

# **Standardised Expanded Nutrition Survey (SENS) FINAL REPORT**

**(Nyarugusu, Nduta and Mtendeli Refugee Camps, Kigoma Region, Tanzania)**

**Survey conducted: 21<sup>st</sup> August – 18<sup>th</sup> September, 2017**

**Report finalised: 30<sup>th</sup> October, 2017)**



**UNHCR**

**IN COLLABORATION WITH**



## Contents

<b>Table of Tables</b> .....	<b>iii</b>
<b>Table of Figures</b> .....	<b>vii</b>
<b>ACRONYMS AND ABBREVIATIONS</b> .....	<b>ix</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>xi</b>
<b>Executive summary</b> .....	<b>1</b>
<b>Brief interpretation of the results</b> .....	<b>8</b>
<b>Recommendations</b> .....	<b>9</b>
<b>1. Introduction</b> .....	<b>11</b>
1.1. Geographic description of survey area .....	11
1.2. Description of the population .....	11
1.3. Food security situation .....	12
1.4. Health situation .....	12
1.6. Nutrition situation .....	16
<b>2 Survey Objectives</b> .....	<b>19</b>
2.1 Primary objectives: .....	19
2.2 Secondary objectives: .....	19
<b>3 Methodology</b> .....	<b>19</b>
3.1 Sample size .....	19
3.2 Sampling procedure: selecting clusters .....	20
3.3 Sampling procedure: selecting households and individuals .....	21
3.4 Questionnaire and measurement methods .....	21
3.5 Measurement methods .....	21
3.6 Case definitions, inclusion criteria and calculations .....	22
3.7 Classification of public health problems and targets .....	26
3.8 Training, coordination and supervision .....	27
3.8.1 Survey teams and supervision .....	27
3.8.2 Training .....	27
3.9 Data collection .....	28
Data collection .....	28
3.10 Data analysis .....	28
3.11 Ethical Issues .....	28
<b>4 Results</b> .....	<b>29</b>
4.1 Results in Nyarugusu Old Camp .....	29
4.1.1 Children 6-59 months (Nyarugusu Old Camp) .....	29
4.1.2 Anaemia results Children 6-59 Months .....	36
4.1.3 Children 0-23 months .....	38
4.1.4 Women 15-49 years .....	40
4.1.5 Food security .....	41
4.1.6 WASH (Nyarugusu Old Camp) .....	44
4.1.7 Mosquito Net Coverage (Nyarugusu Old Camp) .....	46
<b>5 Results (Nyarugusu New Camp)</b> .....	<b>49</b>
5.1.1 Anthropometry and Health Children 6-59 months (Nyarugusu New Camp) .....	49
5.1.2 Anaemia results Children 6-59 months (Nyarugusu New Camp) .....	54
5.1.3 Children 0-23 months (Nyarugusu New Camp) .....	55
5.1.4 Prevalence of intake (Nyarugusu New Camp) .....	55
5.1.5 Women 15-49 years (Nyarugusu New Camp) .....	55
5.1.6 Food security (Nyarugusu New Camp) .....	56
5.1.7 WASH (Nyarugusu New Camp) .....	59
<b>6 Results (Nduta Refugee Camp)</b> .....	<b>64</b>
6.1.1 Anthropometry and Health Children 6-59 months (Nduta Refugee Camp) .....	64
6.1.2 Anaemia results Children 6-59 Months (Nduta Refugee Camp) .....	70
6.1.3 Children 0-23 months (Nduta Refugee Camp) .....	70

6.1.4	Women 15-49 years (Nduta Refugee Camp).....	72
6.1.5	Food security (Nduta Refugee Camp) .....	72
6.1.6	WASH (Nduta Refugee Camp) .....	75
<b>7</b>	<b>Results (Mtendeli Camp) .....</b>	<b>79</b>
7.1.1	Anthropometry and Health; Children 6-59 months (Mtendeli Camp).....	79
7.1.2	Anaemia results .....	84
7.1.3	Children 0-23 months .....	85
7.1.4	Women 15-49 years (Mtendeli Camp) .....	86
7.1.5	Food security (Mtendeli Camp).....	87
7.1.6	WASH (Mtendeli Camp).....	89
7.1.7	Mosquito Net Coverage (Mtendeli Camp) .....	91
<b>8</b>	<b>Limitations .....</b>	<b>93</b>
<b>9</b>	<b>Discussion .....</b>	<b>94</b>
9.1	Nutritional status of young children .....	94
9.2	Programme coverage.....	95
9.3	Anaemia in young children and women.....	95
9.4	IYCF indicators .....	96
9.5	Food security .....	97
9.6	WASH.....	97
9.7	Mosquito net coverage .....	98
9.8	Conclusions .....	98
9.9	Recommendations and priorities .....	99
<b>10</b>	<b>Acknowledgements .....</b>	<b>i</b>
<b>11</b>	<b>Appendices .....</b>	<b>iii</b>

## Table of Tables

Table 1 : SUMMARY OF RESULTS SENS 2017 REFUGEE CAMPS TANZANIA .....	3
Table 2: Classification of Public Health Significance for Children Under 5 Years of Age .....	7
Table 3: Classification of Public Health Significance.....	7
Table 4: Simplified Classification of the Severity of GAM, Anemia, and Stunting in Refugee Setting (UNHCR Operational Guidance).....	7
Table 5: <i>Total Population and U5 Children in the refugee camps (UNHCR ProGres data July 2017)</i> .....	11
Table 6 : General Food Distribution ration April to Oct 2017 .....	12
Table 7 : Nutrition indicators Nyarugusu, Nduta and Mtendeli Camps 2012-2016.....	16
Table 8 : MUAC Screening in CAMPS results Jan-August 2017 .....	16
TABLE 9: SAMPLE SIZE CALCULATION PARAMETERS .....	20
TABLE 10 NUMBER OF HOUSEHOLD PER CLUSTER CALCULATION .....	20
TABLE 11 NUTRITIONAL STATUS AND ANAEMIA INDICATORS AND CUT-OFFS USED.....	22
<b>TABLE 12: DEFINITIONS OF DRINKING WATER AND SANITATION (TOILET) FACILITIES.....</b>	<b>25</b>
Table 13: CLASSIFICATION OF PUBLIC HEALTH SIGNIFICANCE FOR CHILDREN UNDER 5 YEARS OF AGE (WHO 1995, 2000) .....	26
Table 14: Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012)* .....	26
Table 15 : Recommended targets for measles vaccination and vitamin A supplementation in last 6 months (UNHCR SENS Guidelines). .....	26
Table 16: Classification of public health significance (WHO, 2000).....	26
<b>Table 17: UNHCR WASH Programme Standard .....</b>	<b>27</b>
Table 18: UNHCR Mosquito Net Programme Standards .....	27
Table 19: Survey data collection days per camp. ....	28
TABLE 20: DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION .....	29
Table 21: TARGET AND ACTUAL NUMBER CAPTURED .....	29
TABLE 22 CHILDREN 6-59 MONTHS - DISTRIBUTION OF AGE AND SEX OF SAMPLE .....	29
TABLE 23: PREVALENCE OF ACUTE MALNUTRITION BASED ON WEIGHT-FOR-HEIGHT Z-SCORES (AND/OR OEDEMA) AND BY SEX.....	30
TABLE 24: PREVALENCE OF ACUTE MALNUTRITION BY AGE, BASED ON WEIGHT-FOR-HEIGHT Z-SCORES AND/OR OEDEMA .....	30

TABLE 25: DISTRIBUTION OF SEVERE ACUTE MALNUTRITION AND OEDEMA BASED ON WEIGHT-FOR-HEIGHT Z-SCORES .....	31
TABLE 26: PREVALENCE OF MUAC MALNUTRITION .....	32
TABLE 27 PREVALENCE OF MUAC MALNUTRITION BY AGE, BASED ON MUAC CUT OFF'S AND/OR OEDEMA .....	32
TABLE 28: PREVALENCE OF UNDERWEIGHT BASED ON WEIGHT-FOR-AGE Z-SCORES BY SEX .....	33
TABLE 29: PREVALENCE OF STUNTING BASED ON HEIGHT-FOR-AGE Z-SCORES AND BY SEX .....	33
TABLE 30: PREVALENCE OF STUNTING BY AGE BASED ON HEIGHT-FOR-AGE Z-SCORES.....	34
TABLE 31: MEAN Z-SCORES, DESIGN EFFECTS AND EXCLUDED SUBJECTS.....	35
Table 32: PROGRAMME COVERAGE FOR ACUTELY MALNOURISHED CHILDREN .....	35
TABLE 33: MEASLES VACCINATION COVERAGE FOR CHILDREN AGED 9-59 MONTHS ((N=436) .....	35
TABLE 34: VITAMIN A SUPPLEMENTATION FOR CHILDREN AGED 6-59 MONTHS WITHIN PAST 6 MONTHS (N=471) .....	35
TABLE 35: PERIOD PREVALENCE OF DIARRHOEA.....	36
TABLE 36: PREVALENCE OF TOTAL ANAEMIA, ANAEMIA CATEGORIES, AND MEAN HAEMOGLOBIN CONCENTRATION IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP .....	36
TABLE 37: PREVALENCE OF MODERATE AND SEVERE ANAEMIA IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP .....	37
TABLE 38: PREVALENCE OF INFANT AND YOUNG CHILD FEEDING PRACTICES INDICATORS .....	38
TABLE 39: INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS .....	39
TABLE 40: FBF INTAKE IN CHILDREN AGED 6-23 MONTHS .....	39
TABLE 41: FBF++ INTAKE IN CHILDREN AGED 6-23 MONTHS .....	39
TABLE 42: MNP INTAKE IN CHILDREN AGED 24-59 MONTHS: .....	39
TABLE 43: WOMEN PHYSIOLOGICAL STATUS AND AGE.....	40
Table 44: Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) .....	40
TABLE 45: ANC ENROLMENT AND IRON-FOLIC ACID PILLS COVERAGE AMONG PREGNANT WOMEN (15-49 YEARS).....	41
TABLE 46: FOOD SECURITY SAMPLING INFORMATION .....	41
TABLE 47: RATION CARD COVERAGE .....	42
TABLE 48: REPORTED DURATION OF GENERAL FOOD RATION 1.....	42
TABLE 49 REPORTED DURATION OF GENERAL FOOD RATION 2.....	42
TABLE 50: COPING STRATEGIES USED BY THE SURVEYED POPULATION OVER THE PAST MONTH .....	42
TABLE 51: AVERAGE HDDS .....	43
TABLE 52 CONSUMPTION OF MICRONUTRIENT RICH FOODS BY HOUSEHOLDS.....	43
TABLE 53: WASH SAMPLING INFORMATION .....	44
TABLE 54: WATER QUALITY.....	44
TABLE 55: WATER QUANTITY: AMOUNT OF LITRES OF WATER USED PER PERSON PER DAY .....	44
TABLE 56: SATISFACTION WITH WATER SUPPLY.....	44
TABLE 57: SAFE EXCRETA DISPOSAL.....	45
TABLE 58: MOSQUITO NET COVERAGE SAMPLING INFORMATION.....	46
TABLE 59: HOUSEHOLD MOSQUITO NET OWNERSHIP .....	46
TABLE 60: NUMBER OF NETS .....	47
TABLE 61: MOSQUITO NET UTILISATION. NOTE THAT IT IS NOT REQUIRED TO INCLUDE CONFIDENCE INTERVALS FOR THESE INDICATORS AS THEY ARE COMPLEX TO CALCULATE .....	48
<b>Table 62:</b> Demographic Characteristics of the study population .....	49
<b>Table 63:</b> Target and actual number captured .....	49
<b>Table 64:</b> Children 6-59 months - Distribution of age and sex of sample ( <i>this table is automatically generated by ENA for SMART software</i> ) .....	49
<b>Table 65:</b> Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex .....	49
<b>Table 66:</b> Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema .....	50
<b>Table 67:</b> Distribution of severe acute malnutrition and oedema based on weight-for-height z-scores.....	50
<b>Table 68:</b> Prevalence of MUAC MALNUTRITION.....	51
<b>Table 69:</b> PREVALENCE OF MUAC MALNUTRITION by age, based on MUAC cut off's and/or oedema .....	51
<b>Table 70:</b> Prevalence of underweight based on weight-for-age z-scores by sex.....	52
<b>Table 71:</b> Prevalence of stunting based on height-for-age z-scores and by sex.....	52
<b>Table 72:</b> Prevalence of stunting by age based on height-for-age z-scores .....	52
<b>Table 73:</b> Mean z-scores, Design Effects and excluded subjects .....	53

<b>Table 74</b> Programme coverage for acutely malnourished children.....	53
<b>Table 75</b> Measles vaccination coverage for children aged 9-59 months ( <i>or other context-specific target group</i> ) (n=393).....	53
<b>Table 76</b> Vitamin A supplementation for children aged 6-59 months within past 6 months ( <i>or other context-specific target group</i> ) (n=423 ) .....	54
<b>Table 77</b> Period prevalence of diarrhoea .....	54
<b>Table 78:</b> Prevalence of TOTAL anaemia, ANAEMIA CATEGORIES, and MEAN haemoglobin concentration in children 6-59 months of age AND BY AGE GROUP .....	54
<b>Table 79:</b> Prevalence of MODERATE AND SEVERE anaemia in children 6-59 months of age AND BY AGE GROUP .....	54
<b>Table 80</b> Prevalence of Infant and Young Child Feeding Practices Indicators .....	55
<b>Table 81:</b> Infant formula intake in children aged 0-23 months .....	55
<b>Table 82:</b> FBF intake in children aged 6-23 months.....	55
<b>Table 83:</b> FBF++ intake in children aged 6-23 months.....	55
<b>Table 84:</b> MNP intake in children aged 24-60 months .....	55
<b>Table 85:</b> Women physiological status and age.....	55
<b>Table 86:</b> Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) ..	56
<b>Table 87:</b> ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) .....	56
<b>Table 88:</b> Food security SAMPLING information .....	56
<b>Table 89:</b> Ration card coverage .....	56
<b>Table 90:</b> Reported duration of general food ration 1 .....	57
<b>Table 91:</b> Reported duration of general food ration 2 .....	57
<b>Table 92:</b> Coping strategies used by the surveyed population over the past month .....	57
<b>Table 93</b> Average HDDS .....	58
<b>Table 94</b> Consumption of micronutrient rich foods by households .....	58
<b>Table 95</b> WASH SAMPLING information .....	59
<b>Table 96</b> Water Quality.....	59
<b>Table 97:</b> Water Quantity: Amount of litres of water used per person per day .....	59
<b>Table 98:</b> Satisfaction with water supply.....	59
<b>Table 99:</b> Safe Excreta disposal.....	60
<b>Table 100</b> Mosquito net coverage SAMPLING information .....	61
<b>Table 101</b> Household Mosquito net ownership .....	61
<b>Table 102</b> Number of nets .....	62
<b>Table 103:</b> Mosquito net Utilisation. ....	62
TABLE 104 DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION .....	64
TABLE 105: TARGET AND ACTUAL NUMBER CAPTURED.....	64
TABLE 106 CHILDREN 6-59 MONTHS - DISTRIBUTION OF AGE AND SEX OF SAMPLE.....	64
TABLE 107: PREVALENCE OF ACUTE MALNUTRITION BASED ON WEIGHT-FOR-HEIGHT Z-SCORES (AND/OR OEDEMA) AND BY SEX .....	65
TABLE 108: PREVALENCE OF ACUTE MALNUTRITION BY AGE, BASED ON WEIGHT-FOR-HEIGHT Z-SCORES AND/OR OEDEMA .....	65
TABLE 109: DISTRIBUTION OF SEVERE ACUTE MALNUTRITION AND OEDEMA BASED ON WEIGHT-FOR-HEIGHT Z-SCORES .....	66
TABLE 110: PREVALENCE OF MUAC MALNUTRITION .....	66
TABLE 111: PREVALENCE OF MUAC MALNUTRITION BY AGE, BASED ON MUAC CUT OFF'S AND/OR OEDEMA .....	67
TABLE 112: PREVALENCE OF UNDERWEIGHT BASED ON WEIGHT-FOR-AGE Z-SCORES BY SEX .....	67
TABLE 113: PREVALENCE OF STUNTING BASED ON HEIGHT-FOR-AGE Z-SCORES AND BY SEX .....	67
TABLE 114: PREVALENCE OF STUNTING BY AGE BASED ON HEIGHT-FOR-AGE Z-SCORES.....	68
TABLE 115: MEAN Z-SCORES, DESIGN EFFECTS AND EXCLUDED SUBJECTS .....	69
TABLE 116: PROGRAMME COVERAGE FOR ACUTELY MALNOURISHED CHILDREN .....	69
TABLE 117 MEASLES VACCINATION COVERAGE FOR CHILDREN AGED 9-59 MONTHS ( <i>OR OTHER CONTEXT-SPECIFIC TARGET GROUP</i> ) (N=534).....	69
TABLE 118: VITAMIN A SUPPLEMENTATION FOR CHILDREN AGED 6-59 MONTHS WITHIN PAST 6 MONTHS ( <i>OR OTHER CONTEXT-SPECIFIC TARGET GROUP</i> ) (N=568) .....	69
TABLE 119: PERIOD PREVALENCE OF DIARRHOEA.....	70
TABLE 120: PREVALENCE OF TOTAL ANAEMIA, ANAEMIA CATEGORIES, AND MEAN HAEMOGLOBIN CONCENTRATION IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP .....	70

TABLE 121: PREVALENCE OF MODERATE AND SEVERE ANAEMIA IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP .....	70
TABLE 122: PREVALENCE OF INFANT AND YOUNG CHILD FEEDING PRACTICES INDICATORS .....	70
TABLE 123: INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS .....	71
TABLE 124: FBF INTAKE IN CHILDREN AGED 6-23 MONTHS .....	71
TABLE 125: FBF++ INTAKE IN CHILDREN AGED 6-23 MONTHS .....	71
TABLE 126: MNP INTAKE IN CHILDREN AGED 24-60 MONTHS .....	71
TABLE 127: WOMEN PHYSIOLOGICAL STATUS AND AGE.....	72
TABLE 128: PREVALENCE OF ANAEMIA AND HAEMOGLOBIN CONCENTRATION IN NON-PREGNANT WOMEN OF REPRODUCTIVE AGE (15-49 YEARS) .....	72
TABLE 129: ANC ENROLMENT AND IRON-FOLIC ACID PILLS COVERAGE AMONG PREGNANT WOMEN (15-49 YEARS).....	72
TABLE 130: FOOD SECURITY SAMPLING INFORMATION .....	72
TABLE 131: RATION CARD COVERAGE .....	73
TABLE 132: REPORTED DURATION OF GENERAL FOOD RATION 1.....	73
TABLE 133: REPORTED DURATION OF GENERAL FOOD RATION 2.....	73
TABLE 134: COPING STRATEGIES USED BY THE SURVEYED POPULATION OVER THE PAST MONTH .....	73
TABLE 135: AVERAGE HDDS .....	74
TABLE 136: CONSUMPTION OF MICRONUTRIENT RICH FOODS BY HOUSEHOLDS .....	74
TABLE 137: WASH SAMPLING INFORMATION .....	75
TABLE 138: WATER QUALITY.....	75
TABLE 139: WATER QUANTITY: AMOUNT OF LITRES OF WATER USED PER PERSON PER DAY .....	75
TABLE 140: SATISFACTION WITH WATER SUPPLY.....	75
TABLE 141: SAFE EXCRETA DISPOSAL .....	76
TABLE 142: MOSQUITO NET COVERAGE SAMPLING INFORMATION.....	77
TABLE 143: HOUSEHOLD MOSQUITO NET OWNERSHIP .....	77
TABLE 144: NUMBER OF NETS .....	78
TABLE 145: MOSQUITO NET UTILISATION. NOTE THAT IT IS NOT REQUIRED TO INCLUDE CONFIDENCE INTERVALS FOR THESE INDICATORS AS THEY ARE COMPLEX TO CALCULATE .....	78
TABLE 146: DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION .....	79
TABLE 147: TARGET AND ACTUAL NUMBER CAPTURED.....	79
TABLE 148 CHILDREN 6-59 MONTHS - DISTRIBUTION OF AGE AND SEX OF SAMPLE.....	79
TABLE 149 PREVALENCE OF ACUTE MALNUTRITION BASED ON WEIGHT-FOR-HEIGHT Z-SCORES .....	80
TABLE 150: PREVALENCE OF ACUTE MALNUTRITION BY AGE, BASED ON WEIGHT-FOR-HEIGHT Z-SCORES AND/OR OEDEMA .....	80
TABLE 151: DISTRIBUTION OF SEVERE ACUTE MALNUTRITION AND OEDEMA BASED ON WEIGHT-FOR-HEIGHT Z-SCORES ( <i>THIS TABLE IS AUTOMATICALLY GENERATED BY ENA FOR SMART SOFTWARE</i> ) .....	81
TABLE 152: PREVALENCE OF MUAC MALNUTRITION .....	81
TABLE 153: PREVALENCE OF MUAC MALNUTRITION BY AGE, BASED ON MUAC CUT OFF'S AND/OR OEDEMA .....	82
TABLE 154: PREVALENCE OF UNDERWEIGHT BASED ON WEIGHT-FOR-AGE Z-SCORES BY SEX .....	82
TABLE 155: PREVALENCE OF STUNTING BASED ON HEIGHT-FOR-AGE Z-SCORES AND BY SEX .....	82
TABLE 156: PREVALENCE OF STUNTING BY AGE BASED ON HEIGHT-FOR-AGE Z-SCORES.....	82
TABLE 157: MEAN Z-SCORES, DESIGN EFFECTS AND EXCLUDED SUBJECTS .....	83
TABLE 158: PROGRAMME COVERAGE FOR ACUTELY MALNOURISHED CHILDREN .....	84
TABLE 159: MEASLES VACCINATION COVERAGE FOR CHILDREN AGED 9-59 MONTHS ( <i>OR OTHER CONTEXT-SPECIFIC TARGET GROUP</i> ) (N=513).....	84
TABLE 160: VITAMIN A SUPPLEMENTATION FOR CHILDREN AGED 6-59 MONTHS WITHIN PAST 6 MONTHS ( <i>OR OTHER CONTEXT-SPECIFIC TARGET GROUP</i> ) (N=559) .....	84
TABLE 161: PERIOD PREVALENCE OF DIARRHOEA.....	84
TABLE 162: PREVALENCE OF TOTAL ANAEMIA, ANAEMIA CATEGORIES, AND MEAN HAEMOGLOBIN CONCENTRATION IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP .....	85
TABLE 163: PREVALENCE OF MODERATE AND SEVERE ANAEMIA IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP .....	85
TABLE 164: PREVALENCE OF INFANT AND YOUNG CHILD FEEDING PRACTICES INDICATORS .....	85
TABLE 165: INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS .....	86
TABLE 166: FBF INTAKE IN CHILDREN AGED 6-23 MONTHS [PRODUCT TO BE ADAPTED: THE FBF MAY BE CSB+ FOR EXAMPLE; DO NOT INCLUDE TABLE IF NO FBF DISTRIBUTED] .....	86

TABLE 167 FBF++ INTAKE IN CHILDREN AGED 6-23 MONTHS [PRODUCT TO BE ADAPTED: THE FBF++ MAY BE CSB++ FOR EXAMPLE; DO NOT INCLUDE TABLE IF NO FBF++ DISTRIBUTED] .....	86
TABLE 168: MNP INTAKE IN CHILDREN AGED 6-23 MONTHS [PRODUCT TO BE ADAPTED: THE MNP MAY HAVE A SPECIFIC NAME; DO NOT INCLUDE TABLE IF NO MNP DISTRIBUTED] .....	86
TABLE 169 WOMEN PHYSIOLOGICAL STATUS AND AGE.....	86
TABLE 170: PREVALENCE OF ANAEMIA AND HAEMOGLOBIN CONCENTRATION IN NON-PREGNANT WOMEN OF REPRODUCTIVE AGE (15-49 YEARS) .....	86
TABLE 171: ANC ENROLMENT AND IRON-FOLIC ACID PILLS COVERAGE AMONG PREGNANT WOMEN (15-49 YEARS).....	87
TABLE 172: FOOD SECURITY SAMPLING INFORMATION .....	87
TABLE 173: RATION CARD COVERAGE .....	87
TABLE 174: REPORTED DURATION OF GENERAL FOOD RATION 1.....	87
TABLE 175: REPORTED DURATION OF GENERAL FOOD RATION 2.....	87
TABLE 176: COPING STRATEGIES USED BY THE SURVEYED POPULATION OVER THE PAST MONTH .....	88
TABLE 177 AVERAGE HDDS .....	88
TABLE 178: CONSUMPTION OF MICRONUTRIENT RICH FOODS BY HOUSEHOLDS.....	89
TABLE 179: WASH SAMPLING INFORMATION .....	89
TABLE 180: WATER QUALITY.....	89
TABLE 181: WATER QUANTITY: AMOUNT OF LITRES OF WATER USED PER PERSON PER DAY .....	89
TABLE 182: SATISFACTION WITH WATER SUPPLY.....	90
TABLE 183: SAFE EXCRETA DISPOSAL .....	90
TABLE 184: MOSQUITO NET COVERAGE SAMPLING INFORMATION.....	91
TABLE 185: HOUSEHOLD MOSQUITO NET OWNERSHIP .....	91
TABLE 186: NUMBER OF NETS .....	92
TABLE 187: MOSQUITO NET UTILISATION. NOTE THAT IT IS NOT REQUIRED TO INCLUDE CONFIDENCE INTERVALS FOR THESE INDICATORS AS THEY ARE COMPLEX TO CALCULATE .....	92
Table 188 : <b>Comparison of WFH Z-score and MUAC in identification of wasting</b> .....	94

## Table of Figures

Figure 1 CRUDE AND UNDER-5 MORTALITY RATES IN NYARUGUSU REFUGEE CAMP, TANZANIA Aug 2016-Sept 2017 .....	13
Figure 2 CRUDE AND UNDER-5 MORTALITY RATES IN Nduta REFUGEE CAMP, TANZANIA Aug 2016-Sept 2017 .....	13
Figure 4 TOP FIVE CAUSES OF MORBIDITY IN CHILDREN UNDER-5 IN NYARUGUSU CAMP AUG 2016-SEPT 2017.....	14
Figure 5 TOP FIVE CAUSES OF MORBIDITY IN CHILDREN UNDER-5 IN NDUTA CAMP AUG 2016-SEPT 2017.....	15
Figure 6 TOP FIVE CAUSES OF MORBIDITY IN CHILDREN UNDER-5 IN MTENDELI CAMP AUG 2016-SEPT 2017.....	15
Figure 8 NUMBER OF ADMISSIONS TO TREATMENT PROGRAMMES FOR MAM AND SAM IN CHILDREN 6-59 MONTHS in NYARUGUSU REFUGEE CAMP AUG-SEPT 2017. ....	17
Figure 9 NUMBER OF ADMISSIONS TO TREATMENT PROGRAMMES FOR MAM AND SAM IN CHILDREN 6-59 MONTHS in NDUTA REFUGEE CAMP AUG 2016-SEPT 2017. ....	18
Figure 10 NUMBER OF ADMISSIONS TO TREATMENT PROGRAMMES FOR MAM AND SAM IN CHILDREN 6-59 MONTHS in MTENDELI REFUGEE CAMP AUG 2016-SEPT 2017. ....	18
FIGURE 11 TRENDS IN THE PREVALENCE OF GLOBAL AND SEVERE ACUTE MALNUTRITION BASED ON 2016 WHO GROWTH STANDARDS IN CHILDREN 6-59 MONTHS FROM 2012-2017. ....	30
FIGURE 12: TREND IN THE PREVALENCE OF WASTING BY AGE IN CHILDREN 6-59 MONTHS.....	31
FIGURE 13 DISTRIBUTION OF WEIGHT-FOR-HEIGHT Z-SCORES (BASED ON WHO GROWTH STANDARDS; THE REFERENCE POPULATION IS SHOWN IN GREEN AND THE SURVEYED POPULATION IS SHOWN IN RED) OF SURVEY POPULATION COMPARED TO REFERENCE POPULATION .....	31
FIGURE 14: TRENDS IN THE PREVALENCE OF GLOBAL AND SEVERE STUNTING BASED ON 2006 WHO GROWTH STANDARDS IN CHILDREN 6-59 MONTHS FROM 2012-2017. ....	33
FIGURE 15 TRENDS IN THE PREVALENCE OF STUNTING BY AGE IN CHILDREN 6-59 MONTHS.....	34
FIGURE 16 DISTRIBUTION OF HEIGHT-FOR-AGE Z-SCORES (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 .....	34
FIGURE 17: TRENDS IN THE COVERAGE OF MEASLES VACCINATION AND VITAMIN A SUPPLEMENTATION IN LAST 6 MONTHS IN CHILDREN 6-59 MONTHS FROM 2012-2017 .....	36

