STANDARDIZED EXPANDED NUTRITION SURVEY (SENS)
FINAL REPORT

TANZANIA REFUGEE CAMPS
(Nyarugusu, Nduta and Mtendeli)

Kigoma Region

Survey conducted: August /September 2016

Final Report: December 2016.

UNHCR IN COLLABORATION WITH

MINISTRY OF HEALTH, MINISTRY OF HOME AFFAIRS, UNICEF and WFP
MSF-CH, TANZANIA REDCROSS SOCIETY, WORLD VISION, ADRA

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ACRONYMS AND ABBREVIATIONS

ANC	Ante Natal Care
BSFP	Blanket Supplementary Feeding Program
BCC	Behaviour change communication
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
HDDS	Household Dietary Diversity Score
HH	Household
HIS	Health Information System
IYCF	Infant and Young Child Feeding
KCAL	Kilocalorie
LLIN	Long-lasting insecticidal net LLIN
MAM	Moderate Acute Malnutrition
MIYCN	Maternal, Infant and Young Child Nutrition
MHA	Ministry of Home Affairs
MOH	Ministry of Health
MSF-CH	Médecins Sans Frontières-Swiss
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
SD	Standard Deviation
SENS	Standardised Expanded Nutrition survey
SFP	Supplementary Feeding Programme
SMART	Standardised Monitoring & Assessment of Relief & Transitions
TFP	Therapeutic Feeding Programme
TRCS	Tanzania Red Cross Society
U5	Children under 5 years old
U5MR	Under-5 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
WFH	Weight-for-Height
WHZ	Weight-for-Height z-score
WFP	World Food Programme
WHO	World Health Organisation

ACKNOWLEDGEMENTS

Executive Summary

This report provides the findings of the standard expanded Nutrition survey (SENS) which was conducted in the three refugee camps in Tanzania, Nyarugusu, Nduta and Mtendeli from 15th August to 23rd September 2016. Two surveys were conducted in Nyarugusu refugee camp to allow comparison among the old population predominantly from the Democratic Republic of Congo and the new arrivals mostly the Burundians and Congolese who arrived in the camp as from May 2015.

The survey was coordinated and conducted by UNHCR in collaboration with the ministry of health (MOH), WFP, UNICEF, Tanzania Red Cross Society (TRCS), Medicin sans frontiers (MSF-CH), World Vision and ADRA in the respective camps.

The main objective of the 2016 nutrition survey was to determine the health and nutrition status among children 6-59 months living in the refugee camps. Additional indicators on child health such as immunization, vitamin A supplementation, incidence of diarrhoea in the past two weeks, infant and young child feeding practices (IYCF) and anaemia prevalence among children aged 6- 59 months and non –pregnant women aged 15 – 59 years, household food security, WASH, Mosquito net coverage and mortality were also assessed.

Methodology: The survey employed the Standardised Monitoring and Assessment of Relief and Transitions (SMART) methodology in accordance with the UNHCR Standardised Expanded Nutrition Survey guidelines V2 2013. Multi-stage cluster sampling method was applied to select households in Nyarugusu and Mtendeli camps whereas simple random sampling was used in Nduta refugee camps. In all the camps a total of 2062 children 6- 59 months were assessed during the survey period.

Interpretation of the Results:

The following is the interpretation of the overall health nutrition ,food security ,WASH , mosquito net coverage and mortality situation per camp based on the findings in comparison with the SPHERE standards and also similar indicators in the refugee home countries**.**

Prevalence of Acute Malnutrition among children 6-59 months: The overall prevalence of global acute malnutrition (GAM) is within the acceptable threshold of below 5% GAM prevalence as per the WHO classification of malnutrition in emergencies. The weighted prevalence is 1.8%.The prevalence per camp; Nyarugusu old population is 1.0% (0.4 -2.2 C.I) which is a reduction when compared to the last SENS that was conducted in 2014 (2.6%) though there is no significant difference. Among the new arrivals in Nyarugusu the prevalence is 0.9 % (0.4 -2.1 C.I) which is almost similar to the old population in the camp. In the newly established camps the prevalence is 2.4 % (1.3-4.3 C.I) and 3.5 % (2.2 -5.5 C.I) in Nduta and Mtendeli respectively. Severe acute malnutrition (SAM) was only reported by

Weight-for height (WHZ) scores in Mtendeli camp however MUAC identified about 1.5 times more cases of global acute malnutrition when compared to WHZ identified in Nduta 3.3% (2.0 -5.5 C.I) and Mtendeli 5.0% (3.3- 7.6 C.I).

Stunting among children 6-59 months: Stunting, or chronic malnutrition, is a form of under nutrition that is defined by a height-for-age z-score (HAZ) below two standard deviations of the median reference population. Stunting is a result of prolonged or repeated episodes of inadequate dietary intakes before birth or after birth up to 2 years . The overall stunting prevalence across all the camps is 49.0 % (above 40% of public health significance). It is highest in Nduta with a prevalence of 57.1 % (52.3 -61.8 C.I) followed by Mtendeli with 54.8% (50.8 -58.7 C.I), the Nyarugusu old population at 44.0 % (39.2-48.9 C.I) and Nyarugusu among the new arrivals at 43.7% (38.9 -48.6 C.I). The most affected age group are children 31-41 months. The prevalence of stunting among the Burundian refugees in Tanzania in comparison with stunting levels reported in the 2010 Burundi DHS is similar; statistics indicated a prevalence of 57.7 %. Among the Congolese refugees the prevalence are also similar to the Democratic Congo republic with 42.7% reported in the 2013 DHS. Stunting therefore is a major concern in the refugee camps and also the countries of origin efforts to reduce stunting should be prioritized in all the sectors both the UN organizations, non –governmental organization and the governments.

Anaemia prevalence: The overall anaemia prevalence among children aged 6-59 months is above the 40% of public health significance threshold in all the camps except Nduta refugee camp with 37.2% (32.6 -42.0 C.I). The weighted average is 41.6% in all the camps. In Nyarugusu among the old population there was an increase from 33% to 42.3% (36.5-48.2 C.I). Among the new arrivals in Nyarugusu the prevalence was 45.2% (38.2-52.2 C.I) and Mtendeli 40.7 % (35.4 -45.9% C.I). The most affected age category was children 6-23 months with prevalence above 50% in all the camps, the highest was among the new arrivals in Nyarugusu with 58.6% (51.8 -65.3 C.I) followed by Mtendeli 52.6% (45.3-59.5 C.I) then old population in Nyarugusu with 51.9 (43.4 -60.5 C.I) and in Nduta with 47.7% (39.5 -56.0 C.I).
Anaemia among non-pregnant women of reproductive age (15-49 years) is above the acceptable threshold of 20% in all the camps except Nduta with 15.6% (10.6 -21.7 C.I). Nyarugusu old population prevalence was 25.9 % (18.5 -33.3 C.I), Nyarugusu new arrivals 23.5% (16.1 -30.8 C.I) and Mtendeli 24.5% (18.8 -30.3 C.I).

Measles vaccination and Vitamin A coverage: The overall measles vaccination coverage achieved in all the camps was 96.5%, meeting the recommended SPHERE standards of >95%) except Mtendeli which reported 93.6% below the target. Similarly, Vitamin A coverage was 96.8% meeting the SPHERE standards of above 90%. Vitamin A coverage confirmed by card in Nduta, Mtendeli and Nyarugusu new arrivals was between 56 and 58%, -this is usual in emergencies and need to be strengthened in future to prevent any cases of double doses of Vitamin A capsules.

Diarrhea: Diarrhoea incidence among children 6-59 months in the past 2 weeks was reported below 15% in all the camps except Mtendeli refugee camp with 15.3%, this is mainly attributed to the dry climatic conditions that prevailed throughout the survey period from August to September.

Infant and young child feeding practices (IYCF): Timely initiation of breastfeeding was above 90% among all the new arrivals, among the old population was 88.1%. Exclusive breastfeeding under six months was 89.4 % (80.7 -98.1) among the old population in Nyarugusu, 87.9% (79.4 -96.5) among the new arrivals in Nyarugusu, 89.2% (79.1 -95.6) in Nduta and 86.6% (79.0 – 94.1) in Mtendeli. Consumption of iron rich or Iron fortified foods was high in the two new camps, 95.4% (90.7-98.1) in Nduta and 96.2% (93.5 -98.8) in Mtendeli and below 80% in Nyarugusu – old population 78.8 %(65.9 –91.7 and new arrivals 73.8 % (58.6 -89.3). Bottle feeding was reported in Mtendeli at 0.7% among the old arrivals, 0.4%   and new arrivals 0.7% in Nyarugusu.

Food security: Ration card coverage was above 95% in all the refugee camps, the average Household Dietary Diversity Score (HDDS) ranged from 4.8 – 5.7 with the highest reported among the old population living in Nyarugusu, the least consumed food groups were meat, eggs, ,milk and milk products, and sweets across all the camps. On average the general food ration lasted for at least 21.9 days out of the 28 days cycle in Nyarugusu among both the new arrivals and the old population whereas in Nduta and Mtendeli the food lasted for 10.5 and 10.7 days respectively out of the 14 days cycle. The main reasons cited was that the ration was not enough, majority of the households reported to have borrowed cash, food or any items to ensure their household food security the past one month with the following proportions Nduta 89.9%, Mtendeli 77.5% and Nyarugusu was 67.5%. The second commonly used strategy by the households was begging reported at 50.7% among the old population in Nyarugusu, 66.4 % in Mtendeli, 46.9% in Nduta and 48.7 among the new arrivals in Nyarugusu. Reduction of the quantity and frequency of meals and snacks ranged from 40.0 -51.6%.

WASH: The average usage of water in litres per person per day (lpppd) ranged from 9.4 – 21.3 across all the camps. The least was reported in Nduta 9.4 lpppd, followed by Mtendeli 15.4 lpppd, among the new arrivals in Nyarugusu was 20.9 and 21.3 among the old population. The proportion of households that reported to have collected <15 lpppd were 35.5% among the new arrivals in Nyarugusu, 32.9% among the old population, 58.3 % in Nduta and 57.5 % in Mtendeli. 65.5% of the households in Nduta reported that they were dissatisfied with the water supply and the main reason for this was there was irregular supply of water in the camp.

The proportion of households using improved excreta disposal facility was only reported among the old population in Nyarugusu with 32.5 % households having at one facility per household. Unimproved toilet facility was the commonly used in the new settlements hosting the new arrivals in Nyarugusu with 99.7%, 95.7% in Nduta and 95.3 % in Mtendeli reporting to that were sharing toilets with other households.

Mosquito net coverage: The average number of persons per Long-lasting insecticidal net (LLIN) ranged from 2.8 to 3.4 which not meeting the UNCHR standard of 2 persons per LLIN. The proportion of households owning at least one LLIN was lowest in Mtendeli refugee camp with 61.6%, the proportion in the other camps was above the target of >80%.

Mortality Rates: The mortality rates in all the camps is within the WHO emergency threshold. No deaths were reported in the sampled household in Nduta and Nyarugusu among the old population were 0.0%the crude mortality rates among the new arrivals in Nyarugusu

was 0.13(0.05 -0.34) and 0.14 (0.05 -0.37) in Mtendeli. The under-five mortality rates among the new arrivals was 0.37(0.1 -1.34) and 0.32 (0.05 -1.17) in Mtendeli refugee camp.

Conclusion: The prevalence of global acute malnutrition (GAM) in all the camps is within the acceptable standards; however anaemia prevalence and stunting among children 6-59 months remain a major public health concern. Interventions focusing on the prevention and reduction of anaemia and stunting should be prioritized. The average water supply in Nduta and Mtendeli was below the UNHCR standard of $\geq$20 l/p/day, and the common use of unimproved toilet facilities in the new settlements hosting the new arrivals in Nyarugusu with 99.7%, 95.7% in Nduta and 95.3 % in Mtendeli are possible risk factor to incidence of diarrheal diseases within the refugee camps.

Recommendations

Immediate
Health and Nutrition

- Harmonize the integrated management of acute malnutrition treatment guidelines in all the refugee camps - standardize the admission and discharge criteria in all the camps and improve adherence treatment protocol.
- Ensure availability of all the essential anthropometric equipment such as weighing scales and height boards in all the nutrition sites in the camps.
- Strengthen health and nutrition outreach activities, case finding and defaulter tracing of malnourished children in the community.
- Prioritize capacity building and training of the nutrition staff on IMAM, IYCF and nutrition programming in the refugee camps to ensure adherence to treatment protocols and standards.
- Improve follow up and strengthen supervision of the health and nutrition programme by UNHCR, UNICEF and WFP.
- Follow up and come up with measures to prevent sale of plumpy nut by caregivers of children enrolled in the Outpatient feeding programme
- Conduct an assessment in Mtendeli refugee camp to determine the factors contributing to the cases of malnutrition among the new arrivals.
- Continue the blanket supplementary feeding programme for children 6-23 month and improve behaviors change and communication (BCC) strategy to sensitize the care givers on the utilization of the products.
- Strengthen the implementation of infant and young child feeding practices to focus on maternal health and nutrition during pregnancy, 0-6 months and other IYCF practices up to two years to prevent stunting.
- Improve on the documentation of Vitamin A supplementation and vaccination records on the child health cards.
- Strengthen active case finding at the community and health facility levels using both WHZ and MUAC measurements to screen in order to capture all malnourished children and provide appropriate treatment.

WASH
- Improve the availability of hand washing facilities (water and soap) in Nduta and Nyarugusu refugee camp.
- Construction of improved toilet facilities in the newly established zone in Nyarugusu, Nduta and Mtendeli camps.
- The WASH sector to ensure regular supply of water at the taps stands.

Food security:

- Introduce other food assistance modalities such as vouchers or cash in order to improve access to diversified foods in the camps.
- Establish livelihood or income generating activities in the camps to enable households have access to additional income to purchase other foods in order to improve dietary diversity.

Mosquito net:
- Prioritize the distribution of LLIN mosquito nets in the households that have not received nets in Mtendeli refugee camp.
- Conduct BCC campaigns to sensitize the community on the utilization of mosquito nets at household level in the camps and to reduce the tendency of selling them.

Long term
- Introduce other food assistance modalities such as vouchers or cash in order to improve access diversified foods in the camps.
- Construction of improved toilet facilities in the new camps to meet the UNHCR standards of access to improved toilet facilities.
- Re- design the IYCF programmes specifically to target maternal health during pregnancy and also infant and young children to prevent malnutrition and stunting.
- Capacity building and training of the health and nutrition partners as well as the nutrition staff on the SENS methodology so that they can conduct surveys in future.
- Conduct a proper programme coverage assessment to determine the exact coverage of the nutrition programmes.

Table 1.1: Summary of Survey Results

	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	Classification of public health significance / target (where applicable)
	Nyarugusu (Old population)	**Nyarugusu (New arrivals**	**Nduta**	**Mtendeli**	
CHILDREN 6-59 months					
Acute Malnutrition (WHO 2006 Growth Standards)					
Number of children	**521**	**534**	**422**	**573**	
Global Acute Malnutrition (GAM)	1.0 % (0.4 - 2.2)	0.9 % (0.4 - 2.1)	2.4 % (1.3 – 4.3)	3.5 % (2.2 - 5.5)	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	1.0 % (0.4 - 2.2)	0.9 % (0.4 - 2.1)	2.4 % (1.3 - 4.3)	3.3 % (2.1 - 5.1)	
Severe Acute Malnutrition (SAM)	0.0 % (0.0 - 0.0)	0.0 % (0.0 - 0.0)	0.0 % (0.0 - 0.9)	0.2 % (0.0 - 1.2)	
Oedema	0.0%	0.0%	0.0%	0.0%	
Mid Upper Arm Circumference (MUAC)					
MUAC <125mm and/or oedema	0.4 % (0.1 - 1.6)	0.7 % (0.2 - 2.4)	3.3 % (2.0 - 5.5)	5.0 % (3.3 - 7.6)	
MUAC 115-124 mm	0.4 % (0.1 - 1.6)	) 0.6 % (0.2 - 1.7)	2.4 % (1.3 - 4.3)	4.2 % (2.7 - 6.4)	
MUAC <115 mm and/or oedema	0.0 % (0.0 - 0.0)	0.2 % (0.0 - 1.4)	1.0 % (0.4 - 2.4)	0.9 % (0.3 - 2.2)	
Stunting[1] **(WHO 2006 Growth Standards)**					
Total Stunting	44.0 % (39.2 - 48.9)	43.7 % (38.9 - 48.6)	57.1% (52.3 - 61.8)	54.8 % (50.8 - 58.7)	Critical if ≥ 40%
Severe Stunting	14.0 % (11.6 - 16.9)	13.4 % (10.3 - 17.1)	21.8 % (18.1 - 26.0)	22.8 % (18.8 - 27.3)	
Programme coverage					
Vitamin A supplementation within past 6 months with card or recall	98.7% (97.1 -100.3)	98.7% (97.5-99.9)	94.8% (92.1-96.6)	93.5% (88.2 -98.4)	Target of ≥ 90%
Diarrhoea					

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[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).

	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	Classification of public health significance / target (where applicable)
	Nyarugusu (Old population)	**Nyarugusu (New arrivals**	**Nduta**	**Mtendeli**	
Diarrhoea in last 2 weeks	11.9% (7.0 -16.8)	12.5% (7.7-17.8)	11.4% (8.6-14.9)	15.3% (11.3-19.4)	
Anaemia					
Total Anaemia (Hb <11 g/dl)	42.3% (36.5-48.2)	45.2% (38.2-52.2)	37.2% (32.6-42.0)	40.7 % (35.4-45.9)	High if ≥ 40%
Mild (Hb 10-10.9)	25.8% (21.6- 29.7)	24.5 %(19.7-29.4)	22.0% (18.2-26.4)	25.2% (20.8 -29.6)	
Moderate (Hb 7-9.9)	16.1% (11.9-20.3)	19.7% (15.6-23.9)	15.2% (12.0-19.0)	15.3 % (11.8 -18.9)	
Severe (Hb <7)	0.6% (0.1-1.2)	0.9% (0.0-1.9)	0.0%	0.2% (0.2-0.5)	
CHILDREN 0-23 months					
IYCF indicators					
Timely initiation of breastfeeding	88.1% (81.4 -94.8)	90.4%) 85.8 -95.1)	93.5% (89.3 -96.4)	90.1% (85.3 -94.9	
Exclusive breastfeeding under 6 months	89.4 % (80.7 -98.1)	87.9% (79.4 -96.5)	89.2% (79.1 -95.6)	86.6% (79.0– 94.1)	
Consumption of iron-rich or iron-fortified foods	78.8% (65.9 –91.7)	73.8 % (58.6 -89.3)	95.4 (90.7-98.1)	96.2% (93.5 -98.8)	
Bottle feeding	0.4 % (0.3 – 1.1	0.7% (0.3-1.7)	0.0%	0.7% (0.2-1.6)	
WOMEN 15-49 years					
Anaemia (non-pregnant)					
Total Anaemia (Hb <12 g/dl)	25.9 % (18.5-33.3.)	23.5% (16.1-30.8)	15.6% (10.6 -21.7)	24.5% (18.8-30.3)	High if ≥ 40%
Mild (Hb 11-11.9)	16.9% (11.0-22.2)	16.2% (10.9-21.3)	10.6% (6.5-16.0)	17.7% (12.3-23.1)	
Moderate (Hb 8-10.9)	9.3% (5.3-13.3)	7.3% (3.9-10.7)	5.0% (2.3-9.3)	6.8% (3.6-10.0)	
Severe (Hb <8)	0.0%	0.0%	0.0%	0.0%	
FOOD SECURITY					
Food distribution					
Proportion of households	100%	99.7%	100%	96.6%	

	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	Classification of public health significance / target (where applicable)
	Nyarugusu (Old population)	**Nyarugusu (New arrivals**	**Nduta**	**Mtendeli**	
with a ration card	(100.0 -100.0)	(99.5 -100.3)	(100.0-100.7)	(91.5 -101.7)	
Average number of days general food ration lasts out of [14 days cycle– Nduta and Mtendeli) Nyarugusu [28 days cycle)	21.9 (21.0 -22.8)	21.9 (21.0 -22.8	10.5 (10.0. 11.0)	10.7 (10.5-10.9)	
Negative household coping strategies					
Proportion of households reporting using none of the coping strategies over the past month	17.4 % (5.3 – 29.5)	15.4% (6.3 -24.6)	5.8 % (3.7 -8.9)	10.4 % (3.4 -17.4)	
Household dietary diversity					
Average HDDS (mean, SD / range)	5.7 (5.3 -6.1)	4.8 (4.2 -5.3)	5.0 (4.7-5.6)	4.8 (4.4 -5.1)	
WASH					
Water quality					
Proportion of households using improved drinking water source	100% (100.0-100.0)	99.3 % (98.4 -100.2)	98.0% (95.7 -99.1)	100% (100.0 - 100.0)	
Water quantity					
Proportion of households that use:					
≥ 20 lpppd	44.6% (36.4 -52.8)	44.9 % (37.0 -52.9)	26.5 % (22.0 -31.6)	25.4 (17.3 -33.5)	Average quantity of water available per person / day ≥ 20 litres
15 - <20 lpppd	19.7% (13.2 -27.3)	22.2% (17.4 -26.8)	15.2 % (11.6 –19.5)	17.1 (11.6 -22.5)	
<15 lpppd	35.7% (27.3 -44.1)	32.9% (25.6 -40.2)	58.3% (52.9 -63.6)	57.5 (48.9 -68.2)	
Satisfaction with drinking water supply					
Proportion of households that say they are satisfied with drinking water supply	45.7 % (37.2 -54.3)	49.2% (39.9-58.4)	26.2% (21.7 -31.3)	63.9 % (49.1 -78.8)	

	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	Classification of public health significance / target (where applicable)
	Nyarugusu (Old population)	**Nyarugusu (New arrivals**	**Nduta**	**Mtendeli**	
Safe excreta disposal					
Proportion of households that use:					
An improved excreta disposal facility (improved toilet facility, 1 household)	32.5% (19.1 -45.8)	-	-	**-**	
A shared family toilet (improved toilet facility, 2 households)	5.6% (6.5 -19.1)	-	-	**-**	
A communal toilet (improve toilet facility, 3 households or more)	1.8 % (0.0 – 3.72)	0.3% (0.3 -0.9)	4.3% (0.5-14.8)	4.7 % (0.6 -10.2)	
An unimproved toilet (unimproved toilet facility or public toilet)	60.1% (43.8 -76.4)	99.7% (99.0 -100.3)	95.7 % (85.2- -99.5)	95.3 % (89.8 -100.7)	
MOSQUITO NET COVERAGE					
Mosquito net ownership					
Proportion of households owning at least one LLIN	84.8% (80.3 -90.7)	84.7% (80.4 -92.2)	85.2% (81.3 -89.1)	61.6% (49.7-73.4)	Target of >80%
Average number of persons per LLIN (mean)	3.0	2.8	2.8	3.4	2 persons per LLIN
Mosquito net utilisation					
Proportion of household members (all ages) who slept under an LLIN	76.3%	82.26%	78.6%	60.5%	
Proportion of children 0-59 months who slept under an LLIN	83.5%	86.9%	82.5%	64.3%	
Proportion of pregnant women who slept under an LLIN	81.4%	78.3%	86.3%	61.4%	

1.0 INTRODUCTION

1.1 Background Information

UNHCR in Tanzania has been hosting refugees in Kigoma region in Kasulu and Kibondo districts located in the north –eastern part of Tanzania bordering Burundi to the north and is found 78kms south west from the shores of Lake Tanganyika in the neighbouring Kigoma town. Currently there are three refugee camps namely Nyarugusu located in Kasulu, Nduta in Kibondo district and Mtendeli in Kakonko districts. The topography is characterised by inclined plateau with steep hills with vegetation comprising of both closed and open woodlands covering approximately 70% of the land area, and the rest is bushy grassland and swamps.

The climatic conditions in the region is characterized by seasonal heavy rains starting in late October to January, short dry spell in February, short rains in March to May and the long dry seasons from June to September.

The oldest refugee camp is Nyarugusu has been hosting refugees from the Democratic Republic of Congo and Burundi since 1996. Refugees from Burundi were repatriated voluntarily in the year 2012 leading to closure of some of the existing camps.The residue population in need of protection were relocated to Nyarugusu camp where the total population then was about 65,000 as of April 2015 majoroity being Congolese refugees and other minority nationalities such as Rwandese, Sudanese, Ugandans, and Kenyans.

The refugee situation changed in 2015 following the political instability after the general elections in Burindi leading fleeing of some Burundians to Tanzania and other neighbouring countries.As from late April higher numbers of refugees from Burundi started arriving in Tanzania mainly through a tiny border village along Lake Tanganyika and other entry points in Kigoma region. After the influx, the total population increased causing congestion in Nyarugusu camp calling for the re-opening two camps Nduta camp on the 7th October 2015 and Mtendeli camp on 14th January 2016.

Nyarugusu currently hosts Congolese refugees and 39.4% of the Burundi refugees that arrived at the omset of the emergency. Nduta hosts an estimated population of 53,000 refugees who were relocated from Nyarugusu and Mtendeli hosts 48,112 who wre relocated from Nyarugusu and is still receiving the new arrivals. At the time of the survey Mtendeli and Nyarugusu refugee camps, there were new refugees coming from Burundi and Congo democratic republic respectively. The daily average ranging from 250 – 300 people arriving in the reception centre was reported in September.

According to UNHCR ProGres data 26th September 2016, the total number of refugees in Kigoma Region is estimated to be 233,160.

Table 0.2: Total Population and < 5 Children in the refugee camps (UNHCR ProGres data 26th September 2016)

Camp	Total Population	Population of U5	HH	% >5	Average HH size
Nyarugusu old population	65,380	10,644	17,627	16.3	4
Nyarugusu New arrivals	66,172	11,297	19,584	17.2	3.4
Nduta	53,317	9,521	20,323	17.9	2.6
Mtendeli	48,112	5,294	9,885	18.5	2.9
Total	233,160				

1.2 Food Security Situation

The main source of food in all the three camps is the general food distribution done once a month in Nyarugusu with individual household scooping and twice a month in Nduta and Mtendeli with group scooping. At the time of the survey the food basket comprised of yellow maize, oil, CSB+, pulses and salt. Blanket supplementary feeding targeting all children 6-23 months is being implemented by the nutrition partners, which the food product is CSB++ and each individual is being provided with the ration of 200gm/p/day. The blanket supplementary feeding for children 24-59 month is done during the GFD hwere the child is provided with 50g/p/d of supercereal with sugar in every distribution.

Table 0.3: General Food basket in August/September 2016.

Food commodity	Grams/person/day	Kilocalories/day
Maize meal	380	1383
Pulses	120	409
Super cereal	50	177
Vegetable oil	20	188
Salt	5	0
Total	575	2157

The main livelihood activities in the camps include small scale farming and growing of some foods like sweet potatoes and vegetables, small business mainly the small vendor shops in the villages and designated market areas in the camp. Tailoring activities, furniture making activities are also being supported by different non-governmental organisations providing services the camp.

There are common markets locally termed as ''soko la muungano''permited by the Ministry of home affairs (MHA) in all the camps that are held twice a week, this allows the Tanzanian traders to bring in food such as vegetables, fish, cassava flour, palm oil and non-food supplies, because the government restricts movements of the refugees outside the camps.

1.3 Health Situation

Health services are available in all the camps provided by TRCS in Nyarugusu and Mtendeli and MSF-CH in Nduta. The services include:

- Primary health care.
- Expanded immunization programmes.
- Referrals for medical cases that require special medical attention.
- Antenatal and post-natal services and maternity.
- Disease surveillance.
- HIV/TB services in collaboration with the MOH.

1.3.1 Mortality

Since the emergency influx, all mortality indicators have been low and within the recommended SPHERE standards. The Crude Mortality Rate (CMR) and Under Five Mortality Rates (U5MR) were 0.1/1000 population/month since January 2016 .The Infant Mortality Rate (IMR) and Neonatal Mortality Rate (NNMR) were 29.1/1000 live births (standard: <60 deaths/1000 live births) and 15.9/1000 live births. Malaria has been the leading cause of mortality since January 2016 constituting 14% of total deaths, followed by neonatal deaths (15%), lower respiratory tract infections (10%) *(UNHCR HIS July 2016).*

Figure 0.1 Crude and under-5 mortality rates

Crude and Under 5 Mortality Rates Nyarugusu refugee camp
Kasulu, Tanzania -May 2015 -Aug 2016

Crude and Under 5 Mortality Rates
Mtendeli refugee camp- Kibdondo Tanzania

Crude and Under 5 Mortality Rates
Nduta refugee camp, Kibondo, Tanzania
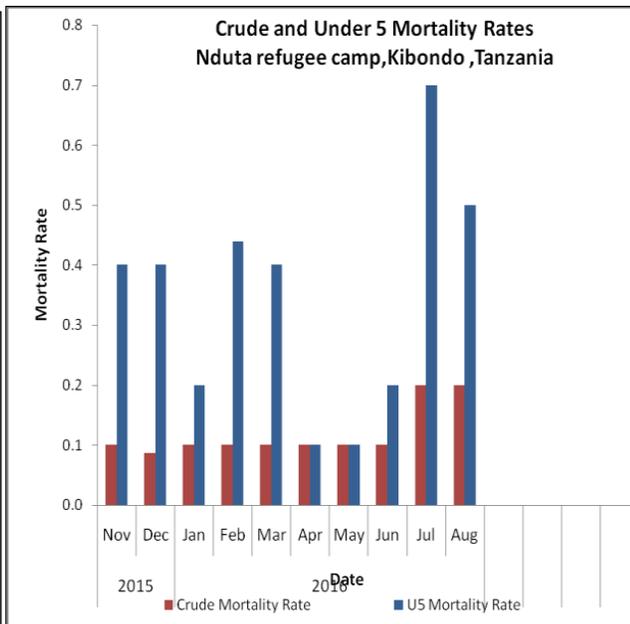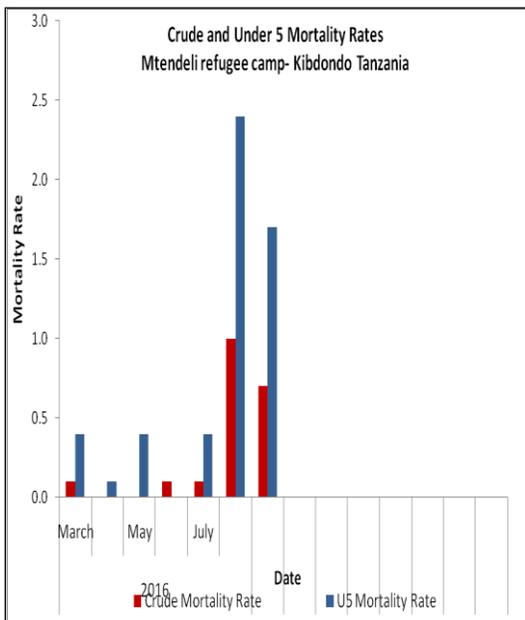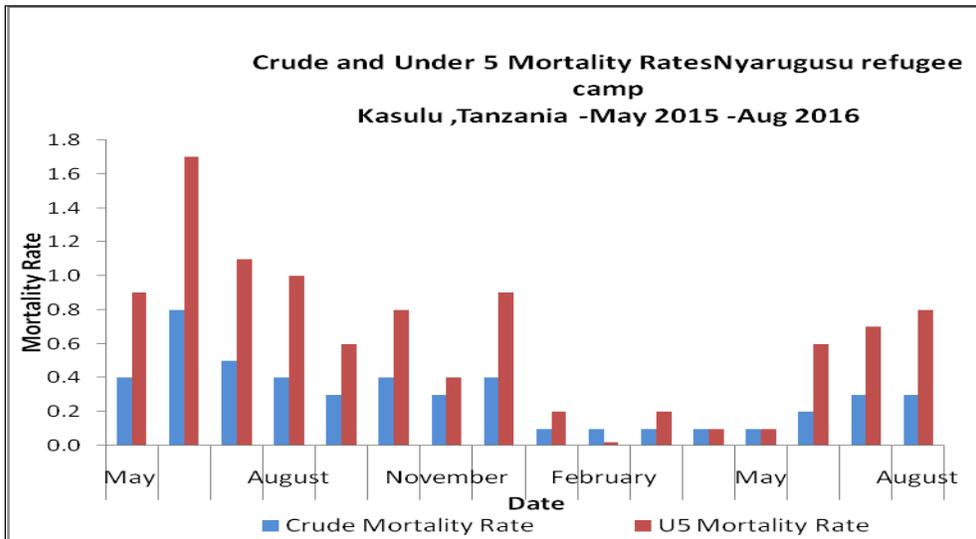
1.3.2 Morbidity:

Malaria has been the most common reported illness affecting the refugees with 33.2%, of all the consultations followed by upper respiratory tract infections (15.4%) and lower respiratory tract infections (11.0%), watery diarrhoea (6.8%) and skin diseases (5%) among all the refugees.

Figure 0.2: Causes of morbidity in children under-5

Summary of the top Five Causes of Morbidity
in Children under the age of 5 years old
January - May 2016 -Nyarugusu ,Nduta and Mtendeli refugee camps
Tanzania

Skin diseases ,
4.9%

Watery
diarrhoea ,
6.8%

Lower
respiratory
infections,
11.0%

Upper
respiratory
infections ,
15.4%
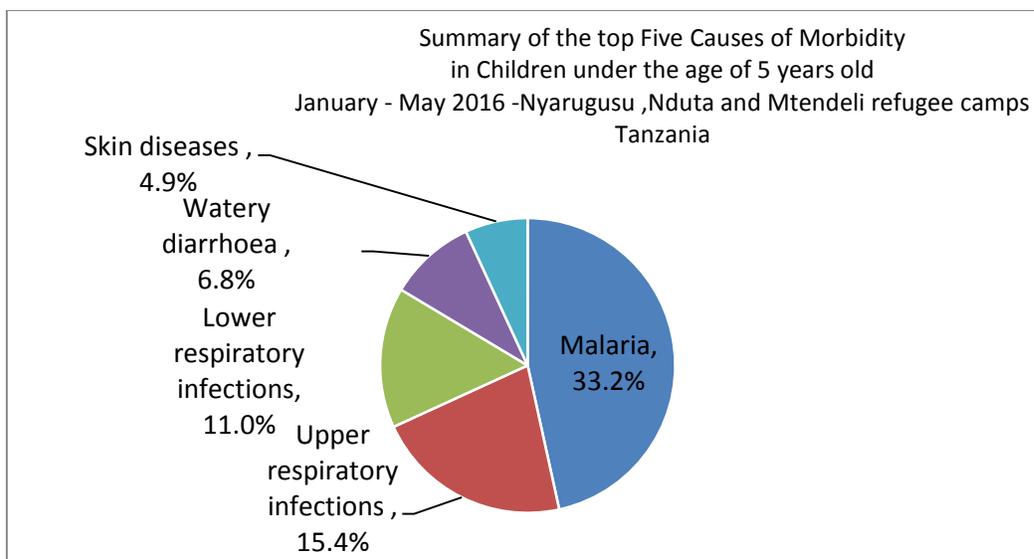
Malaria,
33.2%

1.3.3 Other health activities;

Mosquito net distribution: In response to the high malaria cases, distribution of long lasting Insecticide-treated Nets (LLITN) was conducted in all camps using the standard of 1 net to 2 persons (standard 1:2). In Nyarugusu the distribution was conducted in December 2015 with a total of 59,770 nets distributed reaching distribution coverage of 96.5%. Targeted distribution focusing on families (especially Burundians) that did not have mosquito nets and pregnant women was also conducted in May 2016 with a total number of 53,395 LLIN distributed.
In Nduta, a general distribution was conducted in April 2016 with 21,179 LLIN distributed with the overall coverage of 85.2%. In Mtendeli, the last distribution conducted in May 2016 with 6,207 LLIN distributed and achieving coverage of 98%.

1.4 Nutrition Situation

The nutritional status among the refugees living in Nyarugusu camp was within WHO classification of acute malnutrition in emergencies acceptable threshold <5%. The findings of the 2014 SENS reported global acute malnutrition rates of 2.6% (1.7 - 4.0 95% CI) and SAM of 0.9%. There was a reduction in stunting from 46.0% in 2012 to 40.7% in 2014. The prevalence of anaemia was 33% (28.6% - 37.8% 95% CI) among children aged 6 – 59 months and 21% (16.2%-28.5% 95% CI) among non-pregnant women of reproductive age (15 – 49 years).

The nutrition situation was stable until the onset of the refugee influx from Burundi that occurred from April 2015.The first mass MUAC screening exercise conducted in August 2015 indicated an increase in the malnutrition levels in Nyarugusu camp with the total prevalence by MUAC at 3.6 % and 0.6% SAM among the old and new arrivals. In November 2015 total prevalence was 4.0 (1.2% among the old population and 2.8 among the new arrivals.
In March/April, mass MUAC screening exercise was conducted in the two new camps, the prevalence of malnutrition in Nduta was 6.0 % and with no SAM whereas in Mtendeli it was

3.2% and SAM 0.2%. The most recent MUAC screening carried out in June 2016 during the Vitamin A and deworming campaign in all the three camps indicated a reduction in the prevalence of malnutrition by MUAC. The malnutrition rates were 0.5% among the old population, and 0.9 % among the new arrivals in Nyarugusu, 1.8% in Nduta and 4.4% in Mtendeli.

The following nutrition activities are being implemented in the camps by TRCS, MSF, WV with support from UNHCR, UNICEF and WFP.

- **Prevention activities** such as IYCF, Nutrition and health education counseling on various topics, blanket supplementary feeding programmes for children 6-59 months, pregnant and lactating women.
- -Vitamin A supplementation and deworming done twice a year as per the government policies. In June coverage was above the 90% SPHERE standard, 116% in Nyarugusu, 98.9% in Nduta and 90.4% in Mtendeli camp.Deworming coverage was 116% Nyarugusu, 102% Nduta and 90.7% in Mtendeli camp
- **Treatment programmes**: Management of SAM with medical complications in the ITFC, management of SAM without medical complications in the outpatient therapeutic programme (OTP) and finally management of moderate acute malnutrition in the supplementary feeding programmes

Nduta and Mtendeli nutrition programmes were established in November 2015 and March 2016 respectively. The highest number of admissions in to the nutrition programmes in Nyarugusu was recorded in July and October 2015, the numbers were very low at the time of the Survey. In Nduta the highest number of admission were in March 2016 while in Mtendeli the highest numbers of admissions were in August 2016 during the time of the nutrition survey. The following figures show the trends in the admission to therapeutic feeding programmes and targeted supplementary feeding programmes over past months before and during the nutrition survey.

