 10.4)
Adjumani	1/186	(1) 0.5% (-0.5 - 1.6)
Lobule	2/112	(2) 1.8% (-0.7 - 4.3)
Bidibidi	7/168	(7) 4.2% (1.2 - 7.2)

3.8 Maternal Health (Women 15 – 49 Years)

Empirical studies have shown that underweight mothers are more likely to give birth to babies with low birth weight, which is a strong predictor of stunted growth among children. The Mid Upper Arm Circumference (MUAC) of women of reproductive age (15 – 49 years) was measured to establish their nutrition status. Malnutrition, according to MUAC, was generally low across all the 10 Refugee Settlements (**Table 43)**. At 20.7%, Kyangwali had the highest proportion of pregnant women **(Table 44)**, while the highest mean age (31 years) was observed in Lobule **(Table 45)**.

Table 42: Prevalence of malnutrition based on MUAC in Women, Refugee Settlements, Uganda, December 2016

	Total Malnutrition	Mild malnutrition (< 22 cm and >= 21.5 cm)	Moderate malnutrition (< 21.5 cm and >= 21 cm)	Severe malnutrition (< 21 cm)
Nakivale (n=612)	(29) 4.7% (3.1 - 6.4)	(7) 1.1% (0.3 - 2)	(9) 1.5% (0.5 - 2.4)	(13) 2.1% (1 - 3.3)
Oruchinga (n=326)	(16) 4.9% (2.6 - 7.3)	(4) 1.2% (0 - 2.4)	(3) 0.9% (-0.1 - 2)	(9) 2.8% (0.9 - 4.5)
Kyaka II (n=520)	(21) 4% (2.3 - 5.7)	(6) 1.2% (0.2 - 2.1)	(1) 0.2% (-0.2 - 0.6)	(14) 2.7% (1.3 - 4.1)
Kyangwali (n=546)	(13) 2.4% (1.1 - 3.7)	(4) 0.7% (0 - 1.4)	(2) 0.4% (-0.1 - 0.9)	(7) 1.3% (0.3 - 2.2)
Rwamwanja (n=373)	(7) 1.9% (0.5 - 3.3)	(2) 0.5% (-0.2 - 1.3)	(0) 0% (0 - 0)	(5) 1.3% (0.2 - 2.5)
Kiryandongo (n=420)	(15) 3.6% (1.8 - 5.3)	(4) 1% (0 - 1.9)	(2) 0.5% (-0.2 - 1.1)	(9) 2.1% (0.8 - 3.5)
Rhino camp (n=193)	(5) 2.6% (0.3 - 4.8)	(1) 0.5% (-0.5 - 1.5)	(3) 1.6% (-0.2 - 3.3)	(1) 0.5% (-0.5 - 1.5)
Adjumani (n=494)	(25) 5.1% (3.1 - 7)	(8) 1.6% (0.5 - 2.7)	(2) 0.4% (-0.2 - 1)	(15) 3% (1.5 - 4.5)
Lobule (n=284)	(14) 4.9% (2.4 - 7.4)	(1) 0.4% (-0.3 - 1)	(1) 0.4% (-0.3 - 1)	(12) 4.2% (1.9 - 6.6)
Bidibidi (n=451)	(10) 2.2% (0.8 - 3.6)	(2) 0.4% (-0.2 - 1.1)	(2) 0.4% (-0.2 - 1.1)	(6) 1.3% (0.3 - 2.4)

Table 43: Women status and age, Refugee Settlements, Uganda, December 2016

Settlement	Non-pregnant		Pregnant	
	Number/total	%	Number/total	%
Nakivale	534/672	79.5%	98/672	14.6%
Oruchinga	287/337	85.2%	49/337	14.5%
Kyaka II	467/559	83.5%	76/559	13.6%
Kyangwali	454/581	78.1%	120/581	20.7%
Rwamwanja	310/381	81.4%	71/381	18.6%
Kiryandongo	429/468	91.7%	33/468	7.1%
Rhino Camp	225/245	91.8%	16/245	6.5%
Adjumani	509/561	90.7%	46/561	8.2%
Lobule	264/291	90.7%	27/291	9.3%
Bidibidi	407/457	89.1%	47/457	10.3%

Table 44: Women Mean Age, Refugee Settlements, Uganda, December 2016

Settlement	Mean Age (Range)
Nakivale	27.3 years, (15min - 48max)
Oruchinga	28.1 years, (15min - 48max)
Kyaka II	28.1 years, (15min - 49max)
Kyangwali	27.3 years, (15min - 49max)
Rwamwanja	28.3 years, (15min - 49max)
Kiryandongo	27 years, (15min - 49max)
Rhino Camp	25.2 years, (15min - 49max)
Adjumani	27.6 years, (15min - 48max)
Lobule	31 years, (15min - 48max)
Bidibidi	27.5 years, (15min - 49max)

The prevalence of anaemia 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 as shown in **Table 46** and **Table 47**. Anaemia among women at reproductive age was recorded highest in Bidbidi at 56.5%, and Adjumani at 48.1% (Figure 3). Of the 10 refugee settlements assessed for anaemia 50% of them had higher than 40% prevalence of anaemia among women at reproductive age.

Some of the most important factors that contribute to high rates of anaemia in the settlements are: frequent exposure to malaria, poor food and dietary diversity, inadequate water for domestics use, infestations of intestinal hook worms, and poor livelihood opportunities.

Table 45: Prevalence of Anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years), Refugee Settlements, Uganda, December 2016

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=516)	(229) 44.4% (40.1 - 48.7)	(138) 26.7% (22.9 - 30.6)	(89) 17.2% (14 - 20.5)	(2) 0.4% (-0.2 - 0.9)
Oruchinga(n=218)	(76) 34.9% (28.3 - 41.2)	(46) 21.1% (15.7 - 26.5)	(28) 12.8% (8.4 - 17.3)	(2) 0.9% (-0.4 - 2.2)
Kyaka II(n=413)	(174) 42.1% (37.4 - 46.9)	(92) 22.3% (18.3 - 26.3)	(76) 18.4% (14.7 - 22.1)	(6) 1.5% (0.3 - 2.6)
Kyangwali(n=467)	(108) 23.1% (19.3 - 27)	(46) 9.9% (7.2 - 12.6)	(60) 12.8% (9.8 - 15.9)	(2) 0.4% (-0.16 - 1)
Rwamwanja(n=366)	(175) 47.8% (42.7 - 52.9)	(84) 23% (18.6 - 27.3)	(82) 22.4% (18.1 - 26.7)	(9) 2.5% (0.9 - 4.1)
Kiryandongo(n=264)	(104) 39.4% (33.5 - 45.3)	(54) 20.5% (15.6 - 25.3)	(47) 17.8% (13.2 - 22.4)	(3) 1.1% (-0.1 - 2.4)
Rhino Camp(n=104)	(40) 38.5% (29.1 - 47.8)	(24) 23.1% (15 - 31.2)	(14) 13.5% (6.9 - 20)	(2) 1.9% (-0.7 - 4.6)
Adjumani(n=324)	(156) 48.1% (42.7 - 53.6)	(81) 25% (20.3 - 29.7)	(73) 22.5% (18 - 27.1)	(2) 0.6% (-0.2 - 1.5)
Lobule(n=238)	(52) 21.8% (16.6 - 27.1)	(33) 13.9% (9.5 - 18.3)	(19) 8% (4.5 - 11.4)	(0) 0% (0 - 0)
Bidibidi(n=434)	(245) 56.5% (51.8 - 61.1)	(94) 21.7% (17.8 - 25.5)	(135) 31.1% (26.8 - 35.5)	(16) 3.7% (1.9 - 5.5)

Table 46: Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years), Refugee Settlements, Uganda, December 2016

Settlement	Mean Hb (g/dL) (SD / 95% CI) [range]
Nakivale(n=516)	12.0 g/dL (1.4 SD) [7.4 min, 16.7 max]
Oruchinga(n=218)	12.3 g/dL (1.4 SD) [7 min, 15.8 max]
Kyaka II(n=413)	12.2 g/dL (1.7 SD) [6 min, 23 max]
Kyangwali(n=467)	12.6 g/dL (1.5 SD) [4.9 min, 16 max]
Rwamwanja(n=366)	11.9 g/dL (2.1 SD) [4 min, 29.6 max]
Kiryandongo(n=264)	12.2 g/dL (1.7 SD) [6.2 min, 25 max]
Rhino Camp(n=104)	11.9 g/dL (2.3 SD) [2 min, 29.5 max]
Adjumani(n=324)	11.9 g/dL (1.8 SD) [2 min, 29 max]
Lobule(n=238)	12.9 g/dL (1.7 SD) [8.9 min, 25.6 max]
Bidibidi(n=434)	11.5 g/dL (1.9 SD) [5.5 min, 23 max]

Access to quality Antenatal Care (ANC) is important in order to screen for the pregnancy related complications and provide appropriate interventions that result in positive birth outcomes for both the mother and baby. Women at reproductive age (15-49 years) were asked if they were enrolled in the MCH programme. And if they were enrolled, an additional question was asked to find out if they had received Iron folic acid during their attendance to the programme: 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 **(Table 48).** Pregnancy leads to increased demands and exposes the woman to higher risk of micronutrient deficiency anaemia and hence the recommendation for supplementation with iron and folic acid.

Table 47: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years), Refugee Settlements, Uganda, December 2016

Settlement	Currently enrolled in ANC programme		Currently Receiving Iron-Folic Acid Pills	
	Number/total	% (95% CI	Number/total	% (95% CI
Nakivale	79/98	(79) 80.6% (72.9 - 88.4)	67/98	(67) 68.4% (59.1 - 77.6)
Oruchinga	41/49	(41) 83.7% (73.3 - 94)	35/49	(35) 71.4% (58.8 - 84.1)
Kyaka II	66/76	(66) 86.8% (79.2 - 94.4)	61/76	(61) 80.3% (73.1 - 89.2)
Kyangwali	96/120	(96) 80% (72.4 - 87.2)	94/120	(94) 78.3% (71 - 85.7)
Rwamwanja	66/71	(66) 93% (87 - 98.9)	58/71	(58) 81.7% (72.7 - 90.7)
Kiryandongo	29/33	(29) 87.9% (76.7 - 99)	29/33	(29) 87.9% (76.7 - 99)
Rhino Camp	14/16	(14) 87.5% (72.3 - 103.7)	0/33	0
Adjumani	41/46	(41) 89.1% (80.1 - 98.1)	41/46	(41) 89.1% (80.1 - 98.1)
Lobule	22/27	(22) 81.5% (66.8 - 96.1)	16/27	(16) 59.3% (40.7 - 77.8)
Bidibidi	36/47	(36) 76.6% (64.5 - 88.7)	34/47	(34) 72.3% (59.6 - 85.1)

3.9 Food Security

3.9.1 General food distribution

Over 90% of the households in all settlements except Kyangwali reported to own ration cards. The majority of the households that did not have ration cards were not eligible, even in Kyangwali settlement. In the stable Settlements the majority of the households reported to receive half ration, while in more active settlements such as Bidibidi and Rhino Camp, the majority of the households received full rations **(Table 49)**.

Table 48: Ration card presence and amount of food ration received by households, Refugee Settlements, Uganda, December 2016

	Have ration card	Amount of food ration received			
		None	Half	Full	Less than half
Nakivale (N=569)	91.0%	8.8%	43.8%	36.0%	11.4%
Oruchinga (N=362)	91.4%	7.7%	71.8%	20.4%	
Kyaka II (N=556)	93.9%	42.3%	31.5%	19.8%	6.5%
Kyangwali (N=580)	62.9%	47.8%	28.6%	16.2%	7.4%
Rwamwanja (N=435)	96.3%	1.8%	61.6%	36.3%	0.2%
Kiryandongo (N=369)	97.6%	7.9%	50.9%	40.7%	0.5%
Rhino Camp (N=180)	97.8%	3.9%	21.7%	74.4%	
Adjumani (N=313)	99.0%	1.3%	75.5%	22.6%	0.6%
Lobule (N=313)	99.4%	0.6%	98.7%	0.3%	0.3%
Bidibidi (N=482)	98.3%	0.6%	27.7%	70.7%	1.0%

Of the households that got full rations in the previous month, the average (SD) duration of the ration was 18.0 (8.1%) days for Nakivale, 16.7 (11.2%) Oruchinga, 15.6 (7.0%) Kyaka II, 13.4 (9.3%) Kyangwali, 15.2 (6.1%) Rwamwanja, 19.1 (8.6%) Kiryandongo, 21.8 (7.6%) Rhino Camp, 23.0 (8.5%) Adjumani, and 20.5 (8.0%) Bidibidi, **(Table 50)**.