FIGURE 18: TRENDS IN ANAEMIA CATEGORIES IN CHILDREN 6-59 MONTHS FROM 2012-2017.....	37
<b>FIGURE 19:</b> TREND IN TOTAL ANAEMIA (<11 G/DL), AND MODERATE AND SEVERE ANAEMIA (<10 G/DL) WITH 95% CI IN CHILDREN 6-59 MONTHS FROM 2012-2017. ....	37
<b>FIGURE 20:</b> TREND IN MEAN HAEMOGLOBIN CONCENTRATION WITH 95% CI IN CHILDREN 6-59 MONTHS FROM 2012-2017.....	38
FIGURE 21: KEY IYCF INDICATORS FROM 2012-2017.....	39
Figure 22: Trends in anaemia categories in women of reproductive age (non-pregnant) from 2012-2017. ....	40
Figure 23: Trend in mean haemoglobin concentration with 95% CI in women of reproductive age (non-pregnant) from 2012-2017. ....	41
FIGURE 24 PROPORTION OF HOUSEHOLDS CONSUMING DIFFERENT FOOD GROUPS WITHIN LAST 24 HOURS.....	43
FIGURE 25: PROPORTION OF HOUSEHOLDS THAT SAY THEY ARE SATISFIED WITH THE WATER SUPPLY .....	44
FIGURE 26: MAIN REASON FOR DISSATISFACTION AMONG HOUSEHOLDS NOT SATISFIED WITH WATER SUPPLY.....	45
FIGURE 27: PROPORTION OF HOUSEHOLDS WITH CHILDREN UNDER THE AGE OF 3 YEARS WHO'S (LAST) STOOLS WERE DISPOSED OF SAFELY.....	46
FIGURE 28: HOUSEHOLD OWNERSHIP OF AT LEAST ONE MOSQUITO NET (ANY TYPE) .....	47
FIGURE 29: HOUSEHOLD OWNERSHIP OF AT LEAST ONE LLIN .....	47
FIGURE 30 MOSQUITO NET UTILISATION BY SUB-GROUP.....	48
<b>Figure 31:</b> Trend in the prevalence of wasting by age in children 6-59 months.....	50
<b>Figure 32:</b> Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green and the surveyed population is shown in red) of survey population compared to reference population .....	51
<b>Figure 33:</b> Trends in the prevalence of stunting by age in children 6-59 months .....	52
<b>Figure 34:</b> Distribution of height-for-age z-scores (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 .....	53
<b>Figure 35:</b> Proportion of households consuming different food groups within last 24 hours.....	58
<b>Figure 36:</b> Proportion of households that say they are satisfied with the water supply .....	59
<b>Figure 37</b> Main reason for dissatisfaction among households not satisfied with water supply.....	60
<b>Figure 38</b> Proportion of households with children under the age of 3 years whose (last) stools were disposed of safely .....	61
<b>Figure 39</b> Household ownership of at least one mosquito net (any type) .....	61
<b>Figure 40</b> Household ownership of at least one LLIN .....	62
<b>Figure 41:</b> Mosquito Net Utilisation by sub-group .....	63
FIGURE 42: TREND IN THE PREVALENCE OF WASTING BY AGE IN CHILDREN 6-59 MONTHS.....	65
FIGURE 43: DISTRIBUTION OF WEIGHT-FOR-HEIGHT Z-SCORES (BASED ON WHO GROWTH STANDARDS; THE REFERENCE POPULATION IS SHOWN IN GREEN AND THE SURVEYED POPULATION IS SHOWN IN RED) OF SURVEY POPULATION COMPARED TO REFERENCE POPULATION .....	66
FIGURE 44: TRENDS IN THE PREVALENCE OF STUNTING BY AGE IN CHILDREN 6-59 MONTHS.....	68
FIGURE 45: DISTRIBUTION OF HEIGHT-FOR-AGE Z-SCORES .....	68
FIGURE 46: PROPORTION OF HOUSEHOLDS CONSUMING DIFFERENT FOOD GROUPS WITHIN LAST 24 HOURS .....	74
FIGURE 47: PROPORTION OF HOUSEHOLDS THAT SAY THEY ARE SATISFIED WITH THE WATER SUPPLY .....	75
FIGURE 48: MAIN REASON FOR DISSATISFACTION AMONG HOUSEHOLDS NOT SATISFIED WITH WATER SUPPLY .....	76
FIGURE 49: PROPORTION OF HOUSEHOLDS WITH CHILDREN UNDER THE AGE OF 3 YEARS WHO'S (LAST) STOOLS WERE DISPOSED OF SAFELY.....	77
FIGURE 50: HOUSEHOLD OWNERSHIP OF AT LEAST ONE MOSQUITO NET (ANY TYPE) .....	77
FIGURE 51: HOUSEHOLD OWNERSHIP OF AT LEAST ONE LLIN .....	78
FIGURE 52: MOSQUITO NET UTILISATION BY SUB-GROUP.....	78
FIGURE 53 TREND IN THE PREVALENCE OF WASTING BY AGE IN CHILDREN 6-59 MONTHS.....	80
FIGURE 54: DISTRIBUTION OF WEIGHT-FOR-HEIGHT Z-SCORES (BASED ON WHO GROWTH STANDARDS; THE REFERENCE POPULATION IS SHOWN IN GREEN AND THE SURVEYED POPULATION IS SHOWN IN RED) OF SURVEY POPULATION COMPARED TO REFERENCE POPULATION .....	81
FIGURE 55: TRENDS IN THE PREVALENCE OF STUNTING BY AGE IN CHILDREN 6-59 MONTHS.....	83
FIGURE 56: DISTRIBUTION OF HEIGHT-FOR-AGE Z-SCORES (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 .....	83
FIGURE 57 PROPORTION OF HOUSEHOLDS CONSUMING DIFFERENT FOOD GROUPS WITHIN LAST 24 HOURS .....	88
FIGURE 58: PROPORTION OF HOUSEHOLDS THAT SAY THEY ARE SATISFIED WITH THE WATER SUPPLY .....	90
FIGURE 59: MAIN REASON FOR DISSATISFACTION AMONG HOUSEHOLDS NOT SATISFIED WITH WATER SUPPLY.....	90



FIGURE 60 PROPORTION OF HOUSEHOLDS WITH CHILDREN UNDER THE AGE OF 3 YEARS WHOSE (LAST) STOOLS WERE DISPOSED OF SAFELY.....	91
FIGURE 61: HOUSEHOLD OWNERSHIP OF AT LEAST ONE MOSQUITO NET (ANY TYPE) .....	91
FIGURE 62 HOUSEHOLD OWNERSHIP OF AT LEAST ONE LLIN .....	92
FIGURE 63: MOSQUITO NET UTILISATION BY SUB-GROUP.....	93

## ACRONYMS AND ABBREVIATIONS

ANC	Antenatal Care
AWD	Acute Watery Diarrhoea
BCC	Behaviour change communication
BSFP	Blanket Supplementary Feeding Program
CHWs	Community Health Workers
CI	Confidence Interval
CMR	Crude Mortality Rate
CSB	Corn-Soya Blend
CSB+	Corn-Soya Blend Plus
CSB++	Corn-Soya Blend Plus Plus
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
GFR	General Food Ratio
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
Lpppd	Litres per Person per Day
LRTI	Lower Respiratory Tract Infection
MAM	Moderate Acute Malnutrition
MHA	Ministry of Home Affairs
MIYCN	Maternal, Infant and Young Child Nutrition
MNP	Micronutrient Powder
MOH	Ministry of Health
MSF-CH	Médecins Sans Frontières-Swiss
MUAC	Middle Upper Arm circumference
NCHS	National Centre for Health Statistics
ODK	Open Data Kit
OTP	Out-patient Therapeutic Programme
PDM	Post Distribution Monitoring
PLW	Pregnant and Lactating Woman
ProGres	UNHCR registration database for refugees
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SENS	Standardized Expanded Nutrition survey
SFP	Supplementary Feeding Programme
SMART	Standardized 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

URTI	Upper Respiratory Tract Infection
WASH	Water Sanitation and Hygiene
WAZ	Weight-for-Age z-score
WFH	Weight-for-Height
WFP	World Food Programme
WHO	World Health Organization
WHZ	Weight-for-Height z-score
WVI	World Vision International

## ACKNOWLEDGEMENTS

We would like to express our appreciation to various Government Ministries and partner organizations for their contributions toward the 2017 Annual SENS in all of the three refugee camps in Tanzania:- Government Ministries and partner organizations include the Ministry of Health for its collaboration and provision of key technical staff, the Ministry of Home Affairs for its endorsement and support, UNICEF for the provision of funds and anthropometric equipment and WFP for the provision of funds, as well as logistical and supervision support.

We would also like to express our appreciation to other Health, Food security and Nutrition partners which include TRCS in Mtendeli and Nyarugusu camps, MSF-CH in Nduta camp, World Vision International who supported the survey processes by providing technical staff, logistical support and community mobilization.

We extend special appreciation to Miata Tubee Johnson and Zahara Hazali for the coordination and facilitation the outset of survey training to the end of survey exercise. Special thanks to Naser Mohmand and Caroline Wilkinson for the technical support and guidance; Sandra Sudhoff and the Cartong team for remote support with the mobile phone ODK set up. Appreciation also goes to all of the UNHCR colleagues in Health and Nutrition, programme, supplies, transport field and admin in Kasulu and Kibondo sub offices.

Finally, special thanks to the refugees that participated in the survey and contributed the information during the data collection across all camps.

## Executive summary

UNHCR in Tanzania hosts refugees in Kigoma region in Kasulu and Kibondo districts located in the North Western 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 (comprising of Old and New Camps) located in Kasulu, Nduta in Kibondo district and Mtendeli in Kakonko district.

The oldest refugee camp is Nyarugusu which has been hosting refugees from the Democratic Republic of Congo and Burundi since 1996. Refugees from Burundi were repatriated voluntarily in 2012 leading to closure of some of the existing camps. The remainder population in need of protection were relocated to Nyarugusu camp where the total population then was about 65,000 as of early April 2015 majority 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 Burundi leading exodus of some Burundians to Tanzania and other neighbouring countries. As from late April 2015 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 (Old Camp) and 39.4% of the Burundi refugees (New Camp) who arrived at the onset of the emergency. Nduta hosts an estimated population of 123,673 refugees who were relocated from Nyarugusu and Mtendeli hosts 52,004 who were relocated from Nyarugusu and is still receiving the new arrivals. According to UNHCR ProGres data August 2017, the total number of refugees in Kigoma Region is estimated to be 310,735.

A total 4 surveys were conducted from 21<sup>st</sup> Aug to 18<sup>th</sup> Sept 2017 covering Nyarugusu Old Camp, Nyarugusu New Camp, Nduta and Mtendeli. UNHCR coordinated the survey in collaboration with WFP, UNICEF, WVI, Tanzania Red-cross Society (TRCS), MSF as well as Ministry of interior and Health of the United Republic of Tanzania. Funding was shared between UNHCR, WFP and UNICEF. UNHCR and WFP were in charge of logistics and daily operations.

The survey objectives are as outlined below:

### Primary objectives:

- To determine the prevalence of acute malnutrition in children aged 6-59 months.
- To determine the prevalence of stunting in children aged 6-59 months.
- To determine the coverage of measles vaccination among children aged 9-59 months (or context-specific target group e.g. 9-23 months).
- To determine the coverage of vitamin A supplementation received during the last 6 months among children aged 6-59 months.
- To assess the two-week period prevalence of diarrhoea among children aged 6- 59 months.
- To measure the prevalence of anaemia in children aged 6-59 months and in non-pregnant women of reproductive age (15-49 years).
- To investigate IYCF practices among children aged 0-23 months.
- To determine the coverage of ration cards and the duration the general food ration lasts for recipient households.
- To determine the extent to which negative coping strategies are used by households.
- To assess household dietary diversity.
- To determine the population's access to, and use of, improved water, sanitation and hygiene facilities.
- To determine the ownership of mosquito nets (all types and LLINs) in households.

- To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women.
- To establish recommendations on actions to be taken to address the situation in *Mtendeli, Nduta and Nyarugusu Refugee Camps*.

### Secondary objectives:

- To determine the coverage of therapeutic feeding and targeted supplementary feeding programmes for children 6-59 months.
- To determine enrolment into Antenatal Care clinic and coverage of iron-folic acid supplementation in pregnant women.

### Methodology

The surveys were conducted using the UNHCR Standardised Expanded Nutrition Survey (SENS) version 2 (2013), [www.sens.unhcr.org](http://www.sens.unhcr.org) and the Standardised Monitoring and Assessments of Relief and Transitions (SMART) guidelines [www.smartmethodology.org](http://www.smartmethodology.org). Two stage cluster sampling was used to identify the survey respondents, the first stage involved identifying clusters and the second stage was to identify the households. The Emergency Nutrition Assessment (ENA) software version July 9<sup>th</sup>, 2015 which uses Probability Proportion to Sample Size (PPS) was used to calculate the sample size and to select the clusters. To select households for participation in the survey from the clusters, Simple random sampling was used. The parameters that were used to calculate the sample size are summarized in *TABLE 6*.

The survey had a total of 6 modules, 3 individual level questionnaires and 3 household level questionnaires. The modules are;

- Anthropometry and health; targeting all children (6 to 59 months) in all the sampled households;
- Infant and Young Child Feeding (IYCF); targeting all children 0 to 23 months in all the sampled households
- Anaemia; targeting all children 6 to 59 months and all non-pregnant women 15 to 49 years in every other sampled households;
- Food security; targeting every other sample households
- Water, Sanitation and Hygiene (WASH); targeting all the sampled households.
- Mosquito net coverage; targeting every other sampled households;

Data was collected using smart mobile phones open data kit by 6 teams of 6 members per team; each team had two phones configured for household and individual level questionnaires respectively.

### RESULTS:-

Summary of results as shown in the **table 1** below, as well as other important results

**Table 1 : SUMMARY OF RESULTS SENS 2017 REFUGEE CAMPS TANZANIA**

	Nyarugusu_Old		Nyarugusu_New		Nduta		Mtendeli		Classification of public health significance or target (where applicable)
	No./ Tot	% (95% CI)	No./ tot	% (95% CI)	No./ total	% (95% CI)	No./ total	% (95% CI)	
<b>CHILDREN 6-59 months</b>									
<b>Acute Malnutrition (WHO 2006 Growth Standards)</b>									
Global Acute Malnutrition (GAM)	10/466	2.1 % (1.2 - 3.8 )	10/421	2.4 % (1.2 - 4.5)	34/559	6.1 % (4.1 - 9.0)	24/549	4.4 % (2.7 - 6.9 9)	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	9/466	1.9 % (1.0 - 3.6)	10/421	2.4 % (1.2 - 4.5)	31/559	5.5 % (3.5 - 8.6)	22/549	4.0 % (2.6 - 6.2)	
Severe Acute Malnutrition (SAM)	1/466	0.2% (0.0-1.7)	0/421	0.0%	3/559	0.5 % (0.1 - 2.4)	2/549	0.4 % (0.1 - 1.5)	
Oedema	1/466	0.2% (0.0-1.7)	0/421	0.0%	1/559	0.2% (0.0-1.6)	0/549	0.0%	
<b>Mid Upper Arm Circumference (MUAC)</b>									
MUAC <125mm and/or oedema	14/473	3.0 % (1.8 - 4.7)	18/423	4.3 % (2.6 - 6.9)	24/568	4.2% (2.6-6.8)	22/559	3.9 % (2.3 - 6.6 9)	
MUAC 115-124 mm	9/473	1.9 % (1.0 - 3.7)	16/423	3.8 % (2.2 - 6.4)	19/568	3.3 % (1.9 - 5.9)	20/559	3.6 % (2.0 - 6.3)	
MUAC <115 mm and/or oedema	5/473	1.1 % (0.4 - 2.9)	2/423	0.5 % (0.1 - 3.5)	5/568	0.9 % (0.4 - 2.0)	2/559	0.4 % (0.1 - 1.5)	
<b>Stunting (WHO 2006 Growth Standards)</b>									
Total Stunting	181/457	39.6 % (33.4 - 46.2)	198/421	47.0 % (40.8 - 53.3)	299/547	54.7 % (47.7 - 61.5)	266/543	49.0 % (43.0- 55.0)	Critical if ≥ 40%
Severe Stunting	55/457	12.0 % (8.9 - 16.1)	72/421	17.1 % (12.6 -22.7)	113/547	20.7% (15.4 - 27.1)	112/543	20.6 % (16.0 - 26.2)	
<b>Programme coverage</b>									
Measles vaccination with card or recall (9-59 months)	400/436	91.7 % (88.7-94.1)	367/393	93.45 (89.9-96.9)	474/535	88.8 % (80.3-97.2)	438/513	85.4 % (73.8-97.0)	Target of ≥ 95%
Vitamin A supplementation within past 6 months with card or recall	407/471	86.4 % (79.3-93.5)	292/423	92.7 % (89.3-96.1)	514/568	90.5 % (85.0-86.0)	528/559	91.1 % (94.5-97.8)	Target of ≥ 90%
Therapeutic feeding program (based on all admission criteria WHZ, Oedema and MUAC)	2/5	40.0% (0-100%)	9/22	0%	3/5	60.0% (0-100)	1/3	33.3% (0.0-100.0)	
TSFP (based on all admission criteria WHZ, and MUAC)	7/17	41.2% (6.6-75.8)	0/2	40.9% (12.1-69.7)	18/43	41.9% (20.7-63.0)	22/32	68.8% (48.9)	
<b>Diarrhoea</b>									
Diarrhoea in last 2 weeks	82/473	17.3% (11.0-23.7)	90/423	21.3% (15.7-26.9)	80/568	14.1% (8.8-19.4)	87/559	15.6% (9.8-21.3)	

	Nyarugusu_Old		Nyarugusu_New		Nduta		Mtendeli		Classification of public health significance or target (where applicable)
	No./ Tot	% (95% CI)	No./ tot	% (95% CI)	No./ total	% (95% CI)	No./ total	% (95% CI)	
<b>Anaemia children aged 6-59 months</b>									
Total Anaemia (Hb <11 g/dl)	222/ 473	46.9% (39.1-54.7)	174/42 2	41.2 % (34.5-48.0)	233/ 568	41.0 % (35.0-47.1)	232/ 559	41.5% (37.3-45.8)	High if ≥ 40%
Mild (Hb 10-10.9)	130/ 473	27.5% (21.3-33.7)	89/ 422	21.1 % (15.8-26.3)	145/ 568	25.5% (21.3-29.7)	138/ 559	24.7% (21.6-27.8)	
Moderate (Hb 7-9.9)	92/ 473	19.5 % (14.7-24.2)	84/ 422	19.9 % (15.8-24.0)	88/568	15.5% (11.6-19.4)	92/ 559	16.5% (13.5-19.5 )	
Severe (Hb <7)	0/473	0.0%	1/ 422	0.2% (0-0.7)	0/568	0.0%	2/559	0.4% (0.0-0.9)	
Mean Hb (g/dL)		11.0g/dl (10.8-11.2)		11.1g/dL (11.0 -11.3)		11.1g/dL (11.1-11.4)		11.1/dL (11.0-11.2)	
<b>CHILDREN 0-23 months</b>									
<b>IYCF indicators</b>									
Timely initiation of breastfeeding	178/ 239	74.5% (66.3-82.6)	196/ 263	74.5% (68.8-79.7)	250/ 285	87.7% (83.9-91.5)	249/ 294	84.7% (78.0-91.3)	
Exclusive Breastfeeding under 6 months	37/ 53	69.8 (52.2-87.4)	50/ 72	72.2% (53.7-90.8)	65/80	81.2% (69.7-92.8)	64/76	84.2% (74.8-93.7)	
Continued breastfeeding at 1 year (12-15 months)	39/44	88.6% (80.2-97.1)	52/59	88.1% (78.5-97.8)	37/42	88.1% (76.7-99.5)	40/44	90.9% (82.2-99.7)	
Continued breastfeeding at 2 years (20-23 months)	18/38	47.4% 31.2-63.5)	11/32	34.4% (18.9-49.9)	18/46	39.1% (23.1-55.2)	24/43	55.8% (38.6-73.0)	
Introduction of solid, semi-solid or soft foods (6-8 months)	32/36	88.9% (78.5-99.3)	25/30	83.3% (70.0%-96.6)	25/34	73.5% (52.2-94.8)	37/45	82.2% (71.6-92.9)	
Consumption of iron-rich or iron-fortified foods	143/ 184	77.7% (67.0-88.4)	158/ 192	82.3% (74.2-90.4)	179/ 198	90.4% (85.7-95.1)	208/ 218	95.4% (92.3-98.5)	
Bottle feeding	11/ 184	6.0% (0-12.7)	5/2 64	1.9% (0.0-3.9)	16/ 280	5.7% (0.6-10.8)	3/294	1.0% (0.0-2.2)	
<b>WOMEN 15-49 years</b>									
<b>Anaemia (non-pregnant)</b>									
Total Anaemia (Hb <12 g/dl)	101/ 320	31.6% (24.5-38.6)	56/ 251	22.3 % (14.5-30.1)	64/ 223	28.7% (22.2-35.2)	68/ 216	31.5% (25.5-37.5)	High if ≥ 40%
Mild (Hb 11-11.9)	65/ 320	20.3% (15.8-24.9)	36/251	14.3% (9.0-19.6)	38/ 223	17.0% (13.2-21.0)	40/ 216	18.5% (13.2-23.9)	
Moderate (Hb 8-10.9)	35/ 320	10.9 % (6.0-15.9)	20/ 251	8.0 % (3.1-12.8)	24/ 223	10.8% (4.8-13.1)	27/ 216	10.7% (5.8-15.5)	

	Nyarugusu_Old		Nyarugusu_New		Nduta		Mtendeli		Classification of public health significance or target (where applicable)
	No./ Tot	% (95% CI)	No./ tot	% (95% CI)	No./ total	% (95% CI)	No./ total	% (95% CI)	
Severe (Hb <8)	1/ 320	0.3% (0.0-1.0)	0/ 251	0.0%	2/223	0.9% (0.0-2.2)	1/216	0.5% (0.0-1.4)	
Mean Hb (g/dL)		12.4g/dL (12.1-12.6 )		13.01g/dL (12.65-13.4)		12.7 g/dL (12.4-12.9)		12.6g/dL (12.4-12.7)	
<b>FOOD SECURITY</b>									
<b>Food distribution</b>									
Proportion of household with a ration card	353/ 355	99.4% (98.3-100.0)	250/ 260	96.2% (90.0-100.0)	272/ 272	100.0%	242/ 242	100.0%	
Average number of days GFR lasts out of 30 days <sup>1</sup>	12.1 days (11.4-12.8)		14.4 days (13.8-15.1 )		17.3 days (16.4-18.1)		15.8 days (15.2-16.4)		
Average HDDS (mean, SD / range)	<b>5.0</b> (4.3-5.7)		4.6 (4.2-5.0)		5.1 (4.5-5.6)		4.8 (4.3-5.3)		
<b>Negative household coping strategies</b>									
Proportion of households reporting using none of the coping strategies over the past month	56/ 354	15.8% (12.3-20.1)	41/258	15.9% (11.7-20.9)	43/268	16.0% (11.9-21.0)	38/ 239	15.9% (11.5-21.2)	
Borrowed cash, food or other items with or without interest	182/ 354	51.4% (38.3-64.5)	156/ 260	60.0% (46.4-73.6)	146/ 272	53.7% (38.8-68.5)	137/ 242	56.6% (41.4-71.8)	
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	82/ 355	23.4% (13.8-32.4)	55/260	21.2% (11.4-31.1)	51/ 272	18.7% (8.1-29.5)	44/ 242	18.2% (8.7-27.7)	
Requested increased remittances or gifts as compared to normal	123/ 355	34.6% (25.4-43.9)	109/260	41.9% (31.1-52.7)	57/ 270	21.1% (12.9-29.3)	60/ 240	25.0% (14.6-35.4)	
Reduced the quantity and/or frequency of meals and snacks	217/ 355	61.1% (47.1-75.1)	147/ 260	56.5% (39.9-73.2)	176/ 272	64.7% (47.8-81.6)	160/ 242	66.1% (48.4-83.8)	
Begged	159/ 355	44.8% (31.3-58.3)	172/ 260	66.2% (52.1-80.2)	145/ 271	53.6% (37.7-69.3)	136/ 242	56.2% (42.5-69.9)	
<b>WASH</b>									
<b>Water quality</b>									
Proportion of households using improved drinking water source	492/ 512	96.1% (90.1-100.0)	471/ 474	99.4% (98.4-100.0)	502/ 510	98.4% (95.2-100.0)	475/ 481	98.8% (96.2-100.0)	

<sup>1</sup> In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.