Figure 0.3: Number of admissions to treatment programmes for MAM and SAM among children 6-59 months in Nyarugusu refugee camp.
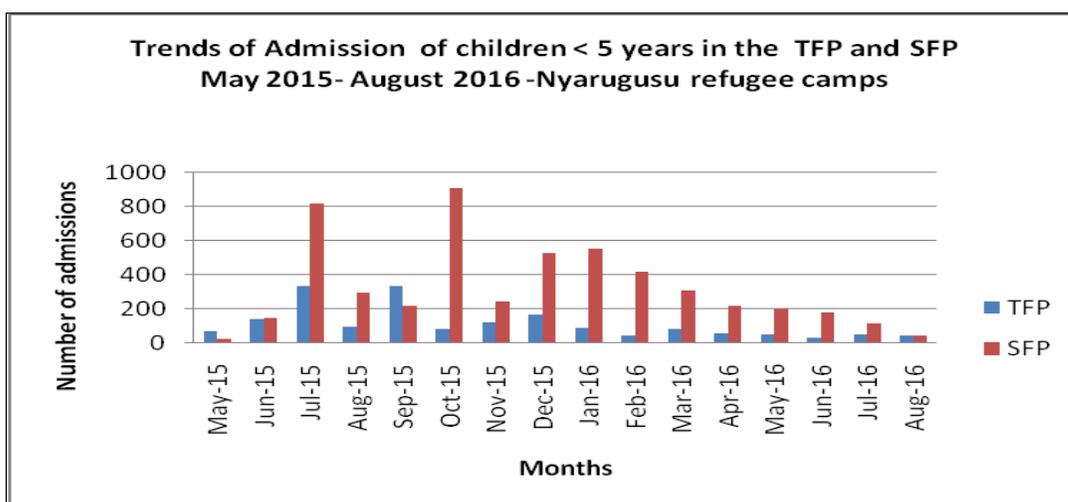
Figure 0.4: Number of admissions to treatment programmes for MAM and SAM among children 6-59 months in Nduta and Mtendeli refugee camps
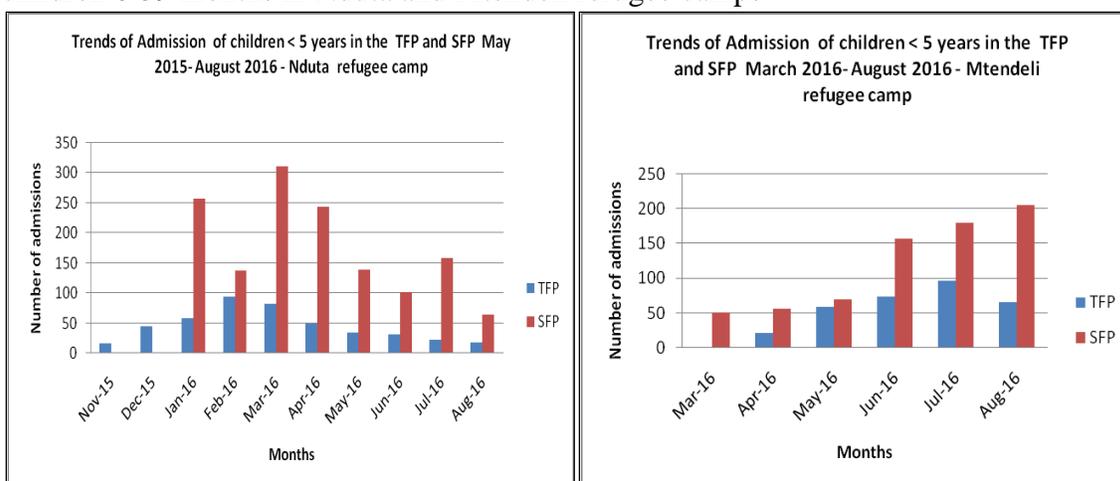
2.0 SURVEY OBJECTIVES

2.1 Primary objectives:
1. To measure the prevalence of acute malnutrition among children aged 6-59 months.
2. To measure the prevalence of stunting in children aged 6-59 months.
3. To determine the coverage of measles vaccination among children aged 9-59 months.
4. To determine the coverage of vitamin A supplementation received during the last 6 months among children aged 6-59 months.
5. To assess the two-week period prevalence of diarrhoea among children aged 6- 59 months.
6. To measure the prevalence of anaemia in children aged 6-59 months and in women of reproductive age between 15-49 years (non-pregnant).
7. To investigate IYCF practices among children aged 0-23 months.
8. To determine the coverage of ration cards and the duration the general food ration lasts for recipient households.
9. To determine the extent to which negative coping strategies are used by households.
10. To assess household dietary diversity.
11. To determine the population's access to and use of improved water, sanitation and hygiene facilities.
12. To determine the ownership of mosquito nets (all types and LLINs) in households.
13. To determine the utilization of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women.
14. To determine the crude mortality rates and under 5 mortality in all the camps.
15. To establish recommendations on actions to be taken to address the situation in the refuge population in the three camps.

2.2 Secondary Objectives
1. To estimate coverage of targeted selective feeding programmes for children 6-59 months.

2. To determine the coverage of iron and folate supplementation in pregnant women.

3.0 METHODOLOGY

Standardised Monitoring and Assessment of Relief and Transitions (SMART) methodology in accordance to the UNHCR Standardised Expanded Nutrition Survey (SENS) guidelines V2 2013. Multi-stage cluster sampling method was applied to select households in Nyarugusu and Mtendeli camps whereas simple random sampling was used in Nduta refugee camps.

3.1 SAMPLE SIZE CALCULATION

The sample size for children 6-59 months was calculated using ENA for SMART software (July 9th 2015 version) in accordance with UNHCR SENS guidelines. The sample size for the refugee population living in Nyarugusu was based on the upper confidence interval of the global acute malnutrition rates from the 2014 nutrition survey, Nduta was based on the acceptable threshold of <5% WHO classification of malnutrition in emergencies and Mtendeli was based on the results of Mass MUAC screening exercise that was conducted in June 2016.

The total population included in the survey, the percentage of children under-5 and average household size was derived from the UNHCR Pro-Gress data. A non-response rate of 5 % was used in all camps. A convenient sample for the other SENS modules i.e. for non-pregnant women and household indicators as stipulated in the SENS guidelines was used whereas the sample size for mortality is based on the SMART mortality guidelines.

Table 3.1: Sample size calculation: Anthropometry Tanzania refugee Camps – Aug/ Sept 2016.

Camp	Nyarugusu	Nduta	Mtendeli
Total Population	130,808	53,245	41,531
Population of U5	21,941	9,521	5,294
HH	37,211	20,323	9,885
% >5	16.8	17.9	18.5
Average HH size	3.5	2.6	2.9
GAM Prevalence (%)	0.7	1.8	4.4
Estimated GAM (%)	5%	5%	8%
Precision	2.5	2.5	3
Design effect	2		1.3
Non response rate	5%	5%	5%
Sample size	636	345	445
House holds	1264	867	795
Crude Mortality	0.3%	0.4%	0.1%
Estimated CMR	0.0	1.0%	1.0%
Precision	0.4	0.4	0.4

Design effect	2.0		1.5
Recall period	90	90	90
% of Non-response	5%	5%	5%

* No design effect for Nduta refugee camp due the simple random sampling method
* All the sampled households were interviewed for mortality regardless whether they had children 6-59 months

3.1.1 Sampling procedure

The updated UNHCR progress population data was used to calculate the sample size in all the camps. Clusters in Nyarugusu and Mtendeli were assigned using ENA software.

In Nyarugusu and Mtendeli refugee camps a cross-sectional multi-stage cluster surveys were conducted, probability proportional to size (PPS) was used for the first stage of sampling in the villages. In Nyarugusu total number of 60 clusters, 30 each for the old population and the new arrivals were selected, whereas in Mtendeli 35 clusters were selected. Labelling of all the households in the selected 35-60 clusters took place at least one day prior to the day of data collection. Systematic random sampling method was applied in the selection of household during the data collection to identify houses to be surveyed.
In Mtendeli, an additional five clusters were selected to capture the new arrivals due to the camp dynamics and addressing system at the time of the survey. During the planning period, the UNHCR staff and camp management indicated map had only six zones and all the refugees were settled in these zones. The new arrivals were being settled in zone 7-10 that only existed on ground and not in the maps.

In Nduta refugee camp simple random sampling method was used due to the availability of an updated of list of households linked to the UNHCR progress data base. The survey teams were able to locate the households within the villages.

3.1.2 Selecting households and individuals

A total of 20-25 households were visited daily by each team depending on the number of households to be visited in a specific camp. During the survey a household was defined as a group of people who live and share food from the same pot. Empty houses /tents or abandoned homes were verified through consultation with neighbours and were not labelled in Nyarugusu and Mtendeli refugee camps. The total number of households labelled in each village was then divided by the number of households to be visited on daily to get the sampling interval. The team randomly selected a number between 1 and the highest interval numbers to get the first household and subsequent households were obtained by using the interval.

In Nduta the ration card numbers were included in the lists of households to be visited per day to help identify the selected household in some instances where they were more than one family living in the same tent

All the legible children and women of reproductive age were measured and interviews conducted. All absent households, missing children, women and household that had erroneous data were visited on the following day before or after the data collection depending

on the teams and a mop up was done on the last day of the survey in each camp.

3.1.3 Questionnaires

The UNHCR SENS questionnaire was adopted to the Tanzania refugee camps context and used to collect all the relevant data from different target groups as per the survey objectives. The survey questionnaires were translated to Swahili language with an English option on the phone. During the data collection, the team leader conducted the individual and mortality questionnaires while the interviewers did the household questionnaires. The questions were asked in Swahili and/or Kirundi with assistance with translation by the enumerators of Congolese or Burundi origin in the each team in households where the person being interviewed did not understand Swahili mostly in the Burundian refugee households.

Two Android phones /Tablets with Open Data Kit (ODK) software were used for data collection per team. A house listing form was used by the teams to record children, women and mortality records at the households to ensure that all the data is captured, entered on phone to allow verification purposes in case of some errors where the teams had to go back to the households before the end of the survey.

The questionnaires covered the following areas and the following measurements were conducted; (The questionnaires are attached in Appendix 4.)

Module 1 and 2: Children 6-59 months: This included questions and measurements for all legible children aged 6-59 months. Information collected were anthropometric status, oedema, enrolment in selective feeding programmes and blanket programmes (super cereal plus; super cereal), immunisation (measles), vitamin A supplementation in the previous six months, and morbidity from diarrhoea in past two weeks and haemoglobin assessment.

Module 2: Women 15-49 years: This included questions and measures for non –pregnant women aged 15 – 49 years and Information relating pregnancy status, enrolment in ANC, coverage of iron-folic acid pills and haemoglobin assessment.

Module 3: Children 0-23 months: This included questions on infant and young child feeding practices for children aged 0-23 months.

Module 4: Food Security*:* This included questions on access and use of the GFD ration, use of negative coping mechanisms and household dietary diversity.

Module 5: WASH- This included questions on the satisfaction with the drinking water supply.
Mortality: A 90 day recall period to collect information on the deaths that occurred in the household to measure the CMR and U5 mortality rates.

3.2 MEASUREMENT METHODS

3.2.1 Individual-level indicators
Sex of children: recorded as male or female.

Birth date or age in months for children 0-59 months: the exact date of birth (day, month, and year) was recorded from birth certificates, mothers ANC card, EPI card or child health card was used to determine the age in cases where there was no birth certificate. Where there was no reliable proof of age, estimation using a local calendar of events was done and recorded in months on the questionnaire. If the child's age could not be determined by using a local calendar of events or by probing, the child's length/height was for inclusion; the child had to measure between 65 cm and 110 cm.

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

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

Height/Length of children 6-59 months: children's height or length was taken to the closest millimetre using a wooden height board (Shorr Productions). Height was used to decide on whether a child should be measured lying down (length) or standing up (height). Children less than 87cm were measured lying down, while those greater than or equal to 87cm were measured standing up.

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

MUAC of children 6-59 months: MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder, and taken to the closest millimetre using a standard tape. MUAC was recorded in millimetres on the house listing form and the android phone.

Child enrolment in selective feeding programme for children 6-59 months: selective feeding programme coverage was assessed for the SC/ outpatient therapeutic programme and for the supplementary feeding programme. This was verified by card or by showing images of the products given at the different programs.

Measles vaccination in children 6-59 months: measles vaccination was assessed by checking for the measles vaccine on the EPI card if available or by asking the caregiver to recall if no EPI card was available. For ease of data collection, results were recorded on all children but only analysed for children aged 9-59 months.

Vitamin A supplementation in last 6 months in children 6-59 months: Whether the child received a vitamin A capsule over the past six months was recorded from the EPI card or health card when available or by asking the caregiver to recall when no card was available.

A vitamin A capsule was shown to the caregiver when asked to recall.

Haemoglobin concentration in children 6-59 months and women 15-49 years: Hb concentration was taken from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser. When severe anaemia was detected, the child or the woman was referred for treatment immediately.

Diarrhoea in last 2 weeks in children 6-59 months: An episode of diarrhoea was defined as three loose stools or more in 24 hours. Caregivers were asked if their child had suffered episodes of diarrhoea in the previous two weeks.

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

Infant and young child feeding practices in children 0-23 months: infant and young child feeding practices were assessed based on the UNHCR's Standardized Expanded Nutrition Survey Guidelines for Refugee Populations v2 (2013).

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

3.2.2 Case definitions and calculations

Malnutrition in children 6-59 months: Acute malnutrition was defined using weight-for-height index values or the presence of oedema and classified as show in the Table below. Main results are reported after analysis using the WHO 2006 Growth Standards. Results using the NCHS 1977 Growth Reference

Table 3.2**:** Definitions of acute malnutrition using weight-for-height and/or oedema in children 6–59 months

Categories of acute malnutrition	Percentage of median (NCHS Growth Reference 1977 only)	Z-scores (NCHS Growth Reference 1977 and WHO Growth Standards 2006)	Bilateral oedema
Global acute malnutrition	<80%	< -2 z-scores	Yes/No
Moderate acute malnutrition	<80% to ≥70%	< -2 z-scores and ≥ -3 z-scores	No
Severe acute malnutrition	>70%	> -3 z-scores	Yes
	<70%	< -3 z-scores	Yes/No

Stunting, also known as chronic malnutrition was defined using height-for-age index values and was classified as severe or moderate based on the cut-offs shown below. Main results are reported according to the WHO Growth Standards 2006. Results using the NCHS Growth Reference 1977

Table 3.3: 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 was defined using the weight-for-age index values and was classified as severe or moderate based on the following cut-offs. Main results are reported according to the WHO Growth Standards 2006. Results using the NCHS Growth Reference 1977

Table 3.4: 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 were used to define malnutrition according to the following cut-offs in children 6-59 months:

Table 3.5: MUAC malnutrition cut-offs in children 6-59 months

Categories of low MUAC
<125mm
≥ 115 mm and <125 mm
< 115 mm

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

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

Coverage of TFP programme (%) =

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

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

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

Infant and young child feeding practices will be assessed as follows based on the UNHCR SENS IYCF module (Version 2 (March 2013).

Timely initiation of breastfeeding in children aged 0-23 months:
Proportion of children 0-23 months who were put to the breast within one hour of birth

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

Exclusive breastfeeding under 6 months:
Proportion of infants 0–5 months of age who were 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 were 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 received 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 were 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 received 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 were 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

3.2.4 Anaemia in children 6-59 months and women of reproductive age:
Anaemia was classified according to the following cut-offs in children 6-59 months and non-
pregnant women of reproductive age. Pregnant women were not included in this surveys for
the assessment of anaemia as recommended by UNHCR {pregnant women are not to be

included in routine nutrition surveys for the assessment of anaemia due to sample size issues, (usually a small number of pregnant women are found) as well as the difficulties in assessing gestational age in pregnant women)}.

Table 3.6: 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

3.2.5 Classification of public health problems and targets Anthropometric data:

The target for the prevalence of global acute malnutrition (GAM) for children 6-59 months of age by camp, country and region should be < 5% and the target for the prevalence of severe acute malnutrition (SAM) should be <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 3.7: Classification of public health significance for children under 5 years of age

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

3.2.6 Selective Feeding Programmes:

UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 includes the following indicators. The Table below shows the targeted performance indicators for malnutrition treatment programmes according to UNHCR Strategic Plan for Nutrition and Food Security 2008-2012.

Table 3.8: Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012)

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

* Also meet SPHERE standards for performance

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

Vitamin A supplementation coverage: 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 Table 13 below.

Table 3.9: Classification of public health significance (WHO 2000)

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

3.3   Household-level Indicators

Food security, WASH and Mosquito net coverage: The questionnaire was adapted from the UNHCR's Standardized Expanded Nutrition Survey Guidelines for Refugee Populations (Version 2; 2013).

WASH: Diarrhoea caused by poor water, sanitation and hygiene accounts for the annual deaths of over two million children under five years old globally. Diarrhoea contributes to the rate of malnutrition which subsequently leads to high infant and child morbidity and mortality. Refugee populations are often more vulnerable to public health risks and reduced funding can mean that long term refugee camps often struggle to ensure the provision of essential services, such as water, sanitation and hygiene. Hygienic conditions and adequate access to safe water and sanitation services is a matter of ensuring human dignity and is recognised as a fundamental human right. The following standards apply to UNHCR WASH programmes:

Table 3.10: UNHCR WASH Programme Standards

UNHCR Standard	Indicator
Average quantity of water available per person/day	> or = 20 litres

Mosquito net coverage; Malaria is a group of diseases caused by any of four different microorganisms called plasmodia (Plasmodium falciparum, vivax, ovale, and malariae), which are transmitted by certain species of mosquitoes. Malaria is found mostly in tropical and subtropical regions of the world. It can cause anaemia due to haemolysis of red blood cells. Distribution of mosquito nets in refugee camps by UNHCR and its partners has been observed over time to prevent malaria.

Table 3.11: UNHCR Mosquito Net Coverage standards

UNHCR Standard	Indicator
Coverage of mosquito nets (all types and LLINs) in households	> or 100%
Utilization of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women	

Table 3-12: Mortality

WHO Standards	Indicator
CMR (total deaths/10,000 people / day): (95% CI)	<1.0 /10,000
U5MR (deaths in children under five/10,000 children under five / day): (95% CI)	<2.0 /10,000

3.4 Training, Coordination and Supervision

3.4.1 Survey teams and Supervision

The survey team comprised of Tanzania national staff working in the health and nutrition agencies, MOH with nutrition, nursing as well as clinical backgrounds, and all the enumerators were nutrition, health promotion refugee staff in all the camps. The supervisors were UNHCR field officers, public health staff and field staff from WFP.

The supervisors, team leaders, interviewers, hemocue operators and enumerators in Nyarugusu were trained for five days, 3 days theory on the survey methodology, questionnaires, standardization exercise and pilot test. Supervision was conducted at all times by the survey consultant, UNHCR nutritionist and the supervisors allocated to each team during the data collection period in all the three camps.

3.4.2 Training

Training of the survey team was conducted by the survey consultant with support from the UNHCR nutritionist and TRCS nutritionist with prior experience in conducting nutrition surveys in Nyarugusu refugee camp. The training covered the general survey objectives, overview of survey design, household selection procedures, anthropometric measurements, signs and symptoms of malnutrition, data collection, interview skills and mortality interview. Roles plays and practical sessions were conducted by several groups during the days of training.

A standardization exercise for anthropometry was conducted for all the enumerators with six children in all the camps and haemoglobin testing for all the hemocue operators following the HB standardization SENS guidelinesV2. Prior to the start of the data collection in Nyarugusu a pilot test was carried out in a village that was not part of the selected clusters, each team covered at least 3 households with supervision by the survey consultant and the supervisors, feedback sessions were held during data collection period to discuss the challenges per teams.

3.4.3 Data nalysis

All the data entered on the android phones was cross checked on a daily basis before being synchronized. Forms with erroneous or incomplete information were not finalized but returned to the teams the next day to provide the missing/cross-check information.

Data was extracted on a daily basis for various quality/plausibility checks; a report including plausibility tests and errors, the report was shared with the teams every morning. Teams with inaccurate measurement were given special attention by the team supervisors, survey consultant and the UNHCR nutritionist to assess and resolve errors in measurements.

Data analysis was done using ENA July 9th 2015 for child anthropometry and mortality while

EPI –info version 3.5.4 was used to analyze child health, anaemia, IYCF, WASH, food security and mosquito net coverage.

4.0. RESULTS: NYARUGUSU REFUGEE CAMP OLD POPULATION KASULU

The survey results for Nyarugusu refugee camp has been divided in to two parts; the old population of refugees that have been living in the camp since its establishment in 1996 and the new arrivals comprising of the Burundi and the Congolese refugees that arrived as from May 2015. A total number of 60 clusters were sampled to give adequate sample for comparison of the results as the SENS guidelines v2 2013.

4.1 INDIVIDUAL-LEVEL INDICATORS-CHILDREN 6-59 MONTHS, 0-23 MONTHS, WOMEN OF REPRODUCTIVE AGE 15-49 YEARS AND MORTALITY

Table 0.1: Target sample size –Nyarugusu camp Kasulu (August 2016)

Target group	Target sample size	Actual*
Children 6-59 months	636	521
Children 0-23 months	Convenient sample	269
Women 15-49 years	Convenient sample	247
Clusters	30	30

4.1.1: Anthropometric results (based on WHO Growth Standards 2006).

The proportion of children with exact birthdate was 100%, this implies that the results of stunting and underweight are reliable as both indicators are calculated using age. The sex ration in the old population of refugees was 0.97 showing that both boys and girls were represented equally in the survey. Age ratio of 6-29 months to 30-59 months: 1.13 was above the 0.85 due to the presence of more older children among the Congolese families that have passed the resettlement process hence do not have more children.

Table 0.2: Distribution of age and sex of sample –Nyarugusu camp (old population) –Kasulu

(Aug 2016)

AGE (mo)	Boys no.	%	Girls no.	%	Total no.	%	Ratio Boy: Girl
6-17 months	73	49.3	75	50.7	148	28.4	1.0
18-29 months	68	53.1	60	46.9	128	24.6	1.1
30-41 months	48	43.6	62	56.4	110	21.1	0.8
42-53 months	47	50.0	47	50.0	94	18.0	1.0
54-59 months	21	51.2	20	48.8	41	7.9	1.0
Total	257	49.3	264	50.7	521	100.0	1.0

Table 0.3: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex- Nyarugusu camp (old population) –Kasulu (Aug 2016)

	All n = 514	Boys n = 253	Girls n = 261
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(5) 1.0 % (0.4-2.2 95% C.I.)	(3) 1.2 % (0.4 - 3.5 95% C.I.)	(2) 0.8 % (0.2 - 2.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(5) 1.0 % (0.4 -2.2 95% C.I.)	(3) 1.2 % (0.4 - 3.5 95% C.I.)	(2) 0.8 % (0.2 - 2.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

The prevalence of oedema is 0.0 %
The prevalence of GAM among the old population of refugees was 1.0 %(0.4-2.2 95%C.I). There is no significant difference) when compared to the prevalence of GAM in the 2014.

Figure 0.1: Trends in the prevalence of global and severe acute malnutrition based on WHO growth standards in children 6-59 months from 2012-2016.

Trend in Prevalence of GAM and SAM in Children 6-59 months
Nyarugusu refugee camp (old poulation), Kasulu Tanzania
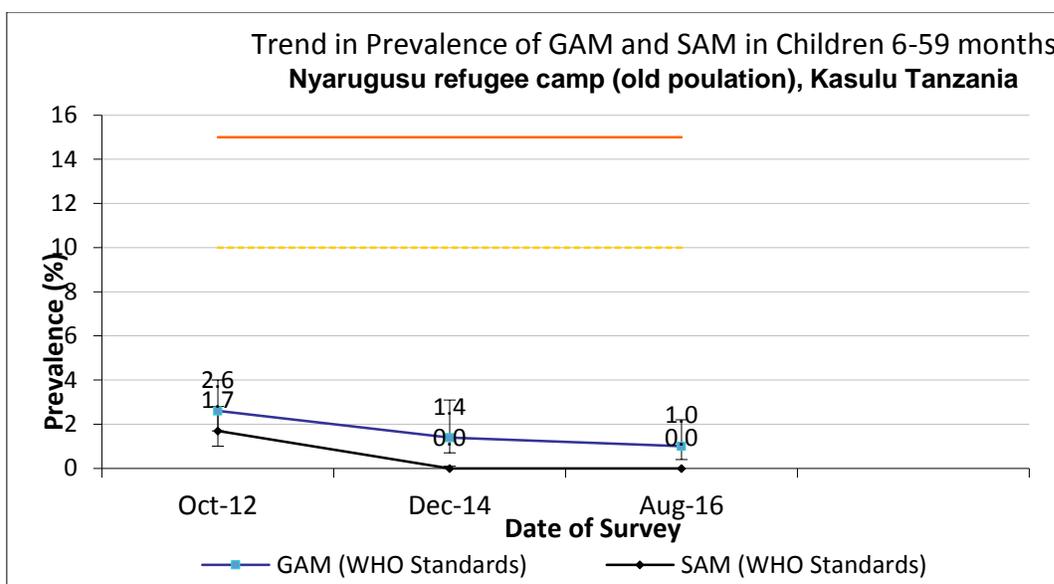
The prevalence of GAM and SAM among the old population remains stable and there is no significant difference when compared with the last 4 years.

Table 0.4: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Nyarugusu camp (old population) –Kasulu (Aug 2016)

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	146	0	0.0	2	1.4	144	98.6	0	0.0
18-29	124	0	0.0	1	0.8	123	99.2	0	0.0
30-41	109	0	0.0	0	0.0	109	100.0	0	0.0
42-53	94	0	0.0	2	2.1	92	97.9	0	0.0
54-59	41	0	0.0	0	0.0	41	100.0	0	0.0
Total	514	0	0.0	5	1.0	509	99.0	0	0.0

Moderate wasting was observed among children 6-17 months, 18-29 and 42 -53 months, the other age categories were not affected.

Figure 0.2: Trend in the prevalence of wasting by age in children 6-59 months - Nyarugusu camp (old population) –Kasulu (Aug 2016)

Trend in the Prevalence of Wasting by Age in Children 6-59 months
Nyarugusu camp (old population)–Kasulu Tanzania

Age group	Value
6-17m	1.4
18-29m	0.8
30-41m	0.0
42-53m	2.1
54-59m	0.0

Prevalence (%)

Age group (months)

■ Moderate wasting   ■ Severe wasting
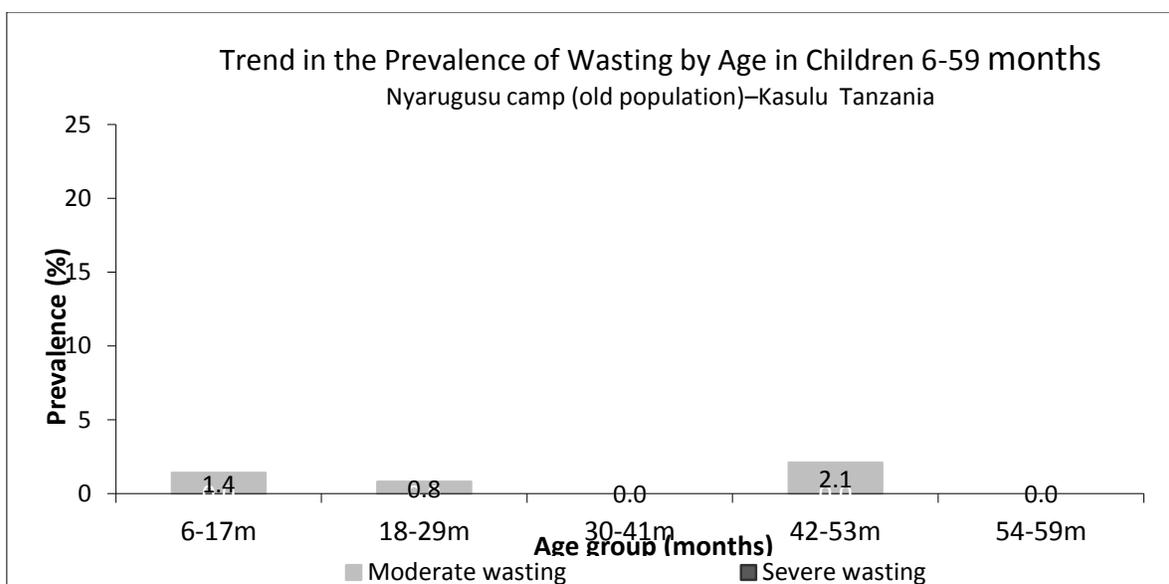
Table 0.5: Distribution of acute malnutrition and oedema based on weight-for-height z-scores -Nyarugusu camp (old population) – Kasulu (Aug 2016)

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 1 (0.2 %)	Not severely malnourished No. 519 (99.8 %)

Figure 0.3: Distribution of weight-for-height z-scores - Nyarugusu camp (old population) – Kasulu (Aug 2016)

Based on WHO growth standards, the reference population is shown in green and the surveyed population is shown in red following the same curve indicating low levels of

malnutrition of survey population compared to reference.
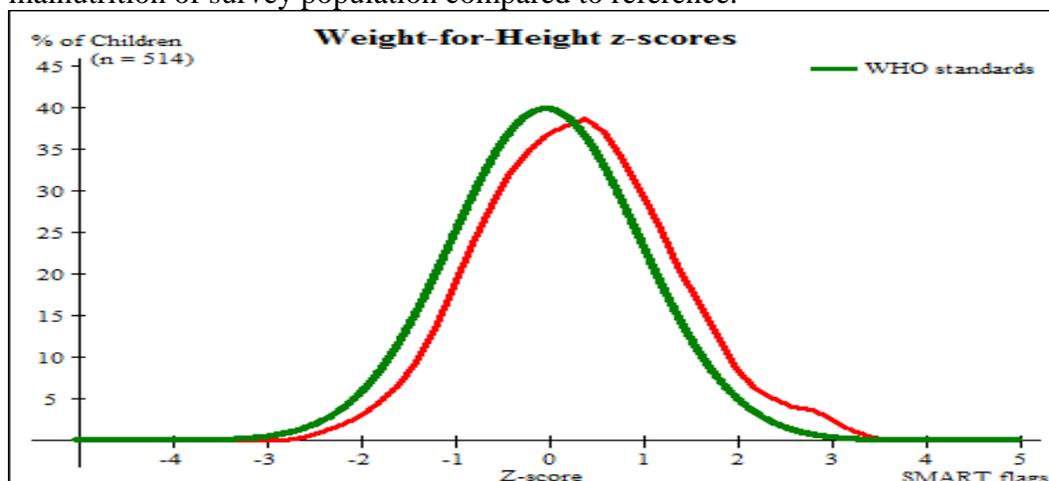
Table 0.6: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex - Nyarugusu camp (old population) – Kasulu (Aug 2016)

	All n = 521	Boys n = 257	Girls n = 264
Prevalence of MUAC < 125 mm and/or oedema	(2) 0.4 % (0.1 - 1.6 95% C.I.)	(2) 0.8 % (0.2 - 3.1 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)
Prevalence of MUAC < 125 mm and >= 115 mm, no oedema	(2) 0.4 % (0.1 - 1.6 95% C.I.)	(2) 0.8 % (0.2 - 3.1 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)
Prevalence MUAC < 115 mm and/or oedema	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 0.7: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema - Nyarugusu camp (old population) – Kasulu (Aug 2016).

Age (mo)	Total no.	MUAC < 115 mm		MUAC >= 115 mm and < 125 mm		MUAC > = 125 mm		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	148	0	0.0	2	1.4	146	98.6	0	0.0
18-29	128	0	0.0	0	0.0	128	100.0	0	0.0
30-41	110	0	0.0	0	0.0	110	100.0	0	0.0
42-53	94	0	0.0	0	0.0	94	100.0	0	0.0
54-59	41	0	0.0	0	0.0	41	100.0	0	0.0
Total	521	0	0.0	2	0.4	519	99.6	0	0.0

MUAC identified only two cases of moderate malnutrition among children 6-17 months.

Table 0.8 : Prevalence of underweight based on weight-for-age z-scores by sex - Nyarugusu camp (old population) –Kasulu (Aug 2016).

	All n = 520	Boys n = 256	Girls n = 264
Prevalence of underweight (<-2 z-score)	(64) 12.3 % (10.3 - 14.7 95% C.I.)	(36) 14.1 % (10.4 - 18.8 95% C.I.)	(28) 10.6 % (7.7 - 14.4 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(58) 11.2 % (9.3 - 13.3 95% C.I.)	(31) 12.1 % (8.8 - 16.4 95% C.I.)	(27) 10.2 % (7.6 - 13.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(6) 1.2 % (0.5 - 2.8 95% C.I.)	(5) 2.0 % (0.7 - 5.3 95% C.I.)	(1) 0.4 % (0.0 - 2.9 95% C.I.)

Table 0.9: Prevalence of stunting by age based on height-for-age z-scores - Nyarugusu camp (old population) –Kasulu (Aug 2016).

	All n = 507	Boys n = 250	Girls n = 257
Prevalence of stunting (<-2 z-score)	(223) 44.0 % (39.2 - 48.9 95% C.I.)	(117) 46.8 % (40.6 - 53.1 95% C.I.)	(106) 41.2 % (35.0 - 47.7 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(152) 30.0 % (26.0 - 34.3 95% C.I.)	(74) 29.6 % (23.6 - 36.5 95% C.I.)	(78) 30.4 % (25.2 - 36.1 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(71) 14.0 % (11.6 - 16.9 95% C.I.)	(43) 17.2 % (12.9 - 22.6 95% C.I.)	(28) 10.9 % (7.8 - 15.0 95% C.I.)

The prevalence of stunting among children 6 -59 months is high among children 6-59 months.

Figure 0.4: Trends in the prevalence of global and severe stunting based on WHO growth standards in children 6-59 months from 2012-2016 - Nyarugusu camp (old population) – Kasulu (Aug 2016).
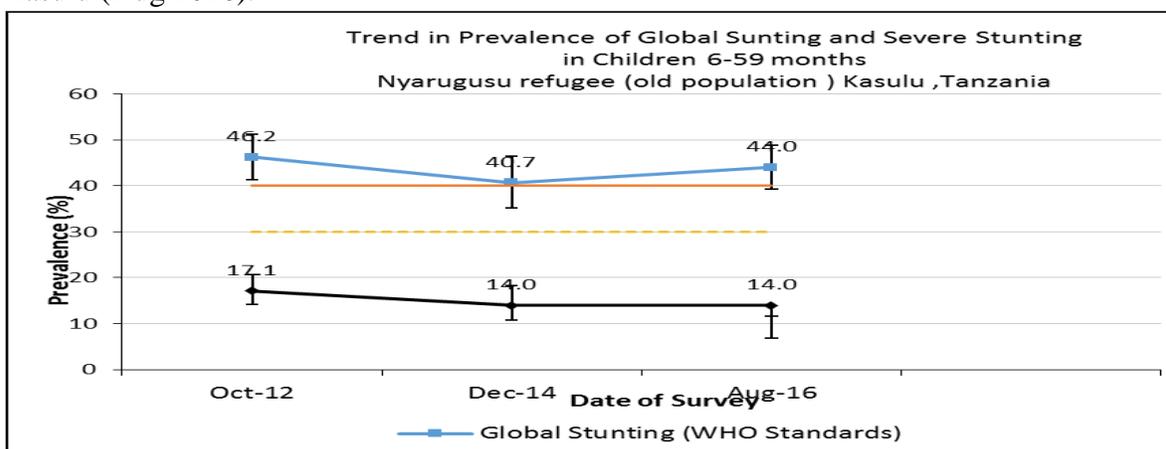
Table 0.10: Prevalence of stunting by age based on height-for-age z-scores - Nyarugusu camp (old population) – Kasulu (Aug 2016).

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	143	19	13.3	41	28.7	83	58.0
18-29	123	27	22.0	37	30.1	59	48.0
30-41	108	12	11.1	36	33.3	60	55.6
42-53	91	8	8.8	28	30.8	55	60.4
54-59	41	5	12.2	10	24.4	26	63.4
Total	506	71	14.0	152	30.0	283	55.9

Children 18-29 months tend to be the most affected by severe and moderate stunting when compared to the other age groups.

Figure 0.5: Trends in the prevalence of stunting by age in children 6-59 months - Nyarugusu camp (old population) – Kasulu (Aug 2016)

Trend in the Prevalence of Stunting by Age in Children 6-59 months — **Nyarugusu camp (old population)–Kasulu Tanzania**
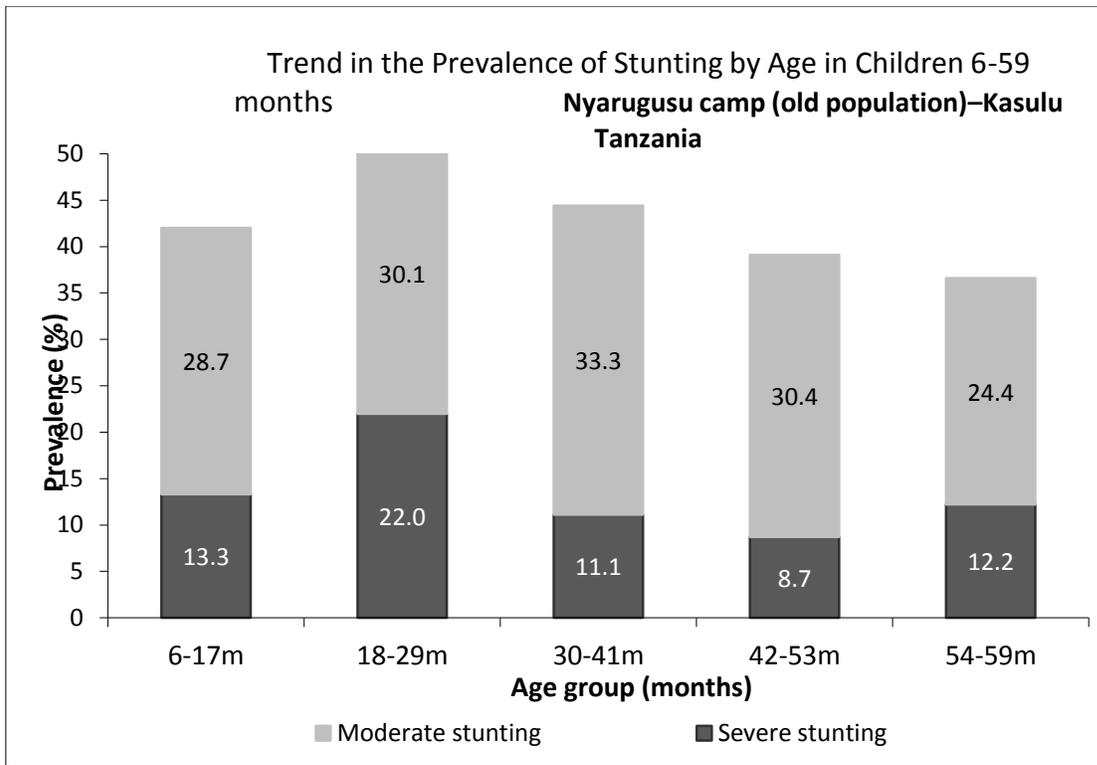
Figure 0.6: Distribution of height-for-age z-scores - Nyarugusu camp (old population) – Kasulu (Aug 2016)

Based on WHO growth standards; the reference population is shown in green and the surveyed population is shown in red. The graph shifted to the left showing the high levels of stunting among the surveyed population compared to reference population.
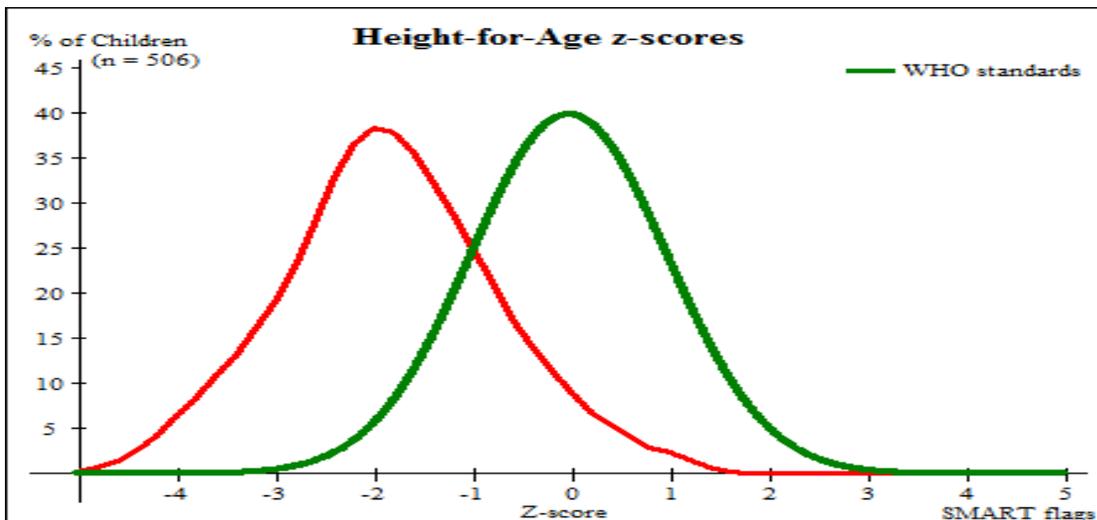
Table 0.11: Mean z-scores, design Effects and excluded subjects - Nyarugusu camp (old

population) – Kasulu (Aug 2016).