Table 49: Average duration of food rations among Refugee households

	Mean	Std. Deviation	Median
Nakivale (N=205)	18.0	8.1	15
Oruchinga (N=73)	16.7	11.2	14
Kyaka II (N=102)	15.6	7.0	14
Kyangwali (N=77)	13.4	9.3	14
Rwamwanja (N=151)	15.2	6.1	14
Kiryandongo (N=149)	19.1	8.6	20
Rhino Camp (N=108)	21.8	7.6	21
Adjumani (N=185)	23.2	8.5	22
Lobule (N=30)	30.0		30
Bidibidi (N=332)	20.5	8.0	21

3.9.2 Coping Strategies

The acquisition of food and the provision of adequate nutrition to one's children are among the most basic of human endeavours. People generally respond to conditions under which they do not have enough to eat, using various means of "coping". People start to change their consumption habits when they anticipate a problem. Findings showed that the most commonly applied food consumption coping strategies were the reliance on less preferred, less expensive food (highest in Oruchinga at 91%), reduction in number of meals per day (highest in Rwamwanja at 72%), borrowing of food (highest in Oruchinga at 62.7%) and reduction in the quantities consumed by adults/mothers for young children was the most preferred option in Kiryandongo at 60.3% **(Table 51).**

Table 50: Proportion of Households that used negative coping Mechanisms (food coping) in the Last 7 Days Prior to the Survey Dates, Refugee Settlements, Uganda, December 2016

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 = 573)	(480) **83.8%** (80.6 - 86.8)	(328) **57.2%** (53.2 - 61.3)	(404) **70.5%** (66.8 - 74.2)	(333) **58.1%** (54.1 - 62.2)	(279) **48.7%** (44.6 - 52.8)
Oruchinga (n = 362)	(329) **90.9%** (87.9 - 93.8)	(227) **62.7%** (57.7 - 67.7)	(315) **87%** (83.6 - 90.5)	(274) **75.7%** (71.3 - 80.1)	(210) **58%** (52.9 - 63.1)
Kyaka II (n = 556)	(386) **69.4%** (65.6 - 73.2)	(243) **43.7%** (39.6 - 47.8)	(298) **53.6%** (49.5 - 57.8)	(273) **49.1%** (44.9 - 53.3)	(178) **32%** (28.1 - 35.9)
Kyangwali (n = 583)	(223) **38.3%** (34.3 - 42.2)	(168) **28.8%** (25.1 - 32.5)	(226) **38.8%** (34.8 - 42.7)	(179) **30.7%** (27 - 34.4)	(104) **17.8%** (14.7 - 21)
Rwamwanja (n = 436)	(369) **84.6%** (81.2 - 88)	(180) **41.3%** (36.7 - 45.9)	(314) **72%** (67.8 - 76.2)	(308) **70.6%** (66.4 - 74.9)	(223) **51.1%** (46.5 - 55.8)
Kiryandongo (n = 370)	(295) **79.7%** (75.6 - 83.8)	(215) **58.1%** (53.1 - 63.1)	(271) **73.2%** (68.7 - 77.8)	(253) **68.4%** (63.6 - 73.1)	(223) **60.3%** (55.3 - 65.3)
Rhino Camp (n = 180)	(119) **66.1%** (59.2 - 73)	(102) **56.7%** (59.8 - 73.6)	(120) **66.7%** (59.8 - 73.6)	(131) **72.8%** (66.3 - 79.3)	(103) **57.2%** (50 - 64.5)
Adjumani (n = 487)	(404) **83%** (79.2 - 86.3)	(248) **50.9%** (46.5 - 55.4)	(338) **69.4%** (65.3 - 73.5)	(331) **68%** (63.8 - 72.1)	(270) **55.4%** (51 - 59.9)
Lobule (n = 313)	(256) **81.8%** (77.5 - 86.1)	(185) **59.1%** (53.7 - 64.6)	(217) **69.3%** (64.2 - 74.4)	(230) **73.5%** (68.6 - 78.4)	(142) **45.4%** (39.9 - 50.9)
Bidibidi (n = 484)	(235) **48.6%** (44.1 - 53)	(202) **41.7%** (37.4 - 46.1)	(242) **50%** (45.6 - 54.5)	(249) **51.4%** (47 - 55.9)	(233) **48.1%** (43.7 - 52.6)

The proportion of households using none of the negative coping strategies was highest in Kyangwali at 44.3% and least in Oruchinga at 6.9% **(Table 52)**.

Table 51: Proportion of households reporting using none of the negative coping strategies in the 7 days prior to the survey date

Settlement	Proportion of households reporting using none of the coping strategies over the last 7 days
Nakivale (n = 573)	(57) 9.9% (7.5 - 12.4)
Oruchinga (n = 362)	(25) 6.9% (4.3 - 9.5)
Kyaka II (n = 556)	(125) 22.5% (19 - 26)
Kyangwali (n = 583)	(258) 44.3% (40.2 - 48.3)
Rwamwanja (n = 436)	(54) 12.4% (9.3 - 15.5)
Kiryandongo (n = 370)	(28) 7.6% (4.9 - 10.3)
Rhino Camp (n = 180)	(32) 17.8% (12.2 - 23.4)
Adjumani (n = 487)	(33) 6.8% (4.5 - 9)
Lobule (n = 313)	(24) 7.7% (4.7 - 10.6)
Bidibidi (n = 484)	(190) 39.3% (34.9 - 43.6)

In the 30 days preceding the survey, borrowing of cash, food or other items with or without interest was most common in Rwamwanja at 46.2%, while those who sold household goods was highest in Adjumani at 19.8% **(Table 53)**.

Table 52: Livelihood coping strategies used by the surveyed population over the past month, Refugee Settlements, Uganda, December 2016

Settlement	Borrowed cash, food or other items *with or without interest*	Sold household goods (radio, furniture, refrigerator, television, jewelry etc..)	Begged	Engaged in potentially risky or harmful activities
Nakivale (n = 572)	(230) 40.2% (36.2 - 44.2)	(25) 4.4% (2.7 - 6.1)	(110) 19.2% (16 - 22.5)	(7) 1.2% (0.3 - 2.1)
Oruchinga (n = 362)	(147) 40.6% (33.6 - 45.7)	(4) 1.1% (0 - 2.2)	(75) 20.7% (16.5 - 24.9)	(0) 0% (0 - 0)
Kyaka II (n = 556)	(225) 40.5% (36.4 - 44.6)	(20) 3.6% (2.1 - 5.2)	(135) 24.3% (20.7 - 27.8)	(7) 1.3% (0.3 - 2.2)
Kyangwali (n = 581)	(67) 11.5% (8.9 - 14.1)	(9) 1.5% (0.6 - 2.6)	(115) 19.8% (16.6 - 23)	(1) 0.2% (-0.2 - 0.5)
Rwamwanja (n = 435)	(201) 46.2% (41.5 - 50.9)	(73) 16.8% (13.3 - 20.3)	(25) 5.7% (3.6 - 7.9)	(10) 2.3% (0.9 - 3.7)
Kiryandongo (n = 369)	(77) 20.9% (16.7 - 25)	(44) 11.9% (8.6 - 15.2)	(123) 33.3% (28.5 - 38.1)	(18) 4.9% (2.7 - 7.1)
Rhino Camp (n = 180)	(32) 17.8% (12.2 - 23.4)	(3) 1.7% (-0.2 - 3.5)	(17) 9.4% (5.2 - 13.7)	(1) 0.6% (-0.5 - 1.7)
Adjumani (n = 486)	(126) 25.9% (22 - 29.8)	(96) 19.8% (16.2 - 23.3)	(120) 24.7% (20.9 - 28.5)	(2) 0.4% (-0.2 - 1)
Lobule (n = 313)	(173) 55.3% (49.8 - 60.8)	(15) 4.8% (2.4 - 7.2)	(28) 8.9% (5.8 - 12.1)	(1) 0.3% (-0.3 - 1)
Bidibidi (n = 483)	(86) 17.8% (14.4 - 21.2)	(7) 1.4% (0.4 - 2.5)	(75) 15.5% (12.3 - 18.8)	(4) 0.8% (0 - 1.6)

Table 53: Coping Strategies used by the surveyed population over the past month, Refugee Settlements, Uganda, December 2016

Settlement	Sold more animals (non-productive than usual)	Spent savings	Sold productive assets or means of transport	Reduced essential non-food expenditures such as education, health etc	Consume seed stock held for next season	Sold house or land
Nakivale (n = 572)	(19) 3.3% (1.9 - 4.8)	(125) 21.9% (18.5 - 25.2)	(12) 2.1% (0.9 - 3.3)	(93) 16.3% (13.2 - 19.3)	(28) 4.9% (3.1 - 6.7)	(4) 0.7% (0 - 1.4)
Oruchinga (n = 362)	(20) 5.5% (3.2 - 7.9)	(55) 15.2% (11.5 - 18.9)	(16) 4.4% (2.3 - 6.5)	(60) 16.6% (12.7 - 20.4)	(80) 22.1% (17.8 - 26.4)	(3) 0.8% (-0.1 - 1.8)
Kyaka II (n = 556)	(15) 2.7% (1.4 - 4.1)	(29) 5.2% (3.4 - 7.1)	(16) 2.9% (1.5 - 4.3)	(57) 10.3% (7.7 - 12.8)	(146) 26.3% (22.6 - 29.9)	(9) 1.6% (0.6 - 2.7)
Kyangwali (n = 581)	(12) 2.1% (0.9 - 3.2)	(26) 4.5% (2.8 - 6.2)	(12) 2.1% (0.9 - 3.2)	(14) 2.4% (1.2 - 3.7)	(94) 16.2% (13.2 - 19.2)	(3) 0.5% (-0.1 - 1.1)
Rwamwanja (n = 435)	(43) 9.9% (7.1 - 12.7)	(83) 19.1% (15.4 - 22.8)	(22) 5.1% (3 - 7.1)	(95) 21.8% (18 - 25.7)	(72) 16.6% (13.1 - 20)	(5) 1.1% (0.1 - 2.1)
Kiryandongo (n = 369)	(25) 6.8% (4.2 - 9.4)	(22) 6% (3.5 - 8.4)	(28) 7.6% (4.9 - 10.3)	(68) 18.4% (14.5 - 22.4)	(61) 16.5% (12.7 - 20.3)	(13) 3.5% (1.6 - 5.4)
Rhino Camp (n = 180)	(4) 2.2% (0.1 - 4.4)	(6) 3.3% (0.7 - 6)	(3) 1.7% (-0.2 - 3.5)	(6) 3.3% (0.7 - 5.9)	(5) 2.8% (0.4 - 5.2)	(3) 1.7% (-0.2 - 3.5)
Adjumani (n = 486)	(24) 4.9% (3 - 6.9)	(43) 8.8% (6.3 - 11.4)	(43) 8.8% (6.3 - 11.4)	(50) 10.3% (7.6 - 13)	(32) 6.6% (4.4 - 8.8)	(10) 2.1% (0.8 - 3.3)
Lobule (n = 313)	(29) 9.3% (6.1 - 12.5)	(59) 18.8% (14.5 - 23.2)	(14) 4.5% (2.2 - 6.8)	(40) 12.8% (9.1 - 16.5)	(168) 53.7% (48.1 - 59.2)	(6) 1.9% (0.4 - 3.4)
Bidibidi (n = 483)	(4) 0.8% (0 - 1.6)	(7) 1.4% (0.4 - 2.5)	(5) 1% (0.1 - 1.9)	(9) 1.9% (0.7 - 3.1)	(9) 1.9% (-0.2 - 0.6)	(4) 0.8% (0 - 1.6)

Table 54: Proportion of households reporting using none of the coping strategies over the past month, Refugee Settlements, Uganda, December 2016