	Nyarugusu_Old		Nyarugusu_New		Nduta		Mtendeli		Classification of public health significance or target (where applicable)
	No./ Tot	% (95% CI)	No./ tot	% (95% CI)	No./ total	% (95% CI)	No./ total	% (95% CI)	
<b>Water quantity</b>									
≥ 20 lpppd	238/ 512	46.5% (36.1-56.9)	251/ 274	53.0% (44.6-61.3)	209/ 510	41.0% (31.2-50.8)	117/ 480	24.4% (15.3-33.4)	UNHCR target is <u>&gt;20 lpppd</u>
15 - <20 lpppd	68/ 512	13.3% (10.1-16.6)	74/ 474	15.6% (11.4-19.9)	99/ 510	19.4% (14.7-24.1)	56/ 480	11.7% (7.1-16.2)	
<15 lpppd	206/ 512	40.2% (29.0-51.5)	149/ 474	31.4% (24.0-38.9)	202/ 510	39.6% (29.7-49.6)	307/ 480	64.0% (52.1-75.8)	
<b>Satisfaction with drinking water supply</b>									
Proportion of households that say they are satisfied with drinking water supply	122/ 512	23.8% (14.0-33.7)	222/ 474	46.8% (34.4-59.2)	231/ 508	45.5% (33.3-57.7)	45/ 479	9.4% (5.3-13.5)	
<b>Safe excreta disposal</b>									
Proportion of households that use:									
An improved excreta disposal facility (improved toilet facility, 1 household)	137/ 512	26.8% (13.4-40.1)	246/ 473	52.0% (33.3-70.7)	163/ 510	32.0% (15.1-48.8)	123/ 480	25.6% (10.9-40.4)	
A shared family toilet (improved toilet facility, 2 households)	25/ 512	4.9% (0.3-9.6)	11/ 473	2.3% (0.1-4.5)	5/510	0.9% (0.0-2.6)	10/ 480	2.1% (0.0-4.4)	
A communal toilet (improved toilet facility, 3 households or more)	0/ 512	0%	7/ 473	1.5% (0.3-2.6)	2/510	0.4% (0.0-0.5)	6/480	1.3% (0.0-3.0)	
An unimproved toilet (unimproved toilet facility or public toilet)	350/512	68.4% (52.9-83.8)	209/473	44.2% (24.5-63.9)	340/ 550	66.7% (49.3-84.0)	341/ 480	71.0% (55.1-86.9)	
<b>MOSQUITO NET COVERAGE</b>									
<b>Mosquito net ownership</b>									
Proportion of households owning at least one LLIN	127/ 260	48.8% (38.9-58.8)	105/ 250	42.0% (33.6-50.4)	111/ 273	40.7% (32.0-49.3)	62/ 246	25.2% (15.0-35.3)	Target of >80%
Average number of persons per LLIN	6.8		7.0		8.7		14.1		2 persons

	Nyarugusu_Old		Nyarugusu_New		Nduta		Mtendeli		Classification of public health significance or target (where applicable)
	No./ Tot	% (95% CI)	No./ tot	% (95% CI)	No./ total	% (95% CI)	No./ total	% (95% CI)	
(Mean)									per LLIN
<b>Mosquito net utilisation</b>									
Proportion of household members (all ages) who slept under an LLIN	652/ 1792	36.4%	480/ 1405	34.2%	433/ 1354	32.0%	266/ 1320	19.7%	
Proportion of children 0-59 months who slept under an LLIN	177/ 652	27.1%	130/ 292	44.5%	143/ 360	39.2%	75/ 338	21.2%	
Proportion of pregnant women who slept under an LLIN	19/ 32	59.4%	14/39	35.9%	35/61	57.4%	15/42	35.7%	

### Classifications of indicators

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

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

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

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

**Table 3: Classification of Public Health Significance**

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

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

**Table 4: Simplified Classification of the Severity of GAM, Anemia, and Stunting in Refugee Setting (UNHCR Operational Guidance)**

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

Source: UNHCR operational guidance

## Brief interpretation of the results

The prevalence of GAM has trebled in Nduta camp compared to SENS 2016 survey from 2.4% (1.3-4.3) to 6.1% (4.1-9.0); the sharp increment is statistically significant ( $P=0.000$ ). The GAM prevalence in Nyarugusu Old (1.0% to 2.1), and Nyarugusu New Camp (0.9% to 2.4) has double compared to SENS 2016 survey; there is also increased prevalence in Mtendeli Camp from 3.5% to 4.4%; the increase is however not statistically significant. SAM cases have been recorded for the first time in Nyarugusu and Nduta camps compared to zero cases in the previous two SENS surveys. The GAM prevalence is below 5% acceptable level in Nyarugusu and Nduta camps while in Mtendeli camp indicating POOR nutrition level as per the WHO classifications. The increase in the prevalence of GAM (trebling and doubling) is a concern.

The prevalence of stunting or chronic malnutrition among children aged 6-59 months remains above the 40% critical public health significance threshold (WHO classifications) in all the camps (except in Nyarugusu old, which has reduced from 44.0% to 39.6% in 2017). Given that it is irreversible after the age of 2 years, there is need to focus on effective and high impact programs that improve nutrition in the first 1000 days, from conception to age two years which means targeting women of reproductive age with appropriate interventions and as well enhance support, promotion and protection of IYCF practices

Key IYCF indicators have reduced across the camps compared to previous SENS. The rate of timely initiation of breastfeeding has statistically significantly decreased ( $P=0.000$ ) in Nyarugusu New camp from 90.4% (85.8-95.1) to 74.5% (68.8-79.7). The reduction in the other camps is not statistically significant. Similarly, exclusive breastfeeding rates has decreased compared to 2016 especially in Nyarugusu new and Old camps; current prevalence is 69.8% (52.2-87.4) and 72.2% (53.7-90.8) respectively compared to the previous 89.4% (80.7-98.1) and 87.9% (79.4-96.5) for Nyarugusu New and Old camp respectively. Exclusive breastfeeding rates have more or less remained the same in Nduta and Mtendeli Camps at 81.2% (69.7-92.8) and 84.2% (74.8-93.7) respectively.

Anaemia prevalence among children aged 6-59 months remains above the 40% of public health significance (critical) in all the camps; however, there is a reduction from 58.1% to 40.0% in Nduta camp in 2017 compared to 2016; however, the reduction is not statistically significant. The ongoing distribution of MNP might have a positive impact in future given good uptake with over 90% of the households with children 24-49 months reporting to be using sprinkles in their food; UNHCR and WFP strategy of distributing MNP alongside GFD seems to be yielding results. In the meantime there is need to strengthen other complementary strategies like distribution of mosquito nets and de-worming.

Anaemia prevalence among non-pregnant women of reproductive age (15-49 years) remains below 30% in all the camps (Medium public health significance).

The water inadequacy especially in Mtendeli could be contributing to poor hygiene and sanitation. The WASH section has been facing challenge of poor yielding boreholes and well as dry boreholes. Out of 21 boreholes drilled, only 6 have yielded water but still not in adequate amounts. Diarrhoea among children aged 6-59 months in the last 2 weeks of survey reported to be between 14.1%-21.3%, which is possible indicating poor hygiene, sanitation and child care practices in the camps. There is also outbreak of skin diseases and jiggers in Mtendeli and Nduta camps that could be attributed partially to hygiene situation especially at a personal level.

In terms of food security, since April 2017, there has been ration reduction; in April/May, there was overall 60% reduction in Kcal from 2166 to 1296 Kcal (53% reduction in cereals, 50% less oil and 40% less CSB). In June/July, there was improvement with provision of 80% Cereals and 100% other commodities; overall the KCAL reduced by 13% reflecting an improvement from the previous 4 months. However as from August 2017, there was a further reduction of the ration distributed under GFD with refugee receiving 60% of full ration for cereals, 50% of full ration for super cereals with sugar, 70% of full ration for vegetables Oil and 80% of full ration for salt; this translates to 1330kcal (62% of the full ration). Due to reduction of ration, average food ratio lasts an average of 12.1 to 17.3 days a month. While last year, over 50-80% of the households reported food ration lasting 75% of the month (>23days), currently less than 5% the households this year report the food ration lasting more than 23 days; Virtually all the households (94.9-98.9%) report food lasting less than

75% of the time compared to 19.2-44.8% of the household last year.

Mosquito-net coverage is poor with less than half of households reporting owning at least 1 Long Lasting Insecticide Net (LLIN) compared to recommended above 80%. Similarly, Average number of persons per LLIN range from 6.8 to 14 persons per net against the recommended 2 person per net.

## **Recommendations**

### **Nutrition and Health Recommendations**

- Mass screening and referral campaign for malnutrition in Nduta and Mtendeli Refugee Camps. It can be integrated with de-worming and other relevant interventions.
- Assess the causes for the increased malnutrition levels; implement appropriate strategies (e.g. enhance support, promotion and protection of IYCF practices, behaviour change communication) to prevent, and reduce the malnutrition levels.
- Harmonize/adopt MUAC and WHZ as standalone screening, admission, monitoring and discharge criteria. Avoid two stage screening and admission.
- Investigate the main causes of the anaemia and Stunting among children 6-59 months, and develop and implement strategies to address anaemia and stunting.
- Nutrition partners in collaboration with Livelihoods partners to consider implementing proper back yard gardening project coupled with provision of training, seeds and tools as a way of addressing the anaemia situation.
- Investigate the reasons for the high Anaemia prevalence in children 6-24 months despite receiving Blanket Supplementary feeding and other modalities.
- Health agencies to conduct qualitative assessments of the health-seeking behaviour of new arrivals, with the aim of improving uptake of services and preventing a deterioration of their nutritional status.
- Distribute and encourage the use of long lasting insecticidal treated net.
- Access the distance of the villages from the Nutrition Programme sites and explore possibility bringing service closer to the villages at the peripheries in Nduta and Mtendeli.
- Strengthen promotion and advocacy of recommended IYCF practices; there is need to incorporate family planning to encourage adequate child spacing.

### **Food Security Recommendations**

- Consider supporting livelihood activities and other nutrition sensitive interventions e.g. agriculture to improve the camps' residents economy and increase the disposable income available to the population. Increased disposable income has high chances of having positive nutrition impact through dietary diversification.
- Consider alternative sources of cooking energy to control deforestation and more importantly avoid exposure to attacks/conflict as the refugee fetch fire wood. <sup>2</sup>

### **WASH recommendations**

---

<sup>2</sup> The recommendation is based on observation and discussion with residents especially women. We witnessed some people injured in clashes with host village when they venture to collect firewood.

- Improve water supply in Mtendeli camp
- WASH partners to improve water distribution network amongst all blocks to ensure adequate coverage of the water supply especially in Nduta and Mtendeli.
- Strengthen hygiene and sanitation promotion
- Toilet facilities coverage to be looked into so as to increase coverage of improved sanitation facilities and reduce sharing of toilets; structural improvements in terms of provision of toilet slaps will aid in maintenance of hygiene and cleanliness of the wash rooms.

## 1. Introduction

### 1.1. Geographic description of survey area

UNHCR in Tanzania hosts refugees in Kigoma region in Kasulu, Kibondo and Kakonko districts located in the North Western part of Tanzania bordering Burundi to the North; 78kms South West from the shores of Lake Tanganyika in the neighbouring Kigoma town. Currently there are three refugee camps namely Nyarugusu (comprising of Old and New Camps) located in Kasulu, Nduta in Kibondo district and Mtendeli in Kakonko district. 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 survey is normally timed to occur during the long dry season for ease of logistic purpose and coincide with the period of low agricultural activities in the camp.

### 1.2. Description of the population

The oldest refugee camp Nyarugusu has been hosting refugees from the Democratic Republic of Congo and Burundi since 1996. Refugees from Burundi were repatriated voluntarily in 2012 leading to closure of some of the existing camps. The remaining population in need of protection were relocated to Nyarugusu camp where the total population then was about 65,000 as of April 2015 majority 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 Burundi leading exodus of some Burundians to Tanzania and other neighbouring countries. As from late April 2015 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 necessitating 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 onset of the emergency. Nduta hosts an estimated population of 123,673 Burundian refugees who were relocated from Nyarugusu and Mtendeli hosts 52,004 Burundians who were relocated from Nyarugusu and is still receiving new arrivals trickling from the two countries. At the time of the survey in Mtendeli and Nduta refugee camps, there were new refugees coming from Burundi and Congo Democratic Republic respectively as well as voluntary repatriation back to Burundi of which approximately 6,000 had registered and around 6 busload were repatriated during the survey period. A daily average of 15 – 30 people arrivals the reception centre was reported in September 2017. According to UNHCR ProGres data August 2017, the total number of refugees in Kigoma Region is estimated to be 310,735 (*Table 2*).

**Table 5: Total Population and U5 Children in the refugee camps (UNHCR ProGres data July 2017)**

Camp	Total Population	Population of U5	HH	% <5	Average HH size
Nyarugusu (Old)	76,628	11,494	20,4544	15%	5
Nyarugusu (New)	67,875	10,181	19,147	15%	5
Nduta	126,840	24,735	49,389	20%	5
Mtendeli	52,004	11,441	17,709	20%	5
Total	310,735	55,151	104,921		

### 1.3. Food security situation

The main source of food in all the three camps is the general food distribution done once a month in the Camp. At the time of the survey the food basket comprised of yellow maize, oil, CSB+, pulses and salt. As illustrated in the summary **Table 3**, there has been ration cut due to limited global finance and unavailability of maize and other cereals in local and regional suppliers. In April-May, the camps received ration supplying 60% Kcal, which improved in June/July when they received ration meeting 87% of the Kcal; the situation however worsened again as from August 2017 with GFD supplying 62% Kcal.

Fortunately, no ration cut was implemented in the other food aid modules targeting specific vulnerable groups; there is 100% ration supply for blanket supplementary feeding targeting all children 6-23 months being implemented by the nutrition partners, with the food product 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 where the child is provided with 100g/p/d of super cereal with sugar in every distribution. WFP also continues to provide 100% ration for all components of Supplementary Feeding Programmes- In-patient Department (IDP); Anti-retroviral Therapy (ART), and PLW.

**Table 6 : General Food Distribution ration April to Oct 2017**

Full Ration	April-May 2007		June-July 2007		Aug-Oct 2007	
	Allocated Amount	% of Full Ration	Allocated Amount	% of Full Ration	Allocated Amount	% of Full Ration
380g/p/d	200g/p/d	53%	304g/p/d	80%	228g/p/d	60%
20g/p/d	10g/p/d	50%	120g/p/d	100%	84g/p/d	70%
50g/p/d	20g/p/d	40%	50g/p/d	100%	25g/p/d	50%
5g/p/d	5g/p/d	100%	20g/p/d	100%	14g/p/d	70%
120g/p/d	120/p/d	100%	5g/p/d	100%	4g/p/d	80%
1296 Kcal	1296 Kcal	60%	1876Kca	87%	1330Kca	62%

The main livelihood activities in the camps include small scale farming and growing of some foods like Cassava, 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 in the camp. There are common markets locally termed as "soko la uungano" permitted 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.

### 1.4. 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:

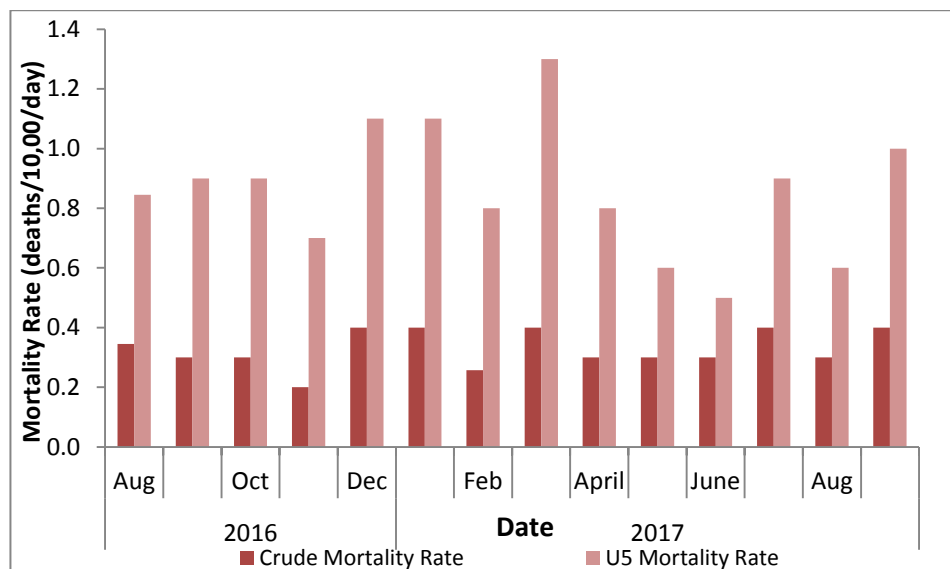
- Primary health care.
- Expanded immunization programmes.
- Referrals for medical cases that require special medical attention.
- Antenatal/post-natal services and maternity.
- Disease surveillance.
- HIV/TB services in collaboration with the MOH.

### 1.5. Mortality

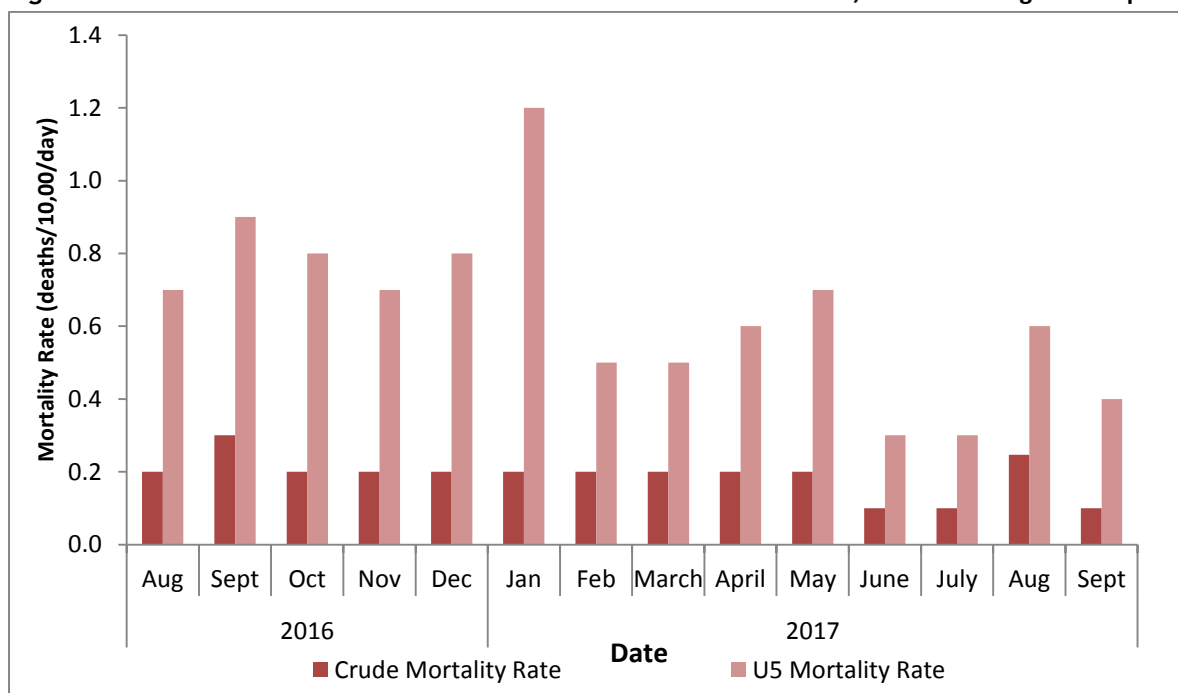
Since the emergency influx, all mortality indicators have been low and within the recommended SPHERE standards except in December 2016 in Mtendeli where the under-five mortality rate was above 2/day/10000 population; **Fig 1-3** show the annual mortality trends in the three camps. As from July 2016 to September 2017, among significant

causes of crude mortality were Malaria ( Nyarugusu 20.6%, Mtendeli 20.6% and Nduta 6.2%) ; followed by Lower respiratory tract infection ( Nyarugusu 9.8%, Mtendeli 5.6% and Nduta 26.6%). Overall Neonatal deaths is the leading mortality cause at 16.1%, 32.4% and 15.3% in Nyarugusu, Nduta and Mtendeli respectively (*UNHCR HIS Sept 2017*).

**Figure 1 CRUDE AND UNDER-5 MORTALITY RATES IN NYARUGUSU REFUGEE CAMP, TANZANIA Aug 2016-Sept 2017**

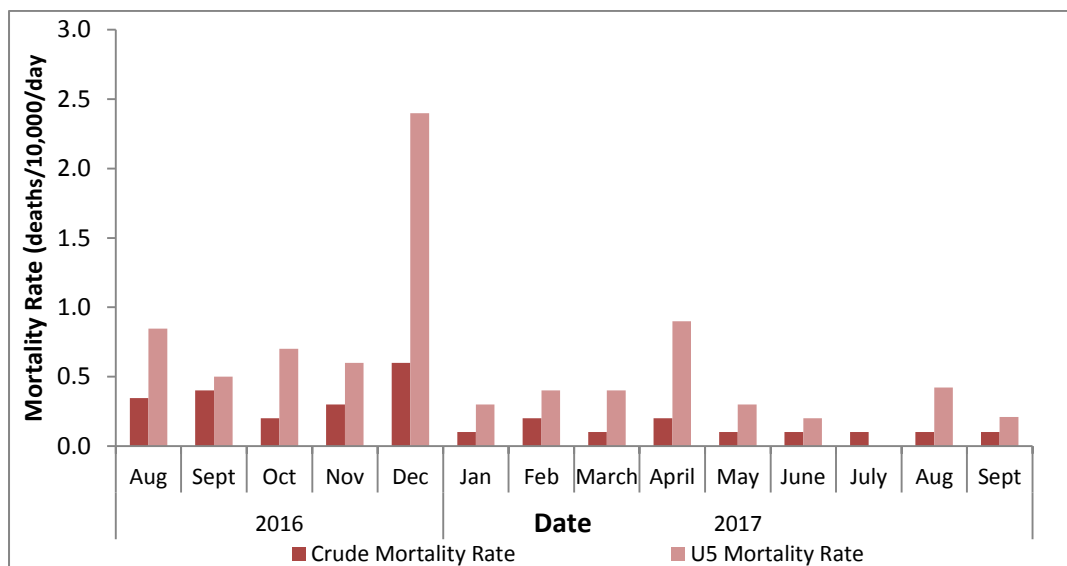


**Figure 2 CRUDE AND UNDER-5 MORTALITY RATES IN Nduta REFUGEE CAMP, TANZANIA Aug 2016-Sept 2017**



**Figure 3: CRUDE AND UNDER-5 MORTALITY RATES IN MTENDELI REFUGEE CAMP, TANZANIA Aug 2016-Sept 2017**

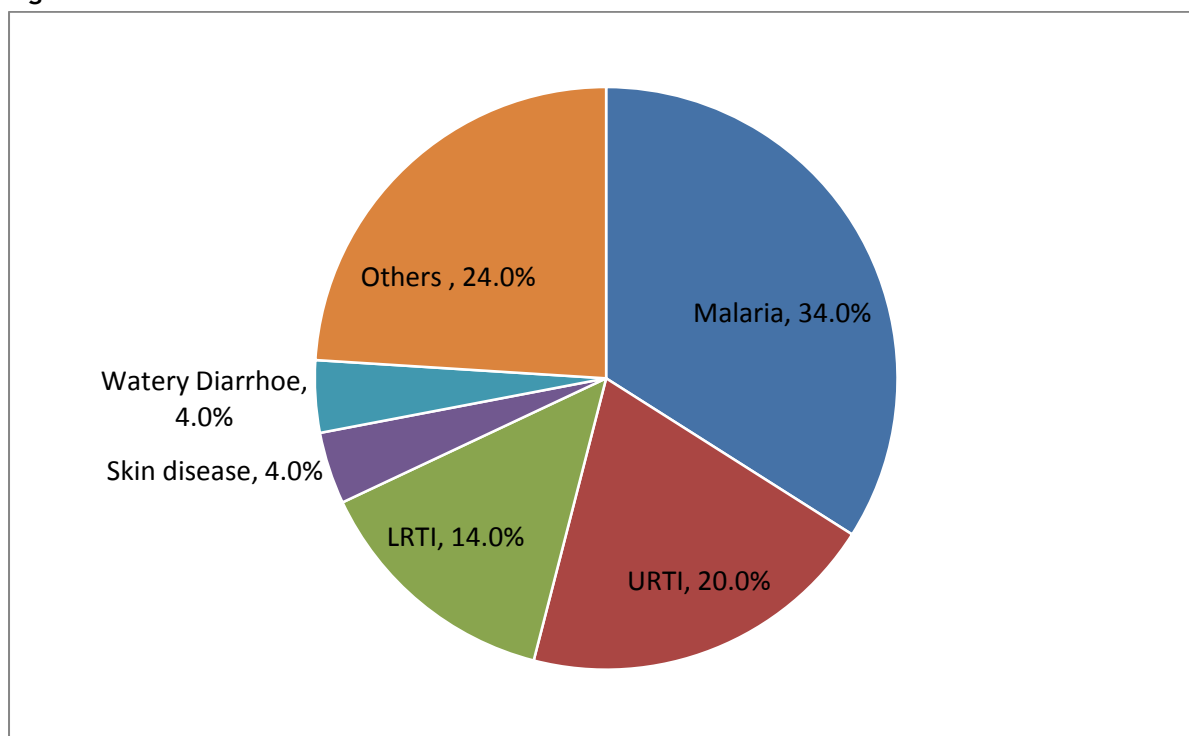




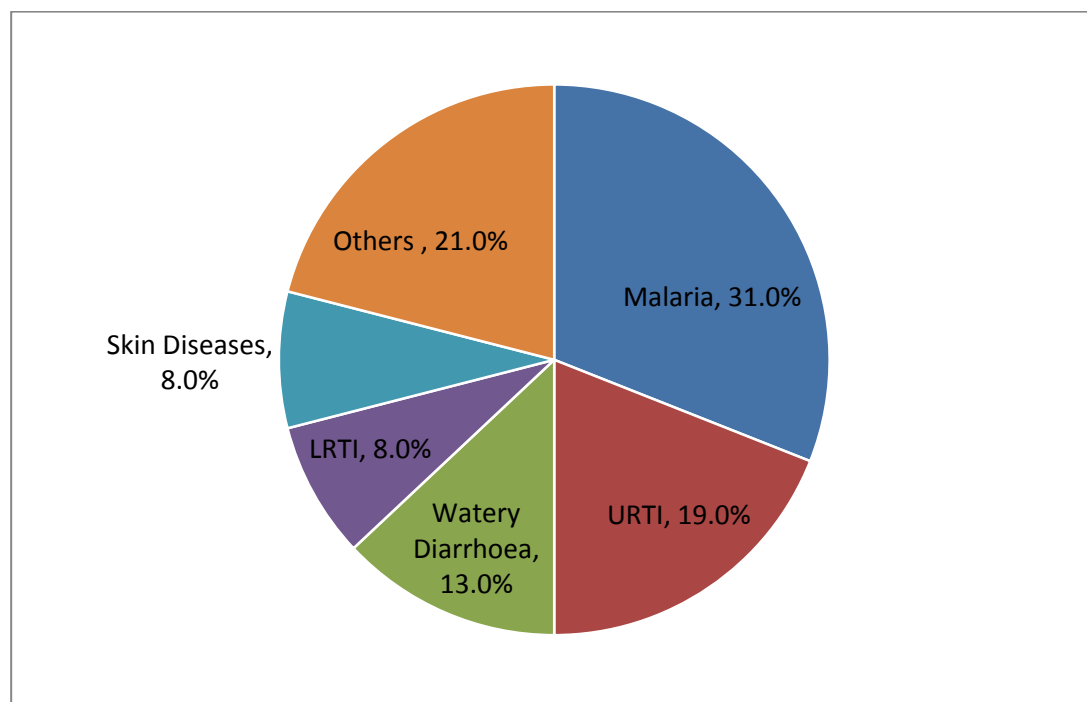
### 1.3.2 Morbidity:

Malaria has been the most common reported illness affecting the refugees with 34%, 31.0%, and 25% of the consultations in Nyarugusu, Nduta and Mtendeli respectively, followed by Upper Respiratory Tract Infections (URTI) and Lower respiratory tract infections (LRTI). The morbidity pattern was similar to previous assessment except for Nduta Camp where Watery diarrhoea was third most common morbidity.