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	514	0.31±1.00	1.00	1	6
Weight-for-Age	520	-0.80±0.99	1.00	0	1
Height-for-Age	507	-1.83±1.08	1.18	1	13

* contains for WHZ and WAZ the children with oedema.

4.1.2 Feeding programme coverage results

Table 0.12: Programme coverage for acutely malnourished children: Nyarugusu camp (old population) –Kasulu (Aug 2016).

	Number/total	% (95% CI)
Supplementary feeding programme coverage	0/5	0.0 %
Therapeutic feeding programme coverage	0/0	0.0%

There were five cases of moderately malnourished children that met the SFP WHZ/MUAC admissions criteria but were not enrolled in the selective feeding programmes.

4.1.3 Measles vaccination coverage results

Table 0.13: Measles vaccination coverage for children aged 9-59 months - Nyarugusu camp (old population) – Kasulu (Aug 2016).

	Measles (with card) n=384	Measles (with card <u>or</u> confirmation from mother) n= 470
YES	80.6 % (68.7 -92.7 95% CI)	98.7 % (96.9 – 100.5 95% CI)

Measles vaccination with card and /confirmation from the mother was above the SPHERE standards of > 95% and with documentation on the Child clinic cards was 80.6%

4.1.4 Vitamin A supplementation Coverage Results

Table 0.14: Vitamin a supplementation for children aged 6-59 months within the past 6 months - Nyarugusu camp (old population) –Kasulu (Aug 2016)

	Vitamin A capsule (with card) n= 348	Vitamin A capsule (with card <u>or</u> confirmation from mother) n= 522
YES	73.1 % (59.3- 86.9 95% CI)	98.7% (97.5-99.9 95% CI)

4.1.5 Diarrhoea results

At the time of the SENS in Nyarugusu, at least 11.9% of children had diarrhoea two weeks before the survey. This cannot be compared to the incidence of 26.1% to the last survey conducted in 2014 because of the different periods both surveys were conducted.

Table 0.15: Period prevalence of diarrhoea - Nyarugusu camp (old population)–Kasulu (Aug 2016)

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	62/521	11.9% (7.0 -16.8)

4.1.6 Anaemia results children 6-59 months

Table 0.16: Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group- Nyarugusu camp (old population) – Kasulu (Aug 2016).

	6-59 months n = 522	6-23 months n=204	24-59 months n= 317
Total Anaemia (Hb<11.0 g/dL)	(221) 42.3 % (36.5 – 48.2 95% CI)	(106) 51.9 % (43.4 -60.5 95% CI)	(115) 36.2 % (30.2 -42.3 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(134) 25.7 % (21.6–29.7 95% CI)	(61) 29.9 % (23.8-35.9 95% CI)	(73) 23.0 % (18.1 – 27.9 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(84) 16.1 % (11.9 – 20.3 95% CI)	(44) 21.6 % (14.4 -28.7 95% CI)	(40) 12.6 % (8.9-16.295% CI)
Severe Anaemia (<7.0 g/dL)	(3) 0.5 % (0.1 -1.2 95% CI)	(1) 0.5 % (0.4 – 0.5 95% CI)	(2) 0.6 % (0.2 -1.5 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	11.1g/dL (10.9 –11.2 95% CI) [6.1 -15.0]	10.7 g/dL (0.11 or 10.5 - 10.9 95% CI) [6.7 -13.3]	11.3g/dL (0.09 or 11.1-11.5 95% CI) [6.1 -15.0]

The prevalence anaemia among children 6-59 months is above the 40% public health significance threshold with the most affected group being children 6-23 months with a prevalence of 51.9%

Table 0.17: Prevalence of moderate and severe anaemia in children 6-59 months of age and by age group - Nyarugusu camp (old population) –Kasulu (Aug 2016).

	6-59 months n = 522	6-23 months n=204	24-59 months n=317
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(87) 16.7 % (12.4 -20.9 95% CI)	(22.1) % (15.0 -29.1 95% CI)	(42) 13.2 % (9.4 -17.1 95% CI)

Figure 0.7: Trends in anaemia categories in children 6-59 months from 2012-2016 Nyarungusu camp (old population) –Kasulu (Aug 2016)
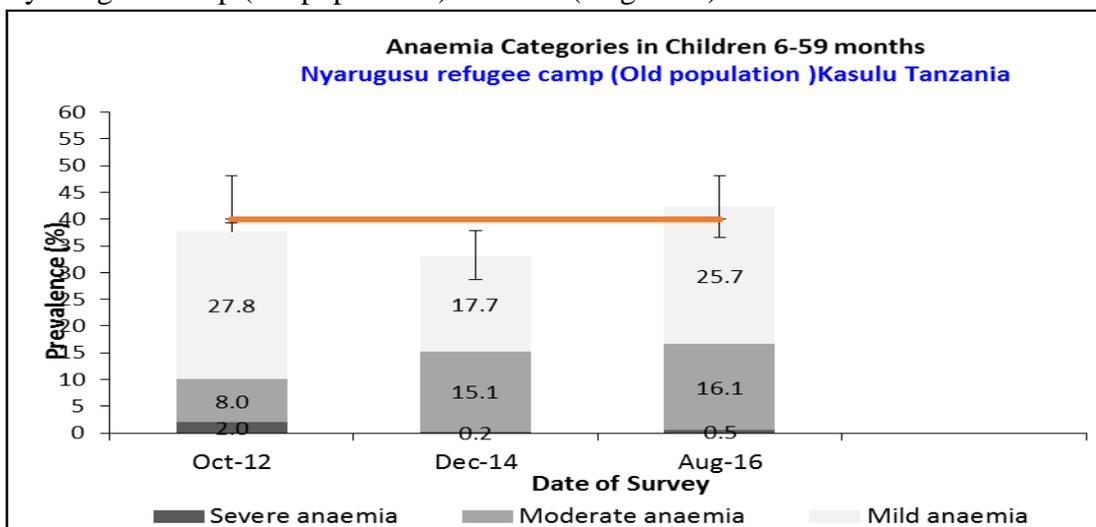
4.1.7 Children 0-23 months

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

Table 0.18: Prevalence of Infant and Young Child Feeding practices Indicators - Nyarungusu camp (old population) –Kasulu (Aug 2016)

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	**0-23 months**	237 /269	88.1	81.4 -94.8
Exclusive breastfeeding under 6 months	**0-5 months**	59/66	89.4	80.7 -98.1
Continued breastfeeding at 1 year	**12-15 months**	37/39	94.8	87.1 -102.6
Continued breastfeeding at 2 years	**20-23 months**	18/43	41.9	21.8 – 61.9
Introduction of solid, semi-solid or soft foods	**6-8 months**	25/45	55.6	39.4 -71.7
Consumption of iron-rich or iron-fortified foods	**6-23 months**	160/203	78.8	65.9 –91.7
Bottle feeding	**0-23 months**	1/268	0.4	0.3 – 1.1

Figure 4.7: Key IYCF indicators from 2012-2016 - Nyarugusu camp (old population)–Kasulu (Aug 2016)

Trends in Prevalence of Key IYCF Indicators
Nyarugusu refugee camp (old population) kasulu Tanzania
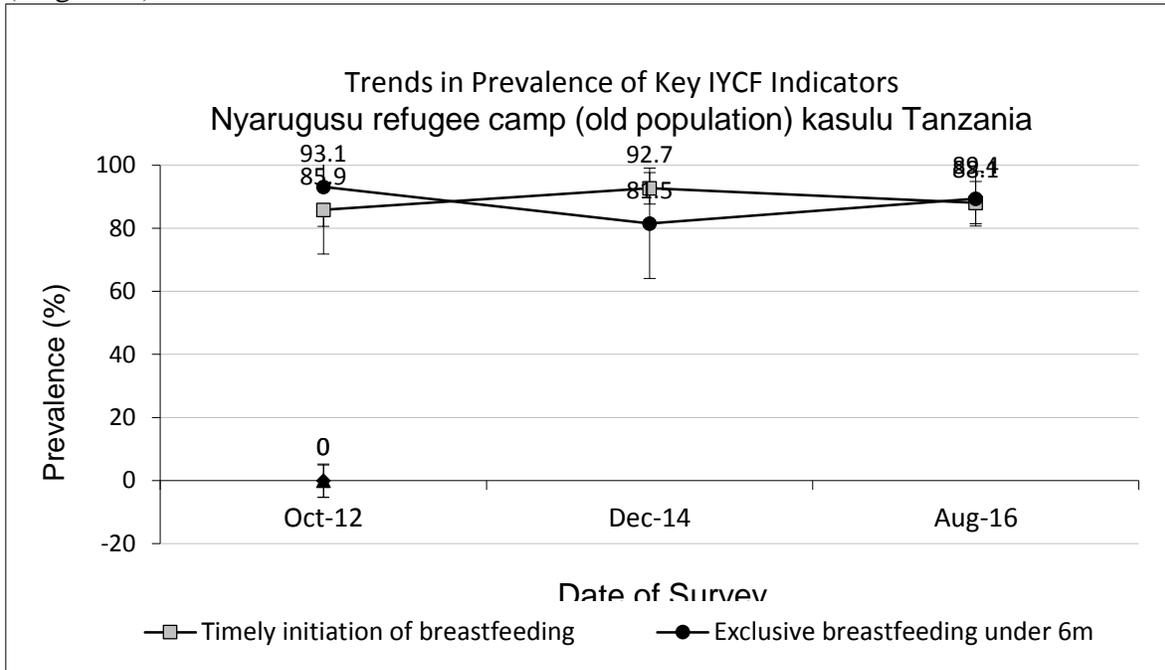
Timely initiation and exclusive breastfeeding are only indicators with available data for comparison within the past four years.

Prevalence of Intake Infant Formula

Table 0.19: Infant formula intake in children aged 0-23 months - Nyarugusu camp (old population) –Kasulu (Aug 2016).

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	0/269	0.0%

None of the caregivers reported to be using infant formula in the camp.

Fortified blended foods

Table 0.20: FBF intake in children aged 6-23 months Nyarugusu camp (old population) – Kasulu (Aug 2016).

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	67/202	33.1 (15.9 – 50.4)

Table 0.21: FBF++ intake in children aged 6-23 months - Nyarugusu camp (old population)

– Kasulu (Aug 2016).

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	157/203	(64.2 -90.4

4.1.8 Women 15-49 years

Table 0.22: Women physiological status and age - Nyarugusu camp (old population) –Kasulu (Aug 2016)

Physiological status	Number/total	% of sample
Non-pregnant	247	N/A
Pregnant	37	N/A
Mean age (range)	26.3 (15.0-46.0)	

Table 0.23: Prevalence of anaemia and hemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Nyarugusu camp (old population)–Kasulu (Aug 2016).

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 247
Total Anaemia (<12.0 g/dL)	(64) 25.9 % (18.5 – 33.3 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(41) 16.6 % (11.0 – 22.2 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(23) 9.3 % (5.3 -13.3 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0 %(95% CI)
Mean Hb (g/dL) **(SD / 95% CI)** **[range]**	12.6g/dL (0.13 or 12.6- 13.1 95% CI) [8.9 -16.9]

Figure 0.8: Trends in anaemia categories in women of reproductive age (non-pregnant) from

2012-2016. - Nyarugusu camp (old population) – Kasulu (Aug 2016).
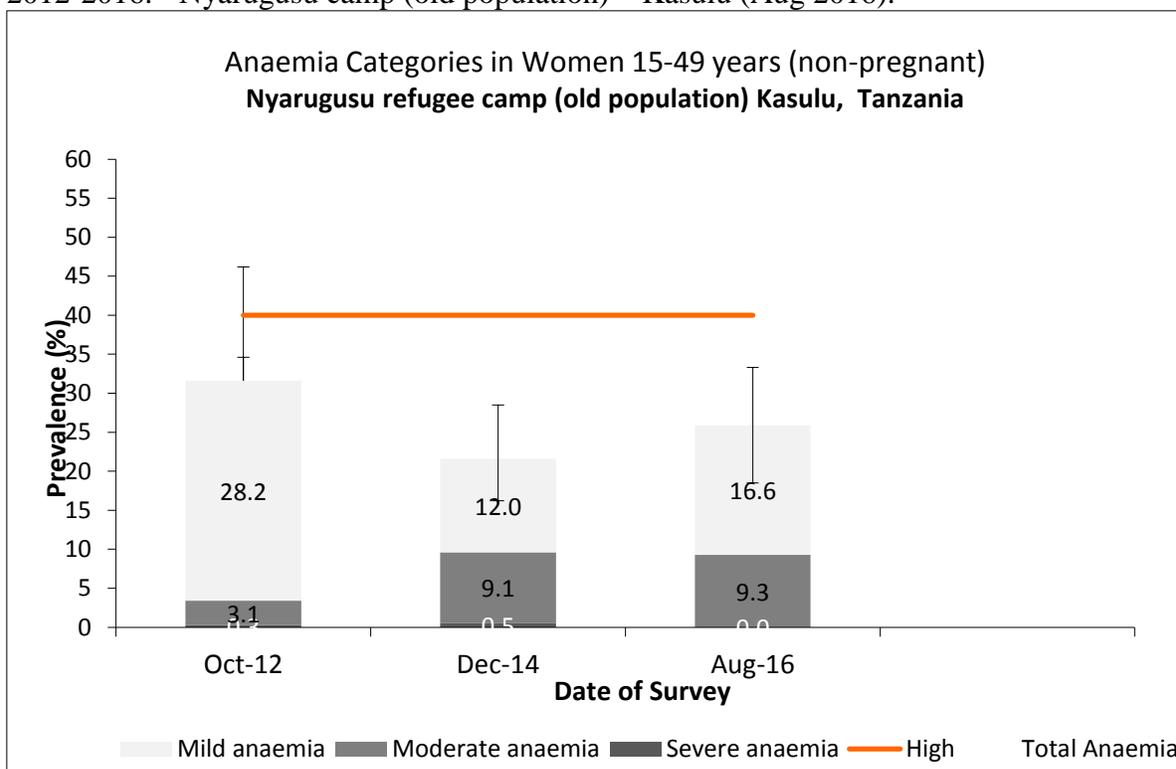
Table 0.24: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) - Nyarugusu camp (old population) –Kasulu (Aug 2016).

	Number /total	% (95% CI)
Currently enrolled in ANC programme	24	64.9 (44.5 -85.2)
Currently receiving iron-folic acid pills	23	62.2(39.3 -85.0)

4.1.9 Mortality Results

A total number 3612 people were included in the survey 29 people joined 62 left .Children under five were 631 children of which 7 joined ,8 left and 42 were born within the recall period. No deaths were reported in the surveyed households among the old population.

Table 4:25: Crude and under five mortality rates: Old population –Nyarugusu camp Kasulu. (Aug 2016

Indicator	Prevalence
CMR (total deaths/10,000 people / day): (95% CI)	0.0(0.00 -0.15 95% CI)
U5MR (deaths in children under five/10,000 children under five / day): (95% CI)	0.0(0.00 -0.77 95% CI)

4.2 HOUSEHOLD-LEVEL INDICATORS-FOOD SECURITY, WATER and MOSQUITO NET COVERAGE

4.2.1 FOOD SECURITY

Table 0.26: Food security sampling information - Nyarugusu camp (old population) –Kasulu (Aug 2016)

Household data	Planned	Actual	% of target
Total households surveyed for Food Security	Convenient	270	N/A

Access to Food Assistance Results

Table 0.27: Ration card coverage - Nyarugusu camp (old population) –Kasulu (Aug 2016).

	Number/total	% (95% CI)
Proportion of households with a ration card	100.0	(100.0-100.0)

All the surveyed households reported that they were registered and had ration cards

Table 0.28: Reported duration of general food ration 1- Nyarugusu camp (old population) – Kasulu (Aug 2016).

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
21.9 (21.0 -22.8) out of 28days	78.2%

On average food lasted for 21.9 days in most of the households that were interviewed during the survey.

Table 0.29: Reported duration of general food ration 2 - Nyarugusu camp (old population) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	34/270	12.6 (5.6 -19.5)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle [28 days]	69/270	25.6 (17.3 -33.9)
>75% of the cycle [28 days]	201/270	74.4(66.1 -82.7)

On average food lasted for 21.9 days in most of the households, with a 12.6 % reported that their food ration lasted for the entire 28 days.

Negative Coping Strategies Results

Table 0.30: Coping strategies used by the surveyed population over the past month;

Nyarugusu camp (old population) –Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items *with or without interest*	180 /270	66.7 (54.9 – 78.4)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	50/270	18.5 (11.2 – 25.8)
Requested increased remittances or gifts as compared to normal	113 /270	41.8 (27.5 – 56.2)
Reduced the quantity and/or frequency of meals	108 /270	40.0 (25.2 -54.8)
Begged	155 /270	57.4 (43.7 – 71.1)
Engaged in potentially risky or harmful activities such as burning charcoal, working outside the camp, brewing illicit alcohol.	7/270	2.6 (0.2 -4.9)
Proportion of households reporting using none of the coping strategies over the past month	47/270	17.4 (5.3 – 29.5)

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

Household dietary diversity results

The last general food distribution ended 15 days prior to the start of the survey data collection. The general food distribution usually lasts for a week, the SENS was conducted in August during the dry season and therefore variety of foods was available when compared to the rainy seasons. The average HDDS is 5.7 (5.3 -6.1) and is similar to the SENS in 2014.

Table 0.31: Average HDDS- Nyarugusu camp (old population) – Kasulu (Aug 2016**)**

	Mean (Standard deviation or 95% CI)
Average HDDS	5.7 (5.3 -6.1)

* Maximum HDDS is 12.

Figure 0.9: Proportion of households consuming different food groups within last 24 hours) - Nyarugusu camp (old population) – Kasulu (Aug 2016)
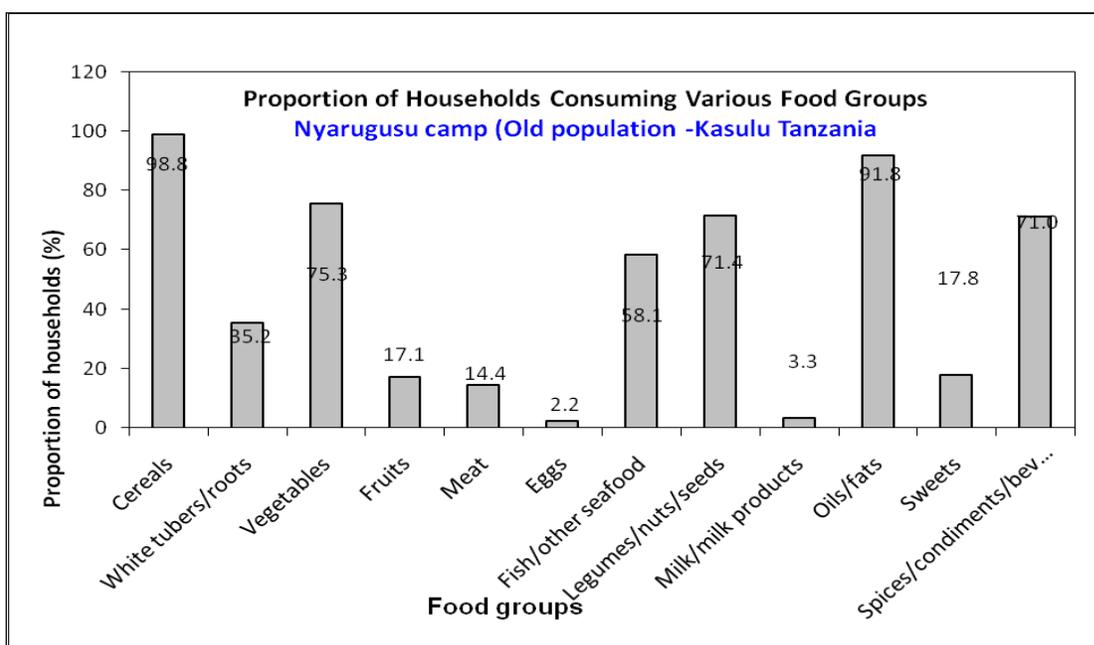
Most household reported to be consuming the food commodities from the general food basket, vegetables and fish. The least consumed food were eggs, and milk and milk products.

Table 0.32: Consumption of micronutrient rich foods by households -Nyarugusu camp (old population) – Kasulu (Aug 2016).

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	43/270	15.9(8.6 -23.3)
Proportion of households consuming either a plant or animal source of vitamin A	156/270	57.8 (45.6 – 69.9)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	162/270	(47.6 -72.4)

4.2.2 WASH INDICATORS

Table 0.33: WASH sampling information - Nyarugusu camp (old population) –Kasulu (Aug 2016).

Household data	Planned	Actual	% of target
Total households surveyed for WASH	316	269	85.1%

Table 0.34: Water quality - Nyarugusu camp (old population) –Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households using an improved	269/269	100% (100.0-100.0))

drinking water source		
Proportion of households that use a covered or narrow necked container for storing their drinking water	173/269	64.3% (51.4- 77.2)

The main source of drinking water in the camp is the public stands and 100% of the households reported to have access to improved water sources.

Table 0.35: Water quantity: Amount of litres of water used per person per day

Proportion of households that use:	**Number/total**	**% (95% CI)**
≥ 20 lpppd	120/269	44.6(36.4 -52.8)
15 – <20 lpppd	53/269	19.7 (13.2 -27.3)
<15 lpppd	96/269	35.7(27.3 -44.1)

The average water usage in lppd at the HH was 21.3 lppd

Table 0.36: Satisfaction with water supply - Nyarugusu camp (old population) –Kasulu (Aug 2016)

	Number/total	**% (95% CI)**
Proportion of households that say they are satisfied with the drinking water supply	123/269	45.7 (37.2 -54.3)

Figure 0.10: Proportion of households satisfied with the water supply – Nyarugusu camp (Old population) –Kasulu (Aug 2016)

Proportion of Households that say they are Satisfied with the Water Supply Nyarugusu camp (Old population -Kasulu Tanzania

45.7 39.4 14.9

0.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100.0
%
■ Satisfied   ■ Partially satisfied   ■ Not satisfied
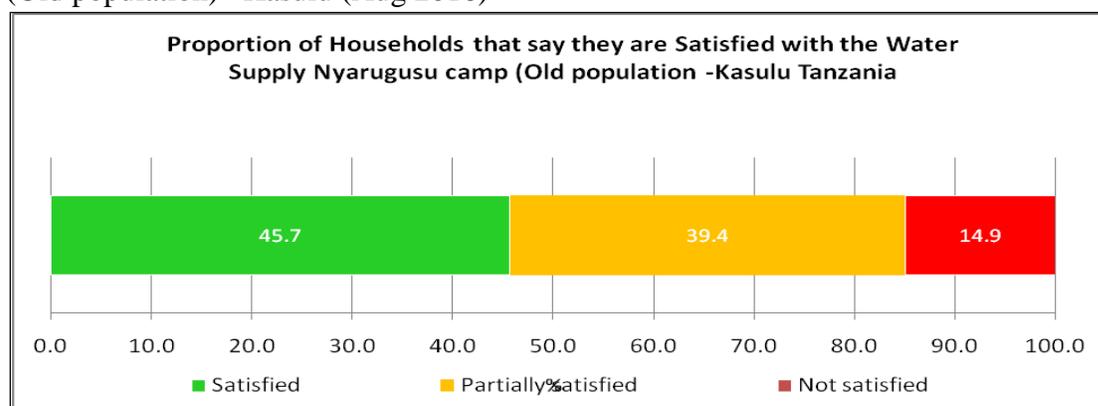
45.7% reported that they were satisfied with the water supply whereas 39.4 were not satisfied and 14.9 were partially satisfied. The main reasons for dissatisfaction include long waiting queues at the tap stands, irregular supply and insufficient water.

Figure 0.11: Main reasons for dissatisfaction among households not satisfied - Nyarugusu camp (old population) –Kasulu (Aug 2016)

Reasons provided for Dissatisfaction of Water Supply
Nyarugusu camp (Old population –Kasulu Tanzania
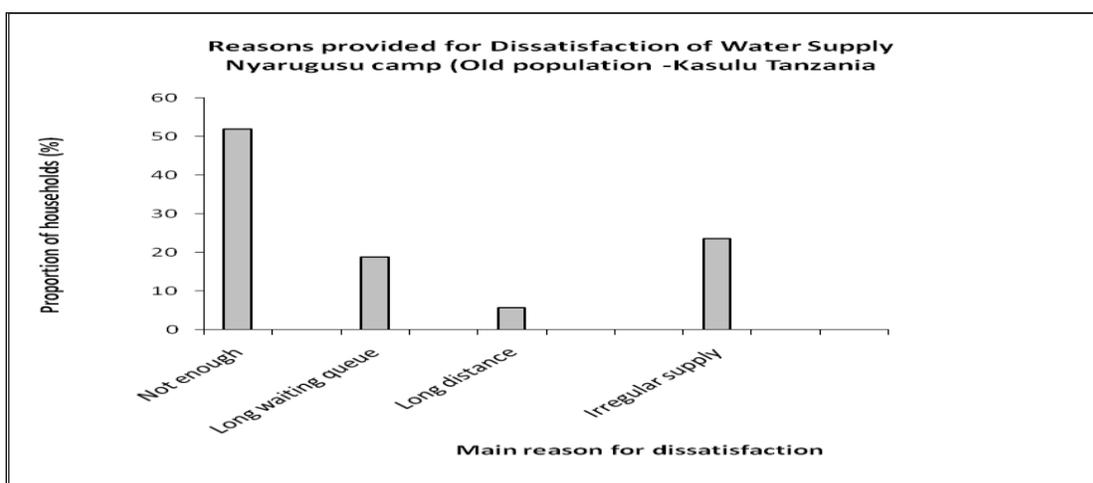
Safe excreta disposal

Table 0.37: Safe excreta disposal - Nyarugusu camp (old population) –Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,	87 /268	32.5 (19.1 -45.8)
A shared family toilet (improved toilet facility, 2 households)	15/268	5.6 (6.5 -19.1)
A communal toilet (improved toilet facility, 3 households or more)	5/268	1.8 (0.0 – 3.72)
An unimproved toilet (unimproved toilet facility or public toilet)	161/268	60.1(43.8 -76.4)
Proportion of households with children under three years old that dispose of faeces safely	172/172	100.0 100.0-100.0)

4.2.3 MOSQUITO NET COVERAGE

Table 0.38: Mosquito net coverage sampling information: Nyarugusu camp (old population) –Kasulu (Aug 2016).

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	316	269	85.1%

Table 0.39: Household mosquito net ownership - Nyarugusu camp (old population) –Kasulu (Aug 2016)

	Number/total	% (95% CI)

Proportion of total households owning at least one mosquito net of any type	230/269	85.5% (80.3 – 90.7)
Proportion of total households owning at least one LLIN	226/269	84.8 (78.2-89.7)

Figure 0.12: Household ownership of at least one mosquito net (any type) (Nyarugusu camp (old population) – Kasulu (Aug 2016)
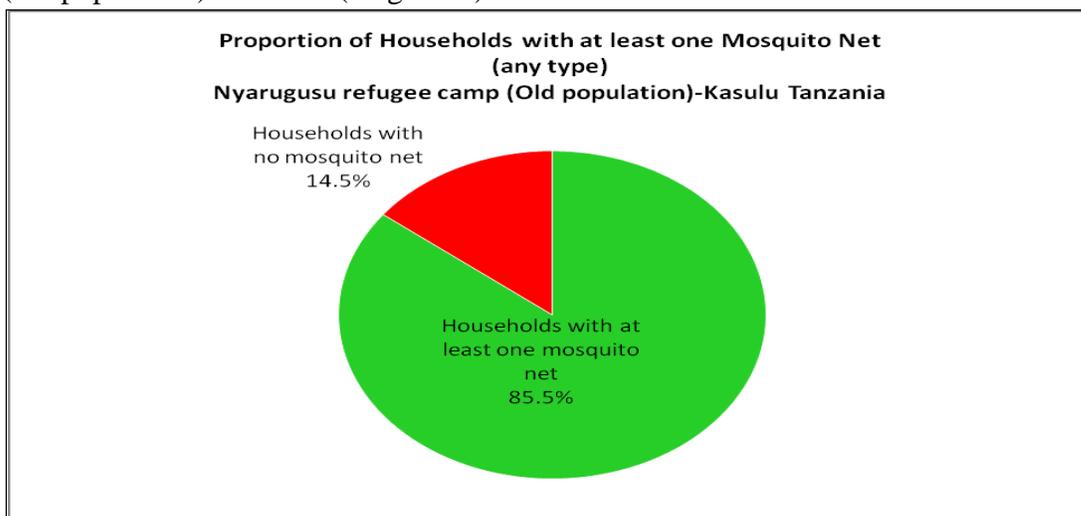
Figure 0.13: Household ownership of at least one LLIN (- Nyarugusu camp (old population) – Kasulu (Aug 2016).
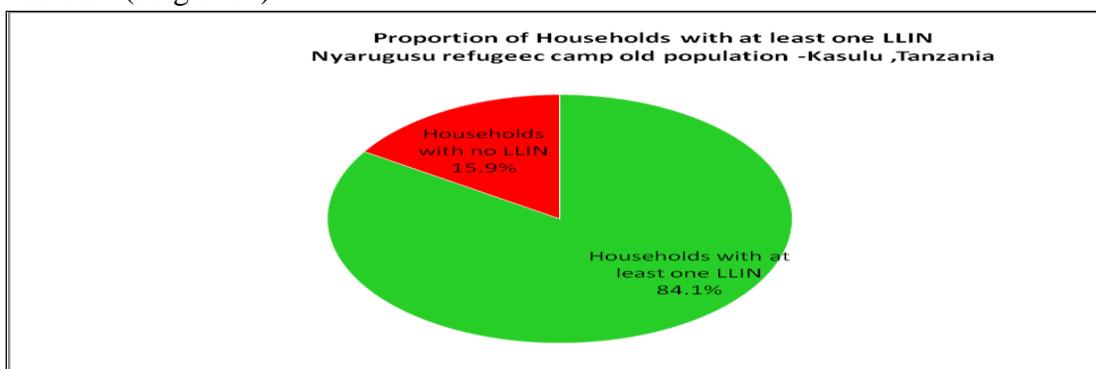
Table 0.40: Number of nets - Nyarugusu camp (old population) –Kasulu (Aug 2016).

Average number of LLINs per household	**Average number of persons per LLIN**
2.4	3.0

Table 0.41: Mosquito net utilisation - Nyarugusu camp (old population) – Kasulu (Aug 2016).

	Proportion of total population (all ages)	**Proportion of 0-59 months**	**Proportion of pregnant women**

	Total No= 1713	%	Total No= 289	%	Total No= 48	%
Slept under net of any type	1307	76.3	241	83.4	39	81.4
Slept under LLIN	1289	75.2	238	82.4	39	81.4

Figure 0.14: Mosquito net utilisation by sub-group Nyarugusu camp (old population) – Kasulu (Aug 2016).
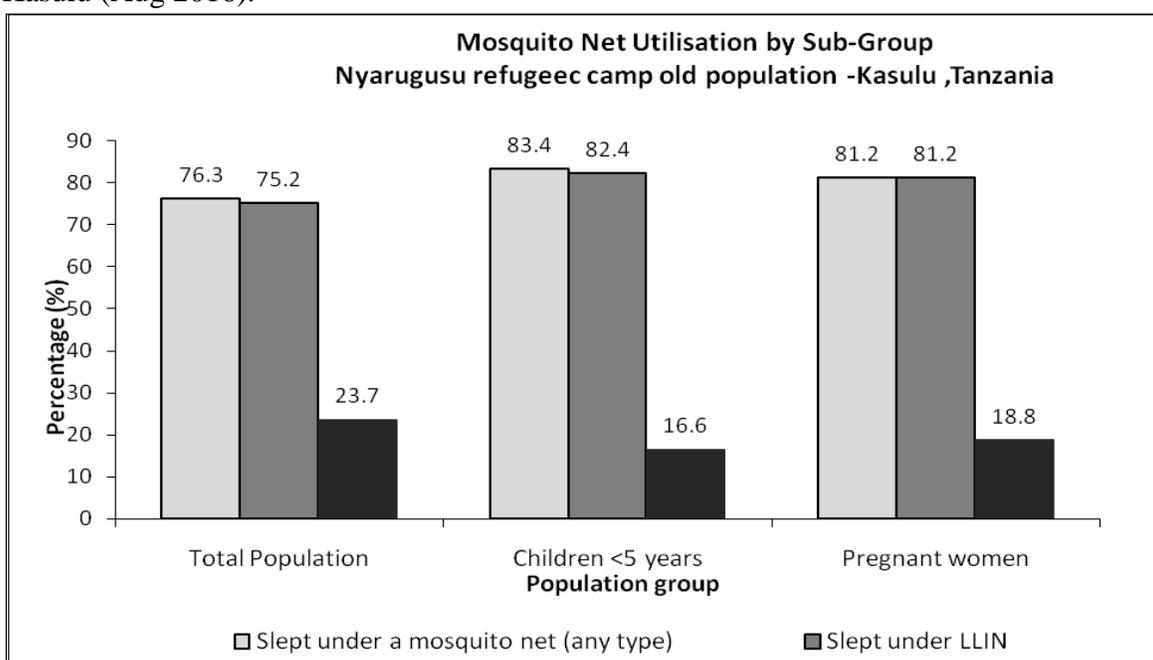
5.0 RESULTS; NYARUGUSU REFUGEE CAMP – NEW ARRIVALS - KASULU
These are the results of the new arrivals comprising of the Burundi and Congolese refugees living in the newly established zones 7 – 12 Nyarugusu refugee camp who arrived in the camp as from May 2015 up to the time of the survey in August 2016.

5.1 INDIVIDUAL-LEVEL INDICATORS-CHILDREN 6-59 MONTHS, 0-23 MONTHS, WOMEN OF REPRODUCTIVE AGE 15-49 YEARS AND

MORTALITY

Table 5.1: Target sample size –Nyarugusu –New arrivals camp Kasulu (Aug 2016)

Target group	Target sample size	Actual*	% of the target
Children 6-59 months	318	541	170%
Children 0-23 months	Convenient sample	296	N/A
Women 15-49 years	Convenient sample	307	N/A

5.1.1 Anthropometric Results (based on WHO Growth Standards 2006

The proportion of children with exact birthdates was 100%, this implies that the stunting and underweight results can be interpreted with reliability as both indicators are calculated using the age. Both girls and boys were equally represented as the overall sex ratio was 0.93.

Table 4.5.2: Distribution of age and sex of children 6-59 months - Nyarugusu camp (New arrivals – Kasulu (Aug 2016).

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: Girl
6-17 months	71	49.7	72	50.3	143	26.4	1.0
18-29 months	52	40.6	76	59.4	128	23.7	0.7
30-41 months	59	49.6	60	50.4	119	22.0	1.0
42-53 months	59	54.1	50	45.9	109	20.1	1.2
54-59 months	19	45.2	23	54.8	42	7.8	0.8
Total	260	48.1	281	51.9	541	100.0	0.9

Table 5.5.3: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

	All n = 534	Boys n = 255	Girls n = 279
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(5) 0.9 % (0.4 - 2.1 95% C.I.)	(3) 1.2 % (0.4 - 3.5 95% C.I.)	(2) 0.7 % (0.2 - 2.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(5) 0.9 % (0.4 - 2.1 95% C.I.)	(3) 1.2 % (0.4 - 3.5 95% C.I.)	(2) 0.7 % (0.2 - 2.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

The prevalence of oedema is 0.0%
The prevalence of GAM among the new arrivals was 0.9 % (0.4 -2.1) and no SAM cases were identified by WHZ.

Table 5.4: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	140	0	0.0	1	0.7	139	99.3	0	0.0
18-29	126	0	0.0	1	0.8	125	99.2	0	0.0
30-41	119	0	0.0	1	0.8	118	99.2	0	0.0
42-53	107	0	0.0	2	1.9	105	98.1	0	0.0
54-59	42	0	0.0	0	0.0	42	100.0	0	0.0
Total	534	0	0.0	5	0.9	529	99.1	0	0.0

Moderate wasting prevalence was low among all the categories.

Figure 5.1: Trends in the prevalence of wasting by age in children 6-59 months - Nyarugusu camp (New arrivals)–Kasulu (Aug 2016).
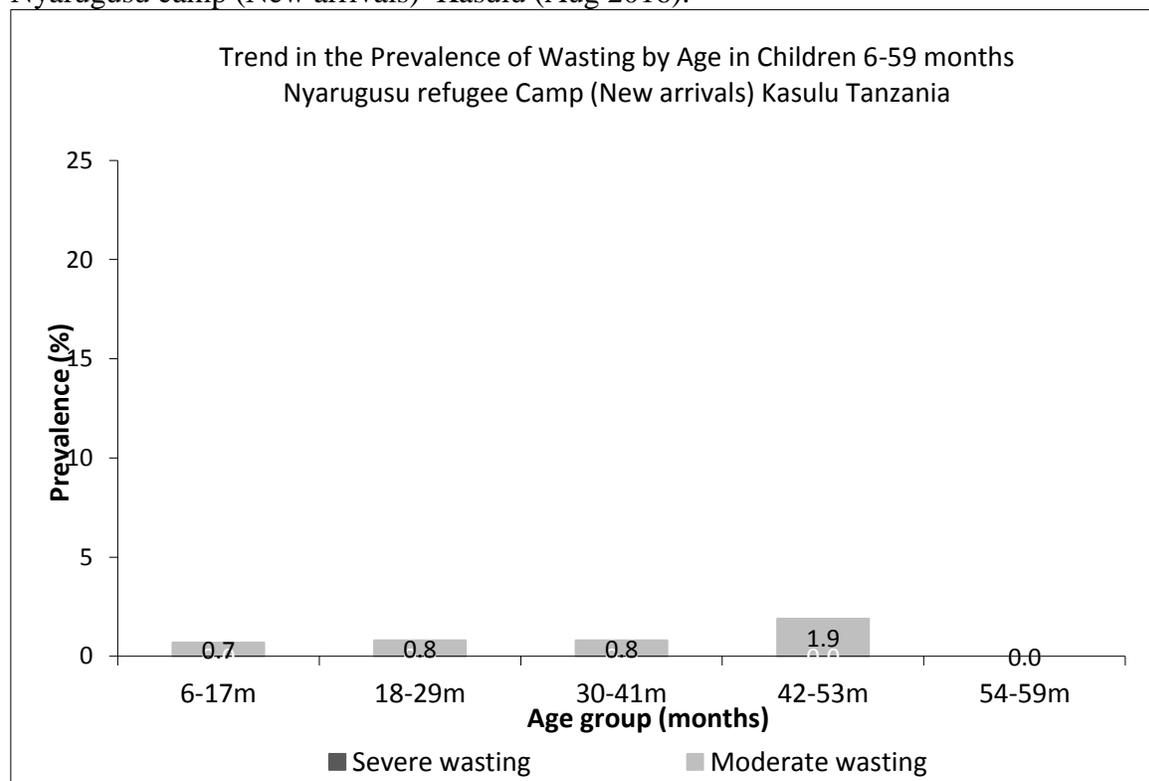
Table 5.5: Distribution of acute malnutrition and oedema based on weight-for-height z-scores - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

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

|	No. 4	No. 537
	(0.7 %)	(99.3 %)

Figure 5.2: Distribution of weight-for-height z-scores - Nyarugusu camp (new arrivals) – Kasulu (Aug 2016).