Settlement	Proportion of households reporting using none of the coping strategies over the past Month
Nakivale (n = 572)	(212) 37.1% (33.1 - 41)
Oruchinga (n = 362)	(130) 35.9% (31 - 40.9)
Kyaka II (n = 556)	(224) 40.3% (36.2 - 44.4)
Kyangwali (n = 581)	(363) 62.5% (71.6 - 79.3)
Rwamwanja (n = 435)	(180) 41.4% (36.8 - 46)
Kiryandongo (n = 369)	(151) 40.9% (35.9 - 45.9)
Rhino Camp (n = 180)	(129) 71.7% (65.1 - 78.3)
Adjumani (n = 486)	(203) 41.8% (37.4 - 46.2)
Lobule (n = 313)	(58) 18.5% (14.2 - 22.8)
Bidibidi (n = 483)	(353) 73.1% (69.1 - 77)

Table 55: Coping strategies used by the surveyed population over the past month, Refugee Settlements, Uganda, December 2016

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)
Nakivale (n = 572)	(305) 53.3% (49.2 - 57.4)	(114) 19.9% (16.7 - 23.2)	(113) 19.8% (16.5 - 23)
Oruchinga (n = 362)	(169) 46.7% (41.6 - 51.8)	(77) 21.3% (17.1 - 25.5)	(126) 34.8% (29.9 - 39.7)
Kyaka II (n = 556)	(247) 44.4% (40.3 - 48.6)	(144) 25.9% (22.3 - 29.5)	(164) 29.5% (25.7 - 33.3)
Kyangwali (n = 581)	(101) 17.4% (14.3 - 20.5)	(116) 20% (16.7 - 23.2)	(113) 19.4% (16.2 - 22.7)
Rwamwanja (n = 435)	(220) 50.6% (45.9 - 55.3)	(34) 7.8% (5.3 - 10.3)	(143) 32.9% (28.5 - 37.3)
Kiryandongo (n = 369)	(99) 26.8% (22.3 - 31.4)	(131) 35.5% (30.6 - 40.4)	(108) 29.3% (24.6 - 33.9)
Rhino Camp (n = 180)	(37) 20.6% (14.7 - 26.5)	(21) 11.7% (7 - 16.4)	(12) 6.7% (3 - 10.3)
Adjumani (n = 486)	(205) 42.2% (37.8 - 46.6)	(126) 25.9% (22 - 29.8)	(97) 20% (16.4 - 23.5)
Lobule (n = 313)	(195) 62.3% (56.9 - 67.7)	(35) 11.2% (7.7 - 14.7)	(178) 56.9% (51.4 - 62.4)
Bidibidi (n = 483)	(97) 20.1% (16.5 - 23.7)	(79) 16.4% (13.1 - 19.7)	(17) 3.5% (1.9 - 5.2)

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

Household Dietary Diversity refers to the number of different food groups consumed over a given reference period. A more diversified diet is expected to improve outcomes in areas such as birth weight, child anthropometric status, and improved hemoglobin concentrations, and is highly correlated with such factors as caloric and protein adequacy, percentage of protein from animal sources (high quality protein), and household income. Even in very poor households, increased food expenditure resulting from additional income is associated with increased quantity and quality of the diet. From the survey, most of the households in the settlements had medium levels of dietary diversity. The average HDDS for the various settlements is presented in **Table 57**.

Table 56: Average HDDS, Refugee Settlements, Uganda, December 2016

Settlement	Mean
Nakivale	Mean 3.8 CI (3.7 – 4.0), 1.7 SD
Oruchinga	Mean 3.3 CI (3.2 – 3.4 1.4 SD
Kyaka II	Mean 3.7 CI (3.6 – 3.9), 1.8 SD
Kyangwali	Mean 3.6 CI (3.5 – 3.8), 1.5 SD
Rwamwanja	Mean 3.7 CI (3.6 – 3.8), 1.4 SD
Kiryandongo	Mean 3.9 CI (3.7 – 4.1), 1.8 SD
Rhino Camp	Mean 3.4 CI (3.2 – 3.5), 1.2 SD
Adjumani	Mean 4.1 CI (4.0 – 4.2), 1.4 SD
Lobule	Mean 4.2 CI (4.1 – 4.4), 1.6 SD
Bidibidi	Mean 2.2 CI (2.1 – 2.4), 1.4 SD

Except in Rhino (33.1%) and Bidibidi (28.1%), more than half of households depend on the market (purchase with cash) for food as shown in **Table 58**. Given limited incomes and limited earning potential among refugee households, findings suggest high vulnerability to food insecurity due to exposure to food price fluctuations that are typically high during the lean seasons.

Table 57: Main food source for Refugee Settlements

Main Source of Food	Nakivale	Oruchinga	Kyaka II	Kyangwali	Rwamwanja	Kiryandongo	Rhino Camp	Adjumani	Lobule	Bidibidi
Own production (crops, animal)	4.3%	11.7%	24.9%	21.1%	5.6%	11.2%	3.3%	7.2%	14.1%	.5%
Fishing / Hunting	.1%	1.2%	.1%	.1%	0.0%	.1%	.1%	.1%	.1%	.1%
Gathering	5.4%	9.6%	1.8%	5.2%	4.9%	1.1%	.3%	1.0%	2.4%	.5%
Borrowed	.7%	.6%	1.2%	.3%	1.0%	2.2%	1.4%	1.4%	1.5%	.7%
Market (purchase with cash)	59.5%	54.6%	62.4%	65.4%	78.3%	54.6%	33.1%	50.5%	78.8%	28.1%
Market (purchase on credit)	2.0%	2.2%	3.6%	.6%	1.9%	1.9%	.4%	.9%	1.2%	2.7%
Beg for food	.2%	.5%	1.2%	1.8%	.2%	1.1%	.6%	.2%	.2%	.1%
Exchange labor or items for food	2.4%	1.0%	1.6%	1.3%	.4%	1.4%	13.1%	.7%	.3%	7.4%
Gift (food) from family relatives or friends	1.9%	1.6%	2.6%	1.0%	3.3%	2.9%	.7%	1.6%	1.3%	.5%
Food aid from civil society, NGOs, government, WFP etc	23.5%	16.9%	.6%	3.3%	4.4%	23.4%	47.0%	36.4%	.2%	59.4%

On average the proportions of households that did not consume any vegetables, fruits, meat, eggs, fish/sea foods and milk/milk products in the seven days before the survey was high across the settlements with an average of 31.1% (**Table 59**).

Table 58: Consumption of micronutrient rich foods by households, Refugee Settlements, Uganda, December 2016

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 (573)	(129) 22.5% (19.1 - 26)	(307) 53.6% (49.5 - 57.7)	(83) 14.5% (11.6 - 17.4)
Oruchinga (362)	(85) 23.5% (19.1 - 27.8)	(234) 64.6% (59.7 - 69.6)	(31) 8.6% (5.7 - 11.4)
Kyaka II (556)	(137) 24.6% (21.1 - 28.2)	(263) 47.3% (43.2 - 51.5)	(54) 9.7% (7.3 - 12.2)
Kyangwali (583)	(127) 21.8% (18.4 - 25.1)	(296) 50.8% (46.7 - 54.8)	(112) 19.2% (16 - 22.4)
Rwamwanja (436)	(63) 14.4% (11.2 - 17.8)	(178) 40.8% (36.2 - 45.4)	(41) 9.4% (6.7 - 12.1)
Kiryandongo (370)	(122) 33% (28.2 - 37.8)	(141) 38.1% (33.2 - 43.1)	(49) 13.2% (9.8 - 16.7)
Rhino Camp (180)	(76) 42.2% (35 - 49.4)	(71) 39.4% (32.3 - 46.6)	(14) 7.8% (3.9 - 11.7)
Adjumani (487)	(141) 29% (24.9 - 33)	(248) 50.9% (46.5 - 55.4)	(76) 15.6% (12.4 - 18.8)
Lobule (313)	(80) 25.6% (20.7 - 30.4)	(155) 49.5% (44 - 55.1)	(63) 20.1% (15.7 - 24.6)
Bidibidi (484)	(361) 74.6% (70.7 - 78.4)	(70) 14.5% (11.3 - 17.6)	(34) 7% (4.7 - 9.3)

On average proportion of households consuming either a plant or animal source of vitamin A was 45% in the settlements. The refugees in Oruchinga (64.6%), Adjumani (50.9%) and Kyangwali (50.8%) were more likely to consume plant or animal sources of vitamin A compared to other settlements.

Analysis also showed that most households had not consumed any foods rich in hem-iron in the 7 days preceding the survey with negligible variation across settlements. This is a critical issue as consumption of hemiron is a key factor in reducing child stunting.

3.9.3 Food Consumption Scores

Food consumption scores, which is an indicator used to assess primarily the intake of food nutrients and energy, was measured in this survey. It is a composite indicator that measures dietary diversity, food frequency and the relative nutritional importance of food groups based on a seven-day recall of food consumed at household level. Based on the findings, over 80% of the households in all the settlements except Oruchinga (76%) and Bidibidi (45%) had acceptable food consumption scores **(Figure 1).**

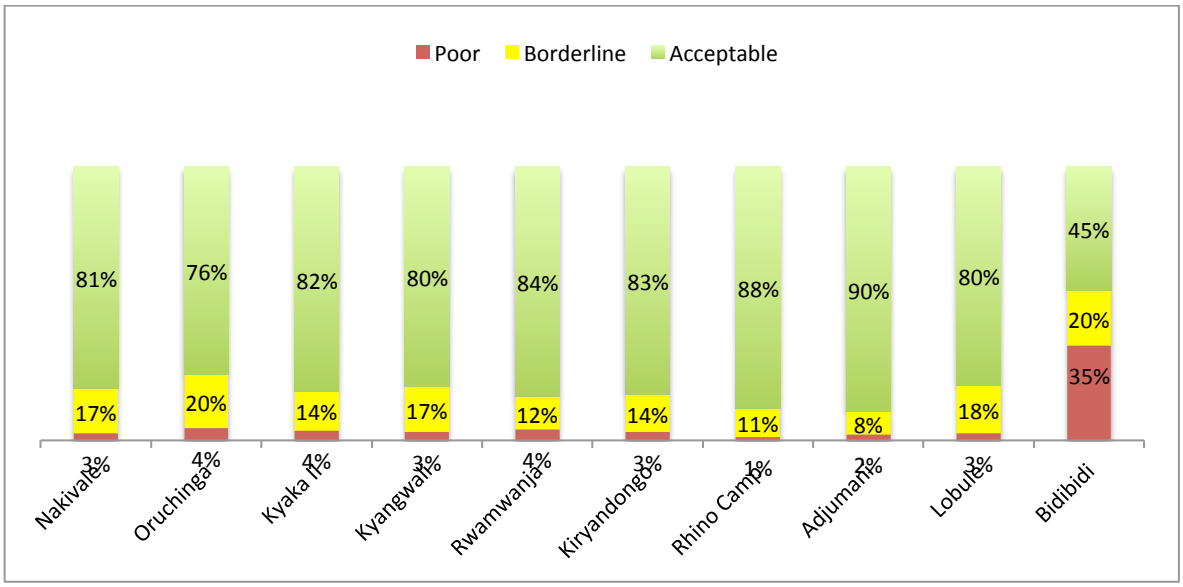

Figure 1: Refugee Household Food Consumption Scores based on 7 days / week

3.9.4 Livestock and Poultry Production

Refugee household ownership of livestock and poultry was low. Poultry was the most common (25%) for all settlements followed by goats (15.6%), **Table 60**. Refugee households should be encouraged to own some livestock and poultry as a source of protein and haem iron.