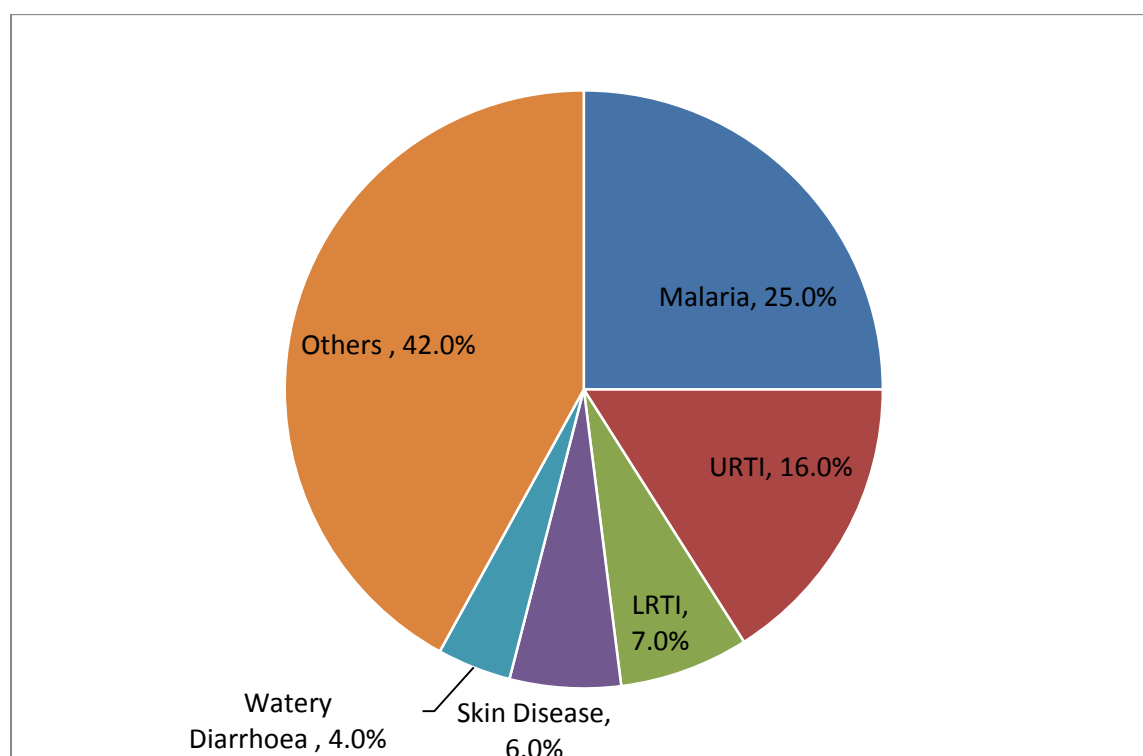
**Figure 3** TOP FIVE CAUSES OF MORBIDITY IN CHILDREN UNDER-5 IN NYARUGUSU CAMP AUG 2016-SEPT 2017



**Figure 4** TOP FIVE CAUSES OF MORBIDITY IN CHILDREN UNDER-5 IN NDUTA CAMP AUG 2016-SEPT 2017



**Figure 5** TOP FIVE CAUSES OF MORBIDITY IN CHILDREN UNDER-5 IN MTENDELI CAMP AUG 2016-SEPT 2017.



## 1.6. Nutrition situation

The nutritional status among the refugees living in the three camps was within WHO acceptable classification of acute malnutrition in emergencies threshold <5% in 2016 survey, similarly, the prevalence have been within acceptable threshold in the past 4 Surveys done in Nyarugusu old camp since 2012. In particular, there have been no SAM cases across the camps except in 2012 in Nyarugusu Old camp and in 2016 in Mtendeli camp. Stunting has been consistently above critical threshold in all surveys carried out **table 4**.

**Table 7 : Nutrition indicators Nyarugusu, Nduta and Mtendeli Camps 2012-2016<sup>3</sup>**

Indicators	Years	Nyarugusu Old Camp	Nyarugusu New Camp	Nduta	Mtendeli	Classification of public health significance
		(95% C.I)	(95% C.I)	(95% C.I)	(95% C.I)	
Global Acute Malnutrition (GAM) (W/H <-3 z-score and/or oedema)	Sept 2016	1.0% (0.4-2.2)	0.9% (0.4-2.1)	2.4% (1.3-4.3)	3.5% (2.2-5.5)	Acceptable if <5% <b>Critical if ≥15%</b>
	Dec 2014	1.4% (0.7- 3.0)				
	Oct 2012	2.6 % (1.7 - 4.0)				
Prevalence of moderate acute malnutrition (MAM, >-3 Z-score & <-2 z-score)	Sept 2016	1.0% (0.4-2.2)	0.9% (0.4-2.1)	2.4% (1.3-4.3)	3.3% (2.1-5.1)	
	Dec 2014	1.4% (0.7- 3.0)				
	Oct 2012	1.7 % (1.0 - 2.8)				
Severe Acute Malnutrition (SAM) >-3 Z-score & >-2 z-score and/or oedema)	Sept 2016	0.0% (0.0-0.0)	0.0%	0.0%	0.2%	
	Dec 2014	0.0% (0.0-0.0)				
	Oct 2012	0.9 % (0.4 - 2.1)				
	Sept 2017	39.6 % (33.4 - 46.2)	47.0 % (40.8 - 53.3)	54.7 % (47.7 - 61.5)	49.0 % (43.0 - 55.0)	
Total Stunting	Sept 2016	44.0% (39.2-48.9)	43.7% (38.9-48.6)	57.1% (52.3-61.8)	54.8% (50.8-58.7)	Acceptable if <20% <b>Critical if ≥40%</b>
	Dec 2014	40.7% (35.2-46.4)				
	Oct 2012	46.2 % (41.3 - 51.2)				
Severe Stunting	Sept 2016	14.0% (11.6-16.9)	13.4% (10.3-17.1)	21.8% (18.1-26.0)	22.8% (18.8-27.3)	
	Dec 2014	14.0% (10.7-18.2)				
	Oct 2012	17.1 % (14.2 - 20.6)				

**Table 8 : MUAC Screening in CAMPS results Jan-August 2017**

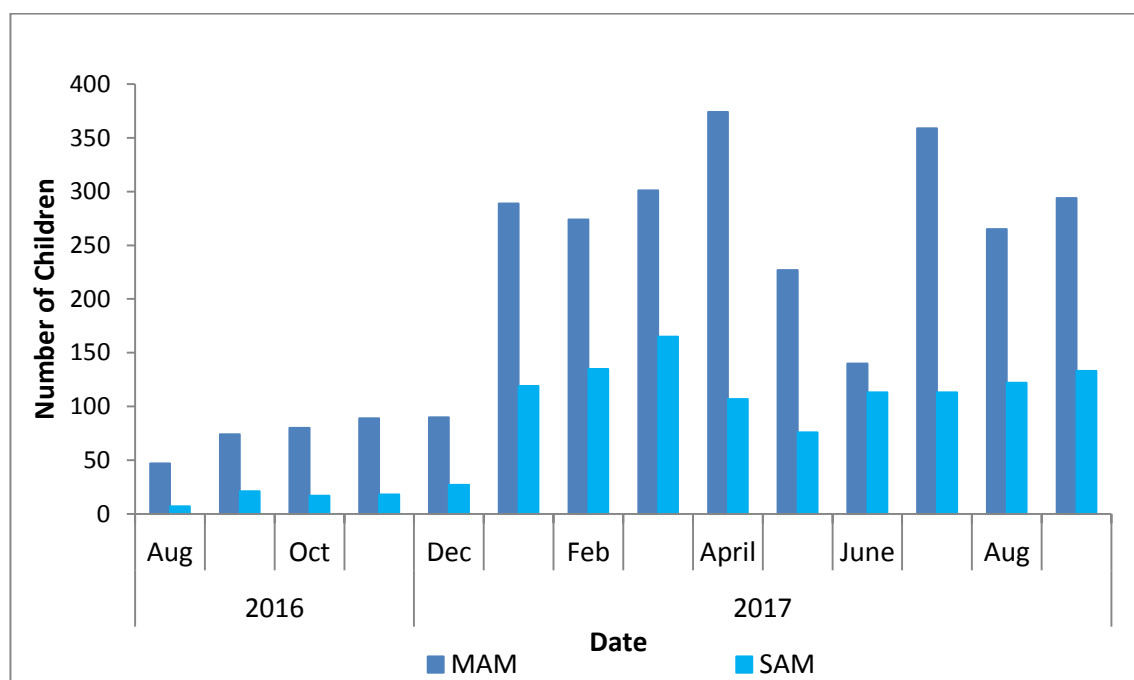
	Total screened	SAM	MAM	GAM
Nyarugusu	1060	9	39	48
		<b>1%</b>	<b>4%</b>	<b>5%</b>
Nduta	6759	143	451	594
		<b>2%</b>	<b>7%</b>	<b>9%</b>
Mtendeli	2187	68	109	177
		<b>3%</b>	<b>5%</b>	<b>8%</b>

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

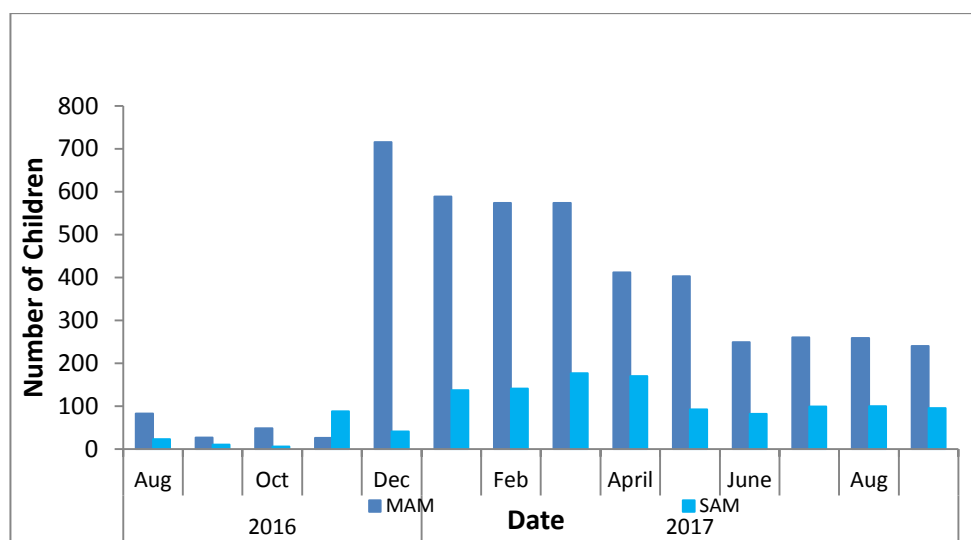
<sup>3</sup> The empty cells indicate no survey has been done for those camps in the respective years

- **Prevention activities;** such as IYCF, Nutrition and health education counselling on various topics, blanket supplementary feeding programmes for children 6-59 months, pregnant and lactating women.
- **Vitamin A supplementation and de-worming:** done twice a year as per the government policies. By August 2017, coverage was above the 90% SPHERE standard in all the camps;
- BSFP programme targeting children under 2 years of age
- Distribution of Micronutrient powder targeting children 24-59 months
- PLW Programme
- **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 April and July 2017, while the peak in admission Mtendeli was in June and August; Nduta was December and May. **Figures 8-10** show the trends in the admission to therapeutic feeding programmes and targeted supplementary feeding programmes over past 12 months before and during the nutrition survey.

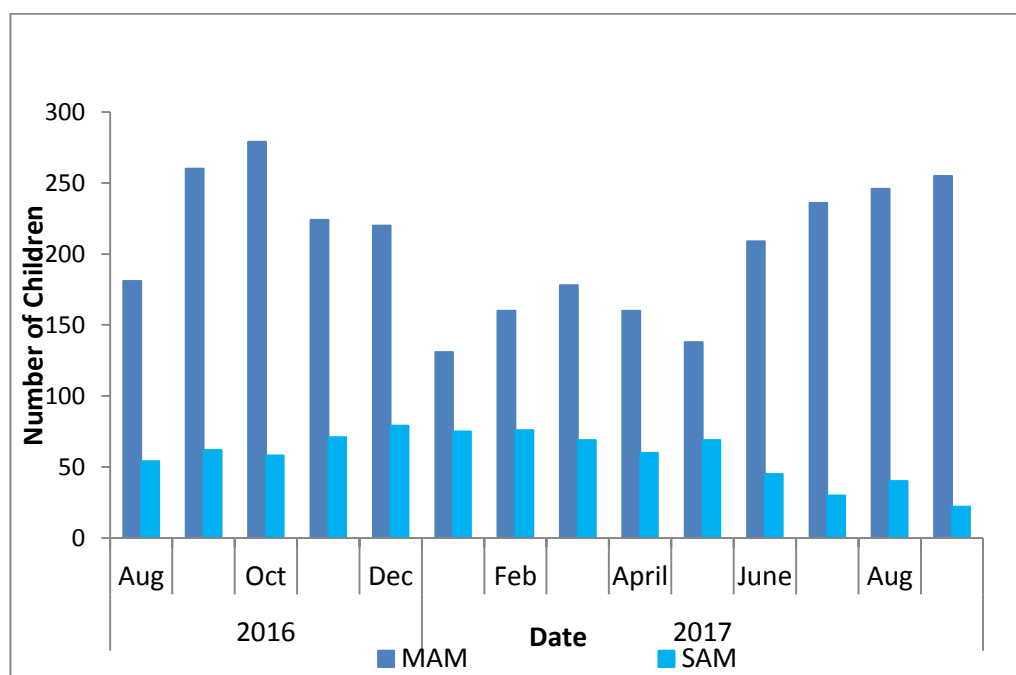
**Figure 6** NUMBER OF ADMISSIONS TO TREATMENT PROGRAMMES FOR MAM AND SAM IN CHILDREN 6-59 MONTHS in NYARUGUSU REFUGEE CAMP AUG-SEPT 2017.



**Figure 7** NUMBER OF ADMISSIONS TO TREATMENT PROGRAMMES FOR MAM AND SAM IN CHILDREN 6-59 MONTHS in NDUTA REFUGEE CAMP AUG 2016-SEPT 2017.



**Figure 8** NUMBER OF ADMISSIONS TO TREATMENT PROGRAMMES FOR MAM AND SAM IN CHILDREN 6-59 MONTHS in MTENDELI REFUGEE CAMP AUG 2016-SEPT 2017.



## 2 Survey Objectives

### 2.1 Primary objectives:

- To determine the prevalence of acute malnutrition in children aged 6-59 months.
- To determine the prevalence of stunting in children aged 6-59 months.
- To determine the coverage of measles vaccination among children aged 9-59 months (or context-specific target group e.g. 9-23 months).
- To determine the coverage of vitamin A supplementation received during the last 6 months among children aged 6-59 months.
- To assess the two-week period prevalence of diarrhoea among children aged 6- 59 months.
- To measure the prevalence of anaemia in children aged 6-59 months and in non-pregnant women of reproductive age (15-49 years).
- To investigate IYCF practices among children aged 0-23 months.
- To determine the coverage of ration cards and the duration the general food ration lasts for recipient households.
- To determine the extent to which negative coping strategies are used by households.
- To assess household dietary diversity.
- To determine the population's access to, and use of, improved water, sanitation and hygiene facilities.
- To determine the ownership of mosquito nets (all types and LLINs) in households.
- To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women.
- To establish recommendations on actions to be taken to address the situation in *Mtendeli, Nduta and Nyarugusu Refugee Camps*.

### 2.2 Secondary objectives:

- To determine the coverage of therapeutic feeding and targeted supplementary feeding programmes for children 6-59 months.
- To determine enrolment into Antenatal Care clinic and coverage of iron-folic acid supplementation in pregnant women.

## 3 Methodology

### 3.1 Sample size

The sample size for anthropometry and health was calculated using the parameters illustrated in **table 6 below**. The ENA for SMART software was used to calculate the sample size. According to the SMART guidelines, the household was used as the sampling unit in the survey. For the purposes of this survey, a household was defined as the number of people who regularly stay together and eat from the same pot. The household size and the proportion of children under the age of 5-years used in the survey were obtained from SENS 2017 report. The refugee total population was as per UNHCR ProGres database July 2017. The estimated GAM prevalence was obtained from the previous 2017 SENS survey.

**TABLE 9: SAMPLE SIZE CALCULATION PARAMETERS**

Camp	Total Popn	Total HHLDs	Ave HHL D Sizes <sup>4</sup>	% < 5 years <sup>5</sup>	Total < 5 years	Est. GAM Prevalence %	+/- Desired precision %	% of non-responses	Child 6-59 Months	HHLDs
Nyarugusu (Old)	76,628	20,544	5	15%	11,494	2.2%	2	10%	337	555
Nyarugusu (New)	67,875	19,147	5	15%	10,181	2.1%	2	10%	332	531
Mtendeli	52,004	17,709	5	20%	11,441	5.5%	3	10%	362	447
Nduta	126,840	49,389	3	20%	24,735	4.3%	2.5	10%	413	510
	<b>323,347</b>	<b>106,789</b>			<b>57,851</b>				<b>1444</b>	<b>2043</b>

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

**TABLE 10 NUMBER OF HOUSEHOLD PER CLUSTER CALCULATION**

Camp	Tot pop	Total Hhlds	Ave Hhld size	% of <5 yrs	Tot< 5 yrs	GAM Prevalence %	+/- precision %	Design effect	% non-response Hhlds	Child ren 6-59 Months	HHL ds	Clusters	Hhld s per cluster	No. of survey days
Nyarugusu (Old camp)	67,529	19,294	5	15%	10,129	2.2%	2	1.5	10%	337	555	34	16.3	6
Nyarugusu (New Camp)	67,529	19,294	5	15%	10,129	2.1%	2	1.5	10%	332	531	34	15.6	6
Mtendeli	52,004	17,335	5	20%	11,441	5.50%	3	1.5	10%	362	447	30	14.9	5
Nduta	123,673	41,224	5	20%	24,735	4.30%	2.5	1.5	10%	413	510	30	17.0	5

## 3.2 Sampling procedure: selecting clusters

The UNHCR ProGres database was used to obtain camp population statistics. The data used was as of July 31st 2017. Cluster sampling was used in the surveys. The decision was arrived following the unavailability of complete household lists and also the expansive nature of the camps. To determine the number of clusters to be included in the survey, number of teams, time taken per household as well the available time to conduct the survey was put into consideration. **Table 7 below** presents number of households per cluster and total number of days taken for the survey per camp. To assign clusters, the probability proportional to size (PPS) was employed using the ENA software version July 9<sup>th</sup>, 2015. Reserve cluster was used to replace 2 clusters each in Nduta and Mtendeli that were affected by repatriation

<sup>4</sup> The household size has been adjusted upwards based on analysis of 2016 SENS data where it was apparent children under five were over sampled perhaps due the PROGRESS underestimation of the household size.

<sup>5</sup> The % of children under five has been maintained as 2016 survey, which is slightly lower than calculated from progress data- this is to ensure adequate number of households are reached.

### **3.3 Sampling procedure: selecting households and individuals**

Once clusters were identified, the next stage was the selection of households to participate in the survey. The cluster was equivalent to village. Where a village was deemed large (above 500 households), the blocks were listed and one randomly picked by listing. In the selected clusters (villages), the survey team was assigned to label all the households and also used the opportunity to further sensitise and mobilize the community at the households' level. Random sampling using ENA software to randomly pick the required number of households from the total list of houses was employed in second stage sampling.

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

In the event of an absent household or individual, the team members returned to the household once during the course of the day. If the household or individual was not found after the follow up visit, the household or individual was counted as an absentee and was not replaced. If an individual or household refused to participate, it was considered a refusal and the individual or household was not replaced with another. Abandoned and empty households were not marked during listing. However, if a selected household was abandoned, the household was replaced by another. If a selected child was disabled with a physical deformity preventing certain anthropometric measurements, the child was still included in the assessment for the relevant indicators

### **3.4 Questionnaire and measurement methods**

Mobile phone formatted for ODK questionnaires were used. The Kiswahili language was used for the questionnaires. The questionnaires were set with ranges for age, height, haemoglobin as a way of minimising mistakes when collecting data. In addition skip options were provided as necessary. Piloting was conducted before the survey. The team leader administered household questionnaire while, an interviewer administered individual question. The whole process was overseen by a supervisor who went through the entire questionnaire in the phone and ticked reviewed as appropriate.

### **3.5 Measurement methods**

#### **Household level indicators**

- Food security, WASH and Mosquito net: The questionnaire was based on the standard SENS questionnaires. For WASH, irrelevant latrine and water source options were not included.

#### **Individual-level indicators**

- Sex of children: sex was recorded as male or female.
- Birth date or age in months for children 0-59 months: The exact date of birth (day, month and year) was recorded from either a child health card or birth notification if available. If no reliable proof of age was available (minority of children) age was estimated in months using a local event calendar or by comparing the selected child with a sibling whose age was known, and was recorded in months on the questionnaire. If the child's age could absolutely not be determined by using a local events calendar or by probing, the child's length/height was measured and a cut off between 65.0 and 110.0 cm was used for inclusion. The UNHCR Manifest was not used for recording age.
- Age of women 15-49 years: Reported age was recorded in years.
- Weight of children 6-59 months: Measurements were taken to the nearest 100 grams using an electronic scale (SECA scale). The scale was placed on wooden platform laid on a firm flat ground before measurements were taken. The double-weighing technique was used to weigh young children unable to stand on their own or unable to understand instructions not to move while on the scale. Clothes were removed during weighing although where necessary, light undergarments were allowed.
- Height/Length of children 6-59 months: Children's height or length was taken to the closest millimetre using a wooden height board. Height was used to decide on whether a child should be measured lying down (length)



or standing up (height). Children less than 87cm were measured lying down, while children  $\geq 87$ cm were measured standing up

- Oedema in children 6-59 months: The presence of bilateral oedema was assessed by applying gentle thumb pressure on to the tops of both feet of the child for three seconds. If a shallow indent remained in both feet, oedema was recorded as present. The survey coordinators verified all oedema cases reported by the survey teams.
- MUAC of children 6-59 months: MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder and taken to the closest millimetre using standard tapes.
- Child enrolment in selective feeding programme for children 6-59 months: This was assessed for the outpatient therapeutic programme and for the supplementary feeding programme using card or recall. The programme products were shown when recall was used; plumpy nut for the OTP and plumpy sup for the TSFP.
- Measles vaccination in children 9-59 months: Measles vaccination was assessed by checking for the measles vaccine on the Expanded Programme on Immunisation (EPI) card or by carers recall if no EPI card was available. For ease of data collection, all children aged 6-59 months were assessed for measles but analysis was only done on children aged 9-59 months.
- Vitamin A supplementation in last 6 months in children 6-59 months: Whether the child received a vitamin A capsule over the past six months was recorded from an EPI card or health card if available, or by asking the caregiver to recall if no card was available. A vitamin A capsule was shown to the caregiver when asked to recall.
- DPT3/PENTA3 vaccination: DPT3 or PENTA 3 vaccination was assessed by checking for the DPT3/PENTA3 vaccine on the EPI card or by caregiver's recall if no EPI card was available. All children 0 to 59 months were assessed for DPT3/PENTA3 vaccine.
- Haemoglobin (Hb) concentration in children 6-59 months and women 15-49 years (non-pregnant): Hb concentration was taken from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser. The third drop was collected after wiping the first two drops.
- Diarrhoea in last 2 weeks in children 6-59 months: an episode of diarrhoea was defined as three loose stools or more in 24 hours. Caregivers were asked if their child had suffered episodes of diarrhoea in the past two weeks.
- ANC enrolment and iron and folic acid pills coverage in pregnant women: Whether the woman was enrolled in the ANC programme and was receiving iron-folic acid pills was assessed by use of the ANC card or by recall. An iron-folic acid pill was shown to the pregnant woman when asked to recall.
- Infant and young child feeding practices in children 0-23 months: Infant and young child feeding practices were assessed based on standard WHO recommendations (WHO 2010). Infant formula feeding and bottle use was also assessed.
- Referrals: Children aged 6-59 months were referred to the health post for treatment when MUAC was  $<11.5$ cm, when oedema was present or when haemoglobin was  $<7.0$ g/dL. Women of reproductive age were referred to the hospital for treatment if haemoglobin was  $<8.0$  g/dL.

### 3.6 Case definitions, inclusion criteria and calculations

In this survey, a household was defined as a group of people who cook and eat together from the same pot. **Table 8** shows the definition and classification of the nutritional indicators used. Main results are reported according the WHO Growth Standards 2006.

**TABLE 11 NUTRITIONAL STATUS AND ANAEMIA INDICATORS AND CUT-OFFS USED**

Indicator	Children 6-59 months	Women 15-49 years Non-Pregnant
-----------	----------------------	-----------------------------------

Acute Malnutrition <sup>6</sup>	Global acute malnutrition	WHZ <-2 and/or oedema	
	Moderate acute malnutrition	WHZ <-2 and ≥-3	--
	Severe acute malnutrition	WHZ <-3 and/or oedema	--
Stunting <sub>1</sub>	Total stunting	HAZ <-2	-
	Moderate stunting	HAZ <-2 and ≥-3	--
	Severe stunting	HAZ <-3	--
Underweight <sub>1</sub>	Total underweight	WAZ <-2	
	Moderate underweight	WAZ <-2 and ≥-3	--
	Severe underweight	WAZ <-3	--
Acute Malnutrition (MUAC)	--	<12.5cm and/or oedema	
	--	≥11.5cm and <12.5cm	--
	--	<11.5cm and/or oedema	--
Anaemia	Total anaemia	Hb <11.0 g/dL	Hb <12.0 g/dL
	Mild anaemia	Hb 10.0 - 10.9 g/dL	Hb 11.0 - 11.9 g/dL
	Moderate anaemia	Hb 7.0 - 9.9 g/dL	Hb 8.0 - 10.9 g/dL
	Severe anaemia	Hb <7.0 g/dL	Hb <8.0 g/dL

### Selective Feeding Programme Coverage (children 6-59 months)

Selective feeding programme coverage was assessed using the direct method as follows:

#### Targeted supplementary feeding programme

Coverage of TSFP programme (%) =

100x 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

#### Therapeutic feeding programme

Coverage of OTP programme (%) =

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

---

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

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

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

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

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

---

<sup>6</sup> Calculated using NCHS Growth Reference 1977 and WHO Growth Standards 2006 **WHZ**: weight-for-height z-score, **HAZ**: height-for-age z-score, **WAZ**: weight-for-age z-score

---

Children 0-23 months of age

- **Exclusive breastfeeding under 6 months: WHO core indicator 2** - Proportion of infants 0–5 months of age who are fed exclusively with breast milk: (including milk expressed or from a wet nurse, ORS, drops or syrups (vitamins, minerals, medicines)).

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

---

Infants 0–5 months of age

- **Continued breastfeeding at 1 year: WHO core indicator 3** - Proportion of children 12–15 months of age who are fed breast milk.

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

---

Children 12–15 months of age

- **Introduction of solid, semi-solid or soft foods: WHO core indicator 4** - Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods.