Based on WHO growth standards; the reference population is shown in green and the surveyed population is shown in red are almost on the same curve showing the low prevalence of malnutrition rates of survey population compared to reference population -
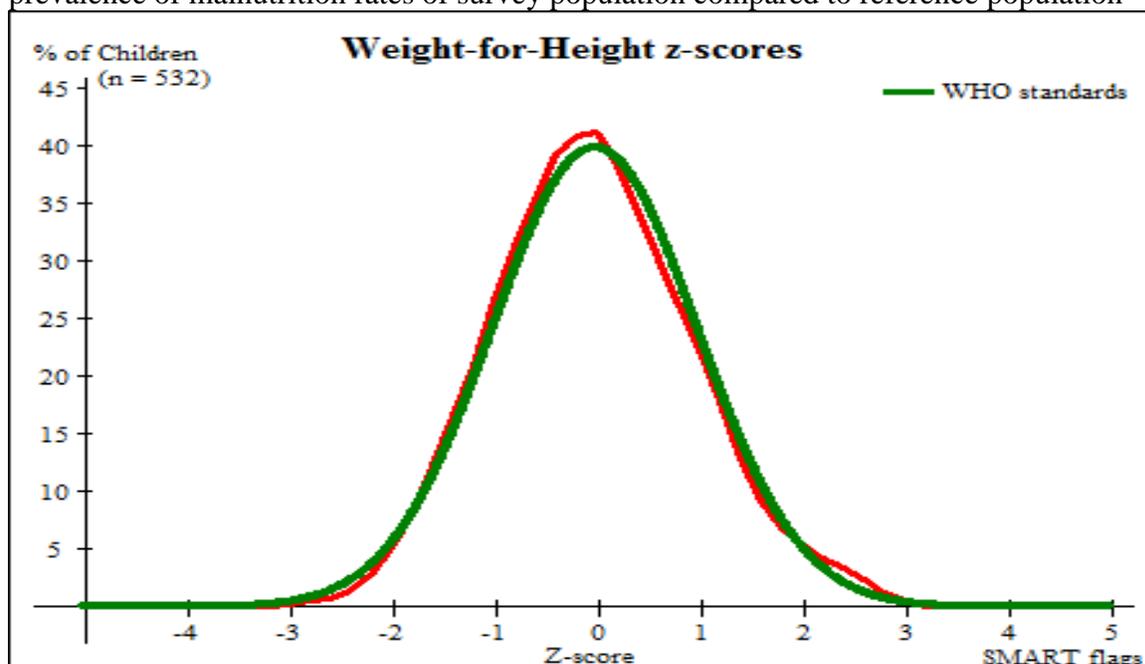
Table 5.6: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex- Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

	All n = 540	Boys n = 260	Girls n = 280
Prevalence of MUAC < 125 mm and/or oedema	(4) 0.7 % (0.2 - 2.4 95% C.I.)	(1) 0.4 % (0.1 - 2.8 95% C.I.)	(3) 1.1 % (0.2 - 4.7 95% C.I.)
Prevalence of MUAC < 125 mm and >= 115 mm, no oedema	(3) 0.6 % (0.2 - 1.7 95% C.I.)	(1) 0.4 % (0.1 - 2.8 95% C.I.)	(2) 0.7 % (0.2 - 2.9 95% C.I.)
Prevalence MUAC < 115 mm and/or oedema	(1) 0.2 % (0.0 - 1.4 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.4 % (0.0 - 2.7 95% C.I.)

Table 5.7: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

	MUAC < 115 mm	MUAC >= 115 mm and < 125	MUAC > = 125 mm	Oedema

41

Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
			mm						
6-17	142	1	0.7	1	0.7	140	98.6	0	0.0
18-29	128	0	0.0	1	0.8	127	99.2	0	0.0
30-41	119	0	0.0	1	0.8	118	99.2	0	0.0
42-53	109	0	0.0	0	0.0	109	100.0	0	0.0
54-59	42	0	0.0	0	0.0	42	100.0	0	0.0
Total	540	1	0.2	3	0.6	536	99.3	0	0.0

Table 5.8: Prevalence of underweight based on weight-for-age z-scores by sex - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

	All n = 537	Boys n = 257	Girls n = 280
Prevalence of underweight (<-2 z-score)	(74) 13.8 % (11.1 - 17.0 95% C.I.)	(44) 17.1 % (13.4 - 21.6 95% C.I.)	(30) 10.7 % (7.2 - 15.6 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(66) 12.3 % (9.9 - 15.1 95% C.I.)	(39) 15.2 % (11.8 - 19.4 95% C.I.)	(27) 9.6 % (6.5 - 14.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(8) 1.5 % (0.7 - 3.1 95% C.I.)	(5) 1.9 % (0.8 - 4.6 95% C.I.)	(3) 1.1 % (0.3 - 3.3 95% C.I.)

Table 5.9: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 524	Boys n = 252	Girls n = 272
Prevalence of stunting (<-2 z-score)	(229) 43.7 % (38.9 - 48.6 95% C.I.)	(121) 48.0 % (40.4 - 55.7 95% C.I.)	(108) 39.7 % (34.3 - 45.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(159) 30.3 % (26.2 - 34.8 95% C.I.)	(75) 29.8 % (23.7 - 36.6 95% C.I.)	(84) 30.9 % (26.0 - 36.2 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(70) 13.4 % (10.3 - 17.1 95% C.I.)	(46) 18.3 % (14.1 - 23.3 95% C.I.)	(24) 8.8 % (5.5 - 13.9 95% C.I.)

The prevalence of stunting was high 43.7% (38.9 -48.6) with all the age groups affected by moderate stunting. Children aged 30-41 months had relatively high severe and moderate stunting rates when compared to the other groups.

Table 5.10: Prevalence of stunting by age based on height-for-age z-scores - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age	Total	No.	%	No.	%	No.	%

(mo)	no.						
6-17	138	14	10.1	38	27.5	86	62.3
18-29	123	18	14.6	39	31.7	66	53.7
30-41	117	22	18.8	36	30.8	59	50.4
42-53	105	12	11.4	31	29.5	62	59.0
54-59	41	4	9.8	15	36.6	22	53.7
Total	524	70	13.4	159	30.3	295	56.3

Figure 5.3: Trends in the prevalence of stunting by age in children 6-59 months - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).
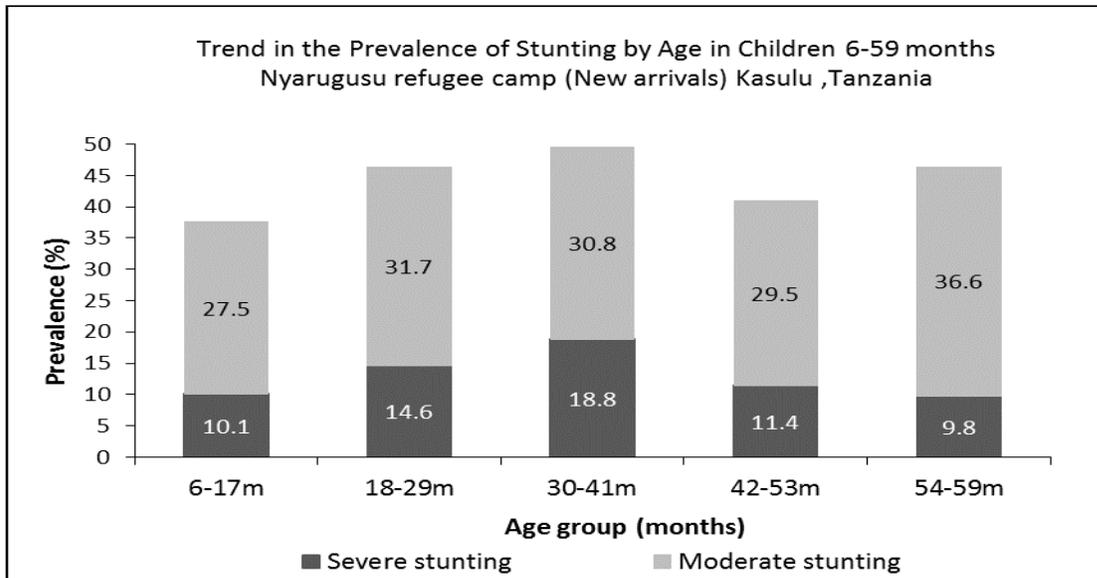
Figure 5.4: Distribution of height-for-age z-scores - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

Based on WHO growth standards; the reference population is shown in green and the surveyed population is shown in red is skewed to the left side indication high prevalence of stunting among the survey population compared to reference.
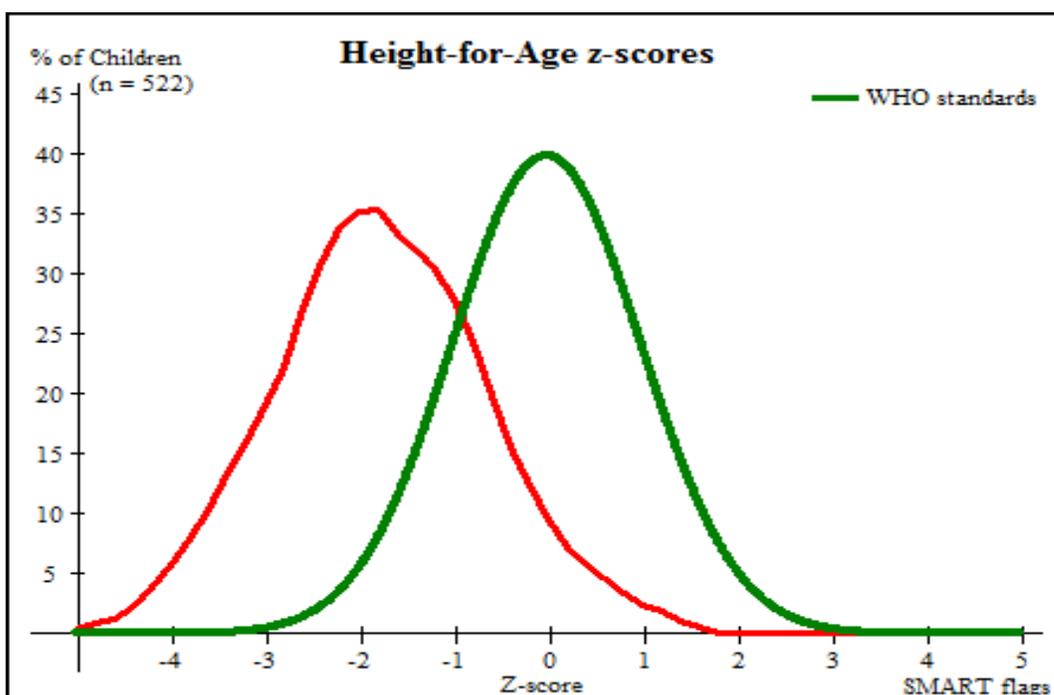
Table 5.11: Mean z-scores, design Effects and excluded subjects- Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	534	-0.03±0.96	1.00	0	7
Weight-for-Age	537	-0.97±0.97	1.00	0	4
Height-for-Age	524	-1.77±1.10	1.19	0	17

* contains for WHZ and WAZ the children with oedema.

5.1.2 Feeding programme coverage results

Table 5.12: Programme coverage for acutely malnourished children- Nyarugusu camp (new arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Supplementary feeding programme coverage	1/7	12.5% (12.5 -43.5 95% CI)
Therapeutic feeding programme coverage	0/3	0.0%

There were cases few cases of moderate and severe malnutrition identified by WHZ and MUAC criteria and not already enrolled in the nutrition programmes.

5.1.3 Measles vaccination coverage results

Table 5.13: Measles vaccination coverage for children aged 9-59 months - Nyarugusu camp

(New arrivals) – Kasulu (Aug 2016)

	Measles (with card) n=379	Measles (with card <u>or</u> confirmation from mother) n= 500
YES	73.5% (62.3 – 84.6 95% CI)	96.9% (94.3 -99.5 95% CI)

Measles coverage among the new arrivals was above the >95% SPHERE standards and also by card was 73.5%.

5.1.4 Vitamin A supplementation coverage results

Table 5.14: Vitamin A supplementation for children aged 6-59 months within past 6 months - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Vitamin A capsule (with card) n= 304	Vitamin A capsule (with card <u>or</u> confirmation from mother) n= 534
YES	56.2 % (41.5 – 70.9 95% CI)	98.7% (97.5 – 99.995% CI)

Vitamin A supplementation among children 6-59 months with the past six months was above the >90 % SPHERE standards. By card was 56.2% implying that most of the cards were not filled during the last campaign conducted in June. This should be improved in the next campaign.

5.1.5 Diarrhoea results

Table 5.15: Period prevalence of diarrhoea - Nyarugusu camp (new arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	68	12.5 % (7.3 – 17.6)

The prevalence of diarrhoea in the last two weeks among the surveyed children was low at 12.5 % (7.3 – 17.6) and this can be attributed to the dry season at the time of the survey.

5.1.6 Anaemia Results children 6-59 months

Table 5.16: Prevalence of total anaemia, anaemia categories, and mean hemoglobin concentration in children 6-59 months of age and by age group - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	6-59 months n = 542	6-23 months n=210	24-59 months n=332
Total Anaemia (Hb<11.0 g/dL)	(242) 45.2 % (38.2 – 52.2 95% CI)	(123) 58.6 % (51.8 – 65.3 95% CI)	(122) 36.7 % (27.7 – 45.8 95% CI)

Mild Anaemia (Hb 10.0-10.9 g/dL)	(133) 24.5 % (19.7 – 29.4 95% CI)	(59) 28.1 % (23.9 – 32.2 95% CI)	(74) 22.3 % (15.9 – 28.6 95% CI).
Moderate Anaemia (7.0-9.9 g/dL)	(107) 19.7 % (15.6 – 23.9 95% CI)	(61) 29.0 % (23.2 -34.9 95% CI)	(46) 13.9 % (9.1 – 18.6 95% CI)
Severe Anaemia (<7.0 g/dL)	(5) 0.9 % (0.0–1.9 95% CI)	(3) 1.4 % (0.2 -3.1 95% CI)	(2) 0.6 % (0.6 – 1.8 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	11.0 g/dL (0.1 or 10.8 – 11.2 95% CI) [6.3 – 18.4]	10.8 g/dL (0.09 or 10.6 -10.9 95% CI) [6.5 -18.6]	11.3 g/dL (0.12 o 11.1 - 11.6 95% CI) [6.4-15.1]

Prevalence of anaemia among children 6-59 months was 45.2 % (38.2 -52.2), children 6-23 months were the most affected with a high prevalence of 58.6%.

Table 5.5.17: Prevalence of moderate and severe anaemia in children 6-59 months of age and by age group- Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	6-59 months n = 542	6-23 months n=210	24-59 months n=332
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(112) 20.7 % (15.9 – 25.4 95% CI)	(64) 30.5 % (24.1 -36.9 95% CI)	(48) 14.5 % (9.1–19.8 95% CI)

5.1.7 Children 0-23 months

Table 5.18: Prevalence of Infant and Young Child Feeding Practices Indicators - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	265/293	90.4	85.8 -95.1
Exclusive breastfeeding under 6 Months	0-5 months	73/83	87.9	79.4 -96.5
Continued breastfeeding at 1 year	12-15 months	44/48	91.7	83.5 -99.8
Continued breastfeeding at 2 years	20-23 months	25/46	54.3	39.8 -68.9
Introduction of solid, semi-solid or soft foods	6-8 months	16/25	64.0	37.9 -90.1
Consumption of iron-rich or iron-fortified foods	6-23 months	152/206	73.8	58.6
Bottle feeding	0-23 months	2/291	0.7	0.3-1.7

Prevalence of Intake of Infant Formula

Table 5.19: Infant formula intake in children aged 0-23 months; - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	0/292	0.0%

Fortified blended foods

Table 5.20: FBF intake in children aged 6-23 months - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	88/207	42.5 (23.5 -61.5)

Table 5.21: FBF++ intake in children aged 6-23 months - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	145/208	69.7(54.2 -85.2)

5.1.8 Women 15-49 years

Table 5.22: Women physiological status and age- Nyarugusu camp (new arrivals) – Kasulu (Aug 2016).

Physiological status	Number/total	% of sample
Non-pregnant	261/307	85.1%
Pregnant	46/307	14.9%
Mean age (range)	26.2 (15.0-48.0)	

Table 5.23: Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Nyarugusu camp (New arrivals)–Kasulu (Aug 2016).

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 260
Total Anaemia (<12.0 g/dL)	(61) 23.5 % (16.1 – 30.8 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(42) 16.2 % (10.9 – 21.3 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(19) 7.3 % (3.9 – 10.7 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0.0 % (95% CI)
Mean Hb (g/dL)	12.8 g/dL

(SD / 95% CI) **[range]**	(0.1 or 12.6 – 13.1 95% CI) [8.2 – 16.1]

Table 5.24: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) - Nyarugusu camp (New arrivals) –Kasulu (Aug 2016)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	34/46	73.9 (59.4 – 88-4)
Currently receiving iron-folic acid pills	34/46	73.9(59.4 – 88.4)

5.1.9 Mortality Results:

A total number of 3347 people were included in the survey 398 joined, 22 left. Children under five years were 660 children of which 89 joined none left and 35 were born. A total of four deaths were reported in the surveyed households during the recall period.

Table 5:25: Crude and under five mortality rates – Nyarugusu camp (New arrivals) – Kasulu (Aug 2016).

Indicator	Prevalence
CMR (total deaths/10,000 people / day): (95% CI)	0.14(0.05 -0.36 95% CI)
U5MR (deaths in children under five/10,000 children under five / day): (95% CI)	0.37(0.10 -1.34 95% CI)

The mortality rates among the new arrivals within the WHO emergency threshold and follows similar trends reported in the UNHCR   to the HIS.

5.2 HOUSEHOLD-LEVEL INDICATORS- FOOD SECURITY, WATER and MOSQUITO NET COVERAGE

5.2.1   FOOD SECURITY

Table 5.26: Food security sampling information - Nyarugusu camp (New arrivals) –Kasulu (Aug 2016)

Household data	Planned	Actual	% of target
Total households surveyed for Food Security	316	307	97.2%

Access to food assistance results
Table 5.27: Ration card coverage - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households with a ration card	306/307	99.6% (99.0-100.3)

Table 5.28: Reported duration of general food ration 1 -- Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
21.9 (21.0 -22.8) out of 28 days	78.2%

Table 5.29: Reported duration of general food ration 2: Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	35/307	11.4(4.3 -18.4)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle [28 days]	59/307	19.2 (12.6– 25.8)
>75% of the cycle [28 days]	248/307	80.7 (74.2 -87.4)

11.4% HH reported that their food ration lasts for the entire 28 days and 80.7% reported at least it covers 75% above 21-28 days of the entire food distribution.

Negative Coping Strategies Results

Table 5.30: Coping strategies used by the surveyed population over the past month- Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items *with or without interest*	208/306	67.9 (57.1 -78.9)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	32/306	10.5 (5.5 – 15.4)
Requested increased remittances or gifts as compared to normal	120/307	39.1 (25.9 -52.3)
Reduced the quantity and/or frequency of meals	158/306	51.6 (37.3 – 65.9)
Begged	149/306	48.7 (36.2 -61.2)
Engaged in potentially risky or harmful activities such as burning charcoal, working outside the camp, brewing illicit alcohol.	16/307	5.2 (2.3 -8.1)
Proportion of households reporting using none of the coping strategies over the past month	47 /305	15.4 (6.3 -24.6)

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

Borrowing cash, food or other items with or without interest was the most used coping strategy in majority of the household with a proportion of 67.9% , followed by reducing the amount of food intake at 5.6%.15.4 % reported not have used of the above coping strategies.

Household Dietary Diversity Results

The last general food distribution ended 17 days prior to the start of the survey data collection. The general food distribution usually lasts for a week and in August the distribution was done from the 1st -5th August. It was dry and dusty during the time of the data collection and therefore variety of fresh foods such as vegetables were not readily available when compared to the rainy seasons. The average HDDS was 4.8(4.2 -5.3).

Table 5.31: Average HDDS - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Mean (Standard deviation or 95% CI)
Average HDDS	4.8(4.2 -5.3)

* Maximum HDDS is 12.

Figure 5.5: Proportion of households consuming different food groups within last 24 hours - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)
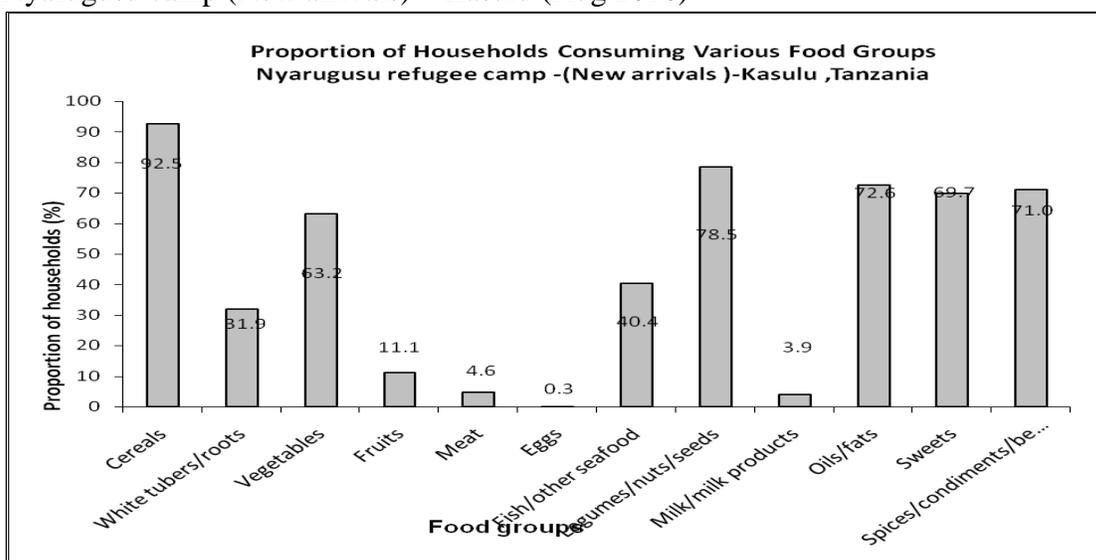
Table 5.32: Consumption of micronutrient rich foods by households - Nyarugusu camp (New aivals) – Kasulu (Aug 2016)

5.2.2 WASH INDICATORS

Table 5.33: Wash sampling information Nyarugusu camp (New arrivals)–Kasulu (Aug 2016)

Household data	Planned	Actual	% of target
Total households surveyed for WASH	316	307	97.2%

Table 5.34: Water quality Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	305/307	99.3 (98.4 -100.2))
Proportion of households that use a covered or narrow necked container for storing their drinking water	176/307	57.3 (40.4 -74.2)

Table 5.35: Water quantity: amount of litres of water used per person PER DAY Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	106/307	34.5 (23.4 -45.7)
Proportion of households consuming either a plant or animal source of vitamin A	164/307	53.4 (41.0 -65.8)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	125/307	40.7(26.9 -54.5)

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	138/307	44.9 (37.0 -52.9)
15 – <20 lpppd	68/307	22.2 (17.4 -26.8)
<15 lpppd	101/307	32.9 (25.6 -40.2 -68.2)

44.9 % reported to have access to at least ≥ 20 lpppd and 32.9% having < 15lpppd of water. The average water usage in lpppd was 20.9.

Table 5.36: Satisfaction with water supply - Nyarugusu camp (New arrivals)–Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	151/307	49.2 (39.9-58.4)

About 50 % of the HH reported to be satisfied with the drinking water supply in the camp. The households that reported they were not satisfied or partially satisfied cited the following reasons; long waiting queues, irregular supply and long distance to the tap stands. The main case was found in the new zones 11 and 12.

Figure 5.6: Proportion of households satisfied with the water supply - Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)
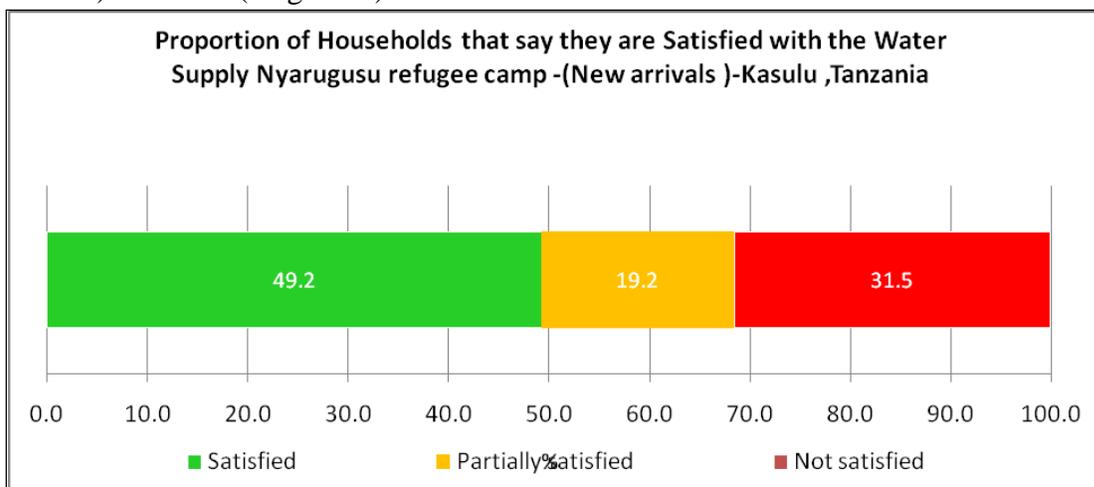
Figure 5.7: Main reasons for dissatisfaction among households not satisfied with water supply – Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)
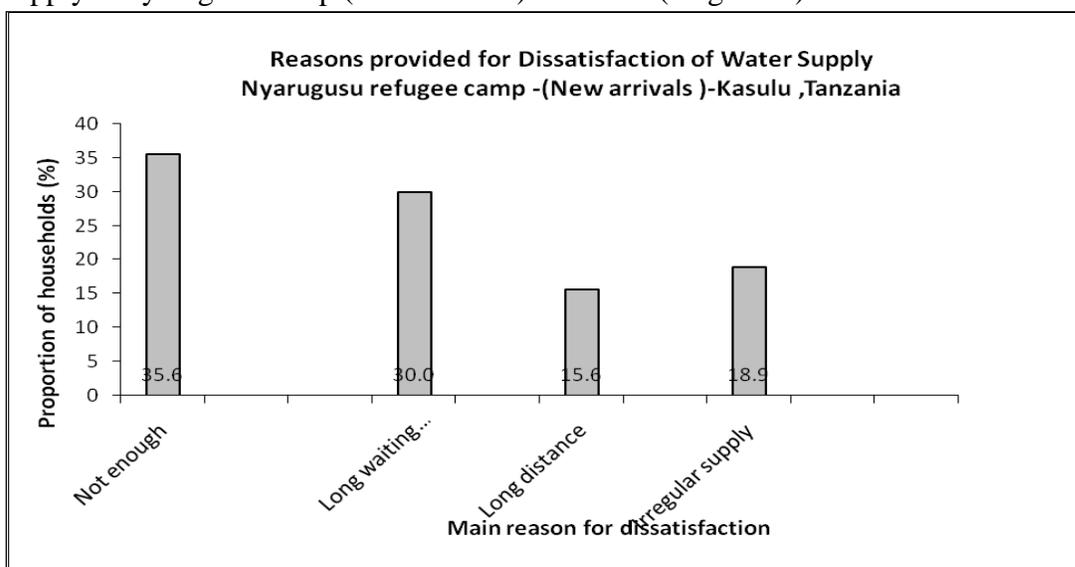
Table 5.37: Safe excreta disposal -Nyarugusu camp (New arrivals)–Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of households that use:		
A communal toilet (improved toilet facility, 3 households or more)	1/307	0.3 (0.3 -0.9)

An unimproved toilet (unimproved toilet facility or public toilet)	306/307	99.7(99.0 -100.3)
Proportion of households with children under three years old that dispose of faeces safely	192/195	98.5(96.1 - -100.7)

5.2.3   MOSQUITO NET COVERAGE

Table 5.38: Mosquito net coverage sampling information -Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	316	307	97.2%

Table 5.39: Household mosquito net ownership -Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	267/309	86.4 (80.4 -92.2)
Proportion of total households owning at least one LLIN	262/309	84.7 (79.1 -90.5)

Figure 5.8: Household ownership of at least one mosquito net (any type) Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)
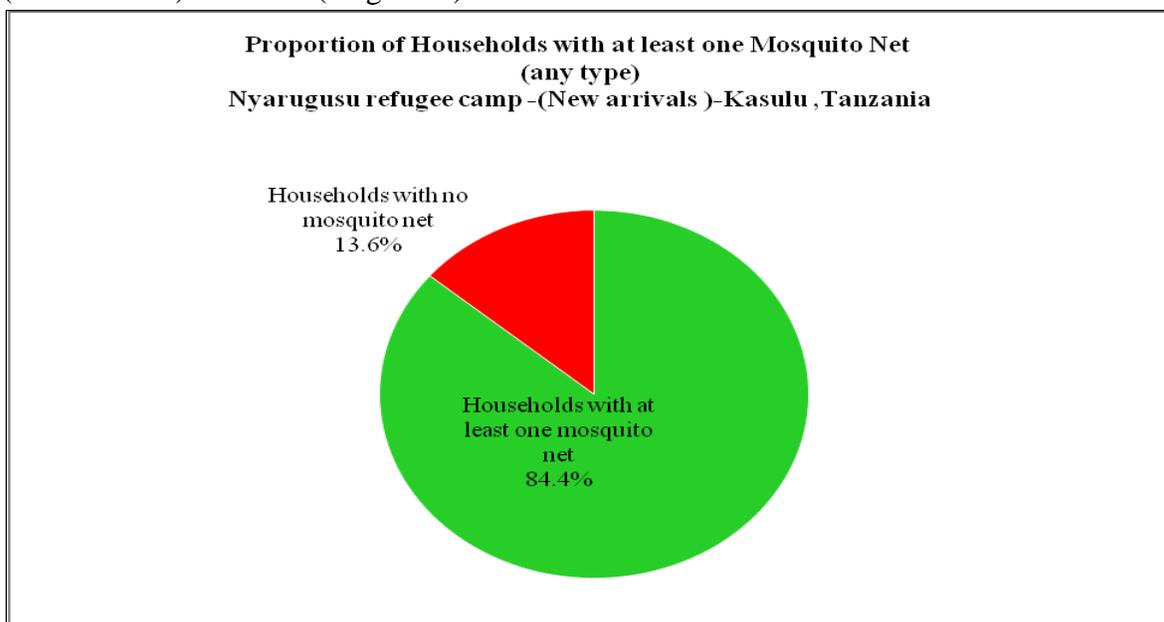
Figure 5.9: Household ownership of at least one LLIN -Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)
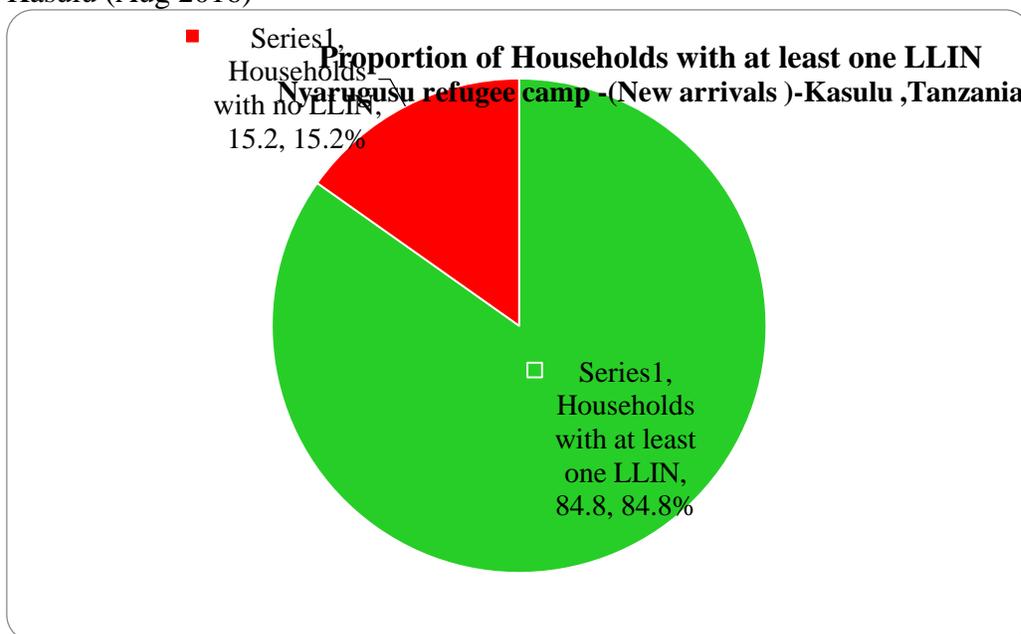
Table 5.40 : Number of nets -Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

Average number of LLINs per household	Average number of persons per LLIN
2.3	2.8

Table 5.41: Mosquito net utilisation. Nyarugusu camp (New arrivals) – Kasulu (Aug 2016)

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1670	%	Total No= 343	%	Total No= 60	%
Slept under net of any type	1396	83.6	313	91.2%	47	78.3
Slept under LLIN	1373	82.2	307	86.9	47	78.3

Figure 5.10: Mosquito net utilisation by sub-group -Nyarugusu camp (New arrivals)–Kasulu

(Aug 2016)

Mosquito Net Utilisation by Sub-Group
Nyarugusu refugee camp -(New arrivals)-Kasulu ,Tanzania
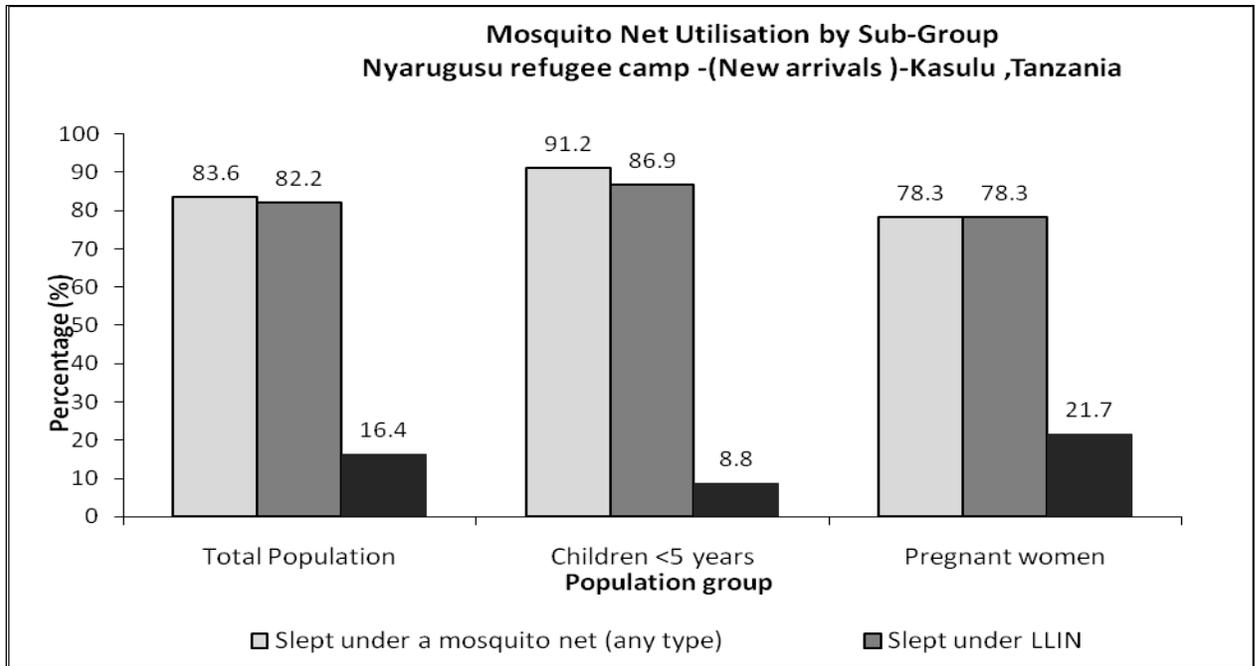
6.0 RESULTS; NDUTA REFUGEE CAMP, KIBONDO

6.1 INDIVIDUAL-LEVEL INDICATORS-CHILDREN 6-59 MONTHS, 0-23 MONTHS, AWOMEN OF REPRODUCTIVE AGE 15-49 YEARS AND MORTALITY

Nduta refugee camp was re-opened in November 2015 to host the increasing number of Burundian refugees in the oldest Nyarugusu camp. Simple random sampling method was employed to select 867 households. Table 4.1 shows the target population groups that were sampled for all the indicators. A convenient sample for IYCF module targeting children 0-23 months and non-pregnant women of reproductive age 15-49 years was used based on the sample of all children 6-59 months.

Table 5.25: Target sample size –Nduta camp Kibondo (Sept 2016)

Target group	Target sample size	Actual*	% of the target
Children 6-59 months	345	424	122%
Children 0-23 months	Convenient sample	215	N/A
Women 15-49 years	Convenient sample	250	N/A

6.1.1 Anthropometric results (based on WHO Growth Standards 2006)

The proportion of children with no exact birth date in Nduta refugee camp was 2%. Majority of the mothers knew the exact birth dates of the children by recall in cases where there were no official documentation i.e. EPI cards /mothers clinic cards were available. Stunting and underweight results can be interpreted with relative reliability.

The overall sex ratio was 0.9 and boys and girls were equally represented in the survey and was within the acceptable range (0.8 -1.2) as per the UNHCR guidelines V2 2013). The overall age ratio among children 6-29 months to 30-59 months was 1.05 which is higher than the 0.85 ; with a significant difference P-value = 0.031

Table 5.26: Distribution of Age and sex among children 6-59 months - Nduta camp Kibondo (Sept 2016)

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: Girl
6-17 months	31	35.6	56	64.4	87	20.6	0.6
18-29 months	61	47.3	68	52.7	129	30.6	0.9
30-41 months	43	48.9	45	51.1	88	20.9	1.0
42-53 months	43	57.3	32	42.7	75	17.8	1.3
54-59 months	17	39.5	26	60.5	43	10.2	0.7
Total	195	46.2	227	53.8	422	100.0	0.9

Table 5.27: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex - Nduta camp Kibondo (Sept 2016)

	All n = 419	Boys n = 193	Girls n = 226
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(10) 2.4 % (1.3 - 4.3 95% C.I.)	(2) 1.0 % (0.3 - 3.7 95% C.I.)	(8) 3.5 % (1.8 - 6.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(10) 2.4 % (1.3 - 4.3 95% C.I.)	(2) 1.0 % (0.3 - 3.7 95% C.I.)	(8) 3.5 % (1.8 - 6.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 - 0.9 95% C.I.)	(0) 0.0 % (0.0 - 2.0 95% C.I.)	(0) 0.0 % (0.0 - 1.7 95% C.I.)

The prevalence of oedema is 0.0%
The prevalence of acute malnutrition based on weight for height in Nduta refugee camp is 2.4% which is within the acceptable WHO classification of malnutrition. Girls tend to be more malnourished than the boys.

Table 5.28: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema – Nduta camp –Kibondo (Sept 2016)

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	87	0	0.0	4	4.6	83	95.4	0	0.0
18-29	127	0	0.0	2	1.6	125	98.4	0	0.0
30-41	87	0	0.0	0	0.0	87	100.0	0	0.0
42-53	75	0	0.0	2	2.7	73	97.3	0	0.0
54-59	43	0	0.0	2	4.7	41	95.3	0	0.0
Total	419	0	0.0	10	2.4	409	97.6	0	0.0

Children within the age category 6-17 months were most affected by moderate wasting when compared to the other age groups.