Table 59: Ownership of Livestock and Poultry by households in Refugee Settlements, Uganda, December 2016

Settlement	Cattle	Sheep	Goat	Pig	Poultry	Donkey	No Livestock
Nakivale (N = 572)	2.6%	0.3%	10.7%	7.3%	15.2%	0.0%	63.9%
Oruchinga (N = 362)	1.9%	0.6%	27.6%	5.2%	28.5%	0.0%	36.2%
Kyaka II (N = 556)	2.3%	2.2%	15.5%	6.5%	23.4%	0.2%	50.1%
Kyangwali (N = 582)	0.5%	0.7%	18.0%	10.3%	30.8%	0.0%	39.7%
Rwamwanja (N = 435)	5.3%	1.4%	23.2%	12.4%	29.7%	0.2%	28.0%
Kiryandongo (N = 369)	2.2%	0.0%	9.8%	4.1%	22.8%	0.0%	61.1%
Rhino Camp (N = 180)	0.6%	1.7%	13.3%	1.7%	25.6%	0.0%	57.1%
Adjumani (N = 486)	0.4%	0.4%	14.6%	0.6%	18.1%	0.2%	65.9%
Lobule (N = 313)	1.3%	6.7%	27.8%	0.0%	68.4%	0.0%	0.0%
Bidibidi (N = 483)	0.2%	0.0%	1.2%	0.0%	7.0%	0.0%	91.6%
Pooled (All Settlements) (N = 4,338)	1.4%	1.4%	14.4%	3.7%	26.2%	0.1%	65.7%

Of the households that owned livestock or poultry, the majority owned only 1-3 of the livestock, **Figure 2.**

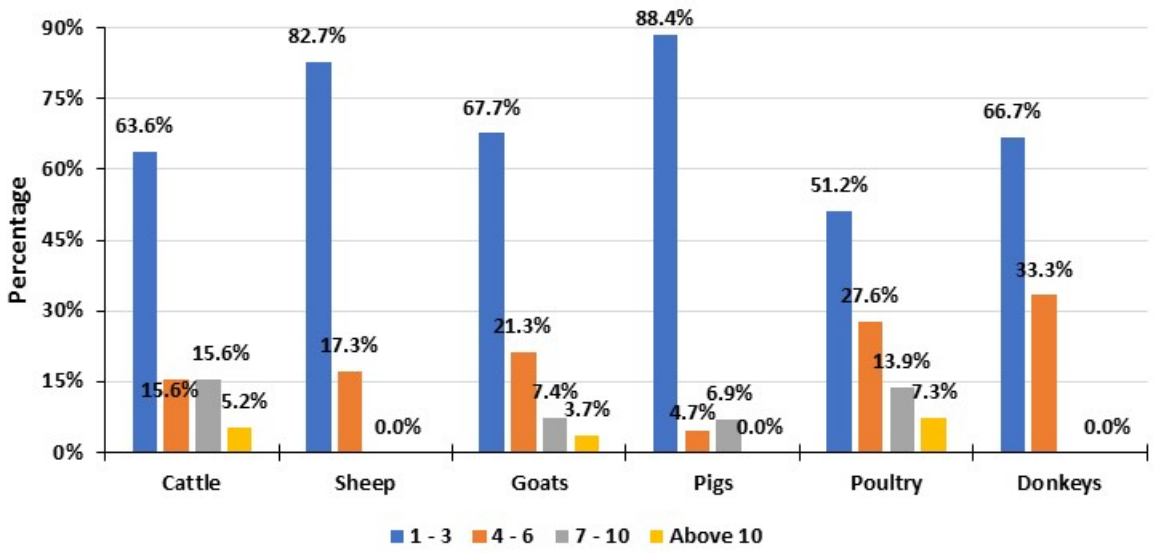

Figure 2: Number of livestock and poultry owned by households, Refugee Settlements, December 2016

3.9.5 Food Availability

Only 2% of the households in Bidibidi, 6.7% in Rhino Camp and 39.9% in Nakivale accessed agricultural land, **Figure 4**. Access to land allows households to farm, harvest and finally consume the food at household levels. Land is also a development factor vital for the livelihood of the refugee households in Uganda. The OPM should urgently address the issue of land allocations to households

especially in the three severely affected settlements.

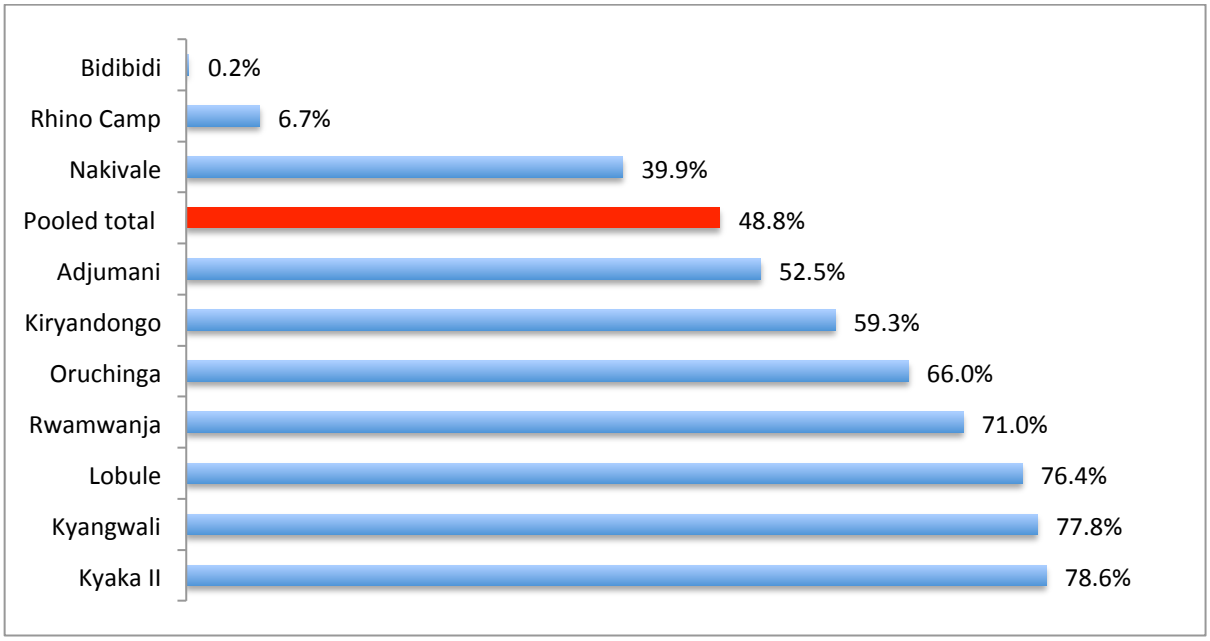

Figure 3: Refugee households with access to agricultural land, December 2016

Rwamwanja, Kyaka II and Nakivale have the best Upland suitable for agriculture, **Figure 4.**

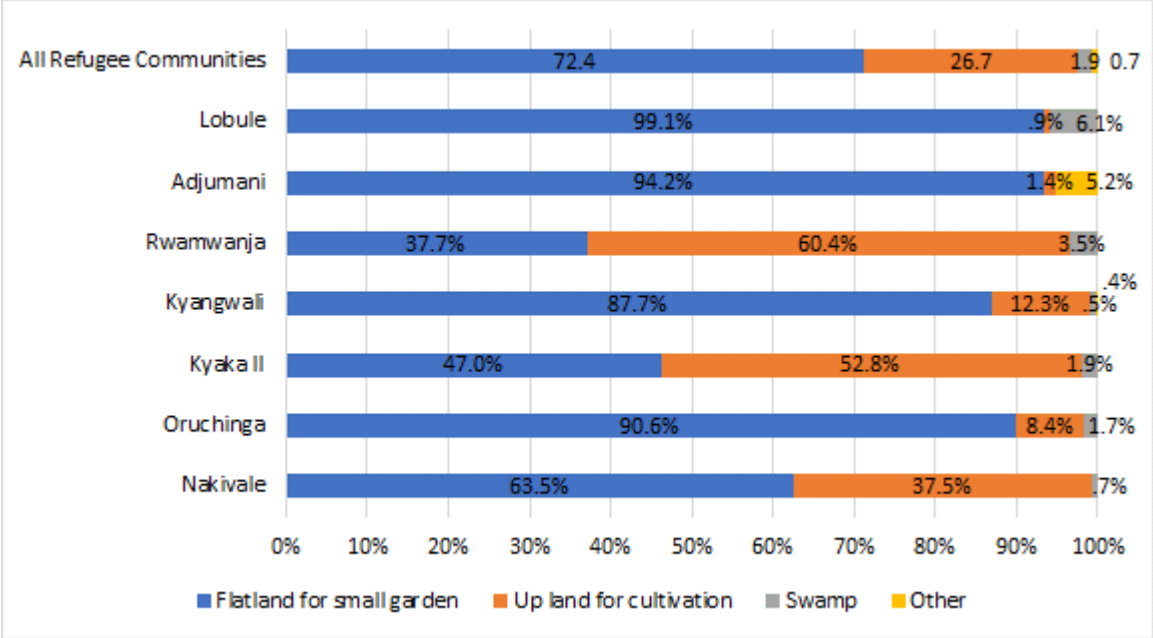

Figure 4: Proportion of Refugee households owning different types of land, December 2016

3.9.5 Household Food Production

The majority of the households grow most of the crops in less than half an acre of land, **Figure 5.** There is need to support farmers with intercropping skills and modern farming methods.

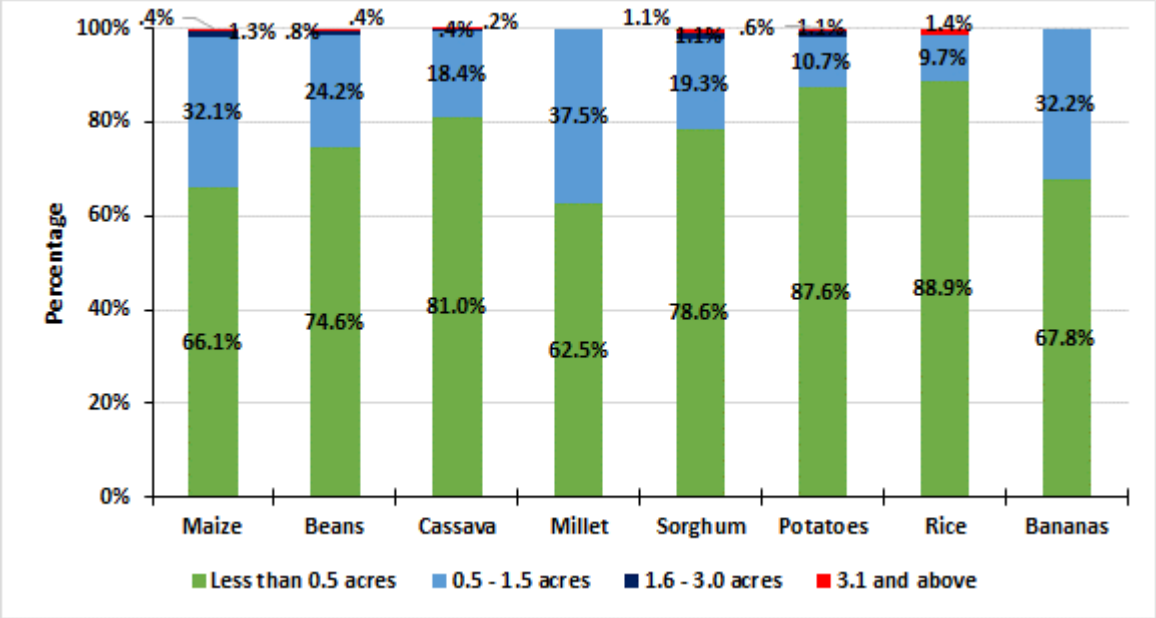

Figure 5: Land sizes in acreage occupied by crops the previous farming season, Refugee Settlement, December 2016

In 2016, most the refugee households engaged in agriculture report to have harvested much less compared to a similar season the previous year, **Figure 6**. This is not surprising since less than usual rainfall was reported in most of Uganda in 2016.