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

---

Infants 6–8 months of age

- **Consumption of iron-rich or iron-fortified foods: WHO core indicator 8** - Proportion of children 6–23 months of age who receive an iron-rich or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

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

---

Children 6–23 months of age

- **Continued breastfeeding at 2 years: WHO optional indicator 10** - Proportion of children 20–23 months of age who are fed breast milk.

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

---

Children 20–23 months of age

- **Bottle feeding: WHO optional indicator 14** - Proportion of children 0-23 months of age who are fed with a bottle.

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

---

Children 0–23 months of age

- **Infant formula intake** – Proportion of children 0-23 months consuming infant formula

Children 0-23 months of age consuming infant formula

---

Children 0-23 months of age

- **Consumption of FBF+** - Proportion of children 6-59 months consuming CSB+

- **Consumption of FBF super** – Proportion of children 6 to 59 months consuming CSB++

## WASH

The table below provides an overview of the definitions of drinking water and sanitation (toilet) facilities used in the survey and available in Nyarugusu, Nduta and Mtendeli refugee camps.

**TABLE 12: DEFINITIONS OF DRINKING WATER AND SANITATION (TOILET) FACILITIES**

Drinking Water	Improved source	Unimproved source
	Piped water into dwelling, plot or yard	Unprotected spring
	Public tap/standpipe	Small water vendor (cart with small tank or drum)
	Protected dug well with hand pump	Tanker truck
		Surface water (river, dam, lake, pond, stream, canal, irrigation channels).
**Tankering water may be used early on in an emergency response by UNHCR or partners. For the water to be considered “improved” it must be chlorinated. Where water is sold from a tanker by a private contractor, it is considered “unimproved”.		
Sanitation facility definition		
	Improved category	Unimproved category
	VIP latrine	Pit latrine without slab (slab with holes) /open pit
	Pit latrine with slab	Bucket
	Composting toilet	No facilities or bush or field
Sanitation facility classification based on definition and sharing		
Improved excreta disposal facility	A toilet in the above “improved” category <b>AND</b> one that is <b>not shared</b> with other families*,**	
Shared family toilet	A toilet in the above “improved” category <b>AND</b> one used by 2 families / households only (for a maximum of 12 people)**	
Communal toilet	A toilet in the above “improved” category <b>AND</b> one used by 3 families / households or more	
Unimproved toilet	A toilet in the above “unimproved” category <b>OR</b> a <b>public toilet</b> which any member of the public can use e.g. in hospitals or markets	
*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an “improved excreta disposal facility” as a toilet in the above “improved” category <b>AND</b> one that is <b>not shared</b> with other families / households.		
**According to UNHCR WASH monitoring system, an “improved excreta disposal facility” is defined differently than in survey instruments and is defined as a toilet in the above “improved” category <b>AND</b> one that is shared by a <i>maximum</i> of 2 families / households or no more than 12 individuals. Therefore, the following two categories from the above SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility” and “shared family toilet”.		

**Safe excreta disposal for children aged 0-3 years:** The safe disposal of children’s faeces is of particular importance because children’s faeces are the most likely cause of faecal contamination to the immediate household environment.

It is also common for people to think that children's faeces are less harmful than adult faeces. "Safe" is understood to mean disposal in a safe sanitation facility or by burying. This is the method that is most likely to most relevant contamination from faeces in the household.

### 3.7 Classification of public health problems and targets

**Anthropometric data:** UNHCR states that the target for the prevalence of global acute malnutrition (GAM) for children 6-59 months of age by camp, country and region should be <10% and the target for the prevalence of severe acute malnutrition (SAM) should be <2%. For stable camps, the target is to have GAM <5%. **Table 10 below** shows the classification of public health significance of the anthropometric results for children under-5 years of age.

**Table 13: CLASSIFICATION OF PUBLIC HEALTH SIGNIFICANCE FOR CHILDREN UNDER 5 YEARS OF AGE (WHO 1995, 2000)**

Prevalence %	Critical	Serious	Poor	Acceptable
Low weight-for-height	≥15	10-14	5-9	<5
Low height-for-age	≥40	30-39	20-29	<20
Low weight-for-age	≥30	20-29	10-19	<10

**Table 14: Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012)\***

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

\* Also meet SPHERE standards for performance

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

**Table 15 : Recommended targets for measles vaccination and vitamin A supplementation in last 6 months (UNHCR SENS Guidelines).**

Indicator	Target Coverage
Measles vaccination coverage (9-59m)	95% (also SPHERE)
Vitamin A supplementation in last 6 months coverage	90%

**Anaemia data:** The UNHCR Strategic Plan for Nutrition and Food Security (2008-2010) states that the targets for the prevalence of anaemia in children 6-59 months of age and in women 15-49 years of age should be low i.e. <20%. The severity of the public health situation for the prevalence of anaemia should be classified according to WHO criteria as shown in the **Table 13 below**.

**Table 16: Classification of public health significance (WHO, 2000)**

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

**WASH:** Diarrhoea caused by poor water, sanitation and hygiene accounts for the annual deaths of over two million

children under five years old. Diarrhoea also contributes to high infant and child morbidity and mortality by directly affecting children’s nutritional status. Refugee populations are often more vulnerable to public health risks and reduced funding can mean that long term refugee camps often struggle to ensure the provision of essential services, such as water, sanitation and hygiene. Hygienic conditions and adequate access to safe water and sanitation services is a matter of ensuring human dignity and is recognized as a fundamental human right. The following standards apply to UNHCR WASH programmes:

**Table 17:** UNHCR WASH Programme Standard

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

**Mosquito nets:** WHO defines a long-lasting insecticidal net as a factory-treated mosquito net made with netting material that has insecticide incorporated within or bound around the fibres. The net must retain its effective biological activity without re-treatment for at least 20 WHO standard washes under laboratory conditions and three years of recommended use.

**Table 18:** UNHCR Mosquito Net Programme Standards

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

## 3.8 Training, coordination and supervision

### 3.8.1 Survey teams and supervision

The survey was conducted by a total of 6 teams; each team had six members with the whole survey having a total of thirty six staff. A team leader was assigned for each team from among the team members. Two team members were responsible for interviewing and entering data in the two phones which each team had. One phone was for individual questionnaires while the other was for household level questionnaires. The third team member was taking haemoglobin measurements while the other two members were responsible for anthropometric measurements. The whole team was overseen by a supervisor who was also in charge of logistics and team facilitation, given the expansive nature of the camps; teams were more or less had to operate independently as much as possible. The enumerators responsible for anthropometry were drawn from the refugee population, partners were asked to assist in identifying capable people who had the capacity to grasp the survey concepts as well as use the mobile phones. The survey coordinator was roving between teams. The Survey Coordinator was the UNHCR Nutrition Officer based in Kigoma Region.

### 3.8.2 Training

Training for all team the members except anthropometric measurers lasted for a period of 5 days. The first three days were dedicated to the theoretical and review of questionnaire training, the fourth day was used for piloting and the fifth day was used for standardisation. Training topics were shared between the Survey Coordinator, Survey Supervisors and the UNHCR Nutrition office (Nutrition and IYCF module) and associate (health module). The survey coordinator was in charge setting up the mobile phones to collect data, configuring the Open Data Kit (ODK) on the phones and setting up the server for data synchronisation and exporting.

The topics covered were general survey objectives, overview of survey design, sampling, anthropometric measurements, signs and symptoms of malnutrition, data collection using the mobile phones and interview skills, WASH interview, IYCF interview, mosquito net coverage interview and anaemia assessment skills.

Anthropometric staff were recruited and trained in the camps for a period of two days inclusive of standardization. For the standardization exercise, a total of 10 households were visited two times by the survey teams with each eligible child measured two times by each team. For the Pilot survey, each team visited a total of four households and conducted all the survey modules questionnaires. The standardisation was conducted in a village which were not

sampled to participate in the survey. A feedback session was conducted after the teams returned from the exercise to address challenges encountered.

### **3.9 Data collection**

#### **Data collection**

Data collection was done as per the table 6 below. The team interacted with the households during the household marking in addition to daily introduction by the team leaders assisted by the team members who were recruited from the respective communities. The questionnaires were developed on excel and converted to ODK format using X form software. Data was collected using the ODK for Android platform using a total of 14 HTC- One phones. Each of the six teams had two phones for individual and household questionnaire respectively. Two phones were on standby in case the phones with the team encountered problems.

**Table 19:** Survey data collection days per camp.

Refugee Camp	Survey collection dates
Nyarugusu New Camp (Burundians)	21 <sup>st</sup> to 25 <sup>th</sup> August 2017 (30 clusters)
Nyarugusu Old Camp (Congolese)	28 <sup>th</sup> August to 2 <sup>nd</sup> September (32 clusters)
Nduta	7 <sup>th</sup> -11 <sup>th</sup> September 2017
Mtendeli	14 <sup>th</sup> -18 <sup>th</sup> September

#### **3.10 Data analysis**

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

The ODK exports data in CSV format, for cleaning and analysis the data was saved in Microsoft Excel 1997 to 2003 format. Anthropometric data was also cleaned using flexible cleaning criterion (+/- 3 SD from the observed mean; also known as SMART flags in the ENA for SMART software). SMART flags were excluded in the analysis. Anthropometry indices were analysed using the ENA for SMART July 9<sup>th</sup> 2015 version was used. Epi Info version 7.2.2.1 was used to analyse all the other data.

#### **3.11 Ethical Issues**

The survey ensured data collection from patients was done with strict adherence to ethical respect to each individual participant's autonomy. The survey was conducted in an ethical manner that was in line with the best research practice. Two important ethical issues were adhered to when conducting the survey: confidentiality and informed consent. The respondent's right to confidentiality was respected and any legal requirements on data protection adhered to. The respondents as well as community and government leaders were fully informed about the aims of the survey, and the respondent's consent to participate in the survey was obtained and recorded prior to the start of interview process. The respondents were informed they had a right to stop participation at any point.

## 4 Results

### 4.1 Results in Nyarugusu Old Camp

The demographic characteristics are illustrated in table 17 below. Like the previous SENS survey in 2016 the number of children under 5 survey is much higher than anticipated (140% of the target) despite increasing the households' size based on previous SENS results from 3.5 to 5.0. For purpose of next survey, the household size could be set at 6.9 based on estimation using WASH Module. There was no non-response observed given that during the house marking, absentee households were left out and the marking exercise also provided additional chance for community mobilization and sensitization at the household level.

**TABLE 20: DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION**

Total households surveyed	260
Total population surveyed	1792
Total U5 surveyed	386
Average household size	6.9
% of U5	21.5

#### 4.1.1 Children 6-59 months (Nyarugusu Old Camp)

##### 4.1.1.1 Sample size and clusters

**Table 21: TARGET AND ACTUAL NUMBER CAPTURED**

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	337	472	140.1%
Clusters (where applicable)	32	32	100%

**TABLE 22 CHILDREN 6-59 MONTHS - DISTRIBUTION OF AGE AND SEX OF SAMPLE**

	Boys		Girls		Total		Ratio
AGE (months)	no.	%	no.	%	no.	%	Boy: Girl
6-17	64	47.8	70	52.2	134	28.3	0.9
18-29	48	49.0	50	51.0	98	20.7	1.0
30-41	65	50.8	63	49.2	128	27.1	1.0
42-53	40	48.8	42	51.2	82	17.3	1.0
54-59	16	51.6	15	48.4	31	6.6	1.1
Total	233	49.3	240	50.7	473	100.0	1.0

**Percentage of children with no exact birthday: 6 %**

The children who participated in the survey were included using their exact ages as on the official documentation available or using age estimation from the calendar of events. The overall boy: girl ratio was 1.0; and it can be concluded that both sexes were equally represented in the survey.



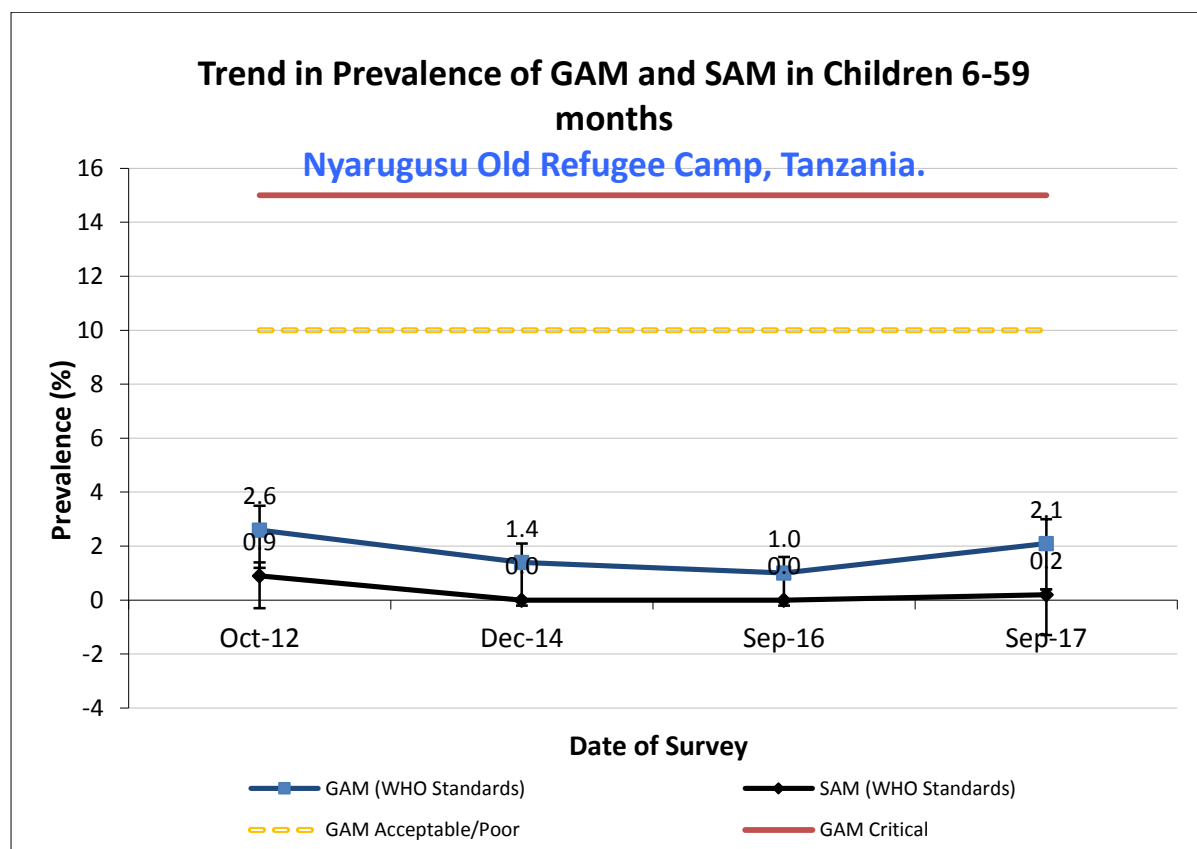
### 4.1.1.2 Anthropometric results (based on WHO Growth Standards 2006)

**TABLE 23:** PREVALENCE OF ACUTE MALNUTRITION BASED ON WEIGHT-FOR-HEIGHT Z-SCORES (AND/OR OEDEMA) AND BY SEX

	All n = 466	Boys n = 229	Girls n = 237
<b>Prevalence of global malnutrition (&lt;-2 z-score and/or oedema)</b>	(10) 2.1 % (1.2 - 3.8 95% C.I.)	(6) 2.6 % (1.2 - 5.5 95% C.I.)	(4) 1.7 % (0.5 - 5.5 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt;-2 z-score and &gt;=-3 z-score, no oedema)</b>	(9) 1.9 % (1.0 - 3.6 95% C.I.)	(5) 2.2 % (0.9 - 5.0 95% C.I.)	(4) 1.7 % (0.5 - 5.5 95% C.I.)
<b>Prevalence of severe malnutrition (&lt;-3 z-score and/or oedema)</b>	(1) 0.2 % (0.0 - 1.7 95% C.I.)	(1) 0.4 % (0.1 - 3.4 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

The prevalence of oedema is 0.2%

**FIGURE 9** TRENDS IN THE PREVALENCE OF GLOBAL AND SEVERE ACUTE MALNUTRITION BASED ON 2016 WHO GROWTH STANDARDS IN CHILDREN 6-59 MONTHS FROM 2012-2017.

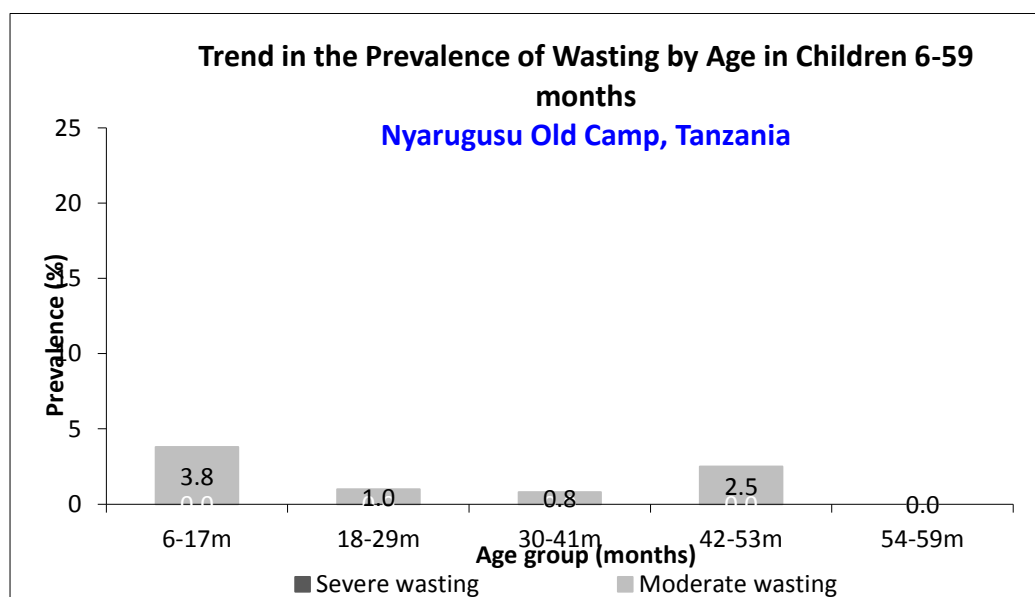


The GAM and SAM trends graph above shows a double increase in the global acute malnutrition prevalence (GAM) in 2017 compared to the other years; SAM rate prevalence have been recorded compared to zero cases in previous two years assessments – 2014 & 2016. However, the increase is not statistically significant. Possible reasons are elaborated in the discussion section of this report. The GAM prevalence <5% is classified as acceptable according to the WHO classification.

**TABLE 24:** PREVALENCE OF ACUTE MALNUTRITION BY AGE, BASED ON WEIGHT-FOR-HEIGHT Z-SCORES AND/OR

Age (mo)	Total No.	Severe wasting ( $< -3$ z-score)		Moderate wasting ( $\geq -3$ and $< -2$ z-score)		Normal ( $\geq -2$ z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	133	0	0.0	5	3.8	127	95.5	1	0.8
18-29	97	0	0.0	1	1.0	96	99.0	0	0.0
30-41	126	0	0.0	1	0.8	125	99.2	0	0.0
42-53	79	0	0.0	2	2.5	77	97.5	0	0.0
54-59	31	0	0.0	0	0.0	31	100.0	0	0.0
Total	466	0	0.0	9	1.9	456	97.9	1	0.2

**FIGURE 10:** TREND IN THE PREVALENCE OF WASTING BY AGE IN CHILDREN 6-59 MONTHS



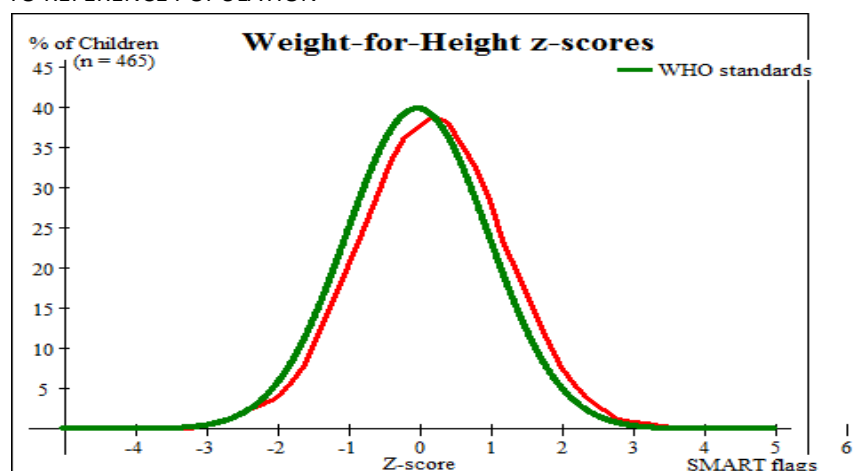
**TABLE 25:** DISTRIBUTION OF SEVERE ACUTE MALNUTRITION AND OEDEMA BASED ON WEIGHT-FOR-HEIGHT Z-SCORES

	$< -3$ z-score	$\geq -3$ z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 1 (0.2 %)
Oedema absent	Marasmic No. 4 (0.8 %)	Not severely malnourished No. 468 (98.9 %)

**Figure 13** shows that the distribution for weight-for-height z-scores for the survey sample is surprisingly shifted to the right, illustrating relatively good nutritional status of the surveyed population in line with international WHO Standard population of children aged 6-59 months.

**FIGURE 11** DISTRIBUTION OF WEIGHT-FOR-HEIGHT Z-SCORES (BASED ON WHO GROWTH STANDARDS; THE REFERENCE POPULATION IS SHOWN IN GREEN AND THE SURVEYED POPULATION IS SHOWN IN RED) OF SURVEY POPULATION COMPARED

TO REFERENCE POPULATION



**TABLE 26: PREVALENCE OF MUAC MALNUTRITION**

	<b>All</b> n = 473	<b>Boys</b> n = 233	<b>Girls</b> n = 240
<b>Prevalence of MUAC &lt; 125 mm and/or oedema</b>	(14) 3.0 % (1.8 - 4.7 95% C.I.)	(8) 3.4 % (1.6 - 7.2 95% C.I.)	(6) 2.5 % (1.0 - 6.0 95% C.I.)
<b>Prevalence of MUAC &lt; 125 mm and ≥ 115 mm, no oedema</b>	(9) 1.9 % (1.0 - 3.7 95% C.I.)	(3) 1.3 % (0.4 - 4.2 95% C.I.)	(6) 2.5 % (1.0 - 6.0 95% C.I.)
<b>Prevalence MUAC &lt; 115 mm and/or oedema</b>	(5) 1.1 % (0.4 - 2.9 95% C.I.)	(5) 2.1 % (0.8 - 5.9 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

MUAC is used to monitor malnutrition trends and for admission and discharge in nutrition programmes. The MUAC findings are not very different from the trends monitoring results using Z-Score. Compared to Z-Scores, prevalence of GAM and SAM is slightly higher.

**TABLE 27 PREVALENCE OF MUAC MALNUTRITION BY AGE, BASED ON MUAC CUT OFF'S AND/OR OEDEMA**

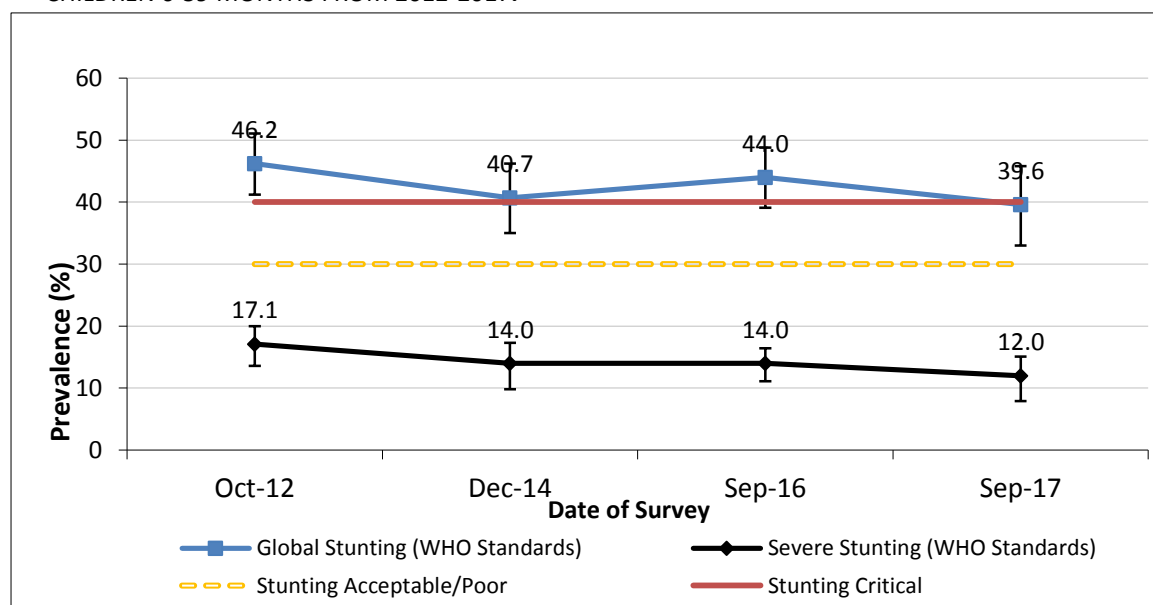
Age (mo)	Total no.	MUAC < 115 mm		MUAC ≥ 115 mm and < 125 mm		MUAC ≥ 125 mm		Oedema	
		No.	%	No.	%	No.	%	No.	%
<b>6-17</b>	134	2	1.5	7	5.2	125	93.3	1	0.7
<b>18-29</b>	98	0	0.0	1	1.0	97	99.0	0	0.0
<b>30-41</b>	128	2	1.6	1	0.8	125	97.7	0	0.0
<b>42-53</b>	82	0	0.0	0	0.0	82	100.0	0	0.0
<b>54-59</b>	31	0	0.0	0	0.0	31	100.0	0	0.0
<b>Total</b>	473	4	0.8	9	1.9	460	97.3	1	0.2

**TABLE 28: PREVALENCE OF UNDERWEIGHT BASED ON WEIGHT-FOR-AGE Z-SCORES BY SEX**

	<b>All</b> n = 467	<b>Boys</b> n = 228	<b>Girls</b> n = 239
<b>Prevalence of underweight</b> ( $<-2$ z-score)	(57) 12.2 % (9.9 - 14.9 95% C.I.)	(31) 13.6 % (9.4 - 19.2 95% C.I.)	(26) 10.9 % (7.7 - 15.2 95% C.I.)
<b>Prevalence of moderate underweight</b> ( $<-2$ z-score and $\geq -3$ z-score)	(46) 9.9 % (7.8 - 12.4 95% C.I.)	(24) 10.5 % (7.3 - 15.0 95% C.I.)	(22) 9.2 % (6.2 - 13.4 95% C.I.)
<b>Prevalence of severe underweight</b> ( $<-3$ z-score)	(11) 2.4 % (1.3 - 4.2 95% C.I.)	(7) 3.1 % (1.5 - 6.1 95% C.I.)	(4) 1.7 % (0.7 - 4.2 95% C.I.)