Figure 5.11: Trend in the prevalence of wasting by age in children 6-59 months - Nduta camp –Kibondo (Sept 2016)

Trend in the Prevalence of Wasting by Age in Children 6-59 months
Nduta refugee camp -Kibondo Tanzania
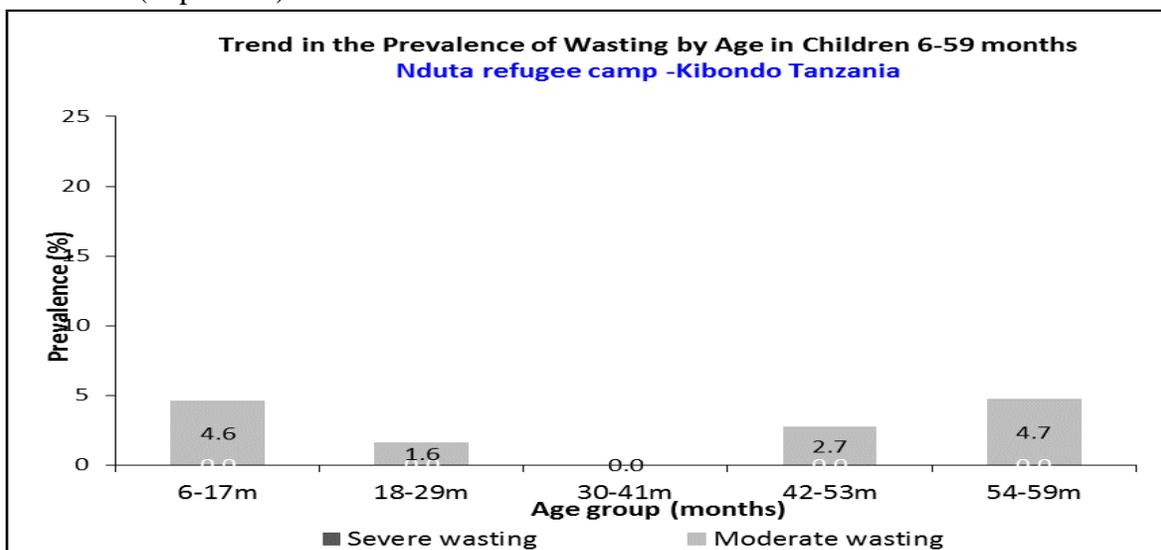
Children within the age category 6-17 and 54 -59 months were affected by moderate wasting with 30-41 being least affected age group.

Table 5.5: Distribution of severe acute malnutrition and oedema based on weight-for-height z-scores - Nduta camp –Kibondo (Sept 2016)

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 1 (0.2 %)	Not severely malnourished No. 421 (99.8 %)

Figure 5.2: Distribution of weight-for-height z-scores - Nduta camp –Kibondo (Sept 2016)

Based on WHO growth standards; the reference population is shown in green and the surveyed population is shown in red) of survey population showing prevalence of malnutrition compared to reference population - Nduta camp –Kibondo (Sept 2016)

Weight-for-Height z-scores

% of Children (n = 419)

— WHO standards

Z-score   SMART flags
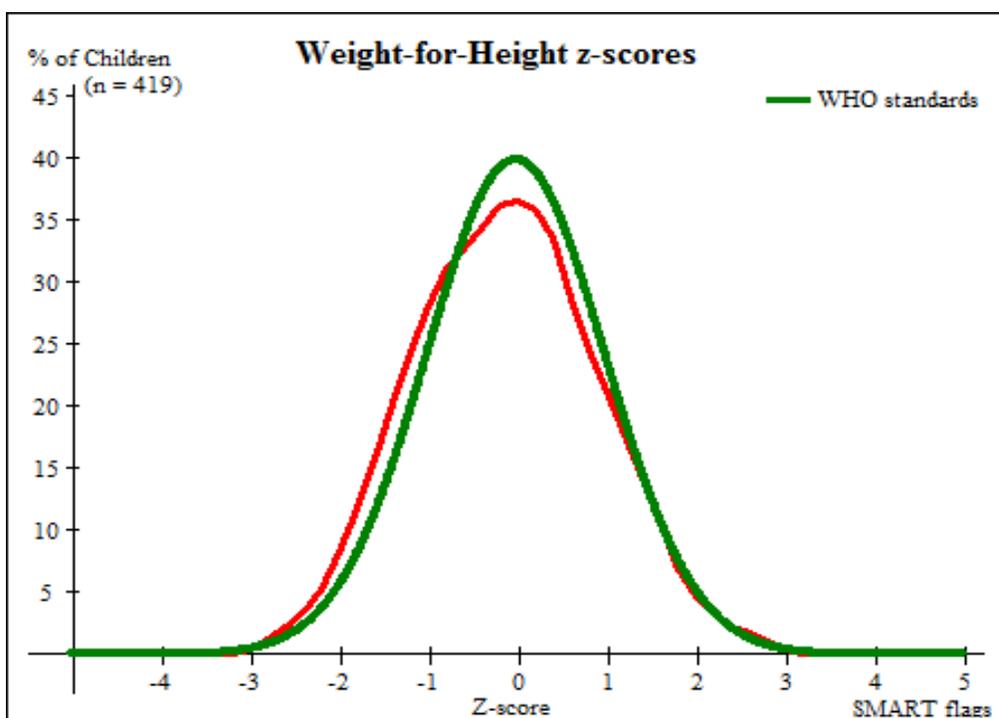
Table 5.29: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex - Nduta camp –Kibondo (Sept 2016)

	All n = 421	Boys n = 195	Girls n = 226
Prevalence of MUAC < 125 mm and/or oedema	(14) 3.3 % (2.0 - 5.5 95% C.I.)	(2) 1.0 % (0.3 - 3.7 95% C.I.)	(12) 5.3 % (3.1 - 9.1 95% C.I.)
Prevalence of MUAC < 125 mm and >= 115 mm, no oedema	(10) 2.4 % (1.3 - 4.3 95% C.I.)	(1) 0.5 % (0.1 - 2.8 95% C.I.)	(9) 4.0 % (2.1 - 7.4 95% C.I.)
Prevalence MUAC < 115 mm and/or oedema	(4) 1.0 % (0.4 - 2.4 95% C.I.)	(1) 0.5 % (0.1 - 2.8 95% C.I.)	(3) 1.3 % (0.5 - 3.8 95% C.I.)

MUAC identified more cases of malnutrition among children 6-59 months when compared to WHZ.

Table 5.30: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema -Nduta camp –Kibondo (Sept 2016)

Age (mo)	Total no.	MUAC < 115 mm No.	%	MUAC >= 115 mm and < 125 mm No.	%	MUAC > = 125 mm No.	%	Oedema No.	%
6-17	87	3	3.4	4	4.6	80	92.0	0	0.0
18-29	129	0	0.0	4	3.1	125	96.9	0	0.0
30-41	87	0	0.0	1	1.1	86	98.9	0	0.0
42-53	75	0	0.0	0	0.0	75	100.0	0	0.0
54-59	43	1	2.3	1	2.3	41	95.3	0	0.0
Total	421	4	1.0	10	2.4	407	96.7	0	0.0

Table 5.31: Prevalence of underweight based on weight-for-age z-scores by sex -Nduta camp –Kibondo (Sept 2016)

	All n = 418	Boys n = 193	Girls n = 225
Prevalence of underweight (<-2 z-score)	(100) 23.9 % (20.1 - 28.2 95% C.I.)	(47) 24.4 % (18.8 - 30.9 95% C.I.)	(53) 23.6 % (18.5 - 29.5 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(82) 19.6 % (16.1 - 23.7 95% C.I.)	(40) 20.7 % (15.6 - 27.0 95% C.I.)	(42) 18.7 % (14.1 - 24.3 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(18) 4.3 % (2.7 - 6.7 95% C.I.)	(7) 3.6 % (1.8 - 7.3 95% C.I.)	(11) 4.9 % (2.8 - 8.5 95% C.I.)

Table 5.32: Prevalence of stunting based on height-for-age z-scores and by sex - Nduta camp –Kibondo (Sept 2016)

	All n = 413	Boys n = 189	Girls n = 224
Prevalence of stunting (<-2 z-score)	(236) 57.1 % (52.3 - 61.8 95% C.I.)	(117) 61.9 % (54.8 - 68.5 95% C.I.)	(119) 53.1 % (46.6 - 59.6 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(146) 35.4 % (30.9 - 40.1 95% C.I.)	(72) 38.1 % (31.5 - 45.2 95% C.I.)	(74) 33.0 % (27.2 - 39.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(90) 21.8 % (18.1 - 26.0 95% C.I.)	(45) 23.8 % (18.3 - 30.4 95% C.I.)	(45) 20.1 % (15.4 - 25.8 95% C.I.)

Prevalence of stunting is higher in Nduta refugee camp 57.1% (52.3- 61.8) when compared to the other camps with similar population groups.

Table 5.33: Prevalence of stunting by age based on height-for-age z-scores - Nduta camp – Kibondo (Sept 2016)

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	85	10	11.8	21	24.7	54	63.5
18-29	126	27	21.4	38	30.2	61	48.4
30-41	87	23	26.4	34	39.1	30	34.5
42-53	72	17	23.6	32	44.4	23	31.9
54-59	43	13	30.2	21	48.8	9	20.9
Total	413	90	21.8	146	35.4	177	42.9

Figure 5.12: Trends in the prevalence of stunting by age in children 6-59 months - Nduta camp –Kibondo (Sept 2016)
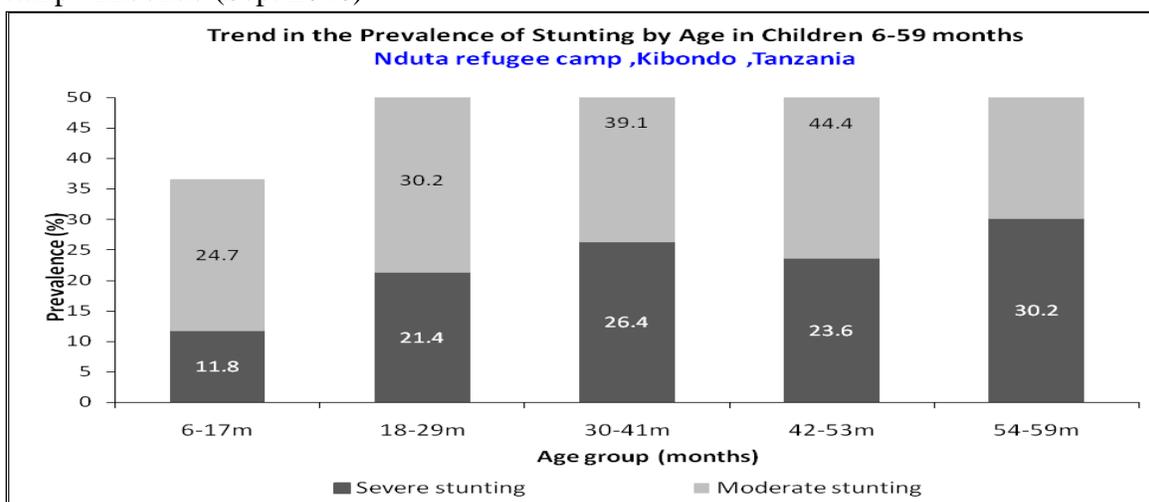
The most affected age group by severe and moderate stunting are children aged between 42-53 and 54-59 months with 48.8 % followed by 30- 41 months. The least affected by severe stunting are children aged 6-17 months.

Figure 5.13: Distribution of height-for-age z-scores - Nduta camp –Kibondo (Sept 2016)

Based on WHO growth standards; the reference population is shown in green and the surveyed population is shown in red. The graph is skewed towards the left side of the reference population indicating a high prevalence of stunting of survey population compared to reference population.
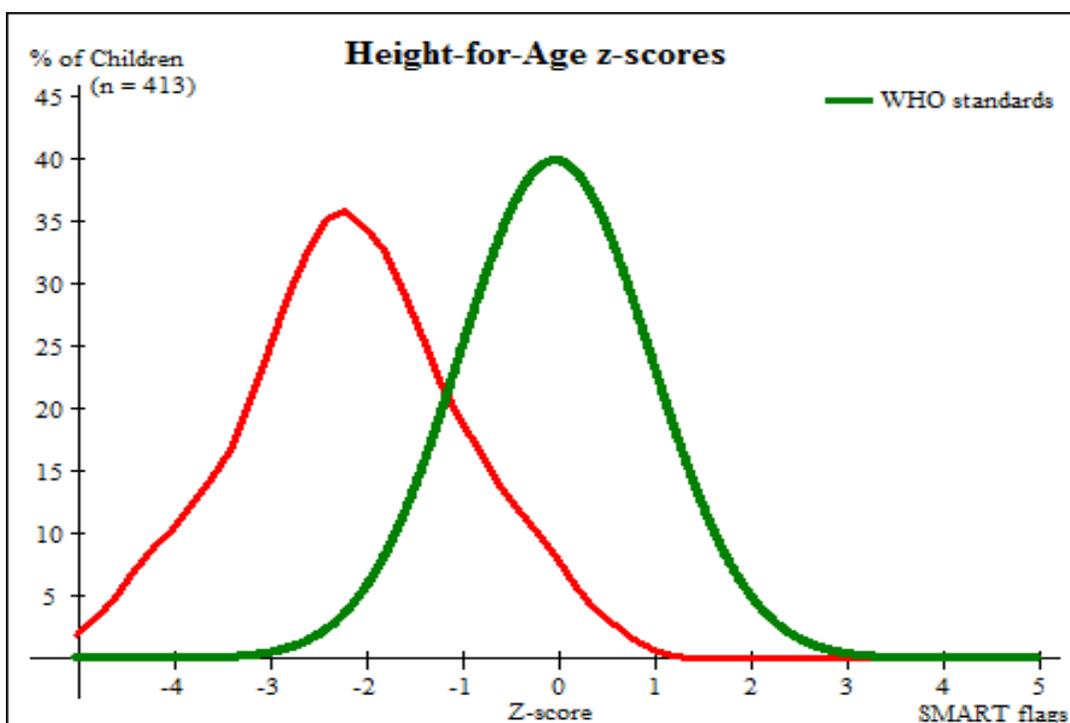
Table 5.34: Mean z-scores, design Effects and excluded- Nduta camp –Kibondo (Sept 2016)

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	419	-0.13±1.01		0	3
Weight-for-Age	418	-1.31±1.03		0	4
Height-for-Age	413	-2.15±1.14		0	9

* contains for WHZ and WAZ the children with oedema.

6.1.2 Feeding programme coverage results

Table 5.35: Programme coverage for acutely malnourished children Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Supplementary feeding programme coverage	9/17	52.9% (27.8 – 77.0 95% CI)
Therapeutic feeding programme coverage	3/4	75.0% (19.4 -99.4 95% CI)

The selective feeding programmes was below the >90% sphere standards in Nduta refugee camp

6.1.3 Measles vaccination coverage results

Table 5.36: Measles vaccination coverage for children aged 9-59 months - Nduta camp – Kibondo (Sept 2016)

	Measles (with card) n=234	Measles (with card or confirmation from mother) n=389
YES	57.9% (52.9 - 62.8 95% CI)	96.3% (93.8 -97.8 95% CI)

6.1.4 Vitamin A supplementation coverage results

Table 5.37: Vitamin A supplementation for children aged 6-59 months - Nduta camp – Kibondo (Sept 2016)

	Vitamin A capsule (with card) n=245	Vitamin A capsule (with card or confirmation from mother) n=400
YES	58.1 % (53.2 - 62.8 95% CI)	94.8% (92.1 -96.6 95% CI)

Measles vaccination and Vitamin A supplementation was above the SPHERE standards of >95% and >90% respectively, however by card was 58%, documentation of the measles vaccination needs to be improve

6.1.5 Diarrhoea results

Table 5.38: Period prevalence of diarrhoea - Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	48/422	11.4% (8.6 -14.9(

Prevalence of diarrhoea among children was 11.4%, this can be attributed to the dry season during the data collection period.

6.1.6: Anaemia results children 6-59 months

Table 5.39: Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group - Nduta camp –Kibondo (Sept 2016)

	6-59 months n = 422	6-23 months n=151	24-59 months n=271
Total Anaemia (Hb<11.0 g/dL)	(157) 37.2 % (32.6 -42.0 95% CI)	(72) 47.7 % (39.5 –56.0 95% CI)	(85) 31.4% (25.9 -37.3 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(93) 22.0 % (18.2 -26.4 95% CI)	(39) 25.8 % (19.1 – 33.6 95% CI)	(54) 19.9% (15.3-25.2 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(64) 15.2 % (12.0 - 19.0	(33) 21.9 % (15.5- 29.3	(31) 11.4%% (7.9 -15.895%

	95% CI)	95% CI)	CI)
Severe Anaemia (<7.0 g/dL)	(0) 0 % (95% CI)	(0) 0% (95% CI)	(n) % (95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	11.3 g/dL 7.8 -14.0]	10.4g/dL [8.7- 13.8]	11.4g/dL [8.0 -1.0]

Table 5.40: Prevalence of moderate and severe anaemia in children 6-59 months of age and by age group

	6-59 months n = 422	**6-23 months** n=151	**24-59 months** n=271
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(64) 15.2 % (15.0 - 25.0)95% CI)	(33) 21.9 % (15,5-29.3 95% CI)	(31) 11.4 % (7.9 −15.895% CI)

6.1.7 Children 0-23 months

Table 5.41: Prevalence of infant and Young Child Feeding practices Indicators- Nduta camp –Kibondo (Sept 2016)

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	**0-23 months**	201/215	93.5	89.3 -96.4
Exclusive breastfeeding under 6 months	**0-5 months**	58/65	89.2	79.1 -95.6
Continued breastfeeding at 1 year	**12-15 months**	27/31	87.1	70.2-96.4
Continued breastfeeding at 2 years	**20-23 months**	16/38	42.1	26.3 -59.2
Introduction of solid, semi-solid or soft foods	**6-8 months**	9.18	50.0	26.0-74.0
Consumption of iron-rich or iron-fortified foods	**6-23 months**	144	95.4	90.7-98.1
Bottle feeding	**0-23 months**	0	0.0%	

Prevalence of intake Infant formula

Table 5.42: Infant formula intake in children aged 0-23 months - Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	0	0.0%

Fortified blended foods

Table 5.43: FBF intake in children aged 6-23 months ¬ Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	42/151	27.8 (20.8 – 79.2)

Table 5.44: FBF++ intake in children aged 6-23 months - Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	140/151	(87.3 -96.3)

6.1.8   Women 15-49 years

Table 6 :20: Women physiological status and age- Nduta camp –Kibondo (Sept 2016)

Physiological status	**Number/total**	**% of sample**
Non-pregnant	180/250	72%
Pregnant	70/250	28%
Mean age (range)	26.2 (15.0 -48.0)	

Table 5.45: Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Nduta camp –Kibondo (Sept 2016)

Anaemia in non-pregnant women of reproductive age (15-49 years)	**All** n = 180
Total Anaemia (<12.0 g/dL)	15.6% (10.6 -21.7)
Mild Anaemia (11.0-11.9 g/dL)	10.6% (6.5-16.0)
Moderate Anaemia (8.0-10.9 g/dL)	5.0% (2.3-9.3)
Severe Anaemia (<8.0 g/dL)	0.0%
Mean Hb (g/dL) (SD / 95% CI) [range]	13.8g/dL (1.26 or 12.4 -14.0 95% CI) 8.7-16.0]

The prevalence of anaemia among the non-pregnant women in Nduta camp was 15.6% and is lowest compared to the other camps.

Table 5.46: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) - Nduta camp – Kibondo (Sept 2016)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	57/70	81.4 (70.3 -89.7)
Currently receiving iron-folic acid pills	54 /70	77.1(65.6 -86.3)

65

6.1.9 Mortality Results

A total number of 2839 people were included in the survey 26 joined 29 left .541 children of which 4 joined , 3 left and 10 were born.No deaths were reported in the surveyed households during the recall period.

Table 6:25: Crude and under five mortality rates: Nduta camp – Kibondo (Sept 2016

Indicator	Prevalence
CMR (total deaths/10,000 people / day): (95% CI)	0.0(0.00 -0.15 95% CI)
U5MR (deaths in children under five/10,000 children under five / day): (95% CI)	0.0(0.00 -0.77 95% CI)

6.2 HOUSEHOLD-LEVEL INDICATORS- FOOD SECURITY, WATER and MOSQUITO NET COVERAGE

6.2.1 FOOD SECURITY

Table 5.26: Food Security sampling information Nduta camp –Kibondo (Sept 2016)

Household data	Planned	Actual	% of target
Total households surveyed for Food Security	436	348	79.8%

Access to food assistance results

Table 5.27: Ration card coverage

	Number/total	% (95% CI)
Proportion of households with a ration card	348/348	100.0% (100.0 – 100.0)

Ration card coverage in Nduta was 100%.

Table 5.28: Reported duration of general food ration 1 Nduta camp –Kibondo (Sept 2016)

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
11.0 (9.8 -10.9) out of 14 days	81.4%%

The average number of days the food ration lasts is 11.0 days out of the 14 days distribution cycle in Nduta refugee camp.

Table 5.47: Reported duration of general food ration 2 Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	19/348	5.5 (3.4 8.5)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle [14 days]	165/348	47.4 (42.1 - 52.8)
>75% of the cycle [14 days]]	183 /348	52.6(47.2-57.9)

The proportion of HH that reported that the food ration lasted for the entire food cycle was only 5.5%, 47.7 % reported that their food did not cover at least 75% of the entire cycle.

Negative coping strategies results

Table 5.48: Coping strategies used by the surveyed population over the past month - Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items *with or without interest*	313/348	89.9 (86.3- 92.9)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	26/348	7.5(5.0 -10.9)
Requested increased remittances or gifts as compared to normal	126/348	36.2(31.2-41.5)
Reduced the quantity and/or frequency of meals	166/348	47.7 (42.4 53.1)
Begged	231/348	66.4 (61.1 -71.3)
Engaged in potentially risky or harmful activities such as burning charcoal, working outside the camp, brewing illicit alcohol.	9/348	2.6 (1.3 -5.0)
Proportion of households reporting using none of the coping strategies over the past month	20/346	5.8 (3.7 -8.9)

* The total will be over 100% as households may use several negative coping strategies. Borrowing was the most highly used strategy to meet the HH food needs followed begging at 66.4% and 5.8% of HH reported that they did not use any of the coping strategies in the past one month.

Household dietary diversity results

The general food distribution was ongoing during the data collection in Nduta refugee camp. The cycle the survey looked at was the last cycle in the month of July 2016. The distribution usually last for 4-5 days organized by family sizes. Similar to the other camps the survey was conducted during the dry season.

Table 5.49: Average HDDS -Nduta camp –Kibondo (Sept 2016)

Average HDDS	5.0 (4.7-5.6)

* Maximum HDDS is 12.

Figure 5.14: Proportion of households consuming different food groups within last 24 hours) Nduta camp – Kibondo (Sept 2016)
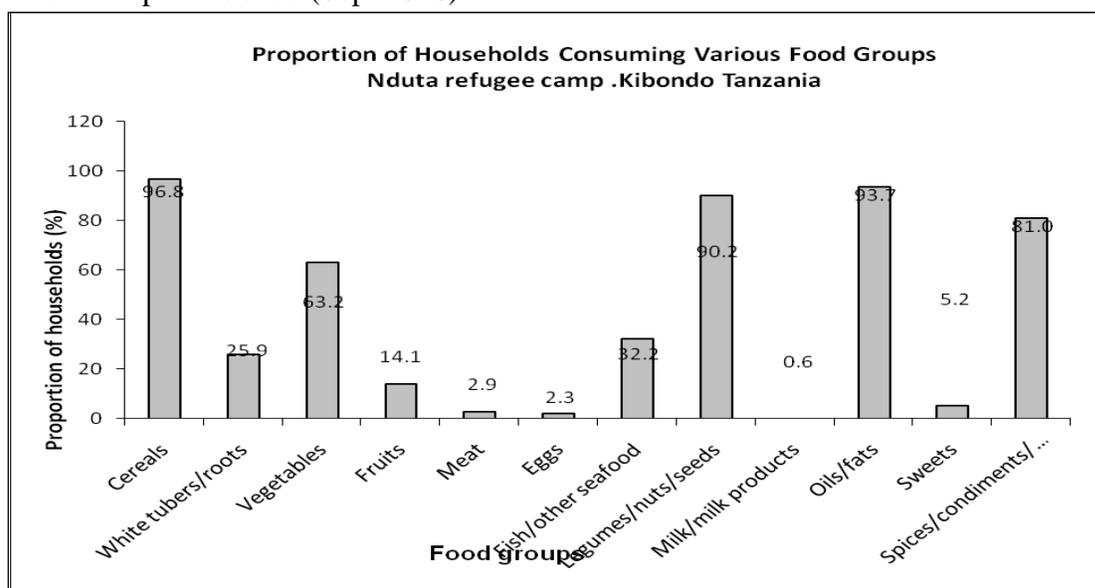
The least consumed food groups are milk products, meat, eggs and sweets.

Table 5.50: Consumption of micronutrient rich foods by households - Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	124/348	35.6 (30.6 -40.9)
Proportion of households consuming either a plant or animal source of vitamin A	139/348	39.9 (34.8 – 45.3)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	115/348	33.0 (28.2-38.3)

6.2.2 WASH INDICATORS

Table 5.51: Wash sampling information Nduta camp –Kibondo (Sept 2016)

Household data	Planned	Actual	% of target
Total households surveyed for WASH	436	343	78.7%

Table 5.52: Water quality Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	336/343	98.0 (95.7 -99.1 95% CI)
Proportion of households that use a covered or narrow necked container for storing their drinking water	243/343	70.8 (65.7 – 75.6 95% CI)

Table 5.53: Water quantity: amount of litres of water used per person per day Nduta camp –Kibondo (Sept 2016)

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	91/343	26.5 (22.0 -31.6)
15 – <20 lpppd	52/343	15.2 (11.6 –19.5)
<15 lpppd	200/343	58.3 (52.9 -63.6)

The average water usage in Nduta was 9.4 lppd

Table 5.54: Satisfaction with water supply - Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	229/358	63.9 (49.1 -78.8)

Figure 6.6: Proportions of households with the water supply - Nduta camp –Kibondo (Sept 2016

Proportion of Households that say they are Satisfied with the Water Supply
Nduta refugee camp ,Kibondo Tanzania

Satisfied, 1, 26.2   Partially satisfied, 1, 8.7   Not satisfied, 1, 65.0

%

■ Satisfied   ■ Partially satisfied   ■ Not satisfied
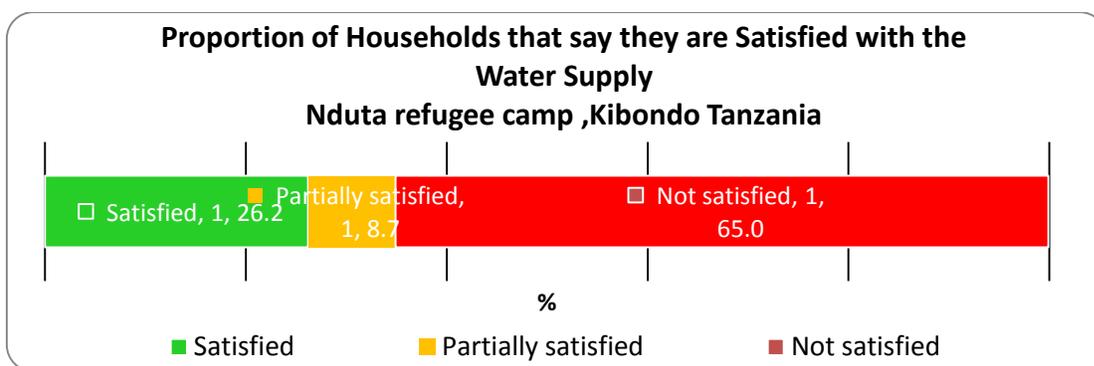
Figure 5.15: Main reasons for dissatisfaction among households not satisfied with water Nduta camp –Kibondo (Sept 2016)
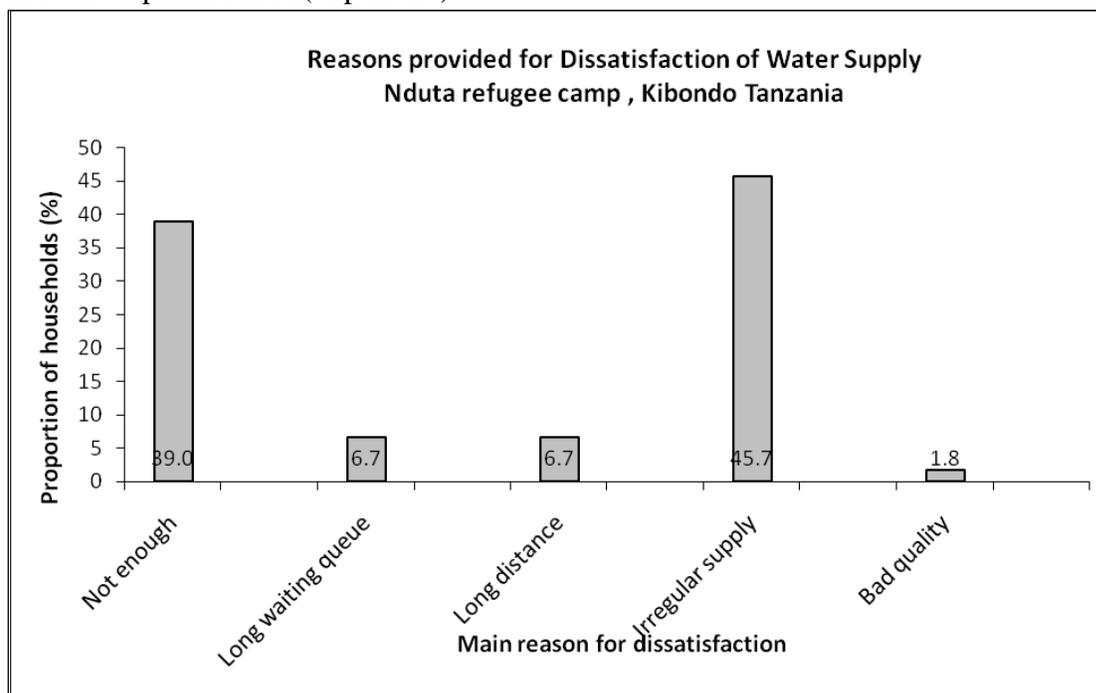
Table 5.55: Safe excreta disposal - Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
A communal toilet (improved toilet facility, 3 households or more)	4/358	0.3(.3-.0.9)
An unimproved toilet (unimproved toilet facility or public toilet)	354/358	99.7 (99.0 -110.3)
Proportion of households with children under three years old that dispose of faeces safely	179/183	97.8%

Only four houses reported to be using unsafe disposal methods to dispose children faeces.

6.2.3 MOSQUITO NET COVERAGE

Table 5.56: Mosquito net coverage sampling information Nduta camp –Kibondo (Sept 2016)

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	436	332	76.1

Table 5.57: Household mosquito net ownership Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	284/332	85.5% (81.3 -89.1)
Proportion of total households owning at least one LLIN	283/332	85.2 (81.0 -88.9)

Figure 5.16: Household ownership of at least one mosquito net (any type) - Nduta camp – Kibondo (Sept 2016)
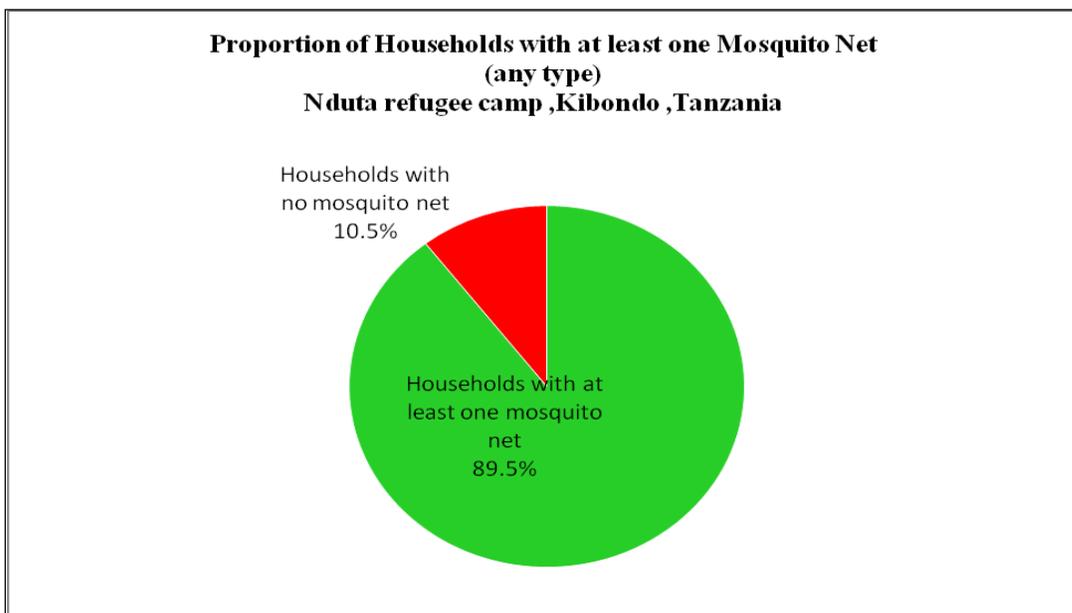
Figure 5.17: Household ownership of at least one LLIN- Nduta camp –Kibondo (sept 2016)

**Proportion of Households with at least one LLIN
Nduta refugee camp ,Kibondo ,Tanzania**

Series1,
Households
with no LLIN,
14.8, 14.8%

Series1,
Households
with at least
one LLIN,
85.2, 85.2%
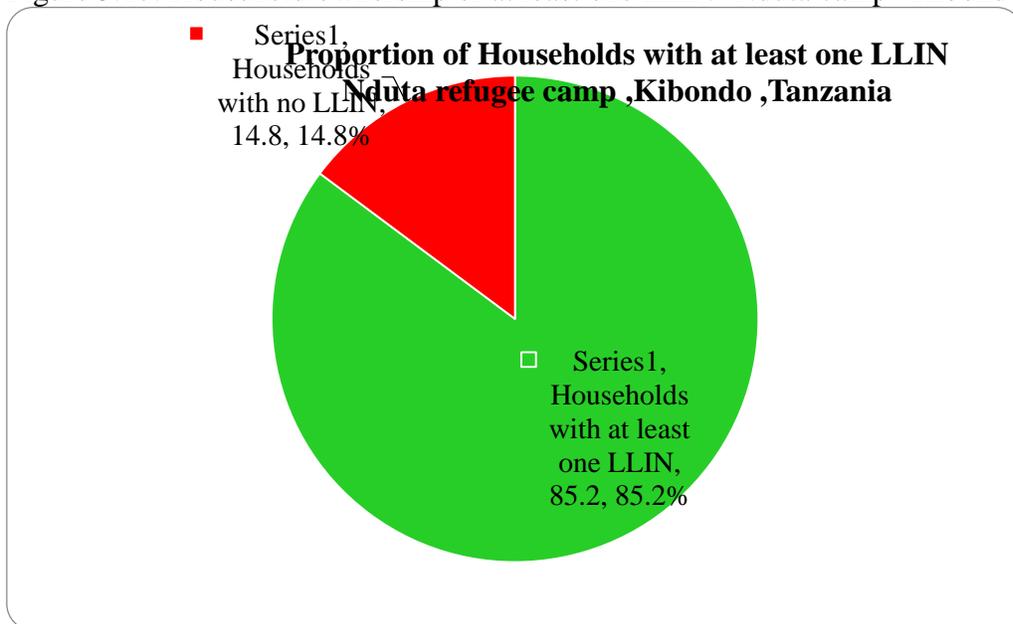
Table 5.58: Number of nets- Nduta camp –Kibondo (Sept 2016)

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

Table 5.59: Mosquito net utilisation - Nduta camp –Kibondo (Sept 2016)

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1379	%	Total No= 269	%	Total No= 73	%
Slept under net of any type	1086	78.6	226	84.0	63	86.3
Slept under LLIN	1086	78.6	222	82.5	63	86.3

Figure 5.18: Mosquito net utilisation by sub-group Nduta camp –Kibondo (Sept 2016)
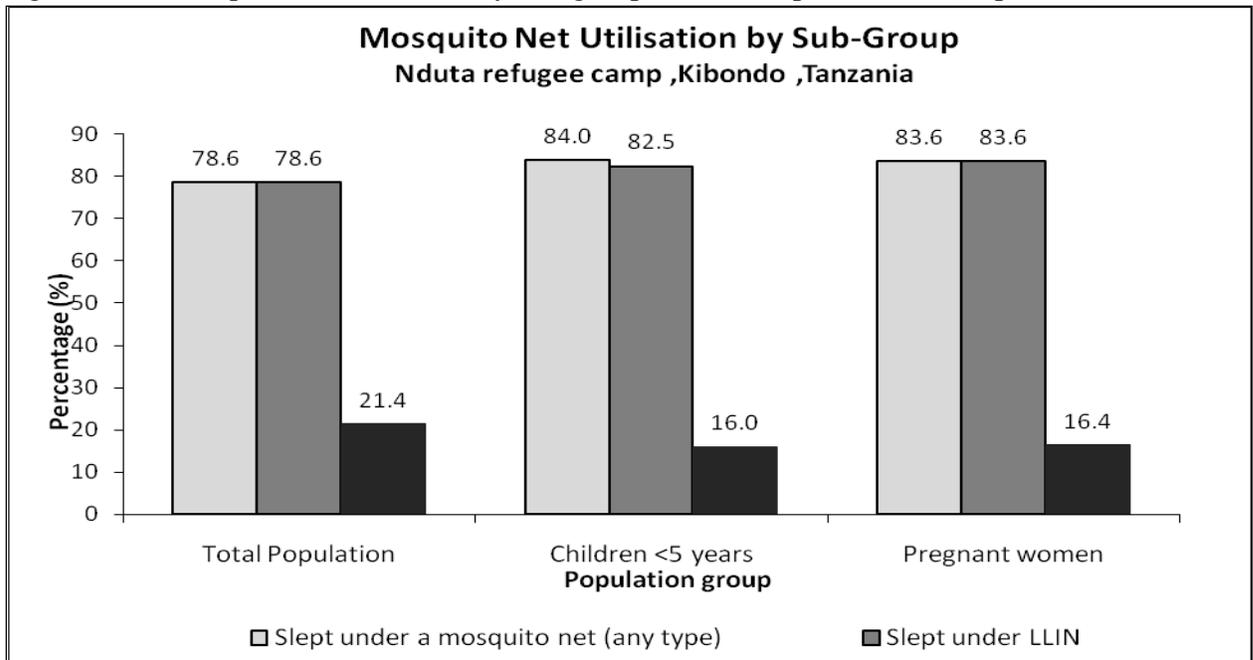
7.0 RESULTS: MTENDELI REFUGEE CAMP KIBONDO

7.1 INDIVIDUAL-LEVEL INDICATORS-CHILDREN 6-59 MONTHS, 0-23 MONTHS, WOMEN OF REPRODUCTIVE AGE 15-49 YEARS AND MORTALITY

The Table below show the percentage of U5 and average household size that was surveyed in Mtendeli refugee, a convenient sample of 0-23 months was derived from the sampled children 6- 59 months, and also for the Women of reproductive age, WASH food security and mosquito net modules.