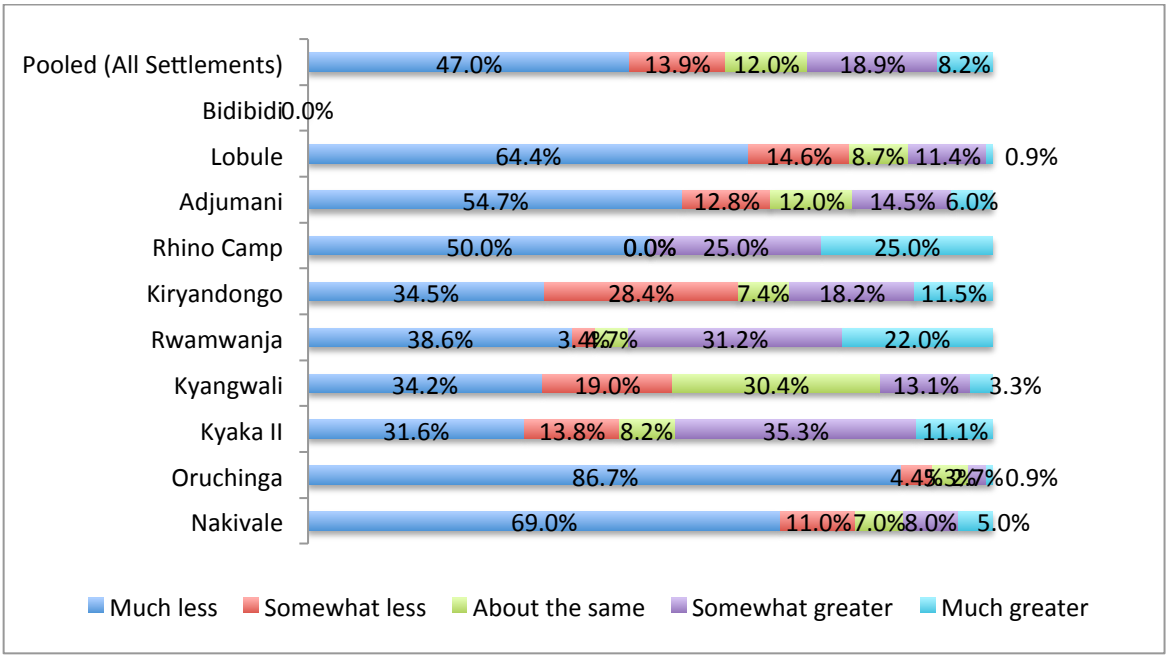

Figure 6: Comparing amount of food produced this year to the same season last year

Likewise the amount of food sold in 2016 was much less than in 2015, **Figure 7.**

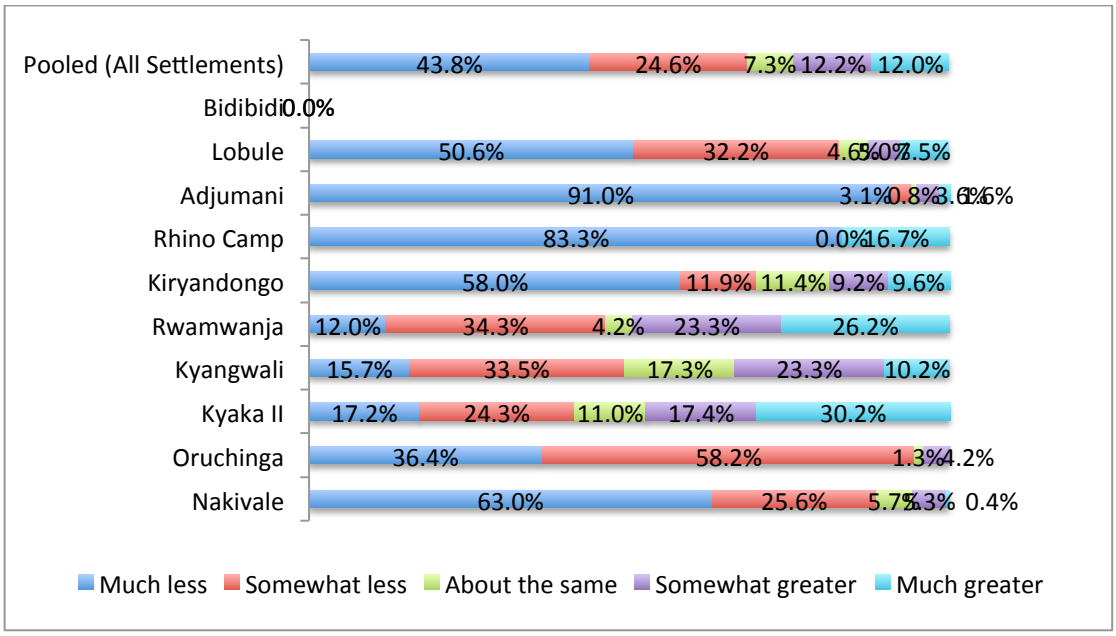

Figure 7: Comparing the amount of food sold from the harvest this year at the same time last year

Just as it would be in the rest of Uganda, the main constraints to agricultural production reported by refugee households in 2016 was low rainfall or draught, **Table 61**.

Table 60: The main constraints to agriculture in the last 6 months

Biggest constraint to agriculture in the past 6 months	Settlement										
	Nakivale	Oruchinga	Kyaka II	Kyangwali	Rwamwanja	Kiryandongo	Rhino Camp	Adjumani	Lobule	Bidibidi	All Settlements
Insecurity	.4%	.8%	1.4%	3.8%	0.0%	5.0%	0.0%	9.0%	0.0%	0.0%	2.5%
I have been prohibited by the clan	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
I have been prohibited by my husband	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.4%	0.0%	0.0%	0.1%
The land is infertile/marginal	.9%	0.0%	13.7%	19.3%	13.9%	8.7%	25.0%	16.1%	5.4%	0.0%	11.2%
I have been prohibited by the government	0.0%	0.0%	0.5%	0.0%	0.3%	0.9%	0.0%	0.4%	0.0%	0.0%	0.3%
Sickness or physical inability	0.4%	2.9%	15.1%	4.0%	13.6%	3.2%	0.0%	5.5%	5.0%	0.0%	7.0%
I did not have adequate seeds and tools	1.3%	.8%	2.7%	0.7%	0.6%	3.2%	16.7%	3.1%	7.5%	0.0%	2.4%
I do not have sufficient family/household labour	1.8%	0.0%	2.7%	4.7%	2.9%	2.7%	0.0%	1.6%	1.3%	0.0%	2.5%
We are not agriculturalists	0.4%	0.0%	0.9%	0.0%	0.0%	0.0%	8.3%	0.8%	0.0%	0.0%	0.3%
Land conflicts	2.2%	1.3%	3.0%	2.4%	8.4%	4.1%	0.0%	1.2%	1.3%	0.0%	3.1%
Drought/Low rainfall	87.7%	88.7%	52.4%	58.5%	49.5%	63.5%	50.0%	39.2%	63.6%	0.0%	60.9%
I have no access to land	4.4%	5.0%	4.1%	1.6%	0.0%	3.7%	0.0%	12.2%	14.6%	100.0%	5.1%
Other	0.4%	0.4%	3.4%	5.1%	10.4%	4.6%	0.0%	10.6%	1.3%	0.0%	4.7%

3.9.6 Main Income Sources

The Settlements in Southwest and in the Midwest were more likely to have a member of their households earning some income as compared to those in West Nile Region, except Lobule, **Figures 8**. Settlements with lower proportions of household with at least one income earners were: 2.9%

Bidibidi, 6.2% Rhino camp and 24.0% Adjumani. Lobule (40.5%), Rwamwanja (40.4%) and Oruchinga (40.1%) reported to have higher proportions of households with at least one-income earners. This suggests a relatively higher economic access to food in Southwest and in the Midwest refugee settlements.

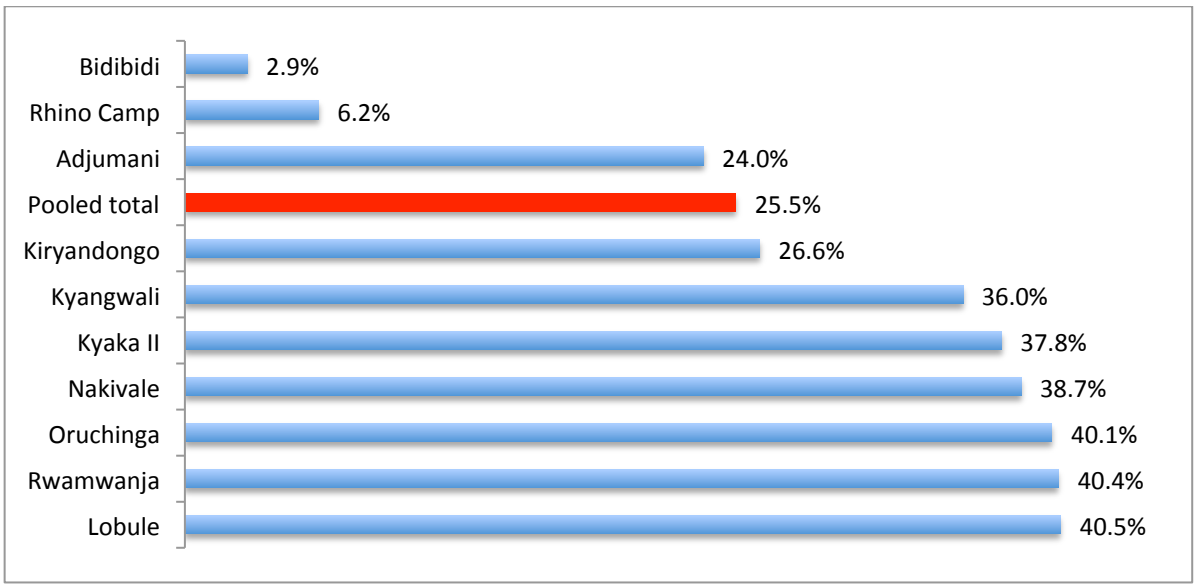

Figure 8: At least one-income earner at household level, Refugee Settlement, December 2016

The most important livelihood sources for the refugee households were sale of food crops, food assistance, agricultural wage labour and small businesses, **Figure 9**.

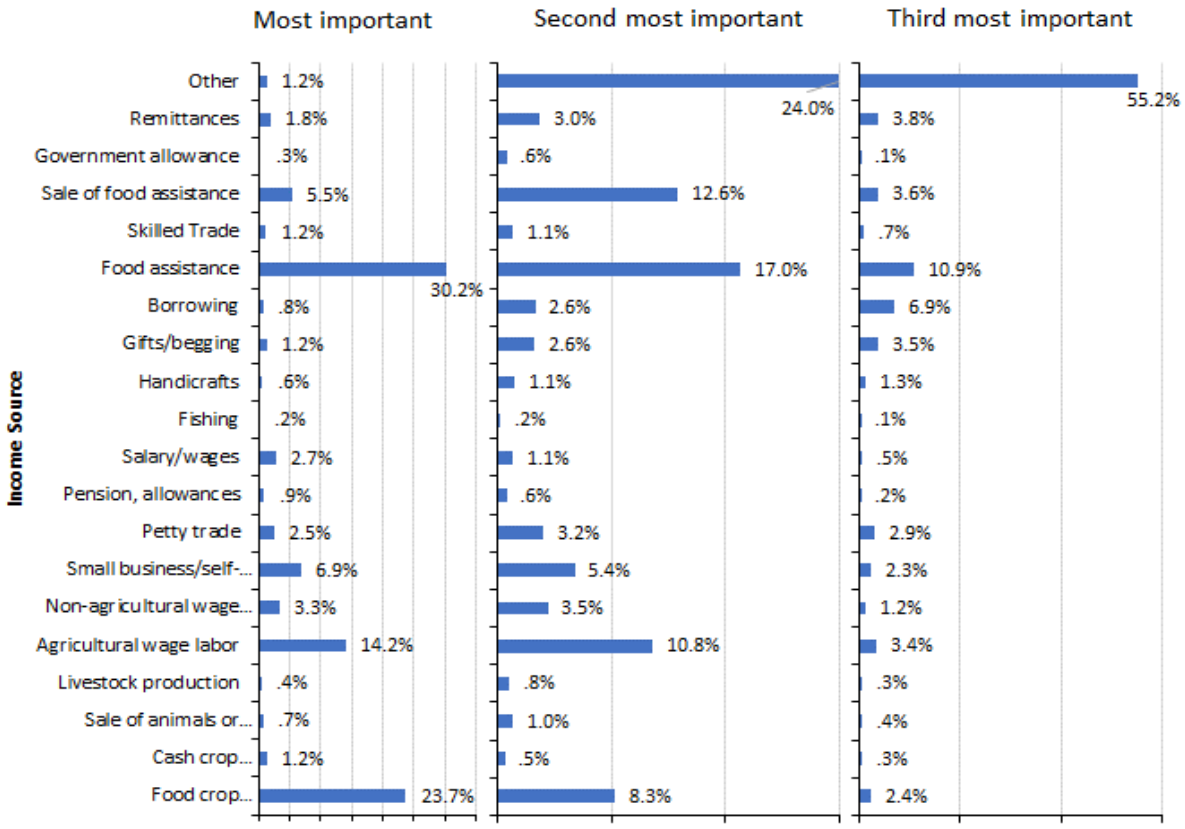

Figure 9: Livelihood income source for all Refugee Settlements combined, December 2016

3.9.7 Expenditures and Debt

Almost 31.7% of the households in the refugee settlements had a debt to repay at the time of the survey **(Figure 10)**. The proportions of households among refugee communities with the debt to repay were highest in Rwamwanja at 66.4%, followed by Lobule at 62.3%, and Nakivale at 52.9% and 10.0% Bidibidi. While debt is not necessarily bad for households (as it can potentially be used to augment agricultural production and other income generating activities), it is indicative of stress when used to meet essential household needs, including for purchase of food.