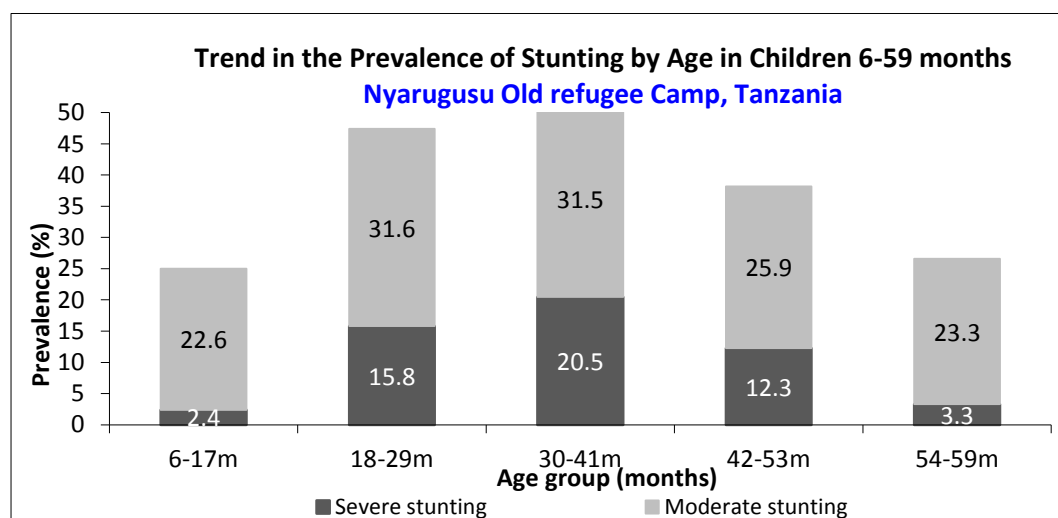
**TABLE 29: PREVALENCE OF STUNTING BASED ON HEIGHT-FOR-AGE Z-SCORES AND BY SEX**

	<b>All</b> n = 457	<b>Boys</b> n = 226	<b>Girls</b> n = 231
<b>Prevalence of stunting</b> ( $<-2$ z-score)	(181) 39.6 % (33.4 - 46.2 95% C.I.)	(104) 46.0 % (38.0 - 54.3 95% C.I.)	(77) 33.3 % (26.3 - 41.2 95% C.I.)
<b>Prevalence of moderate stunting</b> ( $<-2$ z-score and $\geq -3$ z-score)	(126) 27.6 % (22.8 - 32.9 95% C.I.)	(71) 31.4 % (24.2 - 39.6 95% C.I.)	(55) 23.8 % (18.0 - 30.8 95% C.I.)
<b>Prevalence of severe stunting</b> ( $<-3$ z-score)	(55) 12.0 % (8.9 - 16.1 95% C.I.)	(33) 14.6 % (10.2 - 20.5 95% C.I.)	(22) 9.5 % (6.0 - 14.7 95% C.I.)

**FIGURE 12: TRENDS IN THE PREVALENCE OF GLOBAL AND SEVERE STUNTING BASED ON 2006 WHO GROWTH STANDARDS IN CHILDREN 6-59 MONTHS FROM 2012-2017.**

**TABLE 30: PREVALENCE OF STUNTING BY AGE BASED ON HEIGHT-FOR-AGE Z-SCORES**

Age (mo.)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score )		Normal (>= -2 z score)	
		No.	%	No.	%	No.	%
6-17	124	3	2.4	28	22.6	93	75.0
18-29	95	15	15.8	30	31.6	50	52.6
30-41	127	26	20.5	40	31.5	61	48.0
42-53	81	10	12.3	21	25.9	50	61.7
54-59	30	1	3.3	7	23.3	22	73.3
Total	457	55	12.0	126	27.6	276	60.4

**FIGURE 13 TRENDS IN THE PREVALENCE OF STUNTING BY AGE IN CHILDREN 6-59 MONTHS**

Stunting is relatively high at ages 19-41 Months (Fig 14). Stunting remains a chronic problem in the camps over the years (Fig. 15); Figure 16 in the next page shows that the distribution for weight-for-height z-scores for the survey sample is shifted to the left, illustrating relatively poor chronic nutritional status of the surveyed population compared with international WHO Standard population of children aged 6-59 months.

**FIGURE 14 DISTRIBUTION OF HEIGHT-FOR-AGE Z-SCORES (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**

**TABLE 31: MEAN Z-SCORES, DESIGN EFFECTS AND EXCLUDED SUBJECTS**

Indicator	n	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	465	0.17 $\pm$ 1.00	1.00	1	7
Weight-for-Age	467	-0.87 $\pm$ 1.00	1.00	1	5
Height-for-Age	457	-1.80 $\pm$ 1.03	1.84	0	16

\* contains for WHZ and WAZ the children with oedema.

#### 4.1.1.3 Feeding programme coverage results

**Table 32: PROGRAMME COVERAGE FOR ACUTELY MALNOURISHED CHILDREN**

	Number/total	% (95% CI)
Supplementary feeding programme coverage -Based on all admission criteria (MUAC, WHZ)	7/17	41.2% (6.6-75.8)
Supplementary feeding programme coverage - Based on MUAC only	5/7	55.6% (10.1-100.0)
Therapeutic feeding programme coverage- Based on all admission criteria (MUAC, WHZ, oedema)	1/3	33.3% (0-100%)
Therapeutic feeding programme coverage- Based on MUAC and/or oedema only	2/5	40.0% (0-100%)

#### 4.1.1.4 Measles vaccination coverage results

**TABLE 33: MEASLES VACCINATION COVERAGE FOR CHILDREN AGED 9-59 MONTHS ((N=436)**

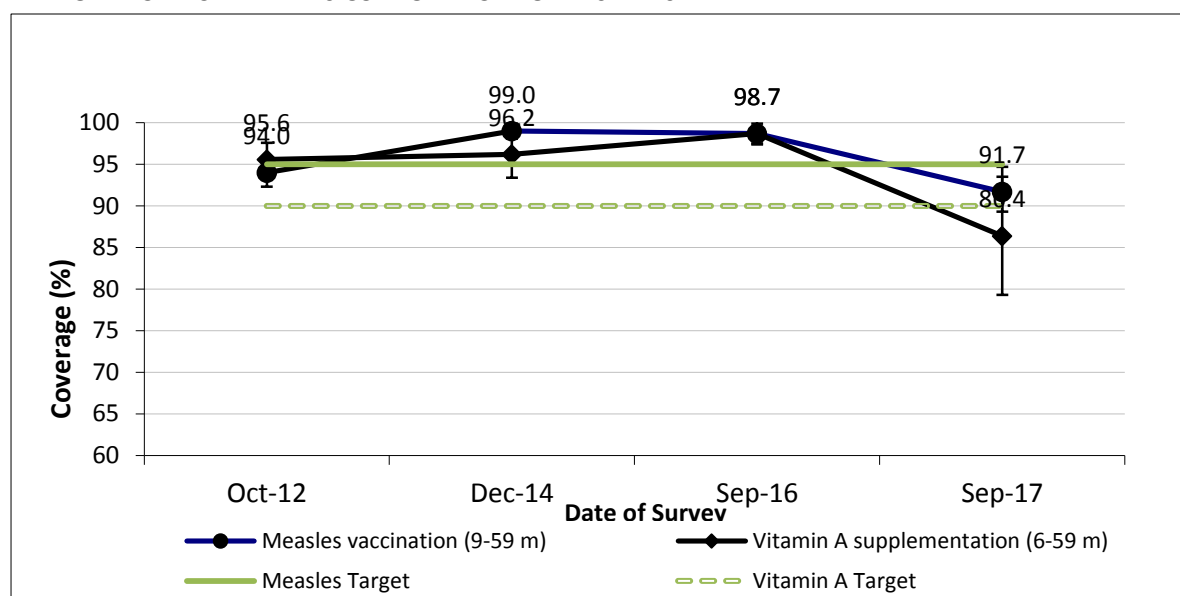
	Measles (with card) n=293	Measles (with card <u>or</u> confirmation from mother) n=400
YES	67.2% (52.3 -82.2 95% CI)	91.7 % (88.7-94.1 95% CI)

#### 4.1.1.5 Vitamin A supplementation coverage results

**TABLE 34: VITAMIN A SUPPLEMENTATION FOR CHILDREN AGED 6-59 MONTHS WITHIN PAST 6 MONTHS (N=471)**

	Vitamin A capsule (with card) n=294	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=407
YES	62.4 % (47.8-77.1 95% CI)	86.4 % (79.3-93.5 95% CI)

**FIGURE 15: TRENDS IN THE COVERAGE OF MEASLES VACCINATION AND VITAMIN A SUPPLEMENTATION IN LAST 6 MONTHS IN CHILDREN 6-59 MONTHS FROM 2012-2017**



#### 4.1.1.6 Diarrhoea results

**TABLE 35: PERIOD PREVALENCE OF DIARRHOEA**

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	82/473	17.3% (11.0-23.7)

#### 4.1.2 Anaemia results Children 6-59 Months

The total anaemia prevalence among children 6 to 59 months is 46.9% (39.1-54.9 95% CI). Prevalence of anaemia among children 6 to 23 months is even higher at 57.9% (46.8-69.0 95% CI). The prevalence of anaemia is of high public health significance (critical).

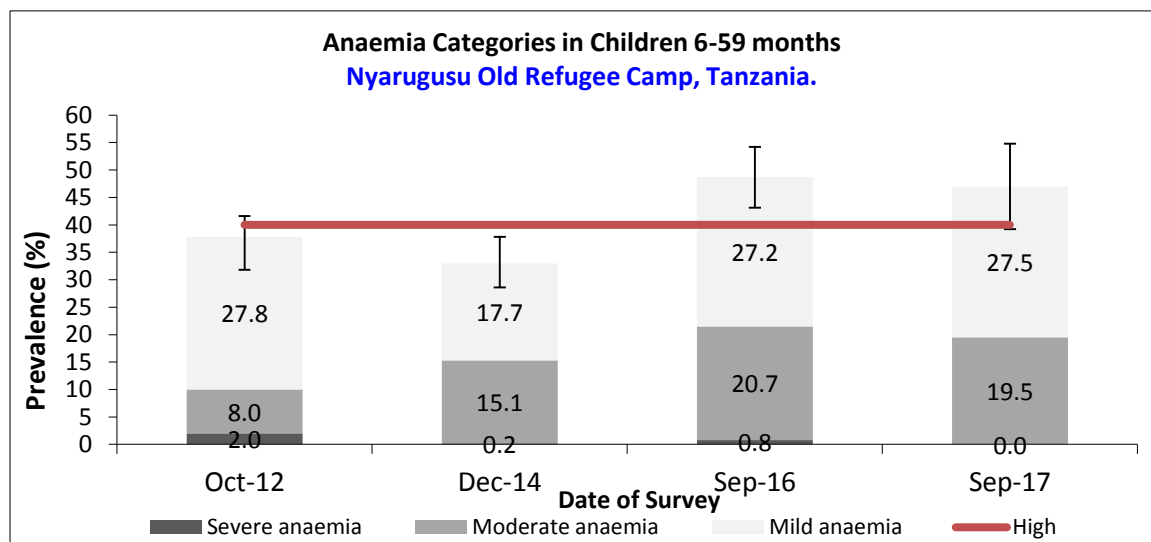
**TABLE 36: PREVALENCE OF TOTAL ANAEMIA, ANAEMIA CATEGORIES, AND MEAN HAEMOGLOBIN CONCENTRATION IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP**

	6-59 months n = 473	6-23 months n=190	24-59 months n=283
<b>Total Anemia (Hb&lt;11.0 g/dL)</b>	(222) 46.9% (39.1-54.7 95% CI)	(110) 57.9 % (46.8-69.0 95% CI)	(112) 39.6% (31.3-47.8 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(130) 27.5% (21.3-33.7 95% CI)	(55) 29.0% (19.1-38.8 95% CI)	(75) 26.5% (19.6-33.4 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(92) 19.5% (14.7-24.2 95% CI)	(55) 29.0% (19.1-38.8 95% CI)	(37) 13.1% (7.7-18.5 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(0) 0.0% (0.0-0.0 95% CI)	(0) 0.0% (0.0-0.0 95% CI)	(0) 0.0% (0.0-0.0 95% CI)
<b>Mean Hb (g/dL)</b>	11.0g/dL	10.6g/dL	11.2g/dL
<b>(SD / 95% CI)</b>	(10.8-11.2 95% CI)	(10.4-10.9 95% CI)	(11.0-11.4 95% CI)
<b>[range]</b>	[min 7.3, max 13.9]	[min 7.4, max 13.6]	[min 7.3, max 13.9]

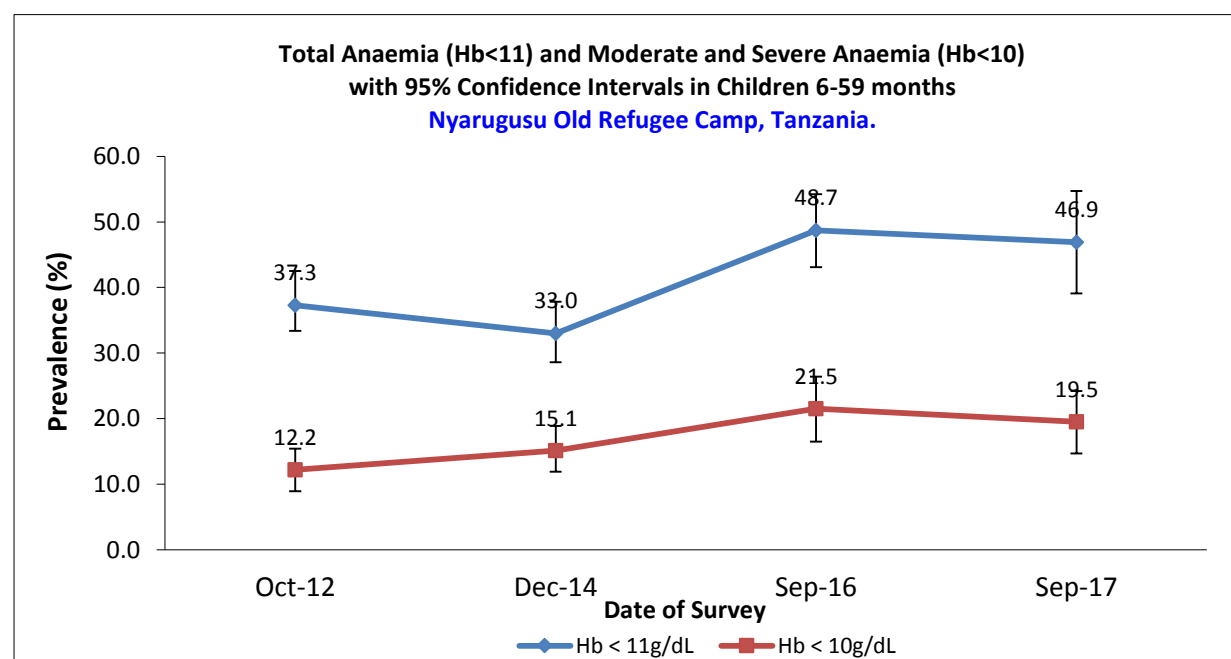
**TABLE 37: PREVALENCE OF MODERATE AND SEVERE ANAEMIA IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP**

	<b>6-59 months</b> n = 473	<b>6-23 months</b> n=190	<b>24-59 months</b> n=283
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(92) 19.5% (14.7-24.2 95% CI)	(55) 29.0% (20.5-37.4 95% CI)	(37) 13.1 % (7.7-18.5 95% CI)

**FIGURE 16: TRENDS IN ANAEMIA CATEGORIES IN CHILDREN 6-59 MONTHS FROM 2012-2017.**



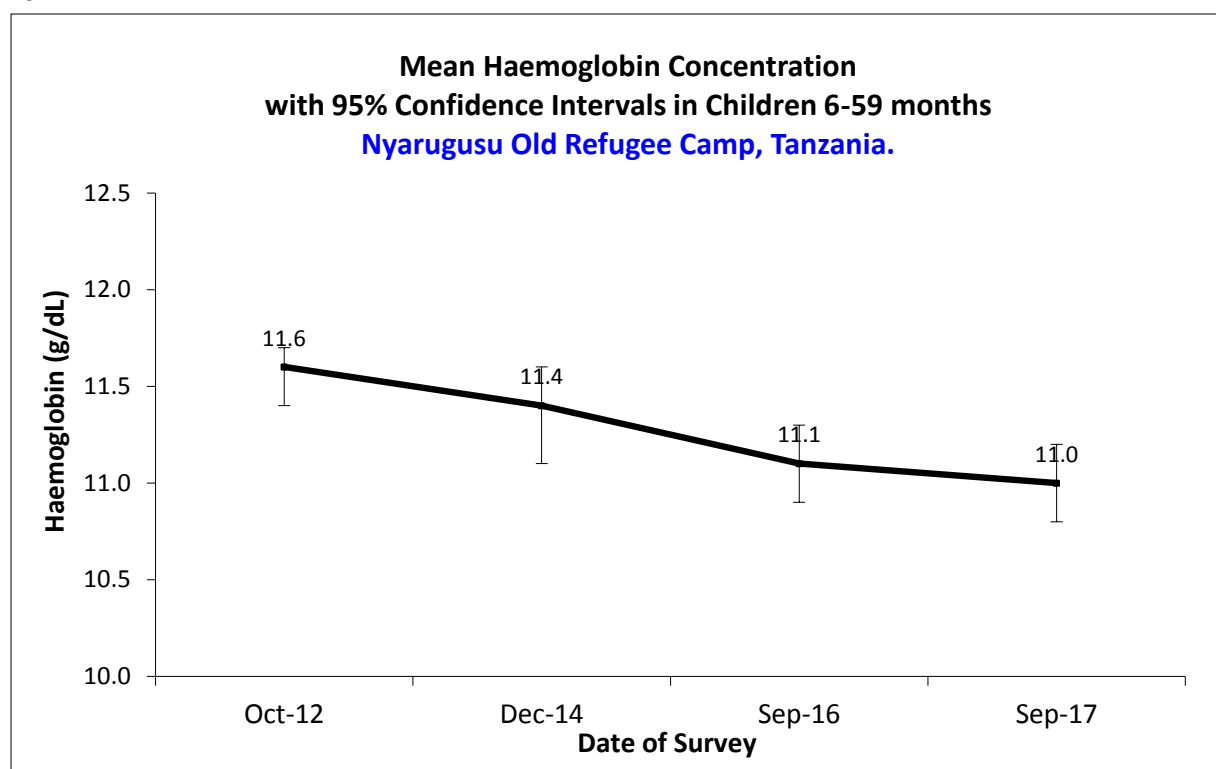
**FIGURE 17: TREND IN TOTAL ANAEMIA (<11 G/DL), AND MODERATE AND SEVERE ANAEMIA (<10 G/DL) WITH 95% CI IN CHILDREN 6-59 MONTHS FROM 2012-2017.**



Total Anaemia remains high above the critical above 40% thresholds in the last two surveys; the previous year -2012 and 2014, the rates were not adjusted for altitude hence a may not offer a valid comparison with 2016 2017 results.



**FIGURE 18: TREND IN MEAN HAEMOGLOBIN CONCENTRATION WITH 95% CI IN CHILDREN 6-59 MONTHS FROM 2012-2017.**



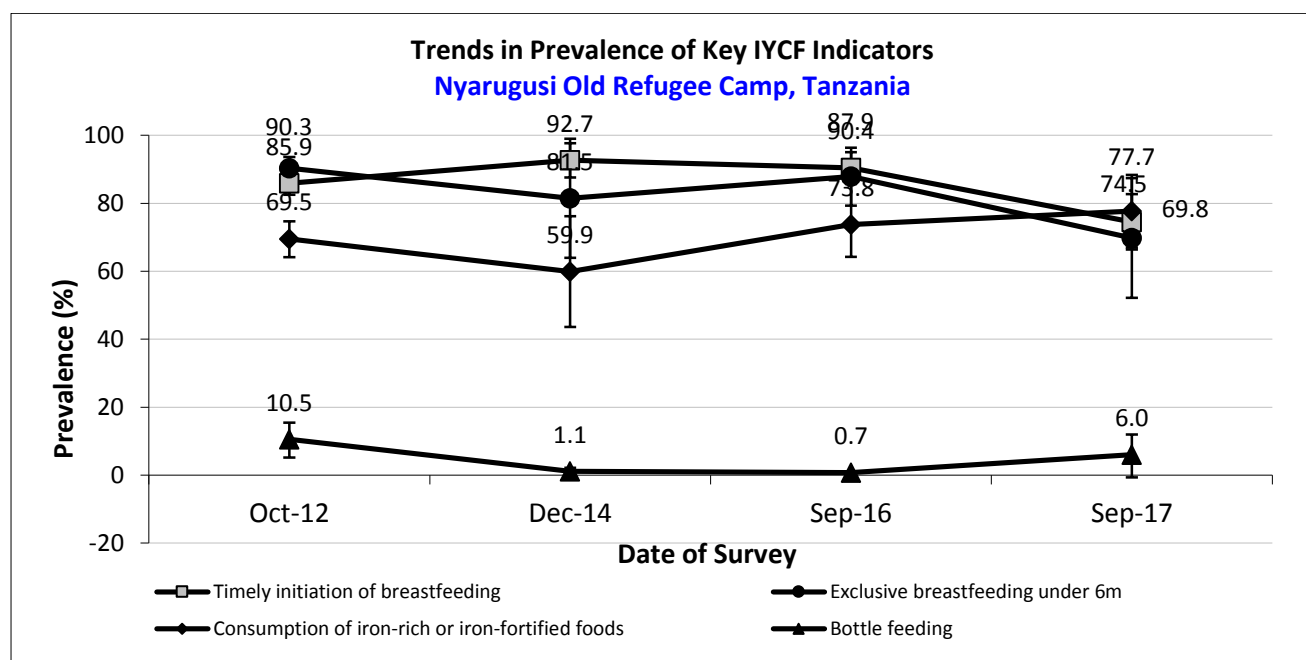
### 4.1.3 Children 0-23 months

There has been statistically significant ( $P=0.001$ ) reduction in prevalence of timely breastfeeding compared to 2016 results; the reduction in exclusive breastfeeding however is not significant. It worth noting that this is the first reduction in the two IYCF indicators in last four previous surveys (Fig. 21).

**TABLE 38: PREVALENCE OF INFANT AND YOUNG CHILD FEEDING PRACTICES INDICATORS**

Indicator	Age range (months)	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23	178/239	74.5%	(66.3-82.6)
Exclusive breastfeeding under 6 months	0-5	37/53	69.8%	(52.2-87.4)
Continued breastfeeding at 1 year	12-15	39/44	88.6%	(80.2-97.1)
Continued breastfeeding at 2 years	20-23	18/38	47.4%	31.2-63.5
Introduction of solid, semi-solid or soft foods	6-8	32/36	88.9%	78.5-99.3
Consumption of iron-rich or iron-fortified foods	6-23	143/184	77.7%	67.0-88.4
Bottle feeding	0-23	11/184	6.0%	0-12.7%

**FIGURE 19: KEY IYCF INDICATORS FROM 2012-2017**



### 4.1.3.1 Prevalence of intake

#### Infant formula

**TABLE 39: INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS**

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	1/189	0.5% (0.0-1.6%)

#### Fortified blended foods

**TABLE 40: FBF INTAKE IN CHILDREN AGED 6-23 MONTHS**

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	61/190	32.1% (16.2-48.0%)

**TABLE 41: FBF++ INTAKE IN CHILDREN AGED 6-23 MONTHS**

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	126/190	66.3% (53.9-78.7)

#### Special nutritional products

**TABLE 42: MNP INTAKE IN CHILDREN AGED 24-59 MONTHS:**

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive MNP	270/281	96.1% (92.7-99.4)

#### 4.1.4 Women 15-49 years

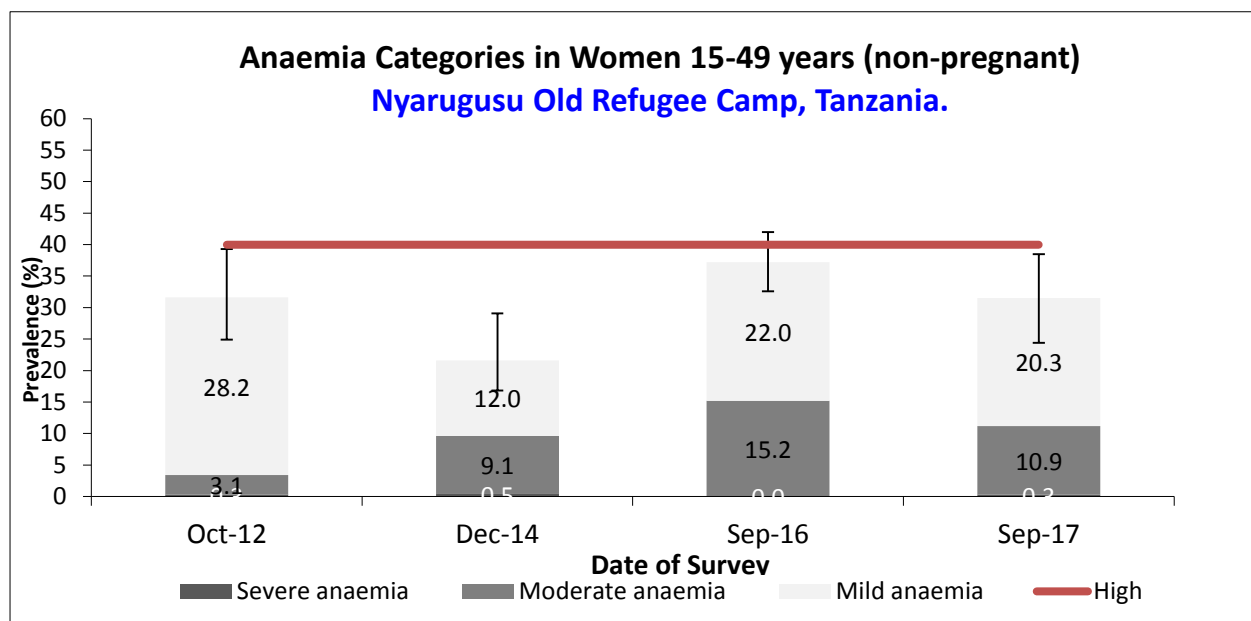
**TABLE 43: WOMEN PHYSIOLOGICAL STATUS AND AGE**

Physiological status	Number/total	% of sample
Non-pregnant	321/354	90.7%
Pregnant	32/354	9.0%
Mean age (range)	26.9 Yrs. (19-49)	

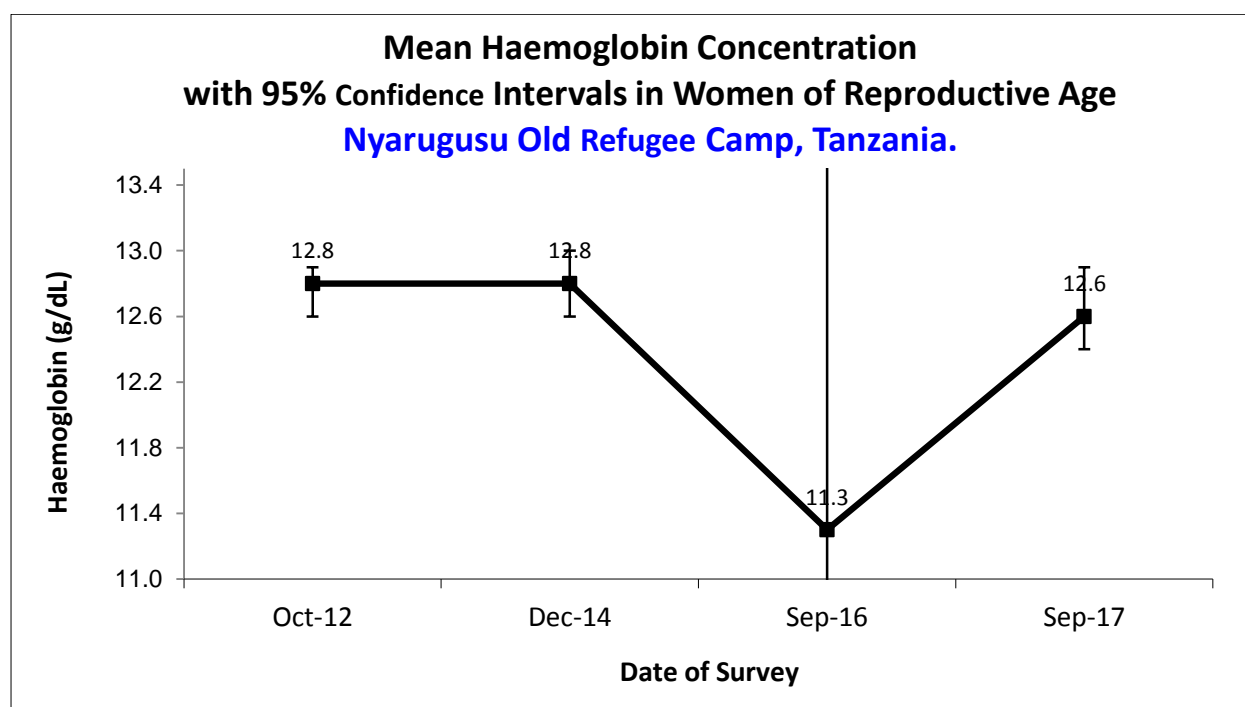
**Table 44: Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years)**

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 320
<b>Total Anaemia (&lt;12.0 g/dL)</b>	(118) 36.9% (29.6-44.2 95% CI)
<b>Mild Anaemia (11.0-11.9 g/dL)</b>	(74) 23.1% (18.2-28.1 95% CI)
<b>Moderate Anaemia (8.0-10.9 g/dL)</b>	(43) 13.4 % (8.3-18.6 95% CI)
<b>Severe Anaemia (&lt;8.0 g/dL)</b>	(1) 0.3 % (0.0-1.0 95% CI)
<b>Mean Hb (g/dL)</b>	12.4g/dL
<b>(SD / 95% CI)</b>	(12.1-12.6 95% CI)
<b>[range]</b>	[min 4.1, max 17.8]

**Figure 20: Trends in anaemia categories in women of reproductive age (non-pregnant) from 2012-2017.**



**Figure 21:** Trend in mean haemoglobin concentration with 95% CI in women of reproductive age (non-pregnant) from 2012-2017.