Table 7.1: Mosquito net utilisation - Nduta camp –Kibondo (Sept 2016)

Target group	Target sample size	Actual*
Children 6-59 months	445	580
Children 0-23 months	Convenient sample	284
Women 15-49 years	Convenient sample	277

7.1.1 Anthropometric results (based on WHO Growth Standards 2006) - Children 6-59 months**.**

Two children out of 580 children who were measured did not have exact birthdates; therefore the stunting and underweight results can be interpreted with relative reliability. There were two cases of severe rickets in the camp hence excluded from the WHZ analysis but included in the other indicators.

Table 7.2: Distribution of age and sex among children aged 6-59 months - Mtendeli camp – Kibondo (Sept 2016)

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: Girl
6-17 months	68	47.6	75	52.4	143	24.7	0.9
18-29 months	71	50.4	70	49.6	141	24.4	1.0
30-41 months	69	47.6	76	52.4	145	25.1	0.9
42-53 months	58	47.9	63	52.1	121	20.9	0.9
54-59 months	15	53.6	13	46.4	28	4.8	1.2
Total	281	48.6	297	51.4	578	100.0	0.9

Table 7.3: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex - Mtendeli camp –Kibondo (Sept 2016)

	All n = **573**	Boys n = 279	Girls n = 294
Prevalence of global malnutrition **(<-2 z-score and/or oedema)**	(20) 3.5 % (2.2 - 5.5 95% C.I.)	(11) 3.9 % (2.0 - 7.6 95% C.I.)	(9) 3.1 % (1.6 - 5.6 95% C.I.)
Prevalence of moderate **malnutrition** **(<-2 z-score and >=-3 z-score, no** **oedema)**	(19) 3.3 % (2.1 - 5.1 95% C.I.)	(10) 3.6 % (1.8 - 7.1 95% C.I.)	(9) 3.1 % (1.6 - 5.6 95% C.I.)
Prevalence of severe malnutrition **(<-3 z-score and/or oedema)**	(1) 0.2 % (0.0 - 1.2 95% C.I.)	(1) 0.4 % (0.0 - 2.6 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

The prevalence of oedema is 0.0 %
The prevalence of Global acute malnutrition in Mtendeli was 3.5% (2.2-5.5%) and SAM of 0.2 %.

Table 7.4: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Mtendeli camp –Kibondo (Sept 2016)

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	141	0	0.0	10	7.1	131	92.9	0	0.0
18-29	140	1	0.7	3	2.1	136	97.1	0	0.0
30-41	145	0	0.0	3	2.1	142	97.9	0	0.0
42-53	120	0	0.0	3	2.5	117	97.5	0	0.0
54-59	27	0	0.0	0	0.0	27	100.0	0	0.0
Total	573	1	0.2	19	3.3	553	96.5	0	0.0

Children 6 - 17 months were the most affected moderate wasting when compared to the other age categories.

Figure 7.1: Trend in the prevalence of wasting by age in children 6-59– Mtendeli camp – Kibondo (Sept 2016)
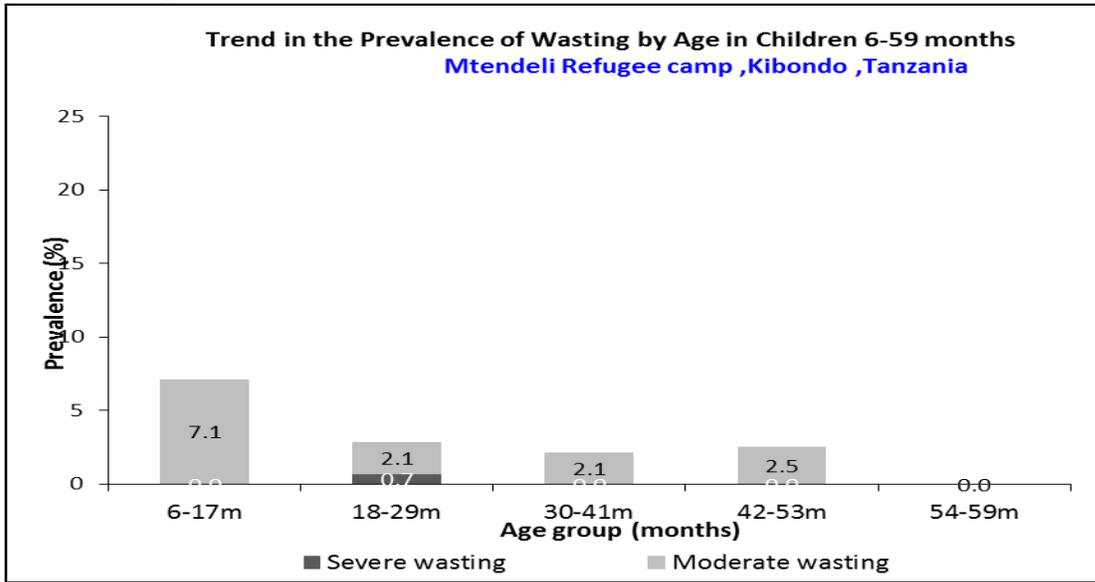
Table 7.5**:** Distribution of acute malnutrition and oedema based on weight-for-height z-scores - Mtendeli camp –Kibondo (Sept 2016).

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 4 (0.7 %)	Not severely malnourished No. 574 (99.3 %)

Figure 7.2: Distribution of weight-for-height z-score - Mtendeli camp –Kibondo (Sept 2016) Based on WHO growth standards; the reference population is shown in green and the surveyed population is shown in red) of survey population compared to reference population

77

Weight-for-Height z-scores

% of Children (n = 573)

— WHO standards

Z-score

SMART flags
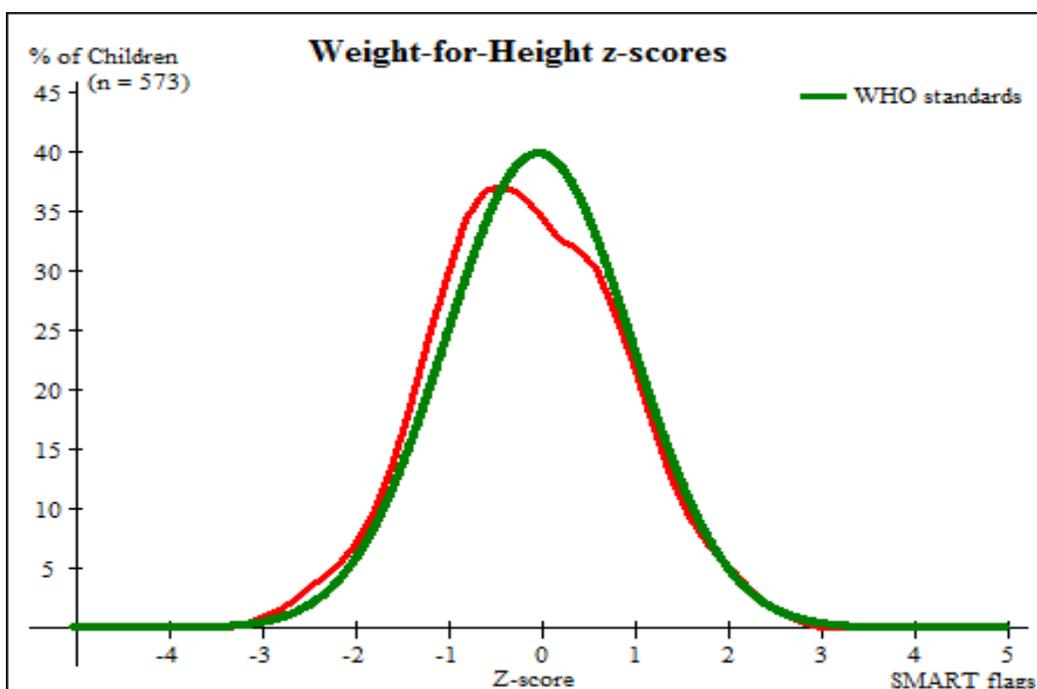
Table 7.6: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex- Mtendeli camp –Kibondo (Sept 2016).

	All n = 578	Boys n = 281	Girls n = 297
Prevalence of MUAC < 125 mm and/or oedema	(29) 5.0 % (3.3 - 7.6 95% C.I.)	(12) 4.3 % (2.3 - 7.7 95% C.I.)	(17) 5.7 % (3.7 - 8.8 95% C.I.)
Prevalence of MUAC < 125 mm and >= 115 mm, no oedema	(24) 4.2 % (2.7 - 6.4 95% C.I.)	(9) 3.2 % (1.7 - 5.9 95% C.I.)	(15) 5.1 % (3.1 - 8.0 95% C.I.)
Prevalence MUAC < 115 mm and/or oedema	(5) 0.9 % (0.3 - 2.2 95% C.I.)	(3) 1.1 % (0.4 - 3.0 95% C.I.)	(2) 0.7 % (0.2 - 2.6 95% C.I.)

MUAC identified more cases of children with malnutrition than WHZ

Table 7.7: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema-Mtendeli camp –Kibondo (Sept 2016).

Age (mo)	Total no.	MUAC < 115 mm		MUAC >= 115 mm and < 125 mm		MUAC > = 125 mm		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	143	4	2.8	18	12.6	121	84.6	0	0.0
18-29	141	1	0.7	1	0.7	139	98.6	0	0.0
30-41	145	0	0.0	5	3.4	140	96.6	0	0.0
42-53	121	0	0.0	0	0.0	121	100.0	0	0.0
54-59	28	0	0.0	0	0.0	28	100.0	0	0.0
Total	578	5	0.9	24	4.2	549	95.0	0	0.0

78

Children 6-17 months tend to be the most affected by malnutrition with moderate malnutrition by MUAC (12.6%).

Table 7.8: Prevalence of underweight based on weight-for-age z-scores by sex: Mtendeli camp –Kibondo (Sept 2016).

	All n = 575	Boys n = 278	Girls n = 297
Prevalence of underweight **(<-2 z-score)**	(136) 23.7 % (20.3 - 27.4 95% C.I.)	(68) 24.5 % (19.6 - 30.1 95% C.I.)	(68) 22.9 % (18.9 - 27.4 95% C.I.)
Prevalence of moderate **underweight** **(<-2 z-score and >=-3 z-score)**	(106) 18.4 % (15.6 - 21.7 95% C.I.)	(51) 18.3 % (14.4 - 23.1 95% C.I.)	(55) 18.5 % (14.7 - 23.0 95% C.I.)
Prevalence of severe underweight **(<-3 z-score)**	(30) 5.2 % (3.8 - 7.1 95% C.I.)	(17) 6.1 % (4.3 - 8.6 95% C.I.)	(13) 4.4 % (2.7 - 7.1 95% C.I.)

Table 7.9: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 566	Boys n = 272	Girls n = 294
Prevalence of stunting **(<-2 z-score)**	(310) 54.8 % (50.8 - 58.7 95% C.I.)	(157) 57.7 % (51.7 - 63.5 95% C.I.)	(153) 52.0 % (45.4 - 58.6 95% C.I.)
Prevalence of moderate stunting **(<-2 z-score and >=-3 z-score)**	(181) 32.0 % (27.9 - 36.3 95% C.I.)	(90) 33.1 % (26.2 - 40.8 95% C.I.)	(91) 31.0 % (25.2 - 37.3 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(129) 22.8 % (18.8 - 27.3 95% C.I.)	(67) 24.6 % (18.8 - 31.6 95% C.I.)	(62) 21.1 % (17.0 - 25.9 95% C.I.)

The overall prevalence of stunting among children in Mtendeli was 54.8% and the most affected age groups were children aged 31-41 months.

Table 7.10: Prevalence of stunting by age based on height-for-age z-scores - Mtendeli camp –Kibondo (Sept 2016)

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	138	20	14.5	41	29.7	77	55.8
18-29	138	29	21.0	40	29.0	69	50.0
30-41	141	44	31.2	48	34.0	49	34.8
42-53	121	28	23.1	39	32.2	54	44.6
54-59	28	8	28.6	13	46.4	7	25.0
Total	566	129	22.8	181	32.0	256	45.2

Figure 7.3: Trends in the prevalence of stunting by age in children 6-59 months - Mtendeli camp Kibondo (Sept 2016)
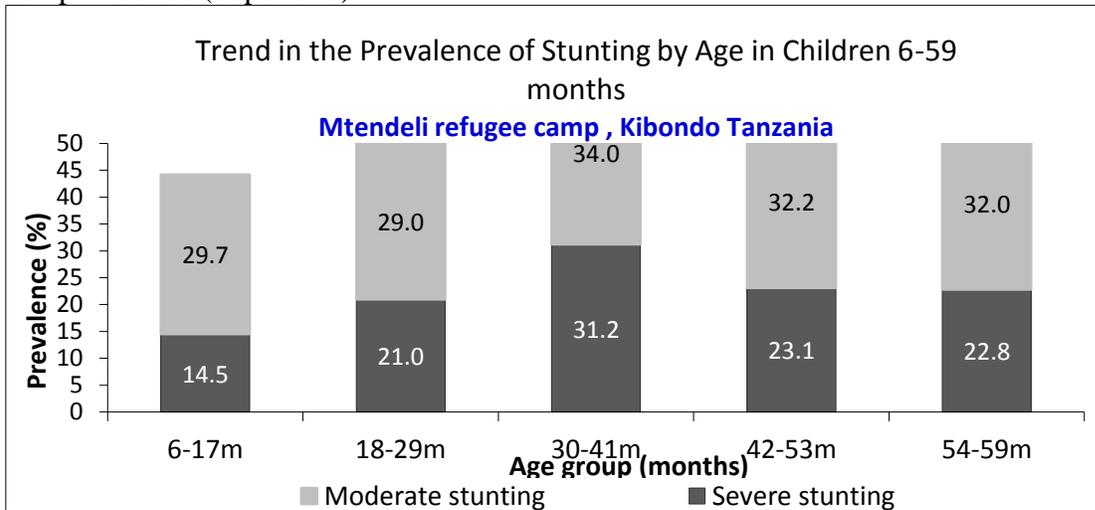
Figure 7.4: Distribution of height-for-age z-scores - Mtendeli camp Kibondo (Sept 2016)

Based on WHO growth standards; the reference population is shown in green and the surveyed population is shown in red. The graph is skewed to the left indicating a high prevalence of stunting of survey population compared to reference population -
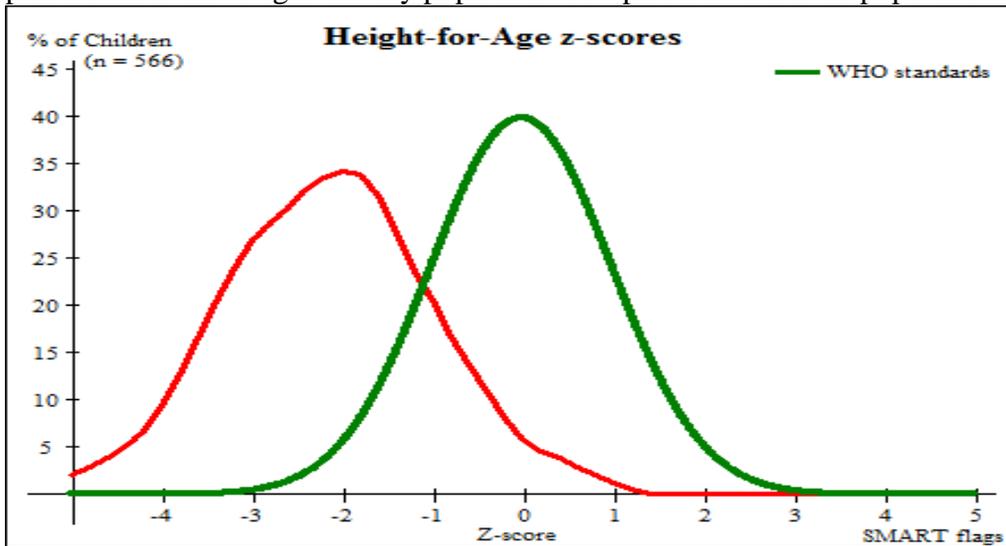
Table 7.11: Mean z-scores, Design Effects and excluded subjects - Mtendeli camp Kibondo (Sept 2016)

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	573	-0.14±1.01	1.06	0	5
Weight-for-Age	575	-1.31±1.03	1.00	0	3
Height-for-Age	566	-2.15±1.13	1.00	0	12

* contains for WHZ and WAZ the children with oedema.

7.1.2 Feeding programme coverage results

Table 7.12: Programme coverage for acutely malnourished children Nduta camp –Kibondo (Sept 2016)

	Number/total	% (95% CI)
Supplementary feeding programme coverage	14/39	35.9 % (20.7 -51.1 95 CI)
Therapeutic feeding programme coverage	2/5	40.0% (22.4 -102.0 95 CI)

The coverage of the selective feeding programmes was below the SPHERE standards of >90%. 45.8% moderately malnourished children meeting the WHZ/MUAC admission criteria were not enrolled in the SFP.

7.1.3 Measles vaccination coverage results

Table 7.13: Measles vaccination coverage for children aged 9-59 months - Mtendeli camp Kibondo (Sept 2016)

	Measles (with card) n=352	**Measles (with card or confirmation from mother) n=547**
YES	64.8% (54.4 -75.2 95% CI)	93.5% (88.2 -98.4 95 CI)

Measles vaccination coverage in Mtendeli was slightly below the SPHERE standard of >95%.

7.1.4 Vitamin A supplementation coverage result

Table 7.14: Vitamin A supplementation for children aged 6-59 months within past 6 months - Mtendeli camp Kibondo (Sept 2016)

	Vitamin A capsule (with card) n= 340	**Vitamin A capsule (with card or confirmation from mother) n= 543**
YES	58.5% (48.5- 68.6 95% CI)	93.5% (88.2 -98.4 95% CI)

Vitamin A supplementation coverage was above the >90% recommended SPHERE standards.

7.1.5 Diarrhoea results

Table 7.15: Period prevalence of diarrhoea Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	89	15.3% (11.3-19.4)

7.1.5 Anaemia results children 6-59 months

Table 7.16: Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group - Mtendeli camp Kibondo (Sept 2016)

	6-59 months n = 580	6-23 months n=213	24-59 months n=367
Total Anaemia (Hb<11.0 g/dL)	(236) 40.7 % (35.4-45.9 95% CI)	(112) 52.6 % (45.3-59.9 95% CI)	(124) 33.8 % (27.5 - 40.1 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(146) 25.2% (20.8 –29.695% CI)	(64) 30.1 % (22.5– 37.5 95% CI)	(82) 22.3 % (17.4 –27.2 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(89) 15.3 % (11.8- 18.9 95% CI)	(47) 22.1 % (15.4 -28.7 95% CI)	(42) 11.4 % (7.8 – 15.1 95% CI)
Severe Anaemia (<7.0 g/dL)	(1) 0.2 % (0.1 – 0.5 95% CI)	(1) 0.5 % (0.4 - 1.4 95% CI)	(0) 0 % (95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	11.2 g/dL (11.9 -11.4 95% CI) [6.1 -15.8]	10.9g/dL (10.7 -11.1 95% CI) [6.1- 14.6]	11.4 g/dL (11.3 -11.6 95% CI) [7.3 -15.8]

Table 7.17: Prevalence of moderate and severe anaemia in children 6-59 months of age and by age group - Mtendeli camp Kibondo (Sept 2016)

	6-59 months n = 580	6-23 months n=213	24-59 months n= 367
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(90) 15.5 % (11.8–19.3 95% CI)	(48) 22.5 % (15.5-29.5 95% CI)	(42) 11.4 % (7.8 – 15.1 95% CI)

Anaemia prevalence (mild, moderate and severe) and mean Hb results in children 6-59 should be presented from year to year as shown in the example figures below.

7.1.7   Children 0-23 months

Table 7.18: Prevalence of Infant and Young Child Feeding practices Indicators Mtendeli camp Kibondo (Sept 2016)

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	265/294	90.1	85.3 -94.9
Exclusive breastfeeding under 6 months	0-5 months	71/82	86.6	79.0 – 94.1
Continued breastfeeding at 1 year	12-15 months	35/42	83.33	68.9 -97.7
Continued breastfeeding at 2 years	20-23 months	20/44	45.5	30.1-60.8
Introduction of solid, semi-solid or soft foods	6-8 months	26/37	70.3	52.4 -88.1
Consumption of iron-rich or iron-fortified foods	6-23 months	203/211	96.2	93.5 -98.8
Bottle feeding	0-23 months	2/296	0.7	0.2 -1.6

Prevalence of intake Infant formula

Table 7.19: Infant formula intake in children aged 0-23 months- Mtendeli camp Kibondo (sept 2016)

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	1/295	0.3 (0.3 -1.0)

Fortified blended foods

Table 7.20: FBF intake in children aged 6-23 months- Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	82/212	38.7 (23.7 -53.6)

Table 7.21: FBF++ intake in children aged 6-23 months - Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	182/212	(76.4 -95.3)

7.1.8 **Women 15-49 years**

Table 7.22: Women Physiological status And Age Mtendeli camp Kibondo (Sept 2016)

Physiological status	Number/total	% of sample
Non-pregnant	277/343	80.6
Pregnant	66/343	19.2
Mean age (range)	26.2 (25.3 -27.1)	

Table 7.23: Prevalence Of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of reproductive Age (15-49 Years - Mtendeli camp Kibondo (Sept 2016)

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 277
Total Anaemia (<12.0 g/dL)	(68) 24.5 % (18.8 – 30.3 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(49) 17.7 % (12.3 – 23.1 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(19) 6.9 % (3.6 -10.1 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0.0 % (95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.7 g/dL (12.5-12.9 95% CI) [9.2 -15.9]

Table 7.24: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) Mtendeli camp Kibondo (Sept 2016)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	48	72.7 % (61.4-84.0)
Currently receiving iron-folic acid pills	48	72.7% (61.4 -84.0)

7.1.9 Mortality Results:

A total number of 3279 people were included in the survey, 7 joined,11 left and 683 children of which 0 joined, 0 left and 40 were born. A total number of 4 deaths were reported in the surveyed households during the recall period.

Table 7:25: Crude and under five mortality rates: -old population and new arrivals - Mtendeli camp Kibondo (Aug 2016)

Indicator	Prevalence
CMR (total deaths/10,000 people / day): (95% CI)	0.13 (0.05 -0.34 95% CI)
U5MR (deaths in children under five/10,000 children under five / day): (95% CI)	0.32 (0.05 -1.17 95% CI)

The mortality rates in Mtendeli in Mtendeli camp was below the WHO emergency thresholds.

7.2 HOUSEHOLD-LEVEL INDICATORS- FOOD SECURITY, WATER and MOSQUITO NET COVERAGE

7.2.1 FOOD SECURITY

Table 7.26: Food Security sampling information Mtendeli camp Kibondo (Sept 2016)

Household data	Planned	Actual	% of target
Total households surveyed for Food Security	397	355	90%

Access to food assistance results

Table 7.27: Ration Card Coverage - Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households with a ration card	96.6 %	(91.5 -101.7)

3 / 12 said it was because they were not given ration cards during registration, even if they were included in the targeting criteria and 9/12 were new arrivals who had not been issued ration card but had tokens.

Table 7.28: Reported duration of general food Ration 1 - Mtendeli camp Kibondo (Sept 2016)

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
10.7 (10.5-10.9) out of 14 days	77.1%

The average number of days the food ration lasts was reported at 10.7 days, the refugees who recently arrived (a week before the data collection) in the camp were excluded from the analysis as they had not completed the full cycle.

Table 7.29: Reported duration of general food ration 2 Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	21/326	6.4 (3.4 -9.5)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle [14 days]	146/326	44.8 (38.7 -50.9)
>75% of the cycle [14 days]	180 /326	55.2(49.1 -61.3)

The proportion of HH that reported that food lasted for the entire cycle was 6.4% and 44.8%

reported that their food lasted less than ≤75% of the cycle.

Negative coping strategies results

Table 7.30: Coping strategies used by the surveyed population over the past month Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items *with or without interest*	275/355	77.5 (65.7 -89.2)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	10/355	2.9(0.8 -4.9)
Requested increased remittances or gifts as compared to normal	86/355	24.4 (13.6 -35.3)
Reduced the quantity and/or frequency of meals	139/355	39.2 (26.1 -52.2)
Begged	166/355	46.9 (32.6 - 61.1)
Engaged in potentially risky or harmful activities such as burning charcoal, working outside the camp, brewing illicit alcohol.	5/355	1.4 (0.09 -2.9)
Proportion of households reporting using none of the coping strategies over the past month	37/355	10.4 (3.4 -17.4)

* The total will be over 100% as households may use several negative coping strategies. Borrowing was the most used coping mechanism, followed by begging and reducing the frequency and quantity of meals at the HH.

Household dietary diversity results
In Mtendeli, the last general food distribution ended a week before the data collection and it usually takes 4- 5 days. Wet feeding was being carried out for all the new arrivals at least for two days as they awaited complete registration processes. The average consumption score was 4.8 (4.4 -5.1).

Table 7.31: Average HDDS Mtendeli camp Kibondo (Sept 2016)

	Mean (Standard deviation or 95% CI)
Average HDDS	4.8 (4.4 -5.1)

* Maximum HDDS is 12.

Figure 7.5: proportion of households consuming different food groups within last 24 hours - Mtendeli camp Kibondo (Sept 2016)

Proportion of Households Consuming Various Food Groups
Mtendeli refugee camp, Kibondo, Tanzania
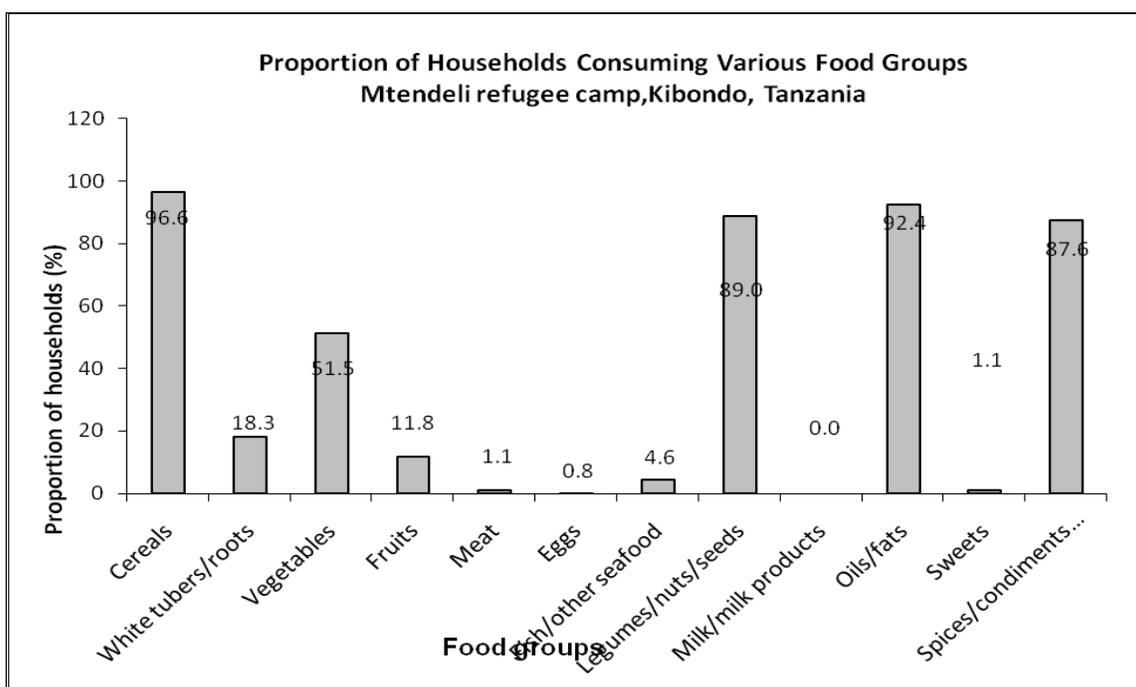
The least consumed food groups were milk and milk products, eggs and meat.

Table 7.32: Consumption of micronutrient rich foods by households - Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	159 /355	44.8 (33.5 – 56.1)
Proportion of households consuming either a plant or animal source of vitamin A	106/355	29.9 (19.5 -40.2)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	94 /355	26.5 (16.9-35.9)

7.2.2   WASH INDICATORS

Table 7.33: Wash sampling information -Mtendeli camp Kibondo (Sept 2016)

Household data	Planned	Actual	% of target
Total households surveyed for WASH	397	358	90%

Table 7.25: Water Quality ¬- Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)

Proportion of households using an improved drinking water source	358/358	100% (100.0-100.0))
Proportion of households that use a covered or narrow necked container for storing their drinking water	273/358	76.3% (65.9 -86.6)

All the HH surveyed had access to improved drinking water sources.

Table 7.264: Water quantity: amount of litres of water used per person per day Mtendeli camp Kibondo (Sept 2016)

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	91/358	25.4 (17.3 -33.5)
15 – <20 lpppd	61/358	17.1 (11.6 -22.5)
<15 lpppd	206/358	57.5(48.9 -68.2)

The average water usage was 15.4. Lpppd which is below the UNHCR standards

Table 7.35: Satisfaction with water supply -Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	229/358	63.9% (49.1-78.8)

Figure 7.6: Proportion of households satisfied with the water supply - Mtendeli camp Kibondo (Sept 2016).
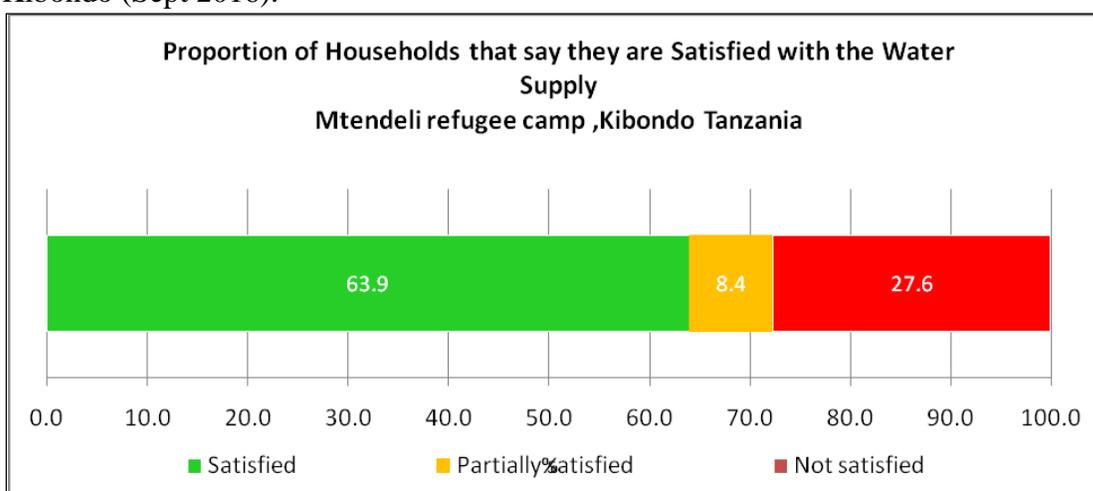
Figure 7.7: Main reasons for dissatisfaction among households not satisfied with water

supply - Mtendeli camp Kibondo (Sept 2016)
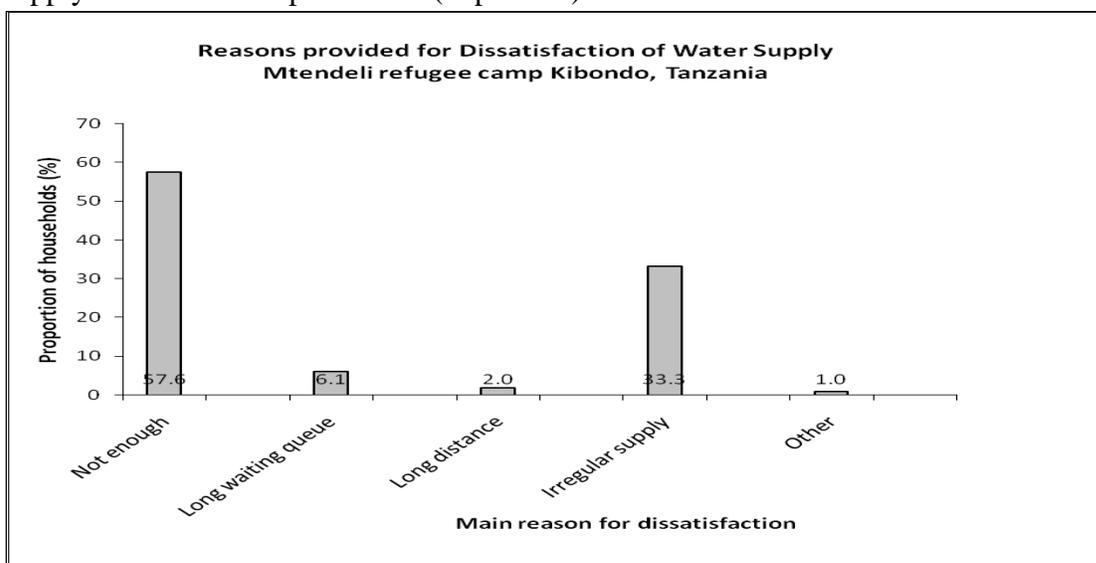
Table 7.36: Safe Excreta Disposal - Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)
Proportion of households that use:		
An unimproved toilet (unimproved toilet facility or public toilet)	341/358	95.3 (89.8 -100.7)
Proportion of households with children under three years old that dispose of faeces safely	210/210	100 (100.0 -100.0)

All the household surveyed reported to be sharing the toilet facilities with about 4/8 / 16 other households within the same clusters. All the HH reported to dispose child's feaces safely by pouring it in to the toilet facilities

7.2.3 MOSQUITO NET COVERAGE

Table 7.37: Mosquito net coverage sampling information Mtendeli camp Kibondo (Sept 2016)

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	397	354	**90%**

Table 7.38: Household Mosquito Net Ownership - Mtendeli camp Kibondo (Sept 2016)

	Number/total	% (95% CI)

Proportion of total households owning at least one mosquito net of any type	218/354	61.6 (49.7 -73.4)
Proportion of total households owning at least one LLIN	218/354	61.6 (49.7 -73.4)

Figure 7.8: Household ownership of at least one mosquito net (any type) - Mtendeli camp Kibondo (Sept 2016)
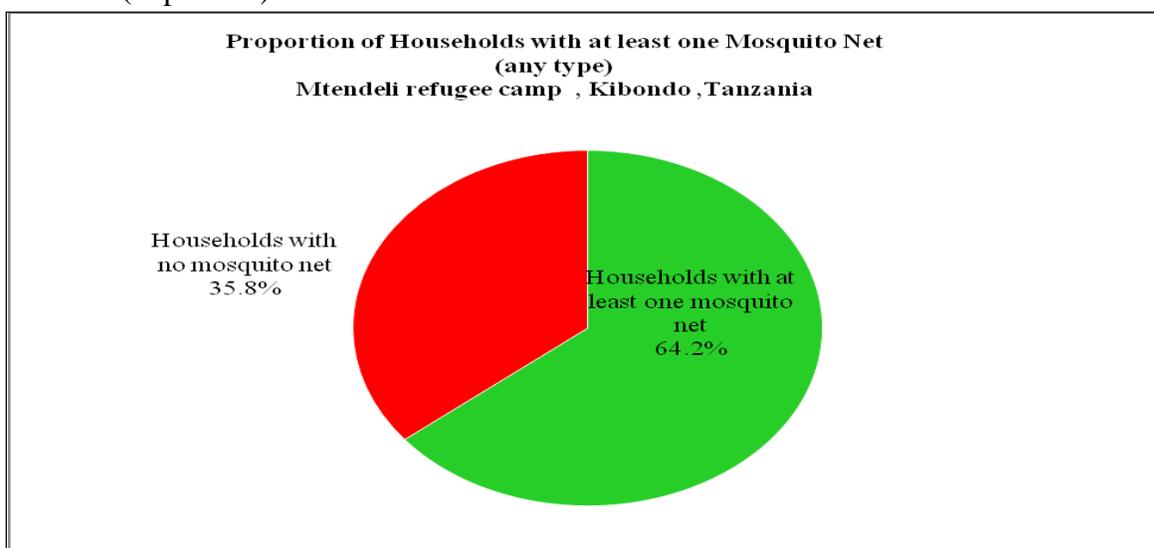
Table 7.27: Number of Nets - Mtendeli camp Kibondo (Sept 2016)

Average number of LLINs per household	Average number of persons per LLIN
2.0	3.4

An average of 2.0 LLINs were found in an HH in Mtendeli refugee camp,

Table 7.28: Mosquito Net Utilisation - Mtendeli camp Kibondo (Sept 2016)

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No= 1640	%	Total No= 345	%	Total No=70	%
Slept under net of any type	993	60.5	222	64.3	43	61.4
Slept under LLIN	993	60.5	222	64.3	43	61.4

A proportion of 60.5% of the total population surveyed reported that they slept under LLIN.

Figure 7.9: Mosquito net utilisation by sub-group - Mtendeli camp Kibondo (Sept 2016)

**Mosquito Net Utilisation by Sub-Group
Mtendeli refugee camp Kibondo ,Tanzania**

Bar chart showing Percentage (%) on the y-axis (0 to 70) and Population group on the x-axis:

- Total Population: Slept under a mosquito net (any type) = 60.5; Did not sleep under a mosquito net = 39.4
- Children <5 years: Slept under a mosquito net (any type) = 64.3; Did not sleep under a mosquito net = 35.7
- Pregnant women: Slept under a mosquito net (any type) = 61.4; Did not sleep under a mosquito net = 38.6

Legend: □ Slept under a mosquito net (any type)   ■ Did not sleep under a mosquito net

8.0 Limitations of the survey

The following are the limitations of survey;
Birth notification cards and documentation: Majority of the Burundi refugees did not have written record of the children birthdates and the mothers knew the exact birthdates the children U5 years, this may not impact the reliability of the stunting and underweight results, Confirmation using the events calendar was done to ascertain if the dates given by the care givers were true.

Unreliable population data for cluster selection in Mtendeli refugee camp: During the planning period, the UNHCR staff and camp management indicated map had only six zones and all the refugees were settled in these zones. The new arrivals were being settled in zone 7-10 that only existed on ground and not in the maps. The only available information in Progress was the total population and % of U5. Cluster selection was therefore done using the number of households per neighbour hoods that was provided by the DRC camp management.

IYCF indicators: The sample **size** for IYCF indicators that were collected during the nutrition surveys was based the sample size children aged 6-59 months based on the prevalence of GAM .It is not feasible to achieve a large enough sample size for some of the indicators to be estimated as precisely as desired, especially for indicators covering a very narrow age range (e.g. 6-8 months, 12-15 months, 20-23 months). The trends analysis needs to be interpreted with caution.
Programme coverage for Women; Sampling of women of reproductive age is based on

convenient sample, the numbers reached during the survey is small hence the results should be interpreted with caution.

Selective feeding programme coverage; The SENS methodology provides a proxy coverage indicator based on the identified number of children enrolled in the nutrition programmes. The results ahould be interpreted with caution and where needed a proper coverage assessment should be conducted to get the accurate coverage and also the factors affecring low coverages.

9.0 Discussion

9.1 Nutritional status of young children

Prevalence of acute Malnutrition: The overall prevalence of GAM is within the acceptable GAM prevalence of below 5% according to the WHO classification of acute malnutrition in emergencies in all the camps. The weighted prevalence is 1.8%, the prevalence per camp - Nyarugusu old population 1.0 (0.4 -2.2) which is a reduction when compared to 2.6% (in the last SENS conducted in 2014 though there is no significance difference, among the new arrivals in Nyarugusu the prevalence is 0.9 % (0.4 -2.1), in the newly established camps the prevalence was 2.4% (1.3-4.3) and 3.5% (2.2 -5.5) in Nduta and Mtendeli respectively. WHZ scores identified SAM cases in Mtendeli refugee camp. MUAC identified about two times more cases of malnutrition when compared to WHZ identified in Nduta 3.3% 2.0 -5.5) and Mtendeli 5.0% (3.3- 7.6).