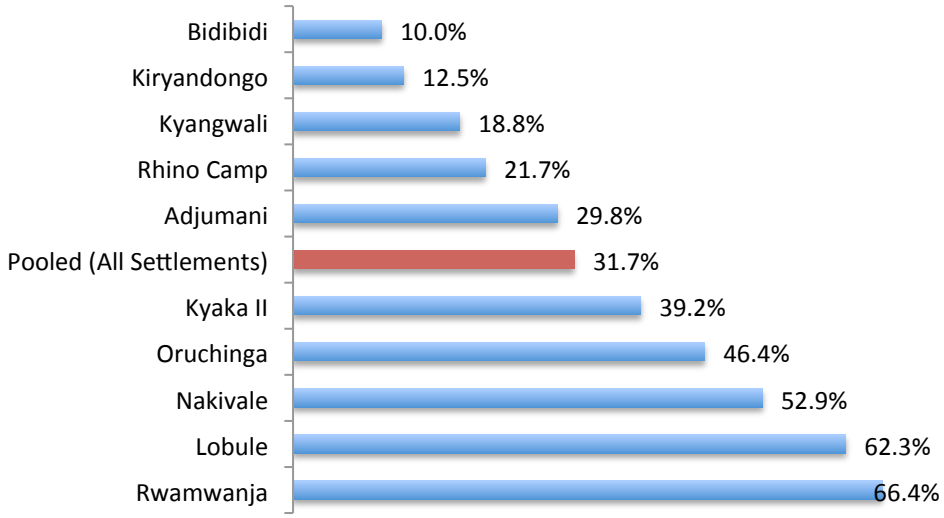

Figure 10: Proportions of households with debt to repay among Refugee Settlements, December 2016

The main source of the credit for all debts and loans among the Refugee Communities were relatives at 31.3%, followed by traders/shop keepers at 30.5%, **Figure 11**.

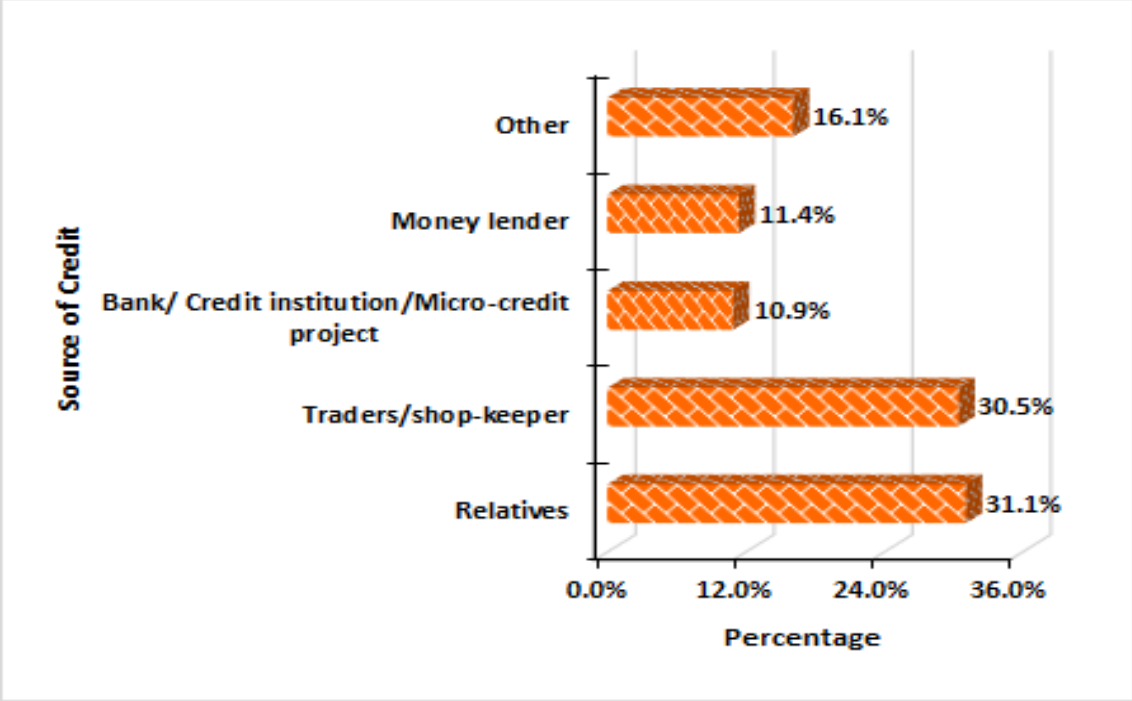

Figure 11: Main source of credit for all debts and loans among Refugee households, December 2016

The vulnerabilities of refugees in Uganda have been compounded by additional basic requirements to meet their households' needs. Various reasons motivated refugees to enter into debts. Up to 47.3% of the refugees were motivated by the need to buy food, 19.1% to cover health expenses and 10.8% to pay for school and education related costs, these were the most commonly factors pushed refugees to debts **(Figure 12)**. The least common reason for new debt was to buy animal feed, fodder or veterinary services.

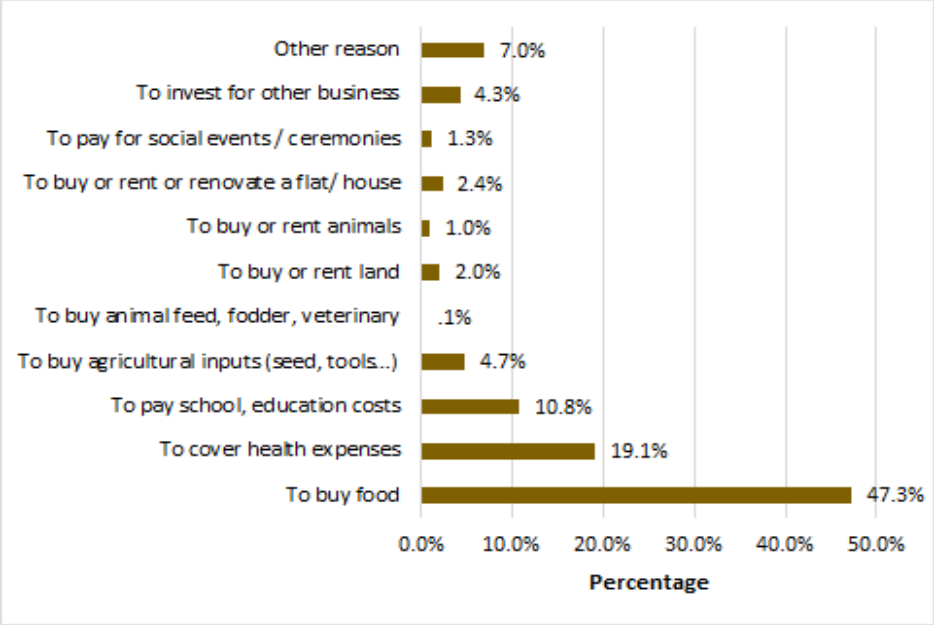

Figure 12: The main reason for new debts and credit among Refugee Communities, December 2016

3.10 Water and Sanitation

Good household level water, sanitation and hygiene practices contribute towards improved health of mothers and children. Across the settlements, more than three quarters of the households in the settlements were getting water from an improved drinking water source **(Table 62)**.

Table 61: Water quality, Refugee Communities, Uganda, December 2016

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=572)	(546) 95.5% (93.7 - 97.2)	(130) 22.7% (19.3 - 26.1)
Oruchinga (N=362)	(327) 90.3% (87.3 - 93.4)	(271) 74.9% (70.4 - 79.3)
Kyaka II (N=556)	(547) 98.4% (97.3 - 99.4)	(157) 28.2% (24.5 - 32)
Kyangwali (N=582)	(580) 99.7% (99.2 - 100.1)	(87) 14.9% (12.1 - 17.8)
Rwamwanja (N=435)	(434) 99.8% (99.3 - 100.2)	(137) 31.5% (27.1 - 35.8)
Kiryandongo (N=369)	(368) 99.7% (99.2 - 100.3)	(53) 14.4% (10.8 - 17.9)
Rhino Camp (N=180)	(180) 100%	(18) 10% (5.6 - 14.4)
Adjumani (N=486)	(484) 99.6% (90 - 100.2)	(348) 71.6% (67.6 - 75.6)
Lobule (N=313)	(313) 100%	(33) 10.5% (7.1 - 13.9)
Bidibidi (N=482)	(433) 89.8% (87.1 - 92.5)	(175) 36.2% (33 - 40.6)

Across the settlements, 53% of households in Bidibidi settlement reported to receive more than 20

litres/person/day of safe water for domestic use **(Table 63)**. While most refugees in West Nile region were more likely to receive less than 20 litres of water/person/day: 40.4% Adjumani, 34.1% Rhino camp and 33.3% Lobule another settlement that reported relatively high proportion was Kyangwali with 33%.

Table 62: Water quantity: amount of litres of water used per person per day, Refugee Communities, Uganda, December 2016

Proportion of Households that Use:			
Settlement	**≥ 20 lpppd**	**15 – <20 lpppd**	**<15 lpppd**
Nakivale (n=571)	(135) 23.6% (20.2 - 27.1)	(67) 11.7% (9.1 - 14.4)	(369) 64.6% (60.7 - 68.5)
Oruchinga (n=360)	(85) 23.6% (19.2 - 28)	(53) 14.7% (11.1 - 18.4)	(222) 61.7% (56.7 - 66.7)
Kyaka II (n=556)	(140) 25.2% (21.6 - 28.8)	(80) 14.4% (11.5 - 17.3)	(336) 60.4% (56.4 - 64.5)
Kyangwali (n=580)	(191) 32.9% (29.1 - 36.7)	(130) 22.4% (19 - 25.8)	(259) 44.7% (40.6 - 48.7)
Rwamwanja (n=435)	(101) 23.2% (19.2 - 27.2)	(41) 9.4% (6.7 - 12.2)	(293) 67.4% (62.9 - 71.8)
Kiryandongo (n=364)	(102) 28% (23.4 - 32.6)	(36) 9.9% (6.8 - 13)	(226) 62.1% (57.1 - 67.1)
Rhino Camp (n=179)	(61) 34.1% (27.1 - 41)	(17) 9.5% (5.2 - 13.8)	(101) 56.4% (49.2 - 63.7)
Adjumani (n=475)	(192) 40.4% (36 - 44.8)	(62) 13.1% (10 - 16.1)	(221) 46.5% (42 - 51)
Lobule (n=312)	(104) 33.3% (28.1 - 38.6)	(71) 22.8% (18.1 - 27.4)	(137) 43.9% (38.4 - 49.4)
Bidibidi (n=482)	(254) 52.7% (42.8 - 57.2)	(55) 11.4% (8.6 - 14.3)	(173) 35.9% (31.6 - 40.2)

Refugees were asked if they were satisfied with the supply of water in each settlement. The level of satisfactions differed from one settlement to another. Findings indicated that refugees in Lobule and Kyaka II were more satisfied compared when compared with other settlements at 81.2% and 80.9% respectively. Other settlements recorded high satisfactions at: 77.7% Kyangwali and 66.4% Rwamwanja, (**Table 64**).

Table 63: Satisfaction with water supply, Refugee Communities, Uganda, December 2016

Settlement	Proportion of households that say they are satisfied with the drinking water supply
Nakivale (n=572)	(261) 45.6% (41.6 - 49.1)
Oruchinga (n=362)	(195) 53.9% (48.7 - 59)
Kyaka II (n=556)	(450) 80.9% (77.7 - 84.2)
Kyangwali (n=582)	(452) 77.7% (74.3 - 81)
Rwamwanja (n=435)	(289) 66.4% (62 - 70.9)
Kiryandongo (n=369)	(67) 18.2% (62.6 - 71.4)
Rhino Camp(n=180)	(28) 15.6% (10.3 - 20.9)
Adjumani (n=486)	(245) 50.4% (46 - 54.9)
Lobule (n=313)	(254) 81.2% (76.8 - 85.5)
Bidibidi (n=483)	(262) 54.2% (49.8 - 58.7)
All Settlements (n=4,338)	(2503) 56.6% (54.3 - 57.9)

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 as shown in **Table 65**. The highest use of unimproved toilet by households was recorded at:

72.7% Kyangwali, 57.1% Rhino Camp and 45.8% Kiryandongo. In these settlements, a significant number of households reported not owning an improved household latrine.