**TABLE 45:** ANC ENROLMENT AND IRON-FOLIC ACID PILLS COVERAGE AMONG PREGNANT WOMEN (15-49 YEARS)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	24/32	75.0% (56.4-93.6)
Currently receiving iron-folic acid pills	24/32	75.0% (56.4-93.6)

#### 4.1.5 Food security

**TABLE 46:** FOOD SECURITY SAMPLING INFORMATION

Household data	Planned	Actual	% of target
Total households surveyed for Food Security	245	355	145%

### 4.1.5.1 Access to food assistance results

**TABLE 47: RATION CARD COVERAGE**

	Number/total	% (95% CI)
Proportion of households with a ration card	353/355	99.4% (98.3-100.0)

Out of the households reporting not to have a ration cards, [0/2] said it was because they were not given one at registration, even if they were included in the targeting criteria; [0/2] said it was because they lost their ration card; [0/2] said it was because they traded or sold their card; [0/2] said it was because they were new arrivals who were eligible but were not yet registered; [0/2] said it was because they were not included in the targeting criteria; and [2/2] gave other reasons (Were on Pilot cash programme which was discontinued at the time of the survey).

**TABLE 48: REPORTED DURATION OF GENERAL FOOD RATION 1<sup>7</sup>**

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
12.1days (11.4-12.8)	40.3%

**TABLE 49 REPORTED DURATION OF GENERAL FOOD RATION 2**

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	0/355	0%
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle [30 DAYS]	351/355	98.9% (97.3-100)
>75% of the cycle [30 DAYS]	4/355	1.1% (0.0-2.7)

### 4.1.5.2 Negative coping strategies results

**TABLE 50: COPING STRATEGIES USED BY THE SURVEYED POPULATION OVER THE PAST MONTH**

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items <i>with or without interest</i>	182/354	51.4% (38.3-64.5)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	82/355	23.4% (13.8-32.4)
Requested increased remittances or gifts as compared to normal	123/355	34.6% (25.4-43.9)
Reduced the quantity and/or frequency of meals	217/355	61.1% (47.1-75.1)

<sup>7</sup> In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.

Begged	159/355	44.8% (31.3-58.3)
Engaged in potentially risky or harmful activities [RAIDING LOCAL VILLAGES FARMS, PROSTITUTIONS, SMUGGLING, BREWING,]	92/355	25.9% (15.3-36.6)
<b>Proportion of households reporting using none of the coping strategies over the past month</b>	56/354	15.8% (12.3-20.1)

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

### 4.1.5.3 Household dietary diversity results

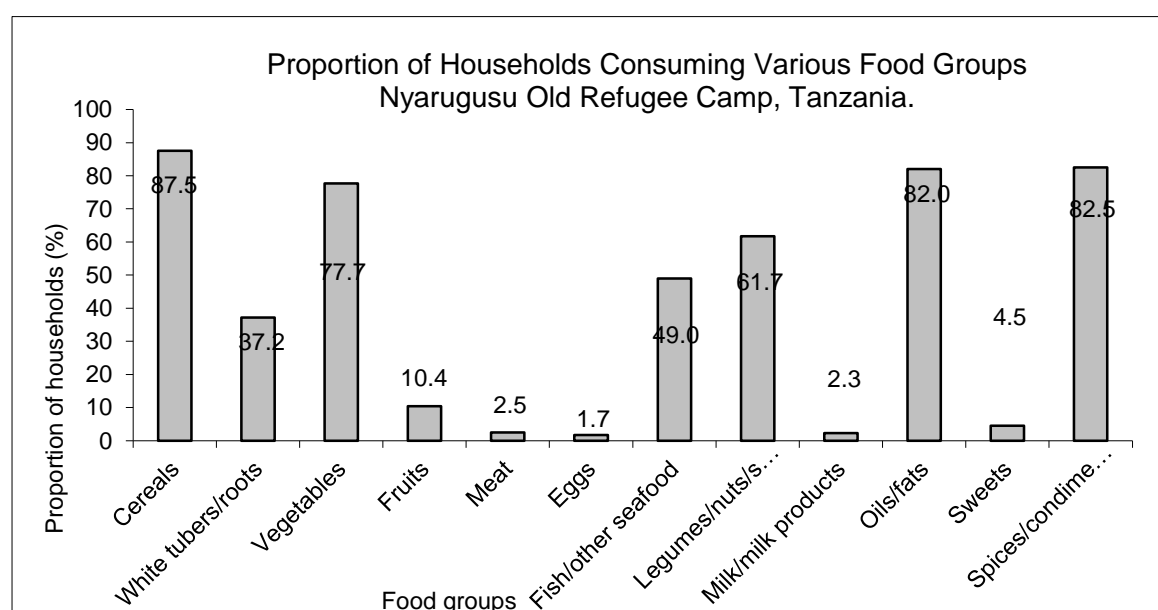
The last general food distribution ended [25] days prior to the start of the survey data collection. “The survey was conducted during the annual lean season (dry season) during which the overall food availability is limited. It is hence likely that the household dietary diversity score is lower than it would be e.g. during the rainy season and after the harvest.

**TABLE 51: AVERAGE HDDS**

	Mean (Standard deviation or 95% CI)
<b>Average HDDS</b>	<b>5.0 (4.3-5.7)</b>

\* Maximum HDDS is 12.

**FIGURE 22 PROPORTION OF HOUSEHOLDS CONSUMING DIFFERENT FOOD GROUPS WITHIN LAST 24 HOURS**



**TABLE 52 CONSUMPTION OF MICRONUTRIENT RICH FOODS BY HOUSEHOLDS**

	Number/total	% (95% CI)
<b>Proportion of households <i>not</i> consuming any vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products</b>	55/355	15.5% (5.9-25.1)
<b>Proportion of households consuming either a plant or animal source of vitamin A</b>	175/355	49.3% (36.2-62.4)
<b>Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)</b>	178/355	50.1% (38.0-62.2)

## 4.1.6 WASH (Nyarugusu Old Camp)

**TABLE 53: WASH SAMPLING INFORMATION**

Household data	Planned	Actual	% of target
Total households surveyed for WASH	490	512	104.5%

**TABLE 54: WATER QUALITY**

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	492/512	96.1% (90.1-100.0)
Proportion of households that use a covered or narrow necked container for storing their drinking water	273/512	53.3% (40.8-65.9)

**TABLE 55: WATER QUANTITY: AMOUNT OF LITRES OF WATER USED PER PERSON PER DAY**

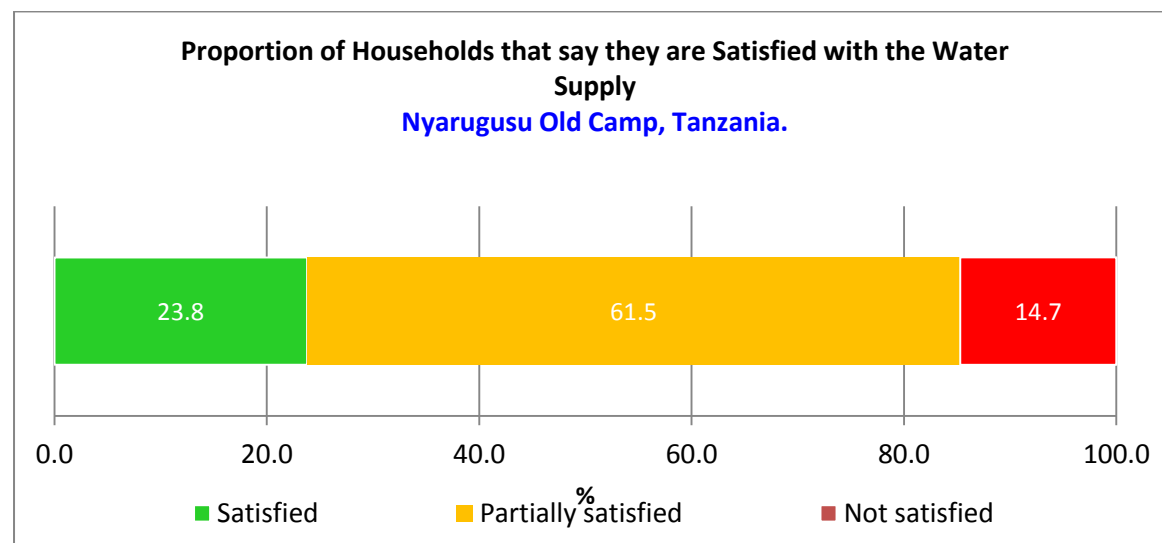
Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	238/512	46.5% (36.1-56.9)
15 – <20 lpppd	68/512	13.3% (10.1-16.6)
<15 lpppd	206/512	40.2% (29.0-51.5)

The water usage in lppd is 20.6liters (17.6-23.6 95% CI).

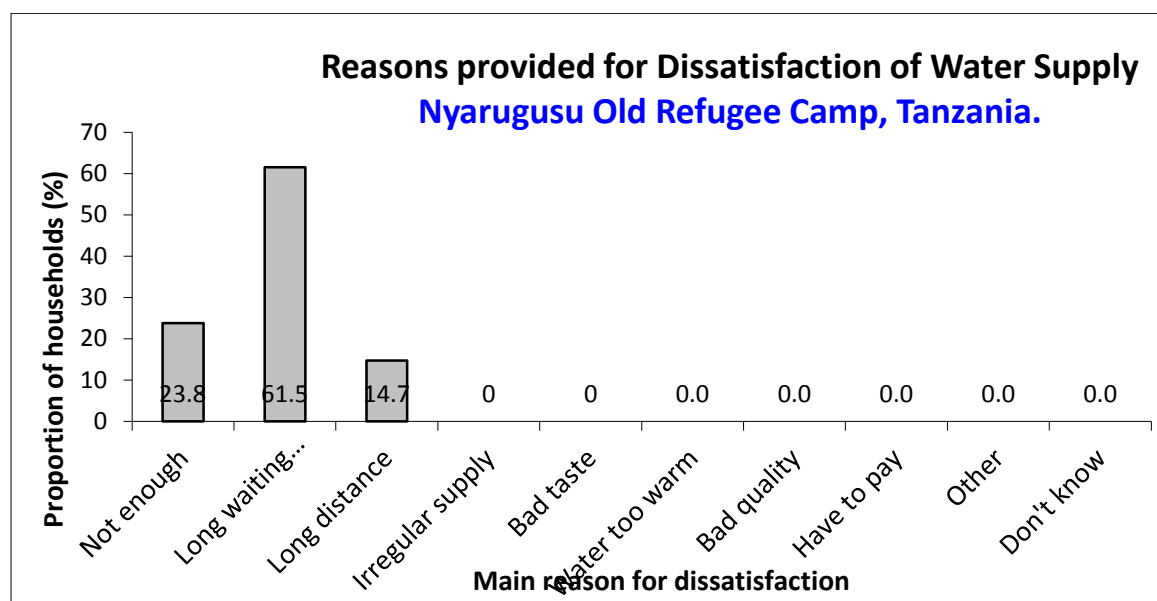
**TABLE 56: SATISFACTION WITH WATER SUPPLY**

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	122/512	23.8% (14.0-33.7)

**FIGURE 23: PROPORTION OF HOUSEHOLDS THAT SAY THEY ARE SATISFIED WITH THE WATER SUPPLY**



**FIGURE 24: MAIN REASON FOR DISSATISFACTION AMONG HOUSEHOLDS NOT SATISFIED WITH WATER SUPPLY.**



**TABLE 57: SAFE EXCRETA DISPOSAL**

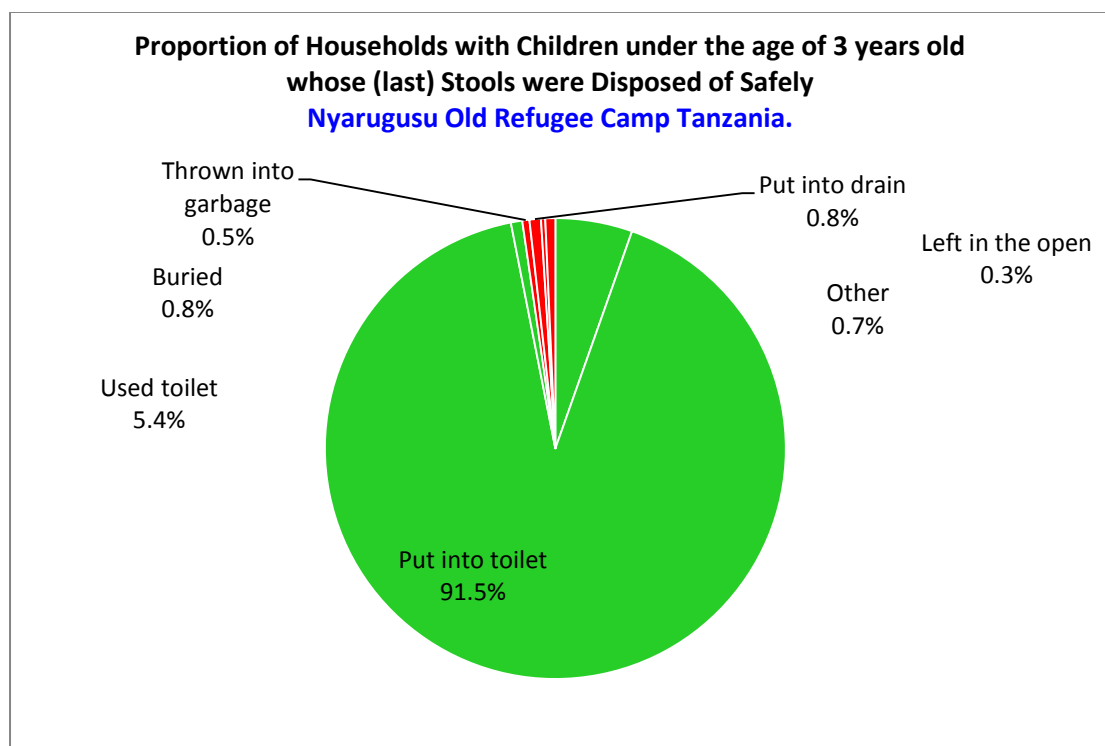
	Number/total	% (95% CI)
<b>Proportion of households that use:</b>		
<b>An improved excreta disposal facility (improved toilet facility, 1 household)*, **</b>	137/512	26.8% (13.4-40.1)
<b>A shared family toilet (improved toilet facility, 2 households)**</b>	25/512	4.9% (0.3-9.6)
<b>A communal toilet (improved toilet facility, 3 households or more)</b>	0/512	0%
<b>An unimproved toilet (unimproved toilet facility or public toilet)</b>	350/512	68.4% (52.9-83.8)
<b>Proportion of households with children under three years old that dispose of faeces safely</b>	378/387	97.7% (95.7-99.7)

\*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an **“improved excreta disposal facility”** as a toilet in the “improved” category **AND** one that is **not shared** with other families / households.

\*\*According to UNHCR WASH monitoring system, an **“improved excreta disposal facility”** is defined differently than in survey instruments and is defined as a toilet in the “improved” category AND one that is shared by a *maximum* of 2 families / households or no more than 12 *individuals*. Therefore, the following two categories from the SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility (improved toilet facility, 1 household)” and “shared family toilet (improved toilet facility, 2 households)”.



**FIGURE 25: PROPORTION OF HOUSEHOLDS WITH CHILDREN UNDER THE AGE OF 3 YEARS WHO'S (LAST) STOOLS WERE DISPOSED OF SAFELY**



#### 4.1.7 Mosquito Net Coverage (Nyarugusu Old Camp)

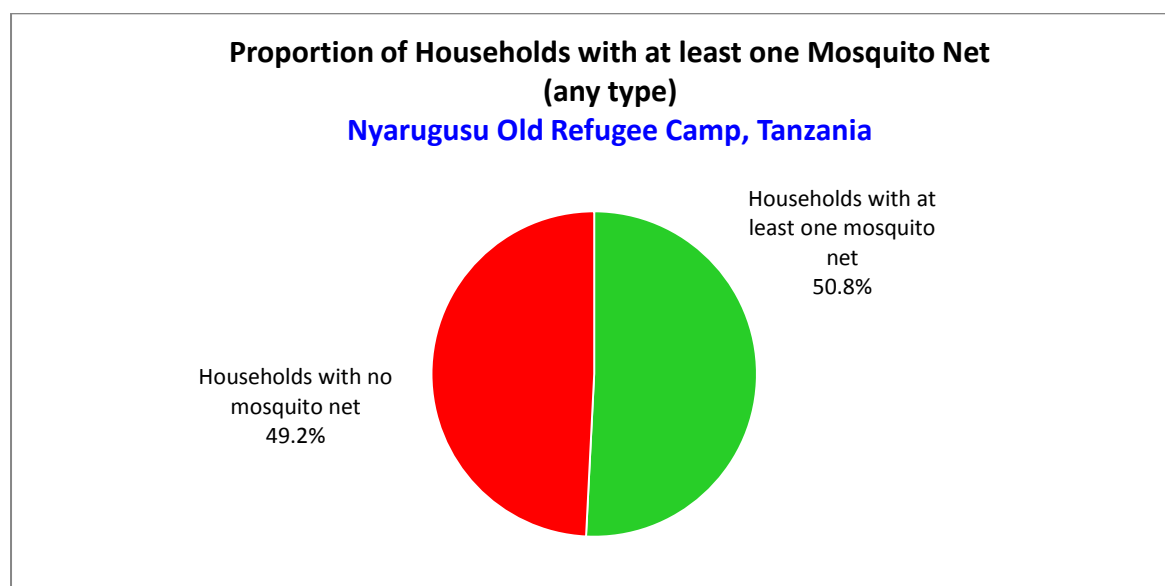
**TABLE 58: MOSQUITO NET COVERAGE SAMPLING INFORMATION**

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	245	260	106.1%

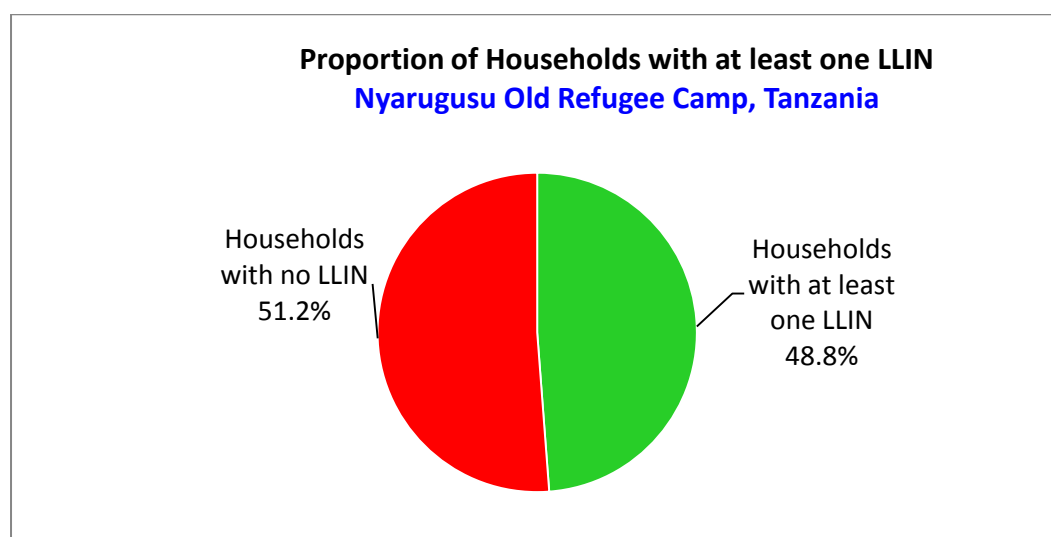
**TABLE 59: HOUSEHOLD MOSQUITO NET OWNERSHIP**

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	132/260	50.8% (44.5-57.0)
Proportion of total households owning at least one LLIN	127/260	48.8% (38.9-58.8)

**FIGURE 26: HOUSEHOLD OWNERSHIP OF AT LEAST ONE MOSQUITO NET (ANY TYPE)**



**FIGURE 27: HOUSEHOLD OWNERSHIP OF AT LEAST ONE LLIN**



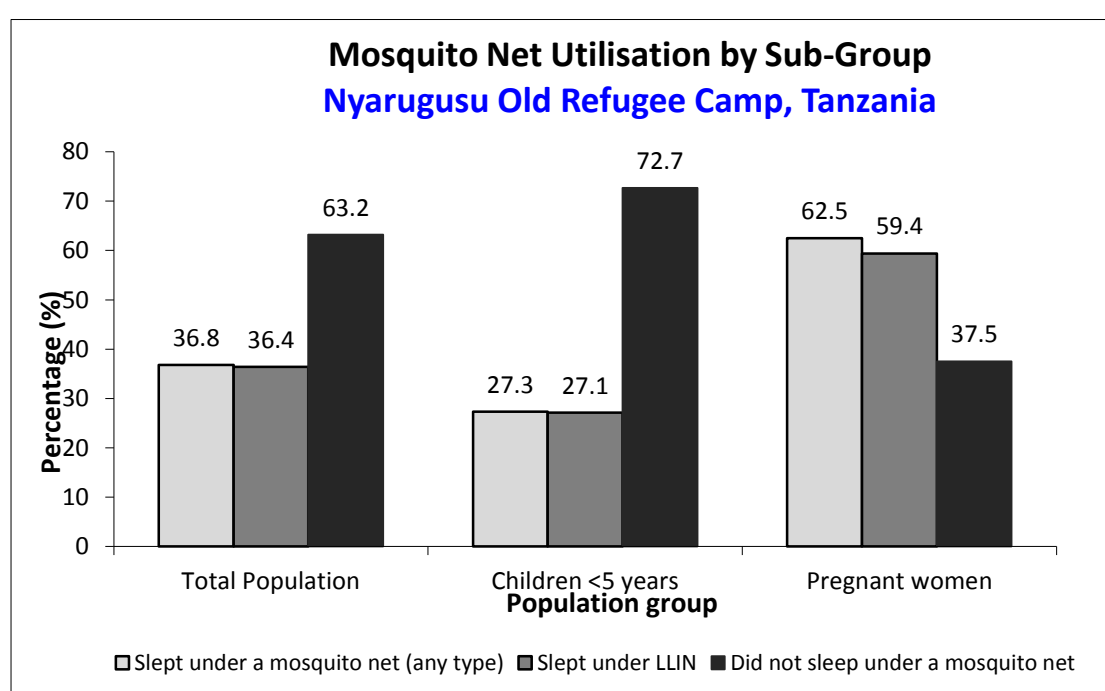
**TABLE 60: NUMBER OF NETS**

Average number of LLINs per household	Average number of persons per LLIN
2.0	6.8

**TABLE 61: MOSQUITO NET UTILISATION.** NOTE THAT IT IS NOT REQUIRED TO INCLUDE CONFIDENCE INTERVALS FOR THESE INDICATORS AS THEY ARE COMPLEX TO CALCULATE

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No=1792	%	Total No=652	%	Total No=32	%
<b>Slept under net of any type</b>	660	<b>36.8%</b>	178	<b>27.3%</b>	20	<b>62.5%</b>
<b>Slept under LLIN</b>	652	<b>36.4%</b>	177	<b>27.1%</b>	19	<b>59.4%</b>

**FIGURE 28 MOSQUITO NET UTILISATION BY SUB-GROUP**



## 5 Results (Nyarugusu New Camp)

**Table 62:** Demographic Characteristics of the study population

<b>Total households surveyed</b>	447
<b>Total population surveyed</b>	2445
<b>Total U5 surveyed</b>	424
<b>Average household size</b>	5.2
<b>% of U5</b>	17.3

### 5.1.1 Anthropometry and Health Children 6-59 months (Nyarugusu New Camp)

#### 5.1.1.1 Sample size and clusters

**Table 63:** Target and actual number captured

	<b>Target (No.)</b>	<b>Total surveyed (No.)</b>	<b>% of the target</b>
Children 6-59 months	322	423	131.4
Clusters (where applicable)	30	30	100%

**Table 64:** Children 6-59 months - Distribution of age and sex of sample (*this table is automatically generated by ENA for SMART software*)

	<b>Boys</b>		<b>Girls</b>		<b>Total</b>		<b>Ratio</b>
<b>AGE (mo)</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>Boy:Girl</b>
<b>6-17 months</b>	81	56.6	62	43.4	143	33.8	1.3
<b>18-29 months</b>	38	55.1	31	44.9	69	16.3	1.2
<b>30-41 months</b>	62	54.9	51	45.1	113	26.7	1.2
<b>42-53 months</b>	35	50.7	34	49.3	69	16.3	1.0
<b>54-59 months</b>	9	31.0	20	69.0	29	6.9	0.4
<b>Total</b>	225	53.2	198	46.8	423	100.0	1.1