Stunting among children 6-59 months: Stunting or chronic malnutrition is a form of under nutrition defined by HAZ below two standard deviations of the median reference population. Stunting is a result of prolonged or repeated episodes of under nutrition starting before birth. The overall stunting prevalence across all the camps is 49.0 % above the 40% of public health signifinca. It was highest in Nduta 57.1 %(52.3 -61.8) followed by Mtendeli with 54.8% (50.8 -58.7). In Nyarugusu old population 44.0% (39.2-48.9) and Nyarugusu among the new arrivals at 43.7% (38.9 -48.6).
The most affected age group are children 31-41 months. The prevalence of stunting among the Burundian refugees in Tanzania in comparison with stunting levels reported in the 2010 Burundi DHS is similar; statistics indicated a prevalence of 57.7 %. Among the Congolese refugees the prevalence are also similar to the Democratic Congo republic with 42.7% reported in the 2013 DHS.
Generally the nutrition status of the refugees is almost the same as that of the host community, according to most recent survey that was conducted in 2014 the, GAM among children 6-59 months was 3.8% and SAM was 0.9%. In Kigoma region, the prevalence of GAM was 3.8%, SAM 0.4% and stunting of 48.6% which was above the SPHERE standards.

9.2 Programme coverage

Measles and Vitamin A coverage: The overall measles vaccination coverage in all the camps was 96.5% above the >95 SPHERE standards except Mtendeli which met the target. Similarly the overall Vitamin A coverage was 96.8% above the SPHERE standards of > 90%. Coverage confirmed by card in Nduta, Mtendeli and Nyarugusu among the new arrivals ranged between 56-58% however, this is normal in post emergency situations. Therefore, documentation needs to improve in the above mentioned camps in future to prevent any cases

of double doses of Vitamin A capsules.

ANC coverage an Iron folic acid supplementation: ANC coverage was high in Nduta refugee camp with 81.4%, Mtendeli was at 72.7%, 73.9% among the new arrivals in Nyarugusu and the lowest was reported among the old population in Nyarugusu. Coverage of iron –folic acid supplementation was above 70% with the exception of the old population in Nyarugusu.

Selective feeding programme coverage: The programme coverage in all the camps was below the SPHERE standards. SFP coverage in Nduta was 52.9%, 35.9% in Mtendeli and 12.5% in Nyarugusu among the new arrivals. The OTP coverage was 75.0% in Nduta and 40.0% in Mtendeli. Some were cases of moderately and severely malnourished children who were identified by WHZ and MUAC and were not enrolled in the appropriate nutrition programmes in all the camps. Active case finding should be strengthened using both WHZ and MUAC inorder to capture all the malnourished children and provide treatment early.

9.3 Anaemia in young children and women of reproductive age

Anaemia prevalence: The overall anaemia prevalence among children was above the public health threshold of above 40% in all the camps except Nduta refugee camps with 37.2% (32.6 -42.0). The weighted average is 41.6%. In Nyarugusu among the old population there was an increase from 33% to 42.3 % (36.5-48.2). Among the new arrivals in Nyarugusu, the prevalence was 45.2% (38.2-52.2), in Mtendeli 40.7 % (35.4 -45.9). The most affected age category was children 6-23 months with prevalence above 50 % in, the highest was among the new arrivals in Nyarugusu with 58.6% (51.8 -65.3) followed by Mtendeli 52.6% (45.3-59.5) then old population in Nyarugusu with 51.9 (43.4 -60.5) and below 50% in Nduta with 47.7% (39.5 -56.0).

Anaemia among non-pregnant women of reproductive age (15-49 years) was above the 20% in all the camps except Nduta with 15.6% (10.6 -21.7). Nyarugusu old population prevalence was 25.9% (18.5 -33.3), Nyarugusu new arrivals 23.5% (16.1 -30.8) and Mtendeli 24.5% (18.8 -30.3).

9.4 IYCF indicators

Timely initiation of breastfeeding was above 90% among all the new arrivals and 88.1% among the old population. Exclusive breastfeeding under six months was 89.4 % (80.7 -98.1) among the old population in Nyarugusu, 87.9% (79.4 -96.5) among the new arrivals in Nyarugusu, 89.2% (79.1 -95.6) in Nduta and 86.6% (79.0 – 94.1 in Mtendeli. Consumption of iron rich or iron fortified foods was high in the two new camps 95.4% (90.7-98.1) and 96.2% (93.5 -98.8) and in below 80% in Nyarugusu – old population 78.8 % (65.9 –91.7) and new arrivals 73.8 % (58.6 -89.3). Bottle feeding was reported in Mtendeli at 0.7%, the old arrivals 0.4%   and new arrivals 0.7% in Nyarugusu.
There was an improvement in consumption of iron rich foods or iron fortified food from 59.7% (43.6-76.2) to 78.8% (65.9 -91.7%) among the old population in Nyarugusu.

9.5 Food security:

The main source of food the refugee camps is the WFP general food ration that endeavours to provide the minimum 2100 kcal/p/day. Last year there was a pipeline break in the

provision of super cereal leading to temporal reduction between March June, July October, November and December. Additional maize grain was increased to fill the Kcal gap the entire period.

Ration card coverage was above 95% in all the refugee camps, the only camp that had few households without ration cards was Mtendeli among the new arrivals. The average HDDs ranged from 4.8 – 5.7 with the highest reported among the old population living in Nyarugusu, this was notable increase when compared the average HDDS of 4.10 from the findings of PDM that was conducted in October 2015. The least consumed food groups across all the camps were meat eggs, milk and milk products and sweets. On average, the general food ration lasted for at least 21.9 days out of the 28 days cycle in Nyarugusu among both the new arrivals and the old population whereas in Nduta and Mtendeli the food lasted for 10.5 and 10.7 days respectively out of the 14 days cycle. The main reasons cited was that the ration was not enough, majority of the households reported to have borrowed cash, food or any items to ensure their household food security within the past one month with the following proportions 89.9% Nduta Mtendeli 77.5% and Nyarugusu was 67.5%. The second common strategy was begging and was used by most HH with 50.7% reported among the old population in Nyarugusu, 66.4 % in Mtendeli, 46.9% in Nduta and 48.7% among the new arrivals in Nyarugusu. Reduction of the quantity and frequency of meals and snacks of ranged from 40.0 -51.6%.

9.6 WASH

The average usage of water in litres per person per day (lpppd) ranged from 9.4 – 21.3 across all the camps. The least was reported in Nduta 9.4 lpppd, followed by Mtendeli 15.4lpppd, among the new arrivals in Nyarugusu was 20.9 and 21.3 among the old population. The proportion of households that reported to have collected <15 lpppd were 35.5% among the new arrivals in Nyarugusu, 32.9% among the old population, 58.3 % in Nduta and 57.5 % in Mtendeli. 65.5% of the households in Nduta reported that they were dissatisfied with the water supply and the main reason for this was there was irregular supply of water in the camp.

The proportion of households using improved excreta disposal facility was only reported among the old population in Nyarugusu with 32.5 % households having at least one facility per household. Unimproved toilet facility was the commonly used in the new settlements hosting the new arrivals in Nyarugusu with 99.7%, 95.7% in Nduta and 95.3 % in Mtendeli reporting to that were sharing toilets with other households.

9.7 Mosquito net coverage:

The average number of persons per LLIN ranged from 2.8 to 3.4 which were above the UNCHR standard of a 2 persons per LLIN. The proportion of households owning at least one LLIN was lowest in Mtendeli refugee camp with 61.6%, the proportion in the other camps was above the target of >80%. The reasons for the low coverage in Mtendeli were that they not given the relocation from Nyarugusu and some were still new in the camp awaiting the complete registration process.

There is no significant change in the proportions of households owning at least one LLIN among the old population in Nyarugusu as it remained at 76%. Utilization of mosquito nets is relatively good in all the camps except Mtendeli camp that has a low coverage. The proportion of children 0-59 months and women pregnant women is Nduta and among the old

population was above 80%.

9.8 Mortality Rates

The mortality rates in all the camps are within the WHO emergency threshold. No deaths were reported in the sampled household in Nduta and Nyarugusu among the old population were 0.0% the crude mortality rates among the new arrivals in Nyarugusu was 0.13(0.05 - 0.34) and 0.14 (0.05 -0.37) in Mtendeli. The under-five mortality rates among the new arrivals was 0.37(0.1 -1.34) and 0.32 (0.05 -1.17) in Mtendeli refugee camp. However the rates need to be interpreted with caution due to the sampling methodology because only selected household were surveyed and therefore some deaths might have occurred during the data collection.

9.9 Conclusion

The prevalence of global acute malnutrition in all the camps is within the acceptable standards (GAM prevalence <5%); however anaemia prevalence and stunting among children 6-59 months remain a major public health concern being above 40% of public health significance in all the camps (except for anaemia in Nduta refugee camp was 37.2%). Interventions focusing on the prevention and reduction of anaemia and stunting should be prioritized.
The average water supply in Nduta and Mtendeli was below the standard of ≥20l/p/day and poses risk factor to incidence of diarrheal diseases within the refugee camps. Efforts should be done to improve the water supply in these new camps and access to improved toilet facilities.
Prioritize the distribution of mosquito nets in Mtendeli refugee camp to achieve the UNHCR standards and prevent Malaria especially during the upcoming rainy seasons.

Future nutrition monitoring
It is important to monitor the trends of malnutrition, anaemia and stunting and other indicators that have an impact on the health and nutrition wellbeing of the refugees. The next survey to be conducted in future in Nyarugusu should take it to consideration the time and the seasons of the year to allow comparison of the indicators over time because the past survey have been carried out in different months.

Closely monitor the nutrition situation in Mtendeli refugee camp, if possible conduct a rapid assessment or the next survey in the next 6 months depending on the status of the new arrivals.

10 Recommendations

Immediate
Health and Nutrition

- Harmonize the integrated management of acute malnutrition treatment guidelines in all the refugee camps - standardize the admission and discharge criteria in all the camps and improve adherence treatment protocol.
- Ensure availability of all the essential anthropometric equipment (Weighing scales

and height boards in all the nutrition sites in the camps.
- Strengthen health and nutrition outreach activities case finding and defaulter tracing of malnourished children in the community.
- Prioritize capacity building and training of the nutrition staff on IMAM, IYCF and nutrition programming in the refugee camps to ensure adherence to treatment protocols and standards.
- Improve follow up and strengthen supervision of the health and nutrition programme by UNHCR, UNICEF and WFP.
- Follow up and initiate measures to prevent the sale of plumpy nut by caregivers of children enrolled in the Outpatient feeding programme.
- Conduct an assessment in Mtendeli refugee camp to determine the factors contributing to the cases of malnutrition among the new arrivals.
- Continue the blanket supplementary feeding programme (BSFP) for children 6-23 month and improve BCC to sensitize the care givers on the utilization of the products.
- Strengthen the implementation of MIYCN to focus on maternal health and nutrition during pregnancy and child feeding practices in all the camps.
- Improve on the documentation of Vitamin A supplementation and vaccination records on the child health cards.
- The UNHCR/UNICEF/WFP technical teams to urgently look at the interventions to reduce the high anaemia and stunting rates among children 6-59 months.
- Strengthen active case finding at the community and health facility levels using both WHZ and MUAC measurements to screen in order to capture all malnourished children and provide appropriate treatment.

WASH

- Improve the availability of hand washing facilities (water and soap) in Nduta and Nyarugusu refugee camp.
- Construction of improved toilet facilities in the newly established zone in Nyarugusu, Nduta and Mtendeli camps.
- The WASH sector to ensure regular supply of water at the taps stands

Food security:
- Introduce other food assistance modalities such as vouchers or cash in order to improve access diversified foods in the camps.
- Establish livelihood or incoming generating activities in the camps to enable households have access to some amount of income to purchase other foods in order to improve dietary diversity.

Mosquito net:
- Prioritize the distribution of Long-lasting insecticidal net (LLIN) mosquito nets in the households that have not received nets in Mtendeli refugee camp.
- Conduct behaviour change communication (BCC) campaigns to sensitize the community of utilization of mosquito nets in the households in the camps and to reduce the tendency of selling them.

Long term
- Introduce other food assistance modalities such as vouchers or cash in order to

improve access diversified foods in the camps.

- Construction of improved toilet facilities in the new camps to meet the UNHCR standards of access to improved toilet facilities.
- Re- design the IYCF programmes specifically to target maternal health during pregnancy and also infant and young children to prevent malnutrition and stunting.
- Capacity building and training of the health and nutrition partners as well as nutrition staff on the SENS methodology so that they can conduct surveys in future.
- Conduct a proper programme coverage assessment to determine the exact coverage of the nutrition programmes.

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Data analysis and Report compilation
1. Mary chelangat koech –Nutrition survey consultant
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Nutrition survey teams

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4	James Mshanga	UNHCR	Supervisor
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6	Digna Mlacha	WFP	Supervisor
7	Cloudy Twisa	WFP	Supervisor
8	James Ngalaba	Kasulu DC	Team Leader
9	Vasco Chusi	TRCS	Team Leader
10	Albert Sinkamba	TRCS	Team Leader
11	Salum Mhitira	TRCS	Team Leader
12	Gloria Maya	World Vision	Team Leader

13	David Mbwiga	World Vision	Team Leader
14	Yusufu Chikombe	Kibondo DC	Interviewer
15	John Pyangati	ADRA	Interviewer
16	Salvatory Kibamba	World Vision	Interviewer
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19	Teresia Jacobo	TRCS	Interviewer
20	Merjo Samba	MSF	Hemocue Operator
21	Halima Mkilaha	MSF	Hemocue Operator
22	Eli Zubakwa	TRCS	Hemocue Operator
23	Yohana Nzinze	TRCS	Hemocue Operator
24.	Ades Tizetwa	TRCS	Hemocue Operator
25.	Siyaleo Shilambele	Kigoma Region	Hemocue Operator
	ENUMERATORS (REFUGEE STAFF)		
	NYARUGUSU	**NDUTA**	**MTENDELI**
1	Balebanga Makamba (TRCS)	Ntakirutimana Thierry(WV)	Vizigiro Mireille (TRCS)
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Appendices
Appendix 1: Summary of the overall data quality –Anthropometric data (Weight for Height data

<u>Nyarugusu camp (old population)–Kasulu (Aug 2016)</u>

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** (1.2 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.759)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.001)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (3)
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	**0** (1.00)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.19)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.05)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=0.678)

OVERALL SCORE WHZ =		0-9	10-14	15-24	>25	**4** %

The overall score of this survey is 4 %, this is excellent.
There were no duplicate entries detected.
Missing or wrong data:
HEIGHT: Line=199/ID=2
Percentage of children with no exact birthday: 0 %

Nyarugusu camp (New arrivals)–Kasulu (Aug 2016)
Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 / 0	>2.5-5.0 / 5	>5.0-7.5 / 10	>7.5 / 20	**0** (1.3 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 / 0	>0.05 / 2	>0.001 / 4	<=0.001 / 10	**0** (p=0.366)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 / 0	>0.05 / 2	>0.001 / 4	<=0.001 / 10	**2** (p=0.053)
Dig pref score - weight	Incl	#	0-7 / 0	8-12 / 2	13-20 / 4	> 20 / 10	**0** (4)
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** (7)

Standard Dev WHZ Excl SD <1.1 <1.15 <1.20 >=1.20
. and and and or
. Excl SD >0.9 >0.85 >0.80 <=0.80
  0 5 10 20 **0** (0.96)

Skewness WHZ	Excl	#	<±0.2 / 0	<±0.4 / 1	<±0.6 / 3	>=±0.6 / 5	**1** (0.22)
Kurtosis WHZ	Excl	#	<±0.2 / 0	<±0.4 / 1	<±0.6 / 3	>=±0.6 / 5	**0** (-0.05)
Poisson dist WHZ-2	Excl	p	>0.05 / 0	>0.01 / 1	>0.001 / 3	<=0.001 / 5	**0** (p=0.678)

OVERALL SCORE WHZ = 0-9 10-14 15-24 >25 **3** %

The overall score of this survey is 3 %, this is excellent.

There were no duplicate entries detected.
Percentage of children with no exact birthday: 0 %

Nduta camp –Kibondo (Sept 2016)
Overall data quality

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

Flagged data   Incl   %   0-2.5 >2.5-5.0 >5.0-7.5 >7.5
(% of out of range subjects)   0   5   10   20   **0** (0.7 %)

Overall Sex ratio   Incl   p   >0.1 >0.05   >0.001   <=0.001
(Significant chi square)   0   2   4   10   **0** (p=0.119)

Age ratio(6-29 vs 30-59) Incl   p   >0.1 >0.05   >0.001   <=0.001
(Significant chi square)   0   2   4   10   **4** (p=0.031)

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** (9)

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

Standard Dev WHZ   Excl   SD   <1.1 <1.15   <1.20   >=1.20
.   and   and   and   or
.   Excl   SD   >0.9 >0.85   >0.80   <=0.80
             0   5   10   20   **0** (1.01)

Skewness WHZ   Excl   #   <±0.2 <±0.4   <±0.6   >=±0.6
             0   1   3   5   **0** (0.10)

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=)

OVERALL SCORE WHZ =   0-9   10-14   15-24   >25   **7** %

The overall score of this survey is 7 %, this is excellent.
There were no duplicate entries detected.
Percentage of children with no exact birthday: 2 %

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Mtendeli camp Kibondo (Sept 2016)

 Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.9 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.506)
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=0.124)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (3)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (4)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.01)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.03)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.22)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**1** (p=0.023)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**2** %

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

There were no duplicate entries detected.
Percentage of children with no exact birthday: 0 %

Appendix 2: Assignment of Clusters
Clusters -Nyarugusu Refugee camp

Teams	Nyarugusu refugee camp ; Cluster allocations per teams			
	New arrivals		old population	
	Zone and Village	Cluster Number	Zone and Village	Cluster Number
Team 1	Zone 8 D4	1	Zone 1 A1	31
	Zone 8 L4 (Part 1)	2	Zone 1 B1	32
	Zone 8 l4(Part 2)	3	Zone 1 D1	33
	Zone 8 F4	4	Zone 1 E1	34
	Zone 8 A4	5	Zone 2 B2	35
Team 2	Zone 8 C4	6	Zone 2 E2	36
	Zone 8 K4 (Part 1)	7	Zone 2 F2	37
	Zone 8 K4 (Part 2)	8	Zone 3 G1	38
	Zone 8 M4	9	Zone 2 H2	39
	Zone 8 I4	10	Zone 3 H1	40
	Zone 8 Q4	11	Zone 3 I1	41
	Zone 9 M5	12	Zone 3 K1	42
Team 3	Zone 9 H5	13	Zone 3 M1	43
	Zone 9 L5	14	Zone 3 N1	44
	Zone 9 S5	15	Zone 4 O2	45
	Zone 9 N5	16	Zone 4 Q2	46
Team 4	Zone 10 H6	17	Zone 4 R2	47
	Zone 10 G6	18	Zone 5 B3	48
	Zone 10 I6	19	Zone 5 C3	49
	Zone 10 A6	20	Zone 5 K3	50
Team 5	Zone 11 A7	21	Zone 5 M3	51
	Zone 11 C7	22	Zone 6 O1	52
	Zone 11 H7	23	Zone 6 Q1	53
	Zone 11 P7	24	Zone 6 R1	RC,54
	Zone 11 S7	25	Zone 6 T1	55
Team 6	Zone 11 T7	26	Zone 6 V1	56
	Zone 11 V7	27	Zone 7 F3	57
	Zone 11 Y7	28	Zone 7 G3	58
	Zone 12 F8	29	Zone 7 H3	59
	Zone 12 G8	30	Zone 7 O3	60
Reserve clusters				
	Zone 10 J6	RC	Zone 2 A2	RC
	Zone 11 Q7	RC	Zone 4 K2	RC
	Zone 8 E4	RC	Zone 5 A3	RC
	Zone 8 N4	RC		

Cluster selection Mtendeli refugee camp

	Mtendeli Refugee camp cluster Allocation	
	Geographical unit	**Cluster**
	Zone 1 N1	1
	Zone 1 N2	2
	Zone 1 N3	3
	Zone 1 N5	4
Team 1	Zone 1 N7	5
	Zone 1 N9	6
	Zone 1 N10	7
	Zone 2 N1	8
	Zone 2 N3	9
Team2	Zone 2 N4	10
	Zone 2 N5	11
	Zone 2 N7	12
	Zone 3 N1	13
	Zone 3 N2	14
Team 3	Zone 3 N3	15
	Zone 3 N4	16
	Zone 3 N5	17
	Zone 3 N6	18
	Zone 4 N2	19
Team 4	Zone 4 N4	20
	Zone 5 N2	21
	Zone 5 N4	22
	Zone 5 N7	23
	Zone 5 N8	24
Team 5	Zone 5 N9	25
	Zone 5 N11	26
	Zone 6 N2	27
	Zone 6 N3	28
	Zone 6 N4	29
Team 6	Zone 6 N6	30
	Additional clusters in the new zones	
	Zone 7 D	31
	Zone 8 M	32
	Zone 8 W	33
	Zone 9D	34
	Zone 10 N	35
Reserve Clusters	Zone 1 N4	RC

Zone 1 N6		RC
Zone 2 N8		RC
Zone 6 N1		RC

Appendix 3: Evaluation of Enumerators (results from anthropometric standardisation test)

Standardization test –Nduta Refugee camp

Standardisation test results -Nduta refugee camp					Precision				Accuracy		OUTCOME		
Weight		subjects	mean	SD	max	Technical	TEM/mea	Coef of re	Bias from	Bias from	result		
		#	kg	kg	kg	TEM (kg)	TEM (%)	R (%)	Bias (kg)	Bias (kg)			
	Supervisor	5	12.5	2.4	0.4	0.16	1.3	99.6	-	1.23	TEM poor	R value gc	Bias reject
	Enumerator 1	5	12.6	2.3	0.2	0.09	0.8	99.8	0.02	1.25	TEM acceptable	R value gc	Bias reject
	Enumerator 2	5	12.6	2.3	0.3	0.13	1	99.7	0.1	1.33	TEM poor	R value gc	Bias reject
	Enumerator 3	5	12.6	2.4	0.2	0.09	0.8	99.8	0.06	1.29	TEM acceptable	R value gc	Bias reject
	Enumerator 4	5	12.3	2.6	2.6	0.83	6.7	90	-0.22	1.01	TEM reject	R value pc	Bias reject
	Enumerator 5	5	12.5	2.4	0.3	0.15	1.2	99.6	0.01	1.24	TEM poor	R value gc	Bias reject
	Enumerator 6	5	12.6	2.4	0.2	0.09	0.7	99.9	0.05	1.28	TEM acceptable	R value gc	Bias reject
	enum inter 1st	6x5	12.6	2.3	-	0.04	0.3	100	-	-	TEM good	R value good	
	enum inter 2nd	6x5	12.5	2.4	-	0.49	3.9	95.8	-	-	TEM reject	R value acceptable	
	inter enum + sup	7x5	12.5	2.3	-	0.24	1.9	98.2	-	-	TEM reject	R value acceptable	
	TOTAL intra+inte	6x5	-	-	-	0.5	4	95.3	0	1.23	TEM reject	R value ac	Bias reject
	TOTAL+ sup	7x5	-	-	-	0.46	3.7	96	-	-	TEM reject	R value acceptable	
Height		subjects	mean	SD	max	Technical	TEM/mea	Coef of re	Bias from	Bias from	result		
		#	cm	cm	cm	TEM (cm)	TEM (%)	R (%)	Bias (cm)	Bias (cm)			
	Supervisor	5	87.5	9.8	0.8	0.34	0.4	99.9	-	1.35	TEM good	R value good	
	Enumerator 1	5	87.6	9.9	2.2	0.82	0.9	99.3	0.13	1.48	TEM poor	R value gc	Bias good
	Enumerator 2	5	87.4	9.6	0.7	0.3	0.3	99.9	-0.1	1.25	TEM good	R value gc	Bias good
	Enumerator 3	5	87.3	10.2	1.8	0.84	1	99.3	-0.11	1.24	TEM poor	R value gc	Bias good
	Enumerator 4	5	87.4	9.8	0.8	0.36	0.4	99.9	-0.02	1.33	TEM good	R value gc	Bias good
	Enumerator 5	5	87.7	9.7	1.4	0.7	0.8	99.5	0.21	1.56	TEM poor	R value gc	Bias good
	Enumerator 6	5	87.3	9.8	2.1	0.69	0.8	99.5	-0.18	1.17	TEM poor	R value gc	Bias good
	enum inter 1st	6x5	87.3	9.6	-	0.59	0.7	99.6	-	-	TEM acceptable	R value good	
	enum inter 2nd	6x5	87.6	9.4	-	0.88	1	99.1	-	-	TEM acceptable	R value good	
	inter enum + sup	7x5	87.4	9.4	-	0.67	0.8	99.5	-	-	TEM acceptable	R value good	
	TOTAL intra+inte	6x5	-	-	-	0.99	1.1	98.9	-0.01	1.34	TEM acceptable	R value ac	Bias good
	TOTAL+ sup	7x5	-	-	-	0.92	1.1	99	-	-	TEM acceptable	R value good	
MUAC		subjects	mean	SD	max	Technical	TEM/mea	Coef of re	Bias from	Bias from	result		
		#	mm	mm	mm	TEM (mm)	TEM (%)	R (%)	Bias (mm)	Bias (mm)			
	Supervisor	5	154.3	11	2.2	1	0.7	99.2	-	7.31	TEM good	R value gc	Bias reject
	Enumerator 1	5	153.9	12.1	20	6.4	4.2	71.9	-0.41	6.9	TEM reject	R value re	Bias reject
	Enumerator 2	5	152.1	10	4	1.76	1.2	96.9	-2.21	5.1	TEM good	R value ac	Bias reject
	Enumerator 3	5	156.6	12.1	6	2.14	1.4	96.9	2.29	9.6	TEM acceptable	R value ac	Bias reject
	Enumerator 4	5	155.6	9.9	7	2.65	1.7	92.9	1.29	8.6	TEM acceptable	R value ac	Bias reject
	Enumerator 5	5	153.5	13.8	7	2.92	1.9	95.5	-0.81	6.5	TEM poor	R value ac	Bias reject
	Enumerator 6	5	154.1	10.6	5	2.81	1.8	93	-0.21	7.1	TEM poor	R value pc	Bias reject
	enum inter 1st	6x5	154.4	11.6	-	4.94	3.2	81.8	-	-	TEM reject	R value reject	
	enum inter 2nd	6x5	154.2	10.8	-	2.55	1.7	94.4	-	-	TEM acceptable	R value poor	
	inter enum + sup	7x5	154.3	11	-	3.42	2.2	90.1	-	-	TEM reject	R value poor	
	TOTAL intra+inte	6x5	-	-	-	5.24	3.4	77.7	-0.01	7.3	TEM reject	R value re	Bias reject
	TOTAL+ sup	7x5	-	-	-	4.83	3.1	80.7	-	-	TEM reject	R value reject	

Standardization test –Mtendeli refugee camp

Standardisation test results -Mtendeli refugee camp				Precision				Accuracy		OUTCOME	
Weight	subjects	mean	SD	max	Technical	TEM/mea	Coef of re	Bias from	Bias from	result	
	#	kg	kg	kg	TEM (kg)	TEM (%)	R (%)	Bias (kg)	Bias (kg)		
Superviso	6	13.4	2.4	0.6	0.18	1.3	99.4	-	0.99	TEM poor R value gc	Bias reject
Enumerat	6	13.1	2.2	3.9	1.13	8.6	72.7	-0.25	0.74	TEM rejec R value re	Bias reject
Enumerat	6	13.5	2.5	0.1	0.06	0.4	99.9	0.07	1.07	TEM accep R value gc	Bias reject
Enumerat	6	13.4	2.4	0	0	0	100	0.04	1.03	TEM good R value gc	Bias reject
Enumerat	6	13.5	2.4	0.3	0.09	0.7	99.9	0.06	1.05	TEM accep R value gc	Bias reject
Enumerat	6	13.4	2.5	0.1	0.04	0.3	100	0.02	1.02	TEM accep R value gc	Bias reject
Enumerat	6	13.4	2.4	0.1	0.05	0.4	100	0.03	1.03	TEM accep R value gc	Bias reject
enum inte	6x6	13.4	2.4	-	0.06	0.4	99.9	-	-	TEM good R value good	
enum inte	6x6	13.3	2.3	-	2.3	4.9	91.7	-	-	TEM rejec R value poor	
inter enur	7x6	13.4	2.3	-	0.33	2.4	96.5	-	-	TEM rejec R value acceptable	
TOTAL int	6x6	-	-	-	0.66	4.9	91.9	0	0.99	TEM rejec R value pc	Bias reject
TOTAL+ su	7x6	-	-	-	0.61	4.5	93	-	-	TEM rejec R value poor	

Height	subjects	mean	SD	max	Technical	TEM/mea	Coef of re	Bias from	Bias from	result	
	#	cm	cm	cm	TEM (cm)	TEM (%)	R (%)	Bias (cm)	Bias (cm)		
Superviso	6	95	8.3	0.4	0.15	0.2	100	-	1.39	TEM good R value good	
Enumerat	6	94.7	8.3	0.7	0.28	0.3	99.9	-0.25	1.14	TEM good R value gc	Bias good
Enumerat	6	94.8	8.4	1.1	0.45	0.5	99.7	-0.19	1.2	TEM accep R value gc	Bias good
Enumerat	6	95.3	8.2	0.5	0.2	0.2	99.9	0.29	1.68	TEM accep R value gc	Bias good
Enumerat	6	95	8.5	1.2	0.41	0.4	99.8	-0.03	1.36	TEM accep R value gc	Bias good
Enumerat	6	95.3	8.3	1	0.36	0.4	99.8	0.26	1.65	TEM accep R value gc	Bias good
Enumerat	6	94.8	8.3	0.9	0.39	0.4	99.8	-0.16	1.23	TEM good R value gc	Bias good
enum inte	6x6	95	8.1	-	0.44	0.5	99.7	-	-	TEM good R value good	
enum inte	6x6	94.9	8	-	0.37	0.4	99.8	-	-	TEM good R value good	
inter enur	7x6	95	8	-	0.37	0.4	99.8	-	-	TEM good R value good	
TOTAL int	6x6	-	-	-	0.54	0.6	99.5	-0.01	1.38	TEM accep R value gc	Bias good
TOTAL+ su	7x6	-	-	-	0.5	0.5	99.6	-	-	TEM good R value good	

MUAC	subjects	mean	SD	max	Technical	TEM/mea	Coef of re	Bias from	Bias from	result	
	#	mm	mm	mm	TEM (mm)	TEM (%)	R (%)	Bias (mm)	Bias (mm)		
Superviso	6	144.8	9	4	1.35	0.9	97.8	-	1.84	TEM good R value ac	Bias acceptable
Enumerat	6	144.9	9.1	5	1.76	1.2	96.3	0.08	1.92	TEM good R value ac	Bias acceptable
Enumerat	6	141.1	10.1	4	1.44	1	98	-3.76	-1.92	TEM good R value ac	Bias good
Enumerat	6	145.1	9.3	6	2.53	1.7	92.6	0.24	2.08	TEM accep R value pc	Bias poor
Enumerat	6	148.3	10.8	5	2.29	1.5	95.5	3.41	5.25	TEM accep R value ac	Bias reject
Enumerat	6	145.9	10.3	5	1.55	1.1	97.7	1.08	2.92	TEM good R value ac	Bias poor
Enumerat	6	143.8	8.7	29	8.53	5.9	3.9	-1.01	0.83	TEM rejec R value re	Bias good
enum inte	6x6	144.7	10	-	5.99	4.1	63.9	-	-	TEM rejec R value reject	
enum inte	6x6	145	9.5	-	2.66	1.8	92.1	-	-	TEM accep R value poor	
inter enur	7x6	144.8	9.5	-	3.95	2.7	81.7	-	-	TEM rejec R value reject	
TOTAL int	6x6	-	-	-	6.07	4.2	60.5	0.01	1.85	TEM rejec R value re	Bias acceptable
TOTAL+ su	7x6	-	-	-	5.6	3.9	65.4	-	-	TEM rejec R value reject	

Appendix 4: Questionnaire

SURVEY QUESTIONNAIRE

DODOSO LA UTAFITI WA LISHE LA SHIRIKA LA KUHUDUMIA WAKIMBIZI DUNIANI (UNHCR)

UNHCR Standardized Expanded Nutrition Survey (SENS) Questionnaire

Tanzania Nutrition Survey, August/September 2016

Haki za mshiriki na maamkizi:TAMKO HILI LISOMWE KWA MKUU WA KAYA, AU MWANA KAYA MWINGINE AMBAYE NI MKUBWA KAMA MKUU WA KAYA HAYUPO. MCHUKULIE MKUU WA KAYA KAMA MWANGALIZI ANAYERATIBU RASILIMALI ZOTE ZA FAMILIA NA KUTOA MAAMUZI YA MWISHO KATIKA KAYA.

Habari, jina langu naitwa..ninafanya kazi katika shirika la (UNHCR/UNICEF/WFP/TRCS/MSF/Worldvision). Tungependa kuialika kaya yako kushiriki katika utafiti unaohusika na lishe na afya ya watu wanaoishi hapa kambini.

- Utafiti huu wa lishe umedhaminiwa na UNHCR/WFP/UNICEF

- Kushiriki katika utafiti huu ni hiari yako. Unaweza kuamua kutokushiriki, au hata ukiamua kushiriki unaweza kusitisha na kuacha kushiriki katika utafiti huu wakati wowote kwa sababu yoyote. Ukiamua kutokushiriki katika utafiti huu, hutaathirika

kwa lolote na kaya yako itaendelea kupokea misaada na huduma zingine kama kawaida.

- Kama ukikubali kushiriki, nitakuuliza baadhi ya maswali kuhusu familia yako na pia kupima uzito na kimo/urefu wa watoto wote katika kaya ambao wana umri kati ya miezi 6 na chini ya miaka 5. Zaidi ya hapo, tutapima kiasi kidogo cha damu kutoka kwenye kidole cha mtoto na mwanamke ili kuona kama wana upungufu wa damu.

- Kabla ya kuanza kukuuliza maswali au kuchukua kipimo chochote, tutakuomba utupatie ridhaa yako ya kushiriki katika utafiti huu. Tunakuhakikishia kwamba taarifa yoyote utakayotupatia tutaitunza kama siri na haitatolewa kwa mtu mwingine yeyote.

- Unaweza kuniuliza swali lolote kuhusu utafiti huu kabla ya kuamua kushiriki au la.