Table 64: Safe excreta disposal, Refugee Communities, Uganda, December 2016

Settlement	Proportion of Households That Use			
	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	(284) 49.7% (45.6 - 53.8)	(86) 15% (12.1 - 18)	(14) 2.4% (1.2 - 3.7)	(188) 32.9% (12.4 - 18.3)
Oruchinga	(245) 67.7% (62.9 - 72.5)	(58) 16% (12.2 - 19.8)	(4) 1.1% (0 - 2.2)	(55) 15.2% (11.5 - 18.9)
Kyaka II	(285) 51.3% (47.1 - 55.4)	(70) 12.6% (9.8 - 15.3)	(1) 0.2% (-0.2 - 0.5)	(200) 36% (32 - 40)
Kyangwali	(138) 23.7% (20.3 - 27.1)	(17) 2.9% (1.5 - 4.3)	(4) 0.7% (0 - 1.4)	(423) 72.7% (69.1 - 76.3)
Rwamwanja	(235) 54% (49.3 - 58.7)	(70) 16.1% (12.6 - 19.5)	(1) 0.2% (0 - 0.7)	(129) 29.7% (25.4 - 33.9)
Kiryandongo	(134) 36.3% (31.4 - 41.2)	(52) 14.1% (10.5 - 17.6)	(14) 3.8% (1.8 - 5.7)	(169) 45.8% (40.7 - 50.9)
Rhino Camp	(20) 26% (16.2 - 35.8)	(11) 14.3% (6.5 - 22.1)	(2) 2.6% (-0.9 - 6.1)	(44) 57.1% (46.1 - 68.2)
Adjumani	(194) 39.9% (35.6 - 44.3)	(141) 29% (25 - 33)	(30) 6.2% (4 - 8.3)	(121) 24.9% (21.1 - 28.7)
Lobule	(271) 86.9% (83.1 - 90.6)	(36) 11.5% (8 - 15.1)	(2) 0.6% (-0.2 - 1.5)	(3) 1% (-0.1 - 2)
Bidibidi	(19) 3.9% (2.2 - 5.7)	(35) 7.3% (4.9 - 9.6)	(280) 58.1% (53.7 - 62.5)	(148) 30.7% (26.5 - 34.8)

The proportion of households that reported to use communal improved toilet facility and or 3 households or more sharing was highest in Bidibidi (58.1%). This high rate could be due to the fact that at the time of the survey Bidibidi settlement was still new so refugees had not constructed their households' latrines. More than four in five of the households in the refugee settlements disposed of children excreta safely as shown in **Table 66**.

Table 65: Safe child excreta disposal, Refugee Communities, Uganda, December 2016

Settlement	% 95 C.I.
Nakivale	(453) 87.8% (84.9 - 90.6)
Oruchinga	(252) 100%
Kyaka II	(489) 94% (92 - 96.1)
Kyangwali	(470) 95.7% (93.9 - 97.5)
Rwamwanja	(313) 95.4% (93.2 - 97.7)
Kiryandongo	(326) 96.2% (94.1 - 98.2)
Rhino Camp	(135) 92.5% (88.2 - 96.7)
Adjumani	(461) 95.2% (93.3 - 97.1)
Lobule	(346) 99.1% (98.2 - 100.1)
Bidibidi	(429) 90.3% (88.7 - 93)

3.11 Mosquito Net Coverage

Household ownership of any type of net was highest in Adjumani at 83.7%, and lowest in Kiryandongo at 46.1% **(Table 67)**. The average number of LLINs was highest in Adjumani at 2.02 LLINs per household, and lowest in Bidibidi at 0.39 LLINs per household as presented in **Table 68**.

Table 66: Household mosquito net ownership, Refugee Communities, Uganda, December 2016

Settlement	Proportion of total households owning at least one mosquito net of any type	Proportion of total households owning at least one LLIN
Nakivale(n = 572)	(385) 67.3% (63.5 - 71.1)	(362) 63.2% (59.2 - 67.1)
Oruchinga(n = 362)	(269) 74.3% (69.8 - 78.8)	(266) 73.5% (68.9 - 78)
Kyaka II(n = 556)	(338) 60.8% (56.7 - 64.8)	(257) 46.2% (42.1 - 50.4)
Kyangwali(n = 580)	(270) 46.6% (42.5 - 50.6)	(234) 40.1% (36.2 - 44.1)
Rwamwanja(n = 435)	(210) 48.3% (43.6 - 53)	(152) 34.9% (30.4 - 39.3)
Kiryandongo(n = 369)	(170) 46.1% (41 - 51.2)	(130) 35.1% (30.3 - 40)
Rhino Camp(n = 180)	(88) 48.9% (41.6 - 56.2)	(78) 43.3% (36.1 - 50.6)
Adjumani(n = 486)	(407) 83.7% (80.5 - 87)	(405) 83.2% (79.8 - 86.5)
Lobule(n = 313)	(220) 70.3% (65.2 - 75.3)	(209) 66.8% (61.5 - 72)
Bidibidi(n = 483)	(187) 38.7% (34.4 - 43.1)	(137) 28.3% (24.3 - 32.3)

Table 67: Number of nets, Refugee Communities, Uganda, December 2016

Settlement	Average number of LLINs per household	Average number of persons per LLIN
Nakivale	1.21	3.23
Oruchinga	1.26	2.78
Kyaka II	0.78	3.47
Kyangwali	0.73	3.11
Rwamwanja	0.58	3.21
Kiryandongo	0.74	3.55
Rhino Camp	0.94	3.46
Adjumani	2.02	3.11
Lobule	1.12	4.10
Bidibidi	0.39	3.88

Pregnancy depresses the immune system thus exposing the women, especially during their first pregnancy, to higher risk of malaria. Pregnant women can reduce the risk of adverse effects of malaria through the intermittent preventive treatment (IPT) using fansidar and by sleeping under insecticide-treated mosquito nets. More than 90% of pregnant women in all settlements prevented malaria by sleeping under mosquito nets **(Table 69** and **Table 70)**.

Table 68: Slept Under net of any type, Refugee Communities, Uganda, December 2016

Settlement	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No	%	Total No	%	Total No	%
Nakivale	2,089	81.3%	436	92.0%	82	96.3%
Oruchinga	1,178	83.6%	240	87.9%	57	93.0%
Kyaka II	1,785	78.7%	402	86.1%	47	97.9%
Kyangwali	1,357	78.0%	310	86.5%	65	96.9%
Rwamwanja	984	86.2%	204	91.2%	50	96.0%
Kiryandongo	951	82.0%	224	91.5%	32	93.8%
Rhino Camp	584	70.7%	111	90.1%	22	100.0%
Adjumani	2,569	88.2%	545	97.1%	70	97.1%
Lobule	1,172	71.2%	302	92.7%	49	89.8%
Bidibidi	907	72.3%	179	88.8%	46	97.8%

Table 69: Slept Under LLITN, Refugee Communities, Uganda, December 2016

Settlement	Proportion of total Population (all ages)		Proportion of 0-59 Months		Proportion of pregnant Women	
	Total No	%	Total No	%	Total No	%
Nakivale	1698	93.1%	401	92.8%	82	96.3%
Oruchinga	985	99.2%	211	98.6%	57	93.0%
Kyaka II	1404	77.8%	346	80.9%	47	97.9%
Kyangwali	1058	88.8%	268	87.3%	65	96.9%
Rwamwanja	848	72.2%	186	74.2%	50	96.0%
Kiryandongo	780	79.1%	205	72.2%	32	93.8%
Rhino Camp	413	93.7%	100	96.0%	22	100.0%
Adjumani	2265	98.4%	529	99.4%	70	97.1%
Lobule	835	95.8%	280	96.1%	49	89.8%
Bidibidi	656	82.6%	159	78.0%	46	97.8%

3.12 Retrospective Mortality

The mortality rates have remained within acceptable ranges as shown in **Table 71**.

Table 71: Mortality assessment in the past 90 days, Refugee Communities, Uganda, December 2016

	Nakivale	Oruchinga	Kyaka II	Kyangwali	Rwamwanja	Kiryandongo	Rhino Camp	Adjumani	Lobule	Bidibidi
Current HH embers – total	3,122	1,661	2,971	2,886	2,231	2,338	1,260	3,121	1,764	2,422
Current HH members - < 5	2,092	1,599	1,954	1,017	2,164	566	938	1,954	1,245	2,240
Current HH members who arrived during recall (exclude births)	47	44	141	215	613	96	58	153	233	1,064
Current HH members who arrived during recall - <5	39	19	114	39	530	47	52	135	119	982
Past HH members who left during recall (exclude deaths)	84	54	18	21	28	37	33	126	161	75
Past HH members who left during recall - < 5	114	48	21	9	28	15	25	109	149	34
Births during recall	29	35	18	44	113	10	5	56	39	29
Total deaths	3	3	1	4	5	3	1	5	1	4
Deaths < 5	2	0	0	1	1	1	0	1	0	2
CMR [Death/10,000 people/day]	0.10 (0.03 – 0.32)	0.20 (0.06-0.60)	0.04 (0.00-0.28)	0.16 (0.07-0.37)	0.29 (0.13-0.65)	0.14 (0.04-0.44)	0.09 (0.01-0.67)	0.17 (0.09-0.35)	0.06 (0.01-0.53)	0.23 (0.01-0.45)
U5MR [death in under five children/10,000/day]	0.10 (0.02-0.43)	0.00 (0.00-0.00)	0.00 (0.00-0.00)	0.11 (0.01-0.83)	0.06 (0.01-0.48)	0.20 (0.03-1.46)	0.00 (0.00-0.00)	0.06 (0.01-0.44)	0.00 (0.00-0.00)	0.13 (0.02-0.24)

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusions

The survey results indicate that the public health and nutrition situation in refugee settlements in Uganda mirrors two different levels of malnutrition between West Nile and South West settlements. While the nutritional status in South West settlements progressively stabilise, the West Nile side have either medium or high prevalence of malnutrition. The levels of the refugees in West Nile have un-proportionally increased since the last quarter of 2016 to date. The programmers have to critically review the planning, implementation and monitoring of the nutrition programme in each location. Technical emphasis on the management of acute malnutrition in the settlements should focus on better improving the community management of acute malnutrition. The systematic screening of children and coordinated referral mechanisms through community outreach will increase the coverage of both out-patient therapeutic and supplementary feeding programme.

High levels of anaemia among children have been reported across the refugee settlements. The rates are significantly higher than 40% the WHO benchmark. Strengthening of the curative and preventive interventions in the control of anaemia will reduce the negative side effects to the population. Interventions such as: distribution of fortified foods, micronutrient supplementation programs, and intensifications of infant and young child feeding programme would reduce the high rates of anaemia.

The food consumption scores indicate that majority of the refugees are within the "acceptable" ranges, however, the household dietary diversity scores shows that majority of the refugees are within the "medium" category. Due to resource constraints refugees have been on reduced food assistance since August 2016. As the programme pursue to further expand cash transfer for food, efforts should also be placed to end food reductions and restore back the general food assistance to normal. This is important as majority of the refugees relied on less preferred and less expensive food to cope with the reduced food assistance.

Deliberate efforts have to be directed in addressing challenges associated with WASH indicators holistically (unimproved sanitary environment, inadequate hygiene practices and unsafe and inadequate drinking water). Majority of the refugees in the settlements continue receiving less than 20 litres of water per person per day and households depend on shared, communal or public latrines. Addressing water supply challenges will improve the personal hygiene, preparations of food conditions at household level and will support hand-washing practices, in turn this will reduce morbidity due to water related diseases and the nutritional status of refugees will be improved.

The mortality rates have remained within acceptable ranges according to the findings. This augers well with the health information system reports which are shared by the partners on a monthly basis. However, a significant number of refugees' children were reported to have suffered from diarrhoea, also increased morbidity on malaria and respiratory tract infections were reported in the health information system reports. It is essential that clinical management of water born related diseases, fever of all types including malaria and respiratory tract infections are improved in terms of diagnostics, care and referrals where necessary to reduce the current high burden of diseases. Distribution of long lasting insecticides treated mosquito nets should be followed with close hang up campaigns, health education and monitoring of the LLIN.

4.2 Recommendations

While it is always nice to make recommendations with immediate, mid-term and long-term actions, most of the current recommendations are to ensure that the current efforts are sustained. However, for immediate action there is need to restore full food ration to refugees according to the agreement and recommendations in the 2014 Joint Assessment Mission. Refugee new arrivals should be prioritized to receive 100% full ration (2100 kilocalories/day). In the mid-term to long-term, the programme will need to ensure sustained actions on the following:

4.2.1 Management of Severe and Moderate Acute Malnutrition

- Sustain the identification process from the entry points/collection points of refugee new arrivals, and in the settlements, of children with severe and moderate acute malnutrition in the settlements. Children with MAM should be timely linked and enrolled to TSFP. Routine care should be sustained. That is, children with SAM with medical complications should be admitted to Inpatient Therapeutic Care (stabilization center), and children with SAM without medical complications should be enrolled to Out Patient Therapeutic Feeding Programme.
- The maternal and child health nutrition programme should continue targeting children 6 – 23 months, as well as pregnant and breastfeeding women until 6 months post-delivery, consistently and systematic to receive super cereal plus, coupled with health education.
- Selective feeding program should be evaluated to ascertain its performance and impacts in reducing acute malnutrition and anaemia.
- Ensure sustained iron and folic acid supplements and intermittent preventive treatment for malaria in pregnancy, and Vitamin A and deworming tablets for children. Ensure 100% coverage so as to reduce high levels of micronutrient deficiencies particularly anaemia.
- Consider the provision of nutritional support to cases with chronic diseases that have negative consequences to their nutritional status, particularly HIV positive and tuberculosis cases, who are on treatments to improve care and adherences to medications.

4.2.2 Maternal and Child Health Nutrition Programme

- Emphasize the implementation of the comprehensive safe motherhood, targeting women at reproductive age (15-49 years), in order to ensure that adolescent females receive reproductive health support before pregnancy to improve future pregnancy outcomes. This will contribute to reducing future cases of chronic malnutrition, low birth weight cases and under 5 year's mortality rates.
- To provide fortified complementary feed (super cereals ++) targeting children 6-23 months of age, pregnant and breastfeeding women up to 6 months post-delivery. This is important because it contributes in reducing rates of severe and moderate acute malnutrition, stunting and anaemia.
- Sustain implementation of comprehensive the child health programme. Children should receive, timely, all antigens stated by MoH according to their age schedules in order to prevent all forms of preventable and treatable child disease. Available evidence suggests that children suffering from acute malnutrition are more likely to contract preventable and treatable diseases, which may lead to their deaths.

4.2.3 General Food Distribution

- Improve food basket monitoring during general food distributions and post distribution monitoring with monthly in the settlements so that refugees are ensured of their food ration entitlements.
- Sustain implementation of infant and young child feeding programme. Formulate and implement anaemia strategy in order to reduce high rates of anaemia. Work with research institutes in order to address prevention, control and treatment of anaemia among children and stunting in the refugee programme.

4.2.4 Prevention of Malaria, Pneumonia and Diarrhoea

- Prioritize comprehensive primary health care during refugee influxes. The burden of maternal and childhood mortality and morbidity is apparent during refugee influxes. At this time, access to healthcare is minimal, and community outreach systems are still not organized and developed.
- In close collaborations with NMCP and partners, the programme for mosquito nets should aim to reach a universal coverage of 80% of LLITN as recommended by WHO. Door to door distribution will allow community volunteers to demonstrate how to hang a net and any dialogue with household members on the importance of sleeping under LLITNs could be undertaken.
- Early referrals to the health facilities of all types of fever, malaria testing to be confirmed prior issuance of malaria medicines.

4.2.5 Water, Sanitation and Hygiene

- Improve the coverage and use of improved household latrines for each family: Promote hygiene at household level to reduce food and water contaminations; Provide soap systematically to ensure hand washing is achieved and health and hygiene education as it is recommended. Hand-washing with soap after visiting the toilet and before eating is crucial in reducing the high prevalence of diarrhoea.
- Address challenges associated with distribution of adequate, safe and clean water among refugees and host communities so as to improve on the health and nutritional status of the general population.

5.0 APPENDICES

Appendix 1: Plausibility Checks

Nakivale

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** (2.5 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.006)
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=0.459)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (5)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (11)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.09)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.00)
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=0.432)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**6** %

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

Oruchinga

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (2.3 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.330)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.988)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (10)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (5)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**5** (1.14)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**1** (-0.20)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.02)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.233)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**8** %

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

Kyaka II

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (2.5 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**4** (p=0.011)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.212)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (5)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.08)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.16)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.02)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.106)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**4** %

The overall score of this survey is 4 %, this is excellent.

Kyangwali
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** (1.9 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.491)
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=0.145)
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	**0** (5)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (9)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**5** (1.15)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.13)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.13)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=0.086)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**7** %

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

Rwamwanja
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** (2.3 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.156)
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=0.904)
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** (5)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**5** (1.13)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.03)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.30)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=0.737)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**8** %

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

Kiryandongo
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** (2.2 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.150)
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=0.119)
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** (6)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (9)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**5** (1.15)
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	**0** (-0.08)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=0.166)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**9** %

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

Rhino Camp
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** (2.1 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.845)
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=0.783)
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** (5)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**4** (15)
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** (-0.21)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.20)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**3** (p=0.003)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**9** %

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

Adjumani
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** (1.3 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.968)
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=0.208)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (5)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**4** (17)
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	**0** (-0.14)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.13)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**5** (p=0.000)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**9** %

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

Lobule
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** (1.4 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.385)
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=0.890)
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	**2** (9)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (5)
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	**3** (-0.45)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.19)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**3** (p=0.001)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**8** %

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

Bidibidi
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** (2.2 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.022)
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=0.901)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (5)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (5)
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** (-0.04)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.15)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**3** (p=0.002)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**7** %

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

Appendix 2: 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–Rhino Camp 8-Adjumani 9- Lobule 10- Bidibidi *(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 = 1Female = 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 enrolled 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** **3. The ANC site is too far** **4. No transportation to reach the ANC site** **5. I had other commitments that prevented enrolling the me in the programme** **6. Other – Specify……**	**Are you currently receiving iron-folate pills (*SHOW PILL*)? 1=Yes (STOP NOW) 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..... Some are ..... All are			|___|

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	**C1.**	Cattle	|__|	|__|__|__|

	any of the following livestock? If '*Yes'*, how many of the following livestock does your household currently own?	**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 Harvested	**Number of Units**	**Name of Unit**	**Kilogram per on**
	D15. Maize	|__|__|__|__|__|		|__|__|_
	D16. Bean	|__|__|__|__|__|		|__|__|_
	D17. Cassava	|__|__|__|__|__|		|__|__|_
	D18. Millet	|__|__|__|__|__|		|__|__|_
	D19. Sorghum	|__|__|__|__|__|		|__|__|_
	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..... No	**|___|** **IF ANSWER IS 1 GO TO D28**
D27.	If no, why do you not have a ration card?	Not given one at registration..... Lost card ..... Traded/sold card..... Not registered but eligible ..... Not eligible (not in targeting criteria) ..... Other.....	|___|
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? 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*)		**G2** – During the **last 30 days**, did your household consume the 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 shillings		……..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 NOT 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.	EMERG ENCY	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

[1] 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 [NAME] to the breast?	Less than one hour.....1 Between 1 and 23 hours .....2 More than 24 hours .....3 Don't know.....8	|___|
IF6	Was [NAME] breastfed yesterday during the day or at night?	Yes.....1 No.....2 Don't know.....8	|___|
SECTION IF2			
IF7	Now I would like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] receive any of the following? ASK ABOUT EVERY LIQUID. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOES NOT		

	KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE. REPLACE AND ADAPT THE TEXT HIGHLIGHTED IN 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 YOUNG CHILDREN AVAILABLE IN THE LOCAL SETTING THAT ARE DIFFERENT THAN DISTRIBUTED COMMODITIES AND USE LOCALLY AVAILABLE BRAND NAMES] *(e.g. Cerelac, Weetabix)*	11H……..1	2	8
IF12	**In a setting where micronutrient powders are used:** Yesterday, during the day or at night, did [NAME] consume any food to which you added a [INSERT LOCAL NAME FOR MICRONUTRIENT POWDER OR SPRINKLES] like this? (SHOW MICRONUTRIENT POWDER SACHET)	Yes……..1 No……..2 Don't know……..8	|___|	

IF13	At what age of your child did you introduce Liquid/ solid foods	|__|__| months	|__|__| months	|__|__| months
IF14	Was your child 0-23 months breastfed yesterday during the day or night	1 = Yes 2 = No 3 = Don't know	1 = Yes 2 = No 3 = Don't know	1 = Yes 2 = No 3 = Don't know

IF15	How many times during the day or night did your child 6-23 months consume any of….	1 = Infant formula |__| times 2 = Milk such as tinned, powdered, or fresh animal milk |__|.times 3 = Yogurt |__| times 4=Thin porridge |__|times	1 = Infant formula |__| times 2 = Milk such as tinned, powdered, or fresh animal milk |__|.times 3 = Yogurt |__| times 4=Thin porridge |__|times	1 = Infant formula |__| times 2 = Milk such as tinned, powdered, or fresh animal milk |__|.times 3 = Yogurt |__| times 4=Thin porridge |__|times
IF16	What foods did your child 6-23 months eat in the last 24 hours? Circle all that apply	1 = Grains, roots, and tubers *eg porridge, bread, rice, posho, potatoes, cassava, etc* 2 = Legumes and nuts *eg beans, peas, ground nuts. etc* 3 = Dairy products *eg milk yoghurt, cheese* 4 = Flesh foods *eg meat, fish, poultry, liver, organ meats* 5 = Eggs 6 = Vitamin A rich fruits and vegetables *eg carrots, ripe mangoes, papaya, etc* 7 = Other fruits and vegetables 8 = Fortified foods (WFP fortified products)	1 = Grains, roots, and tubers *eg porridge, bread, rice, posho, potatoes, cassava, etc* 2 = Legumes and nuts *eg beans, peas, ground nuts. etc* 3 = Dairy products *eg milk yoghurt, cheese* 4 = Flesh foods *eg meat, fish, poultry, liver, organ meats* 5 = Eggs 6 = Vitamin A rich fruits and vegetables *eg carrots, ripe mangoes, papaya, etc* 7 = Other fruits and vegetables 8 = Fortified foods (WFP fortified products)	1 = Grains, roots, and tubers *eg porridge, bread, rice, posho, potatoes, cassava, etc* 2 = Legumes and nuts *eg beans, peas, ground nuts. etc* 3 = Dairy products *eg milk yoghurt, cheese* 4 = Flesh foods *eg meat, fish, poultry, liver, organ meats* 5 = Eggs 6 = Vitamin A rich fruits and vegetables *eg carrots, ripe mangoes, papaya, etc* 7 = Other fruits and vegetables 8 = Fortified foods (WFP fortified products)
IF17	How many times did your child 6-23 months eat solid, semi-solid or soft foods during the previous day?	|__| times Don't know	|__| times Don't know	|__| times Don't know

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 2		|___|
TN5	Do you have mosquito nets in this household that can be used while sleeping? **MOSNETS**		Yes ..... 1 No 2		|___| **IF ANSWER IS 2 STOP NOW**
TN6	How many of these mosquito nets that can be used while sleeping does your household have? INSERT NUMBER **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 LLIN OR OTHER TYPE OF NET OR DK.	1=LLIN 2=Other/DK |___| **LNTYPE1**	1=LLIN 2=Other/DK |___| **LNTYPE2**	1=LLIN 2=Other/DK |___| **LNTYPE3**	1=LLIN 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
#	**COL1**	**COL2**	**COL3**	**COL4**
	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
01		m f	<5 ≥5	1 0 99
02		m f	<5 ≥5	1 0 99
03		m f	<5 ≥5	1 0 99
04		m f	<5 ≥5	1 0 99
05		m f	<5 ≥5	1 0 99
06		m f	<5 ≥5	1 0 99
07		m f	<5 ≥5	1 0 99

|___|
LLINs

	08		m f	<5 ≥5	1 0 99		
	09		m f	<5 ≥5	1 0 99		
	10		m f	<5 ≥5	1 0 99		
	RECORD THE TOTAL NUMBER OF LLINs 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 LLIN	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		

REFERENCE