- Kama huelewi taarifa au ikiwa maswali yako hayakujibiwa vilivyo na hukuridhika, basi usikubali kutoa ridhaa yako ya kushiriki katika fomu hii. Asante

Kumbuka kwamba katika baadhi ya makambi majina ya "ukanda" na "eneo" yanaweza yasiwepo na badala yake maneno mengine yakatumiwa. Tumia majina yaliyopo

Maandishi katika HERUFI KUBWA ni kwa ajili ya maelekezo kwa msaili na yasisomwe kwa mshiri

Tanzania Nutrition survey Aug/Sept 2016: WATOTO WA MIEZI 6-59 VIPIMO VYA LISHE, AFYA NA UPUNGUFU WA DAMU: dodoso 1 kwa kila "mkusanyiko" /ukanda /eneo (DODOSO HILI LIFANYIKE KWA WATOTO WENYE UMRI KATI YA MIEZI 6 NA 59)**Ukanda/Eneo**:_____ Kijiji:_____ Namba ya Mtaa /Barabara: _____

Tarehe ya usaili (siku/mwezi/mwaka):	___	___	/	___	___	/	___	___		___	___			Namba ya "mkusanyiko" (kwa *tafiti za "cluster" tu*)	___	___			Namba ya timu	___	

MT1	MT 2	MT3	MT 4	MT5	MT6	MT7	MT8	MT9	MT10	MT11	MT12	MT13	MT14	MT 15
Utam bulisho	Nyu mba	Ridhaa 1=Ndiyo 2=Hapa na 3=Hayu po	Jinsi (me/ ke)	Kuzaliwa* **(trh/mwezi/ mwaka)**	Umri** (miezi)	Uzito (kg) ±100g	Heigh t (sm) ±0.1s m	Uvim be (y/n)	Mzingo wa kati wa Mkono (mm)	Mtoto anahud huria 1=SFP 2=TFP 3=Non e	Surua 1=Ndiyo kadi 2= Ndiyo kumbuka 3=Hapana /sijui	Vit. A ndani ya miezi 6 iliyopita (ONYESHA VIDONGE) 1=Ndiyo kadi 2= Ndiyo kumbuka 3=Hapana/si jui	Kuhara katika wiki 2 zilizopita 1=Ndiyo 2=Hapana 3=Sijui	Kias i cha Dam u *(g/L au g/dL)*

01			/ /										
02			/ /										

* tarehe halisi ya kuzaliwa uchukuliwe tu kutoka katika nyaraka / kadi za hospitali zinazoonyesha siku, mwezi na mwaka wa kuzaliwa. Inaandikwa tu kama kuna vyaraka zenye uthibitisho /kadi za hospitali wa umri wa mtoto; hata kama mama anakumbuka tarehe halisi, bado haitoshi. **Acha wazi kama hakuna nyaraka za uthibitisho wa umri.**

**kama hakuna nyaraka / kadi za hospitali za uthibitisho wa umri, kadiria umri kwa kutumia kalenda ya matukio na majira ya mwaka. Kama kuna nyaraka za uthibitisho /kadi za hospitali wa umri andika umri katika miezi kutoka tarehe ya kuzaliwa

Tanzania Nutrition survey Aug/Sept 2016: UPUNGUFU WA DAMU KWA WANAWAKE: dodoso 1 kwa kila "mkusanyiko" /ukanda /eneo (DODOSO HILI LIFANYIKE KWA WANAWAKE WENYE UMRI KATI YA MIAKA 15 NA 49 KATIKA NYUMBA ILIYOCHAGULIWA*)***Ukanda/Eneo***:_____   Kijiji:_____   Namba ya Mtaa /Barabara: _____

Tarehe ya usaili (siku/mwezi/mwaka):				Namba ya "mkusanyiko" (kwa *tafiti za "cluster" tu*)				Namba ya timu
|___|___|/|___|___|/|___|___||___|___|				|___|___|				|___|
MM1	**MM2**	**MM3**	**MM4**	**MM5**	**MM6**	**MM7**	**MM8**	
Utam bulish o	**Nyum ba**	**Ridhaa** 1=ndiyo 2=hapan a 3=hayup o	**Umri** (miaka)	**Una ujauzito?** 1=ndiyo 2=hapana (pima kiasi cha damu) 8=sijui (pima kiasi cha damu)	**Umeandikishwa kwenye kliniki ya afya ya mama na mtoto?** 1=Ndiyo 2=Hapana 3=Sijui	**Je unapokea vidonge vya kuongeza damu vinayotolewa kliniki? (*ONYESHA VIDONGE*)?** 1=Ndiyo (Komea hapa) 2=Hapana (Komea hapa)	Kiasi cha damu (g/L au g/dL)	

						8=Sijui (Komea hapa)	
01							
02							

Tanzania Nutrition survey Aug/Sept 2016: ULISHAJI WA WACHANGA NA WATOTO WADOGO (UWWW): dodoso 1 kwa kila "mkusanyiko" /ukanda /eneo (DODOSO HILI LIFANYIKE KWA MAMA AU MLEZI AMBAYE ANAWAJIBU WA KUMLISHA MTOTO NA MTOTO AWE NA UMRI KATI MIEZI 0 NA 23)

Ukanda/Eneo:_____   Kijiji:_____   Namba ya Mtaa /Barabara: _____

Tarehe ya usaili (siku/mwezi/mwaka):		Namba ya "mkusanyiko" (kwa *tafiti za "cluster" tu*)	
|___|___|/|___|___|		|___|___|	
	Namba ya timu	**Namba ya utambulisho**	**Namba ya Nyumba**
	|___	|___|___|___|	|___|___|___|

Na.	SWALI	ALAMA YA JIBU	
KIPENGELE UW1			
UW 1	Jinsia	Kiume.......................................1 Kike...2	|___|
UW 2	Tarehe ya kuzaliwa ANDIKA KUTOKA KATIKA NYARAKA ZA UTHIBITISHO (KADI YA HOSPITALI YA KUZALIWA KWA MTOTO)WA KUZALIWA ACHA WAZI KAMA HAKUNA NYARAKA ZA UTHIBITISHO WA KUZALIWA	Siku/Mwezi/Mwaka…..|___|___| /|___|___| / |___|___||___|___|	
UW 3	Umri wa mtoto katika miezi	KAMA HAKUNA NYARAKA ZA UTHIBITISHO /(KADI YA HOSPITALI YA KUZALIWA KWA MTOTO) WA UMRI WA MTOTO, KADIRIA UMRI KWA KUTUMIA KALENDA YA MATUKIO NA MAJIRA YA MWAKA. KAMA KUNA NYARAKA ZA UTHIBITISHO (KADI YA HOSPITALI YA KUZALIWA KWA MTOTO) WA UMRI ANDIKA UMRI KATIKA MIEZI KUTOKA TAREHE YA KUZALIWA	|___|___|
UW 4	Je [*taja jina la mtoto*] aliwahi kunyonya?	Ndio.......................................1 Hapana..................................2 Sijui 8	|___| **KAMA JIBU NI 2 AU 8 NENDA UW7**
UW 5	Ilichukuwa muda gani (*taja jina la mtoto*) kuanza kunyonya kwa mara ya kwanza alipozaliwa	Chini ya saa moja ....1 Kati ya saa 1 hadi 23 ....2 Zaidi ya saa 24 ....3 Sijui 8	|___|

UW 6	Je (*taja jina la mtoto*) alinyonya jana mchana au usiku?	Ndiyo..1	
		Hapana...2	|___|
		Sijui 8	

KIPENGELE UW2

UW 7	Sasa ningependa kukuuliza maswali kuhusu vyakula vya majimaji ambavyo [*taja jina la mtoto*] alikula jana mchana au usiku. Ningependa kujua kama mtoto wako ulimpa chakula cha namna hiyo hata kama kilichanganywa na vyakula vingine. Je, jana mchana au usiku [*taja jina la mtoto*] alikula vyakula vya namna hiyo kama;
	ULIZA KUHUSU KILA CHAKULA CHA MAJIMAJI. KAMA ALIPEWA KITU HICHO, ZUNGUSHIA '1'. KAMA HAKUPEWA KITU HICHO, ZUNGUSHIA '2'. KAMA MLEZI HAJUI, ZUNGUSHIA '8'. KILA MSTARI LAZIMA UWE NA ALAMA.
	INGIZA MAJINA YA VITU KATIKA NAFASI YA MAANDISHI YALIYOWEKEWA KIVULI CHA KIJIVU KAMA YANAVYOTUMIKA MAHALI HAPO MAANDISHI YALIYOLALIA KULIA YANATAKIWA KUFUTWA KATIKA DODOSO LA MWISHO LITAKALOTUMIKA KWA UTAFITI – ORODHA ILIYOTOLEWA HAPO CHINI NI MFANO. Ndy Hpn Sij

	7A. Maji yasiyochanganywa na kitu chochote	7A………………………1	2	8
	7B. Maziwa ya kopo ya watoto wachanga (Infant formular), kwa mfano? [Lactogen , Nan , and S26]	7B………………………1	2	8
	7C. Maziwa ya kopo, ya unga au ya maji yenye asili ya wanyama (Mbuzi au ngombe), kwa mfano? [maziwa ya unga kwa mfano Nido..... , maziwa ya pakiti kama tanga fresh ,]	7C………………………1	2	8
	7D. Maji ya matunda ama juici kama juici freshi ama za dukani , kwa nfano? [Azam , blackcurrant ,soda)	7D………………………1	2	8
	7E. Supu /mchuzi	7E………………………1	2	8
	7F. Maziwa ya kugandishwa /mtindi.(sour milk or yorgurt)	7F………………………1	2	8
	7G. Uji mwepesi,	7G………………………1	2	8
	7H. Chai au kahawa ya maziwa	7H………………………1	2	8
	7I. Vyakula vyote vya majimaji vinavyo patikana hapa, kwa mfano? [. *soda, vinywaji vitamu vingine,*	7I………………………...1	2	8

	vinywaji kutoka katika mitishamba, maji matamu ya chupa ndogo, chai isiyo na maziwa, kahawa isiyo na maziwa, vinywaji vya asili)		
UW 8	Je, jana mchana au usiku [*taja jina la mtoto*] alikula chakula kigumu au laini (kilichopondwapondwa)	Ndiyo…………………...1 Hapana…………….....2 Sijui…..................8	|___|

KIPENGELE UW3

UW 9	Je jana mchana au usiku [*taja jina la mtoto*] alinyonya kupitia chupa au vyombo bandia vya kunyonyeshea watoto?	Ndiyo…………………...1 Hapana…………….....2 Sijui…..................8	|___|

KIPENGELE UW4

UW 10	MTOTO ANA UMRI KATI YA MIEZI 6 – 23? REJEA UW2/UW3	Ndiyo…………………...1 Hapana…………….....2	|___| **KAMA JIBU NI 2 KOMEA HAPA**
UW 11	Nataka nikuulize kuhusu vyakula fulani ambavyo [*taja jina la mtoto*] anaweza kuwa alikula. Ningependelea kujuwa kama mtoto wako jana mchana au usiku alikula vyakula vya majimaji hata kama vyakula hivyo vilichanganywa na vyakula vingine kwenye mlo wake kama ifuatavyo; ULIZA KUHUSU KILA KITU. KAMA ALIPEWA KITU HICHO, ZUNGUSHIA '1'. KAMA HAKUPEWA KITU HICHO, ZUNGUSHIA '2'. KAMA MLEZI HAJUI,ZUNGUSHIA '8'.KILA MSTARI LAZIMA UWE NA ALAMA. INGIZA MAJINA YA VITU KATIKA NAFASI YA MAANDISHI YALIYOWEKEWA KIVULI CHA KIJIVU KAMA YANAVYOTUMIKA MAHALI HAPO. MAANDISHI YALIYOLALIA KULIA YANATAKIWA KUFUTWA KATIKA DODOSO LA MWISHO LITAKALOTUMIKA KWA UTAFITI – ORODHA ILIYOTOLEWA HAPO CHINI NI MFANO. KAMA JAMII YA VYAKULA VYENYE MADINI YA CHUMA (11A – 11H) HAIPO KATIKA ENEO HILO, FUTA KWENYE DODOSO LAKINI TUNZA NAMBA ZA MASWALI KAMA ZILIVYOKUWA NA USIBADILISHE		
		Ndy Hpn Sij	
	11A .NYAMA (kwa mfano ya *Ngo'mbe, mbuzi, kondoo, nguruwe, sungura, kuku, bata, maini, figo, moyo)* na samaki.	11A………………………… …..1 2 8	

	11B. Mchanganyo wa soja na unga wa mahindi [CSB+]	11B……………………..………… ….1 2 8
	11C. Mchanganyo wa soya na unga wa mahindi [CSB++] ONYESHA MFUKO AU KIFUNGASHIO)	11C……………………..………… …1 2 8
	11D. *Plumpy'Nut®, eeZeePaste™)* (ONYESHA MFUKO AU KIFUNGASHIO)	11D………………………….. …1 2 8
	11E**.** MAZIWA YA KOPO YA WATOTO WACHANGA TU YALIYOONGEZEWA MADINI YA CHUMA YANAYOPATIKANA HAPO] *(mf. Nan, S26 infant formula)*	11G……...…………………... ..1 2 8
	11F. CHAKULA CHOCHOTE KIGUMU, CHEPESI AU LAINI KILICHOONGEZEWA MADINI YA CHUMA KWA AJILI YA WATOTO WACHANGA KINACHOPATIKANA HAPO AMBACHO NI TOFAUTI NA KILE KINACHOGAWIWA NA TUMIA MAJINA YALIYOZOELEKA] *(mf. Cerelac, Weetabix).*	11H………………………… …....1 2 8

**Tanzania Nutrition survey Aug/Sept 2016: MAJI NA USAFI WA MAZINGIRA:
dodoso 1 kwa kila "mkusanyiko-cluster"/ukanda /eneo** (DODOSO HILI
LIFANYIKE KWA MKUU WA KAYA AU, MWANAKAYA MWINGINE
AMBAYE NI MTU MZIMA KAMA MKUU WA KAYA HAYUPO

Ukanda/Eneo:_____   **Kijiji:**_____   **Namba ya Mtaa /Barabara:**
_____

Tarehe ya usaili (siku/mwezi/mwaka):	**Namba ya "mkusanyiko" (kwa *tafiti za "cluster" tu*)**
|___|___|/|___|___|/|___|___||___|___|	|___|___|
Namba ya timu	**Namba ya Nyumba**
|___}	|___|___|___|

Na.	SWALI	ALAMA YA JIBU
KIPENGELE MU1		
MU 1	Ni watu wangapi wanaokaa katika kaya hii na waliolala katika nyumba hii jana usiku?	|___|___|

MU 2	Ni kipi chanzo **kikuu** cha maji ya kunywa mnachokitegemea katika kaya hii? PATA ORODHA YA ENEO HUSIKA KABLA YA UTAFITI KUANZA UNAPOANDAA ORODHA HAKIKISHA UNATUNZA ALAMA ZA MAJIBU KAMA ZILIVYO NA USIBADILISHE. USISOME MAJIBU CHAGUA JIBU MOJA TU	Maji ya bomba (mtaani) ....01 Maji ya mvua (kuvuna) ....02 Gari la maji la UNHCR....................03 Chemchem isiyo na ulinzi ....04 Maji ya chupa (kiwandani)...............05 Maji ya bwawani au mtoni ....06 Chanzo kingine.................................96 Sifahamu 98	|___|___|
MU 3	Je unaridhika na upatikanaji wa maji? SWALI HILI LINAZINGATIA UPATIKANAJI WA MAJI YA KUNYWA	Ndiyo..1 Hapana..2 Kiasi ....3 Sijui..8	|___| **KAMA JIBU NI 1, 3 AU 8 NENDA MU5**
MU 4	Sababu gani **hasa** inayokufanya usiridhike na huduma ya maji? PATA ORODHA YA ENEO HUSIKA KABLA YA UTAFITI KUANZA USISOME MAJIBU CHAGUA JIBU MOJA TU	Hayatoshi ....01 Yakusubiria kwa kupanga mstari ......02 Yanapatikana mbali..........................03 Hayapatikani muda wote...................04 Ladha mbaya ....05 Maji yana uvuguvugu.......................06 Hayana ubora/sio mazuri ....07 Yakulipia...08 Sababu nyingine ....96 Sijui..98	|___|___|
MU 5	Nyumba hii inatumia choo cha aina gani? PATA ORODHA YA ENEO HUSIKA KABLA YA UTAFITI KUANZA	Choo cha shimo na kilicho sakafiwa na bomba la hewa chafu ....01 Choo cha shimo kisicho sakafiwa/kikavu/(traditional latrine)...02 Hakuna/uwanjani/vichakani/mifuko ya plastiki..	

		03	|___|___| **KAMA JIBU NI 10 NENDA MU7**
	UNAPOANDAA ORODHA HAKIKISHA UNATUNZA ALAMA ZA MAJIBU KAMA ZILIVYO NA USIBADILISHE. USISOME MAJIBU CHAGUA JIBU MOJA TU		
MU 6	Je! Ni **kaya** ngapi zinazochangia choo hiki?	ANDIKA IDADI YA KAYA KAMA ZINAFAHAMIKA (REKODI 96 KAMA NI CHOO CHA UMMA, 98 KAMA HAIJULIKANI)	|___|___| Kaya
	HII NI PAMOJA NA KAYA INAYOTAFITIWA	**MSIMAMIZI CHAGUA MOJA TU** Hakichangiwi (**Kaya 1**).....................1 Cha kuchangia (**Kaya 2**) ....2 Cha jumuiya (**Kaya 3 na zaidi**)..........3 Cha umma (**sokoni, kliniki/zahanati n.k**) ....4 Sijui 8	|___|
MU 7	Kuna watoto wenye umri chini ya miaka mitatu?	Ndiyo.......................................1 Hapana.................................2	|___| **KAMA JIBU NI 2 NENDA MU9**
MU 8	Mara ya mwisho [TAJA JINA LA MTOTO WA MWISHO] alipojisadia haja kubwa mlifanya nini kuhakikisha kinyesi hicho kimetupwa? USISOME MAJIBU CHAGUA JIBU MOJA TU	Mtoto alienda chooni kujisaidia........01 Tulimwaga kinyesi chooni ....02 Tulifukia..03 Kilitupwa kwenye takataka...............04 Kilitupwa kwenye shimo...................05 Kiliachwa sehemu ya wazi ....06 Sehemu nyingine...............................96 Sijui 98	|___|___|

KIPENGELE MU2

Maswali kwa uchunguzi (*yafanyike mara tu baada ya yale ya awali kumalizika ili kuhakikisha mtiririko wa usaili haukatiki*)

Na.	UCHUNGUZI / SWALI	JIBU			
MU9	KOKOTOA KIWANGO CHA MAJI YANAYOTUMIWA NA KAYA KWA SIKU HII INAJUMUISHA MAJI KUTOKA VYANZO VYOTE (MAJI YA KUNYWA NA YASIYO YA KUNYWA)	Tafadhali nionyeshe vyombo ulivyotumia kuchota maji jana KIPE NAMBA KILA CHOMBO	Ujazo katika lita	Idadi ya safari zilizofanyika kwa kila chombo	Jumla ya lita **MSIMAMIZI AMALIZIE KUFANYA HESABU KWA MKONO**
		1 m.f. Dumu	25 L	1 x	25
		2 m.f. Dumu	10 L	2 x	20
		3 m.f. Dumu	5 L	2 x	10
		4 m.f. Dumu	5 L	1 x	5
		5 m.f. Dumu	50 L	1 x	50
		Jumla ya lita zilizotumiwa na kaya			110
MU10	Tafadhali nionyeshe vyombo unavyotumia kutunzia maji ya kunywa VYOMBO VYA KUTUNZIA MAJI YA KUNYWA VIMEFUNIKWA AU VINA MDOMO USIOMPANA/MWEMBAMBA	Vyote vina.. 1 Baadhi vina ....2 Hakuna chenye....................................3			|___|

Tanzania Nutrition survey Aug/Sept 2016: USALAMA WA CHAKULA: dodoso 1 kwa kila kaya (DODOSO HILI LIFANYIKE KWA MWANGALIZI MKUU WA KAYA ANAYEHUSIKA NA KUPIKA CHAKULA)

Ukanda/Eneo:_____ **Kijiji:**_____ **Namba ya Mtaa /Barabara:** _____

Tarehe ya usaili (tarehe/mwezi/mwaka):	Namba ya "mkusanyiko" (kwa *tafiti za "cluster" tu*)
|___|___|/|___|___	|___|___|

	Namba ya timu	Namba ya Nyumba
	|___|	|___|___|___|

Na.	SWALI	ALAMA YA JIBU	
KIPENGELE UC1			
UC1	Je kaya yako ina kadi ya kupokelea chakula?	Ndiyo .... 1 Hapana 2	|___|**KAMA JIBU NI 1 NENDA UC3**
UC2	Kwa nini hauna kadi ya chakula?	Sikupewa .... 1 Imepotea .... 2 Imeuzwa .... 3 Sijasajiliwa lakini ninastahili ... 4 Sistahili (Sio miongoni mwa walengwa) .... 5 Sababu nyingine 6	|___| **NENDA UC5**
UC3	Ni siku ngapi abazo chakula ulichopokea kutoka kwenye mgao wa [INGIZA] wa mwezi [INGIZA MWEZI] kilidumu?	ANDIKA NAMBA YA SIKU KAMA ZINAFAHAMIKA (ANDIKA 98 KAMA HAIJULIKANI)	|___|___|
UC4	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliyechukua mkopo wa fedha, chakula au kitu kingine chochote kwa kulipa au kutokulipa riba?	Ndiyo .... 1 Hapana .... 2 Sijui 8	|___|
UC5	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliyeuza mali yoyote ambayo katika hali ya kawaida msingeiuza (mfano: viti, meza, mbegu za kupanda, zana za kazi, mifugo n.k)?	Ndiyo .... 1 Hapana .... 2 Sijui 8	|___|
UC6	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliyeomba msaada au kuazima fedha ,chakula ama chochote au zawadi zaidi ya ilivyo kawaida?	Ndiyo .... 1 Hapana .... 2 Sijui 8	|___|

UC7	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliye punguza kipimo cha chakula au idadi ya milo au vitafunwa?	Ndiyo ....1 Hapana ....2 Sijui 8	|___|
UC8	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliyeomba, kitu chochote?	Ndiyo ....1 Hapana ....2 Sijui 8	|___|
UC9	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliyejiingiza katika vitendo hatarishi au vyenye madhara kama *kukata mti , kutoka nje ya kambi bila kibali, kuuuza pombe haramu* au mambo mengine hatarishi au yenye madhara katika maisha yake?	Ndiyo ....1 Hapana ....2 Sijui 8	|___|

SECTION FS2

UC10	Sasa ningependa kukuuliza kuhusu aina ya vyakula ambavyo wewe au mwanakaya yeyote katika kaya yako alikula jana wakati wa mchana au usiku. Ningependelea kujua kama wewe au yeyote katika kaya alikula vyakula hivyo hata kama vilikuwa vimechanganywa na vyakula vingine. Ningependelea zaidi kujua juu ya milo, vyakula laini na vinywaji na vitafunio vilivyoliwa au kunywewa hapa nyumbani au nje ya hapa. SOMA ORODHA YA VYAKULA NA USIHOJI. WEKA *MOJA* KATIKA KIBOMA KAMA KATIKA KAYA KUNA MTU YEYOTE ALIYEKULA CHAKULA HUSIKA, ANDIKA *SIFURI* KAMA HAKUNA MWANAKAYA ALIYEKULA CHAKULA HICHO. INGIZA MAJINA YA VITU KATIKA NAFASI YA MAANDISHI YALIYOWEKEWA KIVULI CHA KIJIVU KAMA YANAVYOTUMIKA MAHALI HAPO. MAANDISHI YALIYOLALIA KULIA YANATAKIWA KUFUTWA KATIKA DODOSO LA MWISHO LITAKALOTUMIKA KWA UTAFITI – ORODHA ILIYOTOLEWA HAPO CHINI NI MFANO.
	1. Nafaka *(mf. Ngano, mahindi ya kuchomwa au kupikwa, unga wa mahindi uliochanganywa na soya, shayiri, mtama, mchele, , ulezi)* au vyakula vyovyote vinavyotokana na mazao hayo kama]*(mf. mkate, uji, ugali, tambi, maandazi, vitumbua n.k)*	1…………………..………|___|
	2. VYAKULA VYA ASILI YA MIZIZI MYEUPE *(mf. ndizi za kupikwa, viazi mviringo vyeupe, magimbi , mihogo, viazi vitamu vyeupe)* au vyakula vyovyote vinavyotokana na mazao hayo kama vile *(mf. viazi au ndizi, au mihogo ya*	2……………………......…|___|

	kukaanga, mihogo ya kukaanga, viazi au ndizi au mihogo ya kuchemsha.	
	3A. MBOGA ZA MAJANI NA VYAKULA VYA MIZIZI VYENYE VITAMINI *(mf. karoti, maboga, viazi vitamu ambavyo ni rangi ya njana , pilipili hoho nyekundu)*	3A…………………….…..…|___|
	3B. MBOGA ZA KIJANI KIBICHI PAMOJA NA MBOGA ZA PORI ZENYE VITAMINI A] *(mf. mchicha, matembele, kisamvu msusa , sukuma wiki, spinachi n.k)*	3B…………………………….|___|
	3C. MBOGA ZA MAJANI NYINGINEZO ZINAZOPATIKANA KATIKA ENEO HILO] *(mf. kabichi, pilipili mbichi, nyanya, vitunguu, bilinganya, nyanya chungu n.k)*	3C…………………………..…|___|
	4A. MATUNDA YENYE VITAMINI A na maji ya matunda yaliyotengenezwa kwa 100% kutokana na matunda hayo *(mf. embe (iliyoiva, mbichi au ilyokaushwa), papai (iliyoiva au iliyokaushwa) papai iliyoiva,mapensheni, matunda yai, tikiti maji, machungwa , machenza)*	4A………………………….…|___|
	4B. MATUNDA MENGINEYO IKIWA NI PAMOJA NA MATUNDA PORI na maji ya matunda yaliyotengenezwa kwa 100% kutokana na matunda hayo *(mf. parachichi, ndizi, limao, nazi)*	4B………………………......…|___|
	5A. NYAMA ZA VIUNGO VYA NDANI AU VYAKULA VITOKANAVYO NA DAMU VINAVYOPATIKANA KATIKA ENEO HILO] *(mf. maini, figo, moyo na matumbo)*	5A……………………..…..…|___|
	5B. NYAMA ZA MNOFU *(m.f. ng'ombe, mbuzi, kondoo, nguruwe, sungura, nyama ya pori, kuku, bata na ndege wa porini au nyumbani, panya, chura, nyoka, mbwa , konokono, wadudu wengine)*	5B…………………..……|___|
	6. Mayai yotote kutoka kwa *(mf. kuku, bata, kware, kanga, ndege wengine)*	6………………………….…|___|
	7. SAMAKI AU WANYAMA WA MAJINI WALIO KAUSHWA, WALIOSINDIKWA *(mf. Dagaa/kamchungu , migembuka, mayai ya samaki,, sangara, pelege, na Kambara n.k)*	7………………………......…|___|

8. CHAKULA JAMII YA KUNDE, KARANGA NA MBEGU ZINAZOPATIKANA KATIKA ENEO HILO] *(mf. maharage makavu, mbaazi kavu, dengu, karanga, choroko, kunde)* au vyakula vyoyote vinavyotokana na mazao hayo *(mf. siagi ya karanga au ufuta)*	8…………………….…………..|___|
9. MAZIWA NA VYAKULA VITOKANAVYO NA MAZIWA VINAVYOPATIKANA KATIKA ENEO HILO] *(mf. maziwa ya watoto wachanga, jibini, mtindi)*	9…………………………......·|___|
10. MAFUTA YA KULA YATOKANAYO NA MIMEA NA WANYAMA YANAYOPATIKANA KATIKA ENEO HILO] *(mf. ufuta, alizeti, pamba, mawese, mafuta ya uto, samli, siagi)*	10…………………………......·|___|
11. VITU VITAMU VYENYE SUKARI VINAVYOPATIKANA KATIKA ENEO HILO] *(mf. sukari, asali, soda, maji ya matunda, chokoleti, biskuti, keki)*	11.………………….………......·|___|
12. VIUNGO VYA CHAKULA NA VINYWAJI VINAVYOPATIKANA KATIKA ENEO HILO] *(mf. pilipili manga, chumvi, pilipili kavu, unga wa samaki, mchuzi wa samaki, tangawizi, vitunguu swaumu, mimea, kahawa, chai, vinywaji vyenye kileo kama vile mvinyo, pombe kali, bia)*	2…………………………......·|___|

Tanzania Nutrition survey Aug/Sept 2016: CHANDARUA CHA MBU: dodoso 1 kwa kila kaya (DODOSO HILI LIFANYIKE KWA MKUU WA KAYA AU MWANAKAYA MWINGINE KAMA MKUU WA KAYA HAYUPO).

Ukanda/Eneo:_____ **Kijiji:**_____ **Namba ya Mtaa /Barabara:** _____

Tarehe ya usaili (siku/mwezi/mwaka):	Namba ya "mkusanyiko" (kwa *tafiti za "cluster" tu*)
|___|___|/|___|___|	|___|___|
Namba ya timu	**Namba ya Nyumba**
|___|	|___|___|___|

Na.	SWALI	ALAMA YA JIBU

KIPENGELE CM1					
CM1	Ni watu wangapi wanaokaa katika kaya hii na waliolala katika nyumba hii jana usikuINGIZA NAMBA				|___|___|
CM2	Kuna watoto wangapi wa miezi 0 mpaka 59 wanaoishi hapa na waliolala katika kaya hii jana usiku? INGIZA NAMBA				|___|___|
CM3	Kuna akina mama wenye mimba / ujauzito wangapi wanaoishi katika kaya hii na waliolala hapa jana usiku INGIZA NAMBA				|___|___|
CM4	Je, nyumba yako ilipuliziwa dawa katika kampeni ya kuuwa wadudu iliyofanyika mwezi I___I iliyopita? (SIO LAZIMA)	Ndiyo .... 1 Hapana 2			|___|
CM5	Je, mnavyandarua ambavyo vinaweza kutumiwa kujikinga na mbu wakati wa kulala?	Ndiyo .... 1 Hapana 2			|___| **KAMA JIBU NI 2 KOMEA HAPA**
CM6	Mna vyandarua vingapi vinavyoweza kutumiwa wakati wa kulala? INGIZA NAMBA	KAMA NI ZAIDI YA VYANDARUA 4, INGIZA NAMBA NA TUMIA DODOSO LA NYENGEZA KUINGIZA NAMBA YA VYANDARUA KWA MTIRIRIKO.			|___| Vyandarua
CM7	MUOMBE MSHIRIKI AKUONYESHECHANDARUA KATIKA KAYA. KAMA VYANDARUA HAVIKUCHUNGUZWA → SAHIHISHA JIBU LA CM6	CHANDARUA #|___|	CHANDARUA #|___|	CHANDARUA #|___|	CHANDARUA #|___|
CM8	CHUNGUZA CHANDARUA NA				

	ANDIKA JINA LA CHANDARUA KWENYE TAG. KAMA HAKUNA TAG ILIYOPO AU HAISOMEKI ANDIKA "SJ" KUMAANISHA SIJUI.				
CM9	**Kwa msimamizi/msimamizi tu (isifanyike wakati wa usaili):** AINA GANI YA CHANDARUA HIKI? KWA KUZINGATIA TAG ONYESHA KAMA HIKI NI CHANDARUA KULICHOWEKEWA DAYA YA MUDA MREFU (LLIN) AU AINA NYINGINE NA SJ.	1=LLIN 2=Nyingine/SJ |___|	1=LLIN 2=Nyingine/SJ |___|	1=LLIN 2=Nyingine/SJ |___|	1=LLIN 2=Nyingine/SJ |___|
CM10	**Kwa msimamizi/msimamizi tu (isifanyike wakati wa usaili):** ANDIKA JUMLA YA LLIN KATIKA KAYA KWA KUHESABU NAMBA YA '1' KATIKA CM9.				|___| LLINs

KIPENGELE CM2							
Mstari na.	Namba ya kaya	Jinsia	Umri	Ujauzito	Alitumia chandarua	Chandarua gani	Aina ya chandarua
#	SAFU1	SAFU2	SAFU3	SAFU4	SAFU5	SAFU6	SAFU7

	Tafadhali nipe majina ya wanakaya wanaoishi hapa na walilala hapa usiku wa jana	Jinsi me/ke	Umri miaka	KWA WANAWAKE KATI YA MIAKA 15-49 MIAKA, ULIZA: Je, (JINA) mjamzito hivi sasa? (ZUNGUSHIA HAIHUSIKI "HAIH" (HAIHUSIKI) AU HAIH'99' KAMA MWANAMKE <15->49 MIAKA AU MWANAUME) Ndy Hpn/SJ HAIH	Je, (JINA) Alitumia chandarua usiku wa jana? Ndy Hpn/SJ	MUOMBE MSHIRIKI KUBAINI NI CHANDARUA KIPI KILICHOTUMIKA KATI YA VYANDARUA VILIVYOCHUNGUZWA. ANDIKA NAMBA ILIYOSAMBAMBA NA CHANDARUA KILICHOTUMIKA.	**Kwa msimamizi/msimamizi tu:** KWA KUZINGATIA JINA LA CHANDARUA LILILOCHUNGUZWA NA KUANDIKWA (CM8), ONYESHA KAMA NI LLIN AU AINA NYINGINE NA SIJUI (SJ). LLIN NYINGINE/SJ
01		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
02		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
03		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
04		m f	<5 ≥5	1 0 99	1 0	|___|	1 2
05		m f	<5 ≥5	1 0 99	1 0	|___|	1 2

Majumuisho ya vyandarua vya mbu (Kwa msimamizi/msimamizi tu (isifanyike wakati wa usaili):

	Jumla ya wanakaya		**Jumla ya watoto <5**		**Jumla ya wajawazito**

| Waliotumi a chandarua cha aina yoyote | Hesabu namba za '1' katika SAFU5 | **CM11** |___|___| | Kwa watoto < 5 (SAFU3 ni '<5'), hesabu namba za '1' katika SAFU5 | **TN13** |___|___| | Kwa wajawazito (SAFU4 ni '1'), hesabu namba za '1' katika SAFU5 | **CM15** |___|___| |
| Waliotumi a LLIN | Hesabu namba za '1' katika SAFU7 | **CM12** |___|___| | Kwa watoto <5 (SAFU3 ni '<5'), hesabu namba za '1' katika SAFU7 | **TN14** |___|___| | Kwa wajawazito (SAFU4 ni '1'), hesabu namba za '1' katika SAFU7 | **CM16** |___|___| |

THIS FORM MUST BE ADMINISTERED TO ALL THE SURVEY HOUSEHOLDS

Tanzania Nutrition survey Aug/Sept 2016: Mortality questionnaire : dodoso 1 kwa kila "mkusanyiko-cluster"/ukanda /eneo (

Ukanda/Eneo:_____ Kijiji:_____ Namba ya Mtaa /Barabara: _____

Tarehe ya usaili (siku/mwezi/mwaka):	**Namba ya "mkusanyiko" (kwa _tafiti za "cluster" tu_)**
|___|___|/|___|___|/|___|___||___|___|	|___|___|
Namba ya timu	**Namba ya Nyumba**
|___}	|___|___|___|
Na. **SWALI**	**ALAMA YA JIBU**

Na.	SWALI	ALAMA YA JIBU
KIPENGELE MU1		
M1	Je wana kaya wako wameridhia kushiriki katika utafiti	|___|___|
M2	Sasa utaorodhesha idadi ya wanakaya wote ambao walikua wanaishi humu kuanzia wiki wa mwisho wa mwezi wa mei . Orodhesha watu wanaoishi katika kaya hii kwa sasa. Rejea kifungu A ya fomu hii	
M3	Watu WANAOISHI KWENYE KAYA	
M4	Kitambulisho	
M5	Jina la kwanza la mshiriki	

M6	Jinsia	
M7	Umri.	
M8	Katika kipindi [tumia tukio maalum kuelezea kipindi Fulani] tunaweza sema ameanza kuishi kwenye kaya.	
M9	Katika kipindi [tumia tukio maalum kuelezea kipindi Fulani] tunaweza sema alizaliwa kwenye hiyo kaya.	
M10	Umetaja kuwa watu wanaoishi kwenye kaya ni na watu.. wamehamia kwenye kaya yako na … wamezaliwa tangu kipindi ; Tafadhali nakili kwenye kisanduku chini kama yote ni sahihi au nenda nyuma na sahihisha sehemu iliyopita	
M11	.Tafadhali taja watu wote waliokua wanaoishi katika hii kaya na wameondoka tangu… usihesabu watu waliofariki.hii utaenda kifungu B cha karatasi.	
M12	Watu waliohama katika kaya	
M13	Kitambulisho	
M14	Jina la kwanza	
M15	Jinsi	
M16	Umri	
M17	kuanzia wiki wa mwisho wa mwezi wa mei tunaweza sema amejiunga katika kaya.	
M18	kuanzia wiki wa mwisho wa mwezi wa mei tunaweza sema amezaliwa katika kaya	
M19	Umetaja mtu/watu walioondoka katika kaya kati ya… wamerudi tena … na waliozaliwa tangu kuanzia wiki wa mwisho wa mwezi wa mei tafadhali weka alama ya vema kwenye kisanduku chini kama yote ni sahihiau rudi nyuma.	
M20	Tafadhali orodhesha watu waliokua wanaishi katika kaya hii lakini wamefariki tangu …. kuanzia wiki wa mwisho wa mwezi wa mei hiki ni kipengele C cha karatasi	
M21	Watu wa kaya waliofariki	
M22	Kitambulisho	
M23	Jina la lwanza	
M24	Jinsi	

M25	Umri [kuanzia wiki wa mwisho wa mwezi wa mei	
M26	Katika kipindi kati ya tunaweza sema alianza kuishi katika hii kaya	
M27	Katika kipindi kati ya [kuanzia wiki wa mwisho wa mwezi wa mei tunaweza sema alizaliwa katika hii kaya	
M28	Ulitaja kuwa mtu/ watu .. walifairiki katika kaya yako, kati yao …. Walihamia na ….walizaliwa tangu kuanzia wiki wa mwisho wa mwezi wa mei . Tafadhali weka alama ya vema kwenye kisanduku chini kama yote ni sahihiau rudi nyuma.	
M30	Kulishawahi kuwa na mjamzito katika kaya yako katika kipindi kuanzia wiki wa mwisho wa mwezi wa mei .	
M31	Walikua wangapi	
	Huu ni muhtasari wa idadi ulizoziingiza. Tafadhali hakikisha kwamba namba ni sahihi, katika kipengele A ni watu wanaoishi katika kaya kwa sasa, kipengele B ni watu waliohama , kipengele C ni wat waliofariki. Na ya sasa ni wajawazito katika kaya	

Appendix 5: Local event calendar used during the survey to estimate age of young children

Seasons	Religious Holidays	Other Events	Local Events	Months / Years	
Local Events Calendar- Burundi refugees					
Dry season /Kiangazi				Aug-16	0
Dry season /Kiangazi	Idulfitri			Jul-16	1
Dry season /Kiangazi	Ramadhan	School holidays	World refugee day celebrations	Jun-16	2
Dry season /Kiangazi				May-16	3
End of the rainy season		Period of crops harvest for the season		Apr-16	4
Rain	Easter		Opening of Mtendeli refugee camp	Mar-16	5
Heavy rains				Feb-16	6
Heavy rains	New Year			Jan-16	7
Heavy rains	Christmas			Dec-15	8
Heavy rains				Nov-15	9
Beginning of the rains		Planting crops for Season A (continue)	Opening of Nduta refugee camp	Oct-15	10
Dry season /Kiangazi		Planting crops for season A		Sep-15	11
Dry season /Kiangazi	Assumption day			Aug-15	12
Dry season /Kiangazi			Independence day 1st July Burundi	Jul-15	13
Dry season /Kiangazi		Holidays for primary and secondary school	World refugee day celebrations	Jun-15	14
Heavy Rainy season	Ascension day may 14th	Labour day		May-15	15
Heavy Rainy season	Easter	Season B: land preparation and planting (maize ,beans and sorghum)	President Ntaryamira Day April 6 th	Apr-15	16
			Umunsi w'abagore 08/03/15	Mar-15	17

Season	Event/Holiday	Agricultural activity	Commemoration	Date	No.
	Umunsi w'ivu/Gutangira igisibo	Period of crops harvest for the season A(continue)	Unity Day 5th Feb	Feb-15	18
Short Dry season	New Year	Period of crops harvest for the season A		Jan-15	19
Short Dry season	Christmas			Dec-14	20
Minor rains	Umunsi w'abatagatifu bose(Tout saints)	Season A: land preparation and planting (maize ,beans and sorghum)		Nov-14	21
Minor rains			Prince Louis Rwagasore day oct 13th /President Ndadayes day 21st Oct	Oct-14	22
Beginning of the minor rains		Planting crops for Season A (continue)		Sep-14	23
Long dry season	Assumption(Catholic commemoration of Mary's going to the heaven)15/08/2014	Season C: land preparation and planting (vegetables)		Aug-14	24
Long dry season			Independence day 1st July	Jul-14	25
Beginning of Long dry season			World refugee day	Jun-14	26
Heavy Rainy season	Ascension day may 14th	Labour day		May-14	27
Heavy Rainy season	Easter	Season B: Land preparation and planting (maize ,beans and sorghum)	President Ntaryamira Day April 6th	Apr-14	28
			Umunsi w'abagore 08/03/15	Mar-14	29
	Umunsi w'ivu/Gutangira igisibo	Period of crops harvest for the season A(continue)	Unity Day 5th Feb	Feb-14	30
Short Dry season	New Year	Period of crops harvest for the season A		Jan-14	31
Short Dry season	Christmas	Season A: land preparation and planting (maize ,beans and		Dec-13	32
Minor rains	Umunsi w'abatagatifu bose(Tout saints)			Nov-13	33

Minor rains		sorghum)	Prince Louis Rwagasore day -Oct 13th /President Ndadayes day 21st Oct	Oct-13	34
Beginning of the minor rains		Planting crops for Season A (continue)		Sep-13	35
Long dry season	Assumption(Catholic commemoration of Mary's going to the heaven)15/08/2014	Season C: Land preparation and planting (vegetables)		Aug-13	36
Long dry season			Independence day 1st July	Jul-13	37
Beginning of Long dry season			World refugee day	Jun-13	38
Heavy Rainy season	Ascension day may 14th	Labour day		May-13	39
Heavy Rainy season	Easter	Season B: land preparation and planting (maize ,beans and sorghum)	President Ntaryamira Day April 6 th	Apr-13	40
			Umunsi w'abagore 08/03/15	Mar-13	41
	Umunsi w'ivu/Gutangira igisibo	Period of crops harvest for the season A(continue)	Unity Day 5th feb	Feb-13	42
Short Dry season	New Year	Period of crops harvest for the season A		Jan-13	43
Short Dry season	Christmas			Dec-12	44
Minor rains	Umunsi w'abatagatifu bose(Tout saints)	Season A: land preparation and planting (maize ,beans and sorghum)		Nov-12	45
Minor rains			Prince Loouis Rwagasore day - oct 13th /President Ndadayes day 21st Oct	Oct-12	46
Beginning of the minor rains		Planting crops for Season A (continue)		Sep-12	47

Long dry season	Assumption(Catholic commemoration of Mary's going to the heaven)15/08/2014	Season C: land preparation and planting (vegetables)		Aug-12	48
Long dry season			Independence day 1st July	Jul-12	49
Beginning of Long dry season			World refugee day	Jun-12	50
Heavy Rainy season	Ascension day may 14th	Labour day		May-12	51
Heavy Rainy season	Easter	Season B: land preparation and planting (maize ,beans and sorghum)	President Ntaryamira Day April 6th	Apr-12	52
			Umunsi w'abagore 08/03/15	Mar-12	53
	Umunsi w'ivu/Gutangira igisibo	Period of crops harvest for the season A(continue)	Unity Day 5th Feb	Feb-12	54
Short Dry season	New Year	Period of crops harvest for the season A		Jan-12	55
Short Dry season	Christmas			Dec-11	56
Minor rains	Umunsi w'abatagatifu bose(Tout saints)	Season A: land preparation and planting (maize ,beans and sorghum)		Nov-11	57
Minor rains			Prince Loouis Rwagasore day - oct 13th /President Ndadayes day 21st Oct	Oct-11	58
Beginning of the minor rains		Planting crops for Season A (continue)		Sep-11	59
Long dry season	Assumption(Catholic commemoration of Mary's going to the heaven)15/08/2014	Season C: land preparation and planting (vegetables)		Aug-11	60