**Percentage of children with no exact birthday: 0 %**

#### 5.1.1.2 Anthropometric results (based on WHO Growth Standards 2006)

**Table 65:** Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

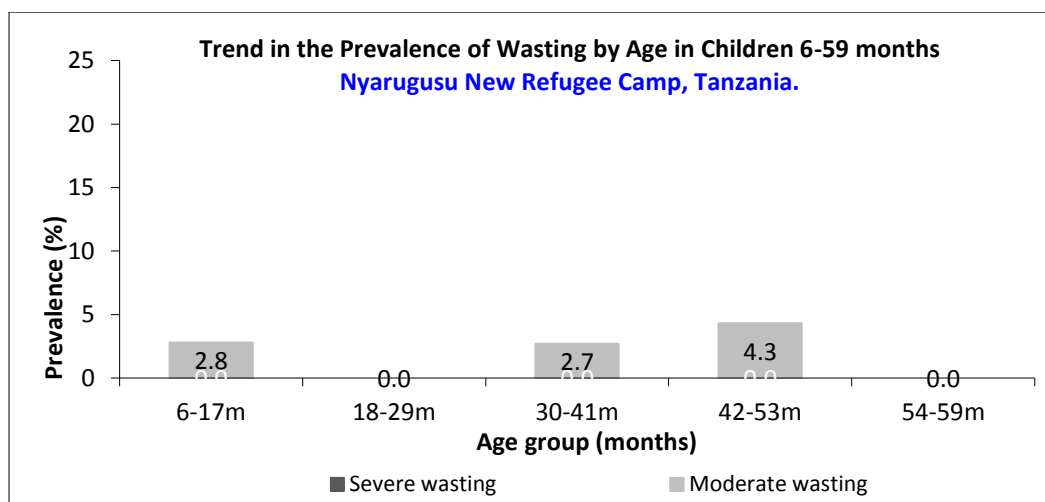
	<b>All n = 421</b>	<b>Boys n = 223</b>	<b>Girls n = 198</b>
<b>Prevalence of global malnutrition (&lt;-2 z-score and/or oedema)</b>	(10) 2.4 % (1.2 - 4.5 95% C.I.)	(8) 3.6 % (1.8 - 6.9 95% C.I.)	(2) 1.0 % (0.3 - 3.9 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt;-2 z-score and &gt;=-3 z-score, no oedema)</b>	(10) 2.4 % (1.2 - 4.5 95% C.I.)	(8) 3.6 % (1.8 - 6.9 95% C.I.)	(2) 1.0 % (0.3 - 3.9 95% C.I.)
<b>Prevalence of severe malnutrition (&lt;-3 z-score and/or oedema)</b>	(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%

**Table 66:** Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

Age (mo)	Total no.	Severe wasting ( $< -3$ z-score)		Moderate wasting ( $\geq -3$ and $< -2$ z-score )		Normal ( $\geq -2$ z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	141	0	0.0	4	2.8	137	97.2	0	0.0
18-29	69	0	0.0	0	0.0	69	100.0	0	0.0
30-41	113	0	0.0	3	2.7	110	97.3	0	0.0
42-53	69	0	0.0	3	4.3	66	95.7	0	0.0
54-59	29	0	0.0	0	0.0	29	100.0	0	0.0
<b>Total</b>	<b>421</b>	<b>0</b>	<b>0.0</b>	<b>10</b>	<b>2.4</b>	<b>411</b>	<b>97.6</b>	<b>0</b>	<b>0.0</b>

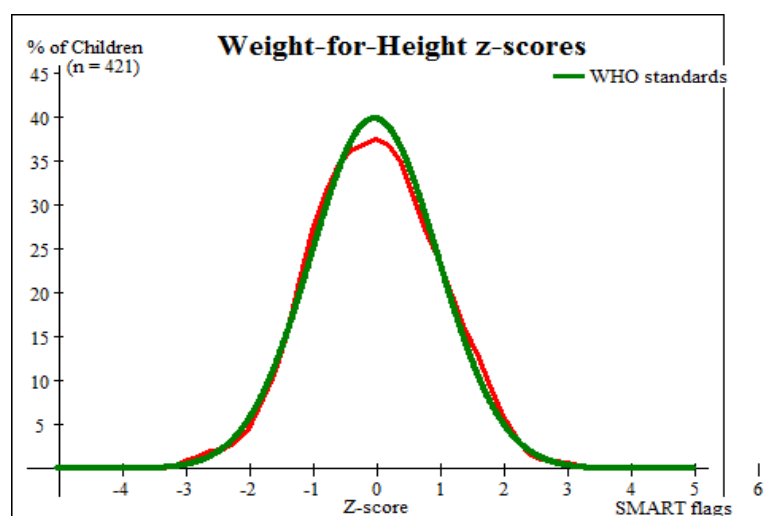
**Figure 29:** Trend in the prevalence of wasting by age in children 6-59 months



**Table 67:** Distribution of severe acute malnutrition and oedema based on weight-for-height z-scores

	$< -3$ z-score	$\geq -3$ z-score
<b>Oedema present</b>	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
<b>Oedema absent</b>	Marasmic No. 2 (0.5 %)	Not severely malnourished No. 421 (99.5 %)

**Figure 30:** Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green and the surveyed population is shown in red) of survey population compared to reference population



**Table 68:** Prevalence of MUAC MALNUTRITION

	All n = 423	Boys n = 225	Girls n = 198
<b>Prevalence of MUAC &lt; 125 mm and/or oedema</b>	(18) 4.3 % (2.6 - 6.9 95% C.I.)	(7) 3.1 % (1.5 - 6.2 95% C.I.)	(11) 5.6 % (2.6 - 11.5 95% C.I.)
<b>Prevalence of MUAC &lt; 125 mm and &gt;= 115 mm, no oedema</b>	(16) 3.8 % (2.2 - 6.4 95% C.I.)	(6) 2.7 % (1.2 - 5.7 95% C.I.)	(10) 5.1 % (2.2 - 11.3 95% C.I.)
<b>Prevalence MUAC &lt; 115 mm and/or oedema</b>	(2) 0.5 % (0.1 - 3.5 95% C.I.)	(1) 0.4 % (0.1 - 3.5 95% C.I.)	(1) 0.5 % (0.1 - 3.5 95% C.I.)

**Table 69:** PREVALENCE OF MUAC MALNUTRITION by age, based on MUAC cut off's and/or oedema

Age (mo)	Total no.	MUAC < 115 mm		MUAC >= 115 mm and < 125 mm		MUAC > = 125 mm		Oedema	
		No.	%	No.	%	No.	%	No.	%
<b>6-17</b>	143	0	0.0	14	9.8	129	90.2	0	0.0
<b>18-29</b>	69	2	2.9	1	1.4	66	95.7	0	0.0
<b>30-41</b>	113	0	0.0	1	0.9	112	99.1	0	0.0
<b>42-53</b>	69	0	0.0	0	0.0	69	100.0	0	0.0
<b>54-59</b>	29	0	0.0	0	0.0	29	100.0	0	0.0
<b>Total</b>	423	2	0.5	16	3.8	405	95.7	0	0.0

**Table 70:** Prevalence of underweight based on weight-for-age z-scores by sex

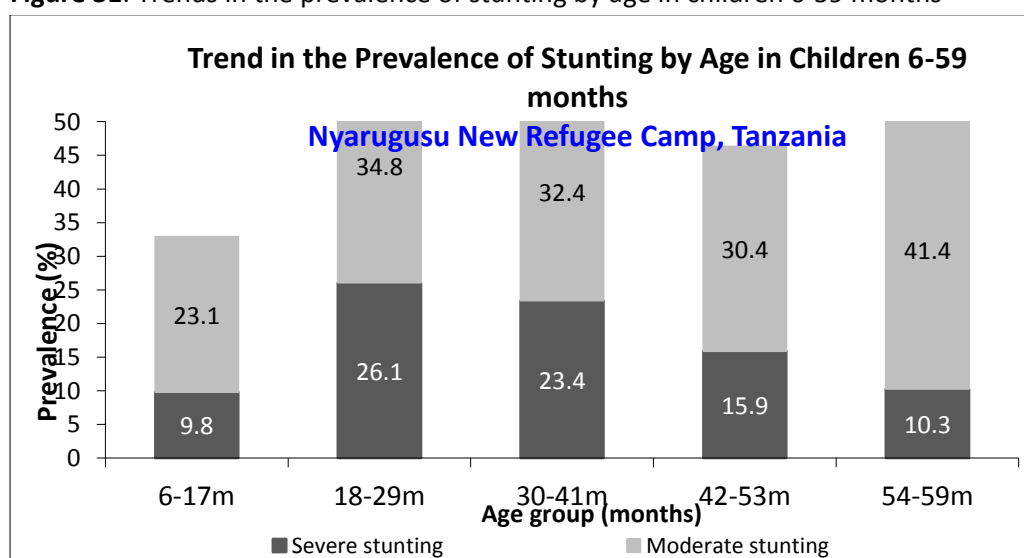
	All n = 423	Boys n = 225	Girls n = 198
<b>Prevalence of underweight (<math>&lt;-2</math> z-score)</b>	(85) 20.1 % (15.7 - 25.4 95% C.I.)	(48) 21.3 % (15.1 - 29.3 95% C.I.)	(37) 18.7 % (14.1 - 24.4 95% C.I.)
<b>Prevalence of moderate underweight (<math>&lt;-2</math> z-score and <math>\geq -3</math> z-score)</b>	(75) 17.7 % (14.1 - 22.1 95% C.I.)	(40) 17.8 % (12.8 - 24.2 95% C.I.)	(35) 17.7 % (13.3 - 23.1 95% C.I.)
<b>Prevalence of severe underweight (<math>&lt;-3</math> z-score)</b>	(10) 2.4 % (1.2 - 4.5 95% C.I.)	(8) 3.6 % (1.8 - 7.0 95% C.I.)	(2) 1.0 % (0.2 - 4.1 95% C.I.)

**Table 71:** Prevalence of stunting based on height-for-age z-scores and by sex

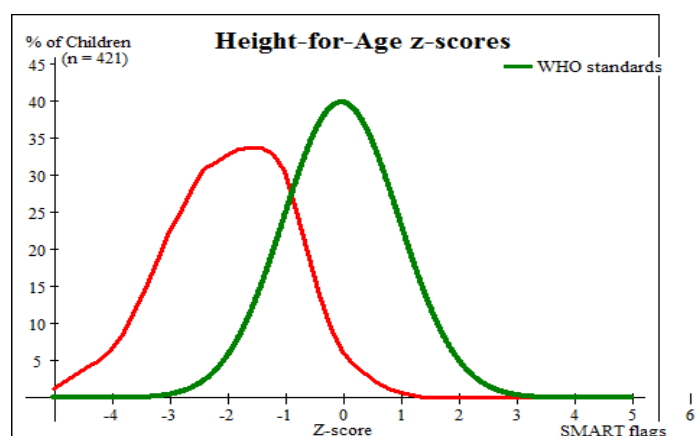
	All n = 421	Boys n = 224	Girls n = 197
<b>Prevalence of stunting (<math>&lt;-2</math> z-score)</b>	(198) 47.0 % (40.8 - 53.3 95% C.I.)	(109) 48.7 % (39.3 - 58.2 95% C.I.)	(89) 45.2 % (36.2 - 54.5 95% C.I.)
<b>Prevalence of moderate stunting (<math>&lt;-2</math> z-score and <math>\geq -3</math> z-score)</b>	(126) 29.9 % (24.9 - 35.5 95% C.I.)	(69) 30.8 % (24.4 - 38.0 95% C.I.)	(57) 28.9 % (21.6 - 37.6 95% C.I.)
<b>Prevalence of severe stunting (<math>&lt;-3</math> z-score)</b>	(72) 17.1 % (12.6 - 22.7 95% C.I.)	(40) 17.9 % (11.5 - 26.7 95% C.I.)	(32) 16.2 % (12.4 - 21.0 95% C.I.)

**Table 72:** Prevalence of stunting by age based on height-for-age z-scores

Age (mo)	Total no.	Severe stunting ( $<-3$ z-score)		Moderate stunting ( $\geq -3$ and $<-2$ z-score )		Normal ( $\geq -2$ z score)	
		No.	%	No.	%	No.	%
6-17	143	14	9.8	33	23.1	96	67.1
18-29	69	18	26.1	24	34.8	27	39.1
30-41	111	26	23.4	36	32.4	49	44.1
42-53	69	11	15.9	21	30.4	37	53.6
54-59	29	3	10.3	12	41.4	14	48.3
Total	421	72	17.1	126	29.9	223	53.0

**Figure 31:** Trends in the prevalence of stunting by age in children 6-59 months

**Figure 32:** Distribution of height-for-age z-scores (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



**Table 73:** Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	421	-0.01 $\pm$ 0.99	1.04	0	2
Weight-for-Age	423	-1.09 $\pm$ 0.98	1.48	0	0
Height-for-Age	421	-1.95 $\pm$ 1.07	1.59	0	2

\* contains for WHZ and WAZ the children with oedema.

### 5.1.1.3 Feeding programme coverage results (Nyarugusu New Camp)

**Table 74** Programme coverage for acutely malnourished children

	Number/total	% (95% CI)
<b>Supplementary feeding programme coverage</b> <i>Based on all admission criteria (MUAC, WHZ)</i>	9/22	40.9% (12.1-69.7)
<b>Supplementary feeding programme coverage</b> <i>Based on MUAC only</i>	9/16	56.3% (22.3-86.2)
<b>Therapeutic feeding programme coverage</b> <i>Based on all admission criteria (MUAC, WHZ)</i>	0/2	0%
<b>Therapeutic feeding programme coverage</b> <i>Based on MUAC only</i>	0/2	0% <sup>8</sup>

### 5.1.1.4 Measles vaccination coverage results (Nyarugusu New Camp)

**Table 75** Measles vaccination coverage for children aged 9-59 months (*or other context-specific target group*) (n=393)

	Measles (with card) n=249	Measles (with card <u>or</u> confirmation from mother) n=367
<b>YES</b>	63.4 % (50.1-76.7 95% CI)	93.4% (89.9-96.9 95% CI)

<sup>8</sup> Note the sample size is too small for any meaning full interpretations



### 5.1.1.5 Vitamin A supplementation coverage results (Nyarugusu New Camp)

**Table 76** Vitamin A supplementation for children aged 6-59 months within past 6 months (*or other context-specific target group*) (n=423 )

	Vitamin A capsule (with card) n=266	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=392
<b>YES</b>	62.9% (50.1-75.7 95% CI)	92.7 % (89.3-96.1 95% CI)

### 5.1.1.6 Diarrhoea results

**Table 77** Period prevalence of diarrhoea

	Number/total	% (95% CI)
<b>Diarrhoea in the last two weeks</b>	90/423	21.3% (15.7.-26.9)

## 5.1.2 Anaemia results Children 6-59 months (Nyarugusu New Camp)

**Table 78:** Prevalence of TOTAL anaemia, ANAEMIA CATEGORIES, and MEAN haemoglobin concentration in children 6-59 months of age AND BY AGE GROUP

	6-59 months n = 422	6-23 months n=195	24-59 months n=227
<b>Total Anemia (Hb&lt;11.0 g/dL)</b>	(174) 41.2 % (34.5-48.0 95% CI)	(103) 52.8 % (45.9-59.7 95% CI)	(71) 31.3 % (23.2-39.4 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(89) 21.1 % (15.8-26.3 95% CI)	(48) 24.6 % (18.6-30.7 95% CI)	(41) 18.1 % (11.9-24.3 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(84) 19.9 % (15.8-24.0 95% CI)	(54) 27.7% (21.8-33.5 95% CI)	(30) 13.2% (8.5-17.9 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(1) 0.2% (0-0.7 95% CI)	(1) 0.5 % (0.0-1.6 95% CI)	(0) 0 % (95% CI)
<b>Mean Hb (g/dL) (SD / 95% CI) [range]</b>	11.1g/dL (11.0 -11.3 95% CI) [min 6.5, max 14.4]	10.8g/dL (10.6-10.9 95% CI) [min6.5, max13.5]	11.4g/dL (11.3-11.6 95% CI) [min 7.3, 14.4 max]

**Table 79:** 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=195	24-59 months n=227
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(85) 20.1% (15.9-24.4 95% CI)	(55) 28.2 % (22.1-34.3 95% CI)	(30) 13.2% (8.5-17.9 95% CI)

### 5.1.3 Children 0-23 months (Nyarugusu New Camp)

**Table 80** Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range Months	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23	196/263	74.5%	68.8-79.7%
Exclusive breastfeeding under 6 months	0-5	50/72	72.2%	53.7-90.8%
Continued breastfeeding at 1 year	12-15	52/59	88.1%	78.5-97.8%
Continued breastfeeding at 2 years	20-23	11/32	34.4%	18.9-49.9%
Introduction of solid, semi-solid or soft foods	6-8	25/30	83.3%	70.0%- 96.6%
Consumption of iron-rich or iron-fortified foods	6-23	158/192	82.3%	74.2-90.4%
Bottle feeding	0-23 months	5/264	1.9%	0.0-3.9%

### 5.1.4 Prevalence of intake (Nyarugusu New Camp)

#### Infant formula

**Table 81:** Infant formula intake in children aged 0-23 months

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	3/266	1.1% (0.0-2.8%)

#### Fortified blended foods

**Table 82:** FBF intake in children aged 6-23 months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	69/196	35.2% (20.5-49.8)

**Table 83:** FBF++ intake in children aged 6-23 months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	141/196	71.9% (61.2-82.7)

**Table 84:** MNP intake in children aged 24-60 months

	Number/total	% (95% CI)
Proportion of children aged 24-59 months who receive MNP	142/155	91.6% (85.8-97.5)

### 5.1.5 Women 15-49 years (Nyarugusu New Camp)

**Table 85:** Women physiological status and age

Physiological status	Number/total	% of sample
Non-pregnant	41/292	14.0%
Pregnant	251/292	86.0%
Mean age (range)	25.8 (15-49)	

**Table 86:** Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years)

<b>Anaemia in non-pregnant women of reproductive age (15-49 years)</b>	<b>All</b> n = 251
<b>Total Anaemia (&lt;12.0 g/dL)</b>	(56) 22.3 % (14.5-30.1 95% CI)
<b>Mild Anaemia (11.0-11.9 g/dL)</b>	(36) 14.3 % (9.0-19.6 95% CI)
<b>Moderate Anaemia (8.0-10.9 g/dL)</b>	(20) 8.0 % (3.1-12.8 95% CI)
<b>Severe Anaemia (&lt;8.0 g/dL)</b>	(0) 0% (95% CI)
<b>Mean Hb (g/dL)</b> <b>(SD / 95% CI)</b> <b>[range]</b>	13.0g/dL (12.7-13.4 95% CI) [min 8.2, max16.7]

**Table 87:** ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years)

	<b>Number /total</b>	<b>% (95% CI)</b>
<b>Currently enrolled in ANC programme</b>	28/41	68.3% (48.5-88.1)
<b>Currently receiving iron-folic acid pills</b>	28/41	68.3% (48.5-88.1)

## 5.1.6 Food security (Nyarugusu New Camp)

**Table 88:** Food security SAMPLING information

<b>Household data</b>	<b>Planned</b>	<b>Actual</b>	<b>% of target</b>
Total households surveyed for Food Security	210	260	123.8%

### 5.1.6.1 Access to food assistance results (Nyarugusu New Camp)

**Table 89:** Ration card coverage

	<b>Number/total</b>	<b>% (95% CI)</b>
<b>Proportion of households with a ration card</b>	250/260	96.2% (90.0-100.0)

Out of the households reporting not to have a ration cards, [ 0 / 6 said it was because they were not given one at registration, even if they were included in the targeting criteria; [insert proportion: 0 / 6 said it was because they lost their ration card; [insert proportion: 0 / 6 said it was because they traded or sold their card; 0/6 proportion: none said it was because they were new arrivals who were eligible but were not yet registered; [insert proportion: 0 / 6 said it was because they were not included in the targeting criteria; and [insert proportion: 6 / 6 gave other reasons (they were initially registered for pilot cash programme which was discontinued one month to the survey-July 2017, all the residents will be moved to the food programme).

**Table 90:** Reported duration of general food ration 1<sup>9</sup>

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
14.4 days (13.8-15.1 )	46.5%

**Table 91:** Reported duration of general food ration 2

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	0/162	0% 100-100)
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle [30]	158/162	97% (95.5-99.9)
>75% of the cycle [30]	4/162	2.5% (0.0-4.9)

### 5.1.6.2 Negative coping strategies results (Nyarugusu New Camp)

**Table 92:** Coping strategies used by the surveyed population over the past month

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items <i>with or without interest</i>	156/260	60.0% (46.4-73.6)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	55/260	21.2% (11.4-31.1)
Requested increased remittances or gifts as compared to normal	109/260	41.9% (31.1-52.7)
Reduced the quantity and/or frequency of meals	147/260	56.5% (39.9-73.2)
Begged	172/260	66.2% (52.1-80.2)
Engaged in potentially risky or harmful activities [smuggling, STEALING FROM VILLAGE FARMS AROUND, PROSTITUTION, ]	68/258	26.4% (12.2-40.5)
Proportion of households reporting using none of the coping strategies over the past month	41/258	15.9% (11.7-20.9)

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

### 5.1.6.3 Household dietary diversity results

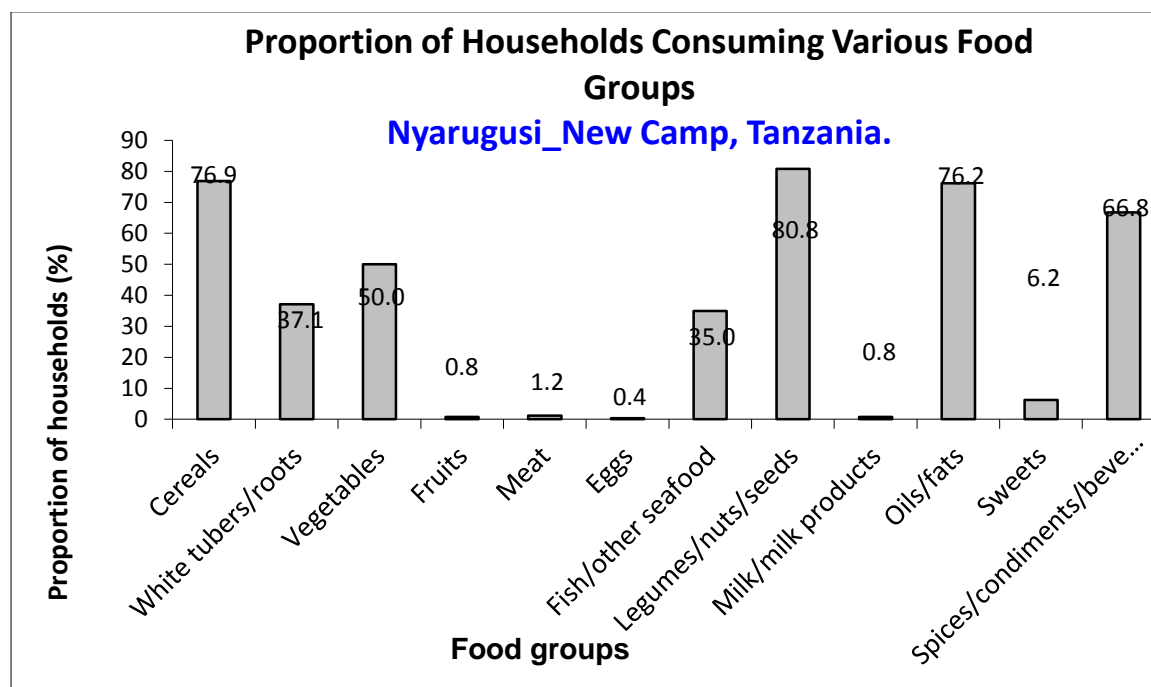
The last general food distribution ended 20 days prior to the start of the survey data collection. The survey was conducted during the annual lean season, in the middle of try season, during which the overall additional food availability is limited especially greens; only drought resistant crops especially cassava was in adequate supply. It is hence likely that the household dietary diversity score is lower than it would be e.g. after the harvest.” No major festivities were reported during the entire period of survey.

<sup>9</sup> In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.

**Table 93** Average HDDS

	Mean (Standard deviation or 95% CI)
Average HDDS	4.6 (4.2-5.0 95% CI)

\* Maximum HDDS is 12.

**Figure 33:** Proportion of households consuming different food groups within last 24 hours**Table 94** Consumption of micronutrient rich foods by households

	Number/total	% (95% CI)
Proportion of households <i>not consuming any</i> vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	74/260	28.5% (19.5-37.5)
Proportion of households consuming either a plant or animal source of vitamin A	132/260	50.8% (38.9-62.6)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	93/260	35.8% (23.0-48.5)

## 5.1.7 WASH (Nyarugusu New Camp)

**Table 95** WASH SAMPLING information

Household data	Planned	Actual	% of target
Total households surveyed for WASH	419	474	113.1%

**Table 96** Water Quality

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	471/474	99.4% (98.4-100.0)
Proportion of households that use a covered or narrow necked container for storing their drinking water	262/474	55.3% (42.0-68.6)

**Table 97:** Water Quantity: Amount of litres of water used per person per day

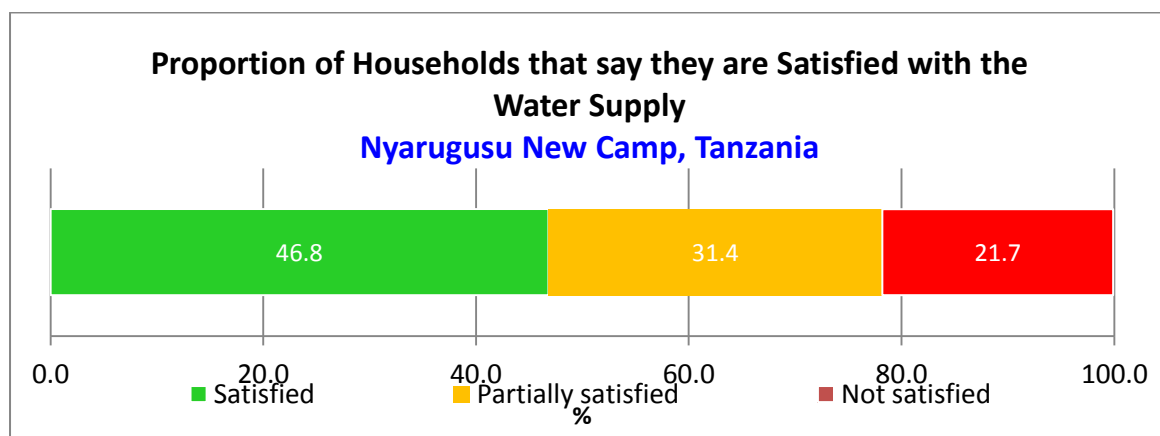
Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	251/274	53.0% (44.6-61.3)
15 – <20 lpppd	74/474	15.6% (11.4-19.9)
<15 lpppd	149/474	31.4% (24.0-38.9)

The average water usage in lpppd: \_\_\_\_\_ 23.4 l (20.9-25.9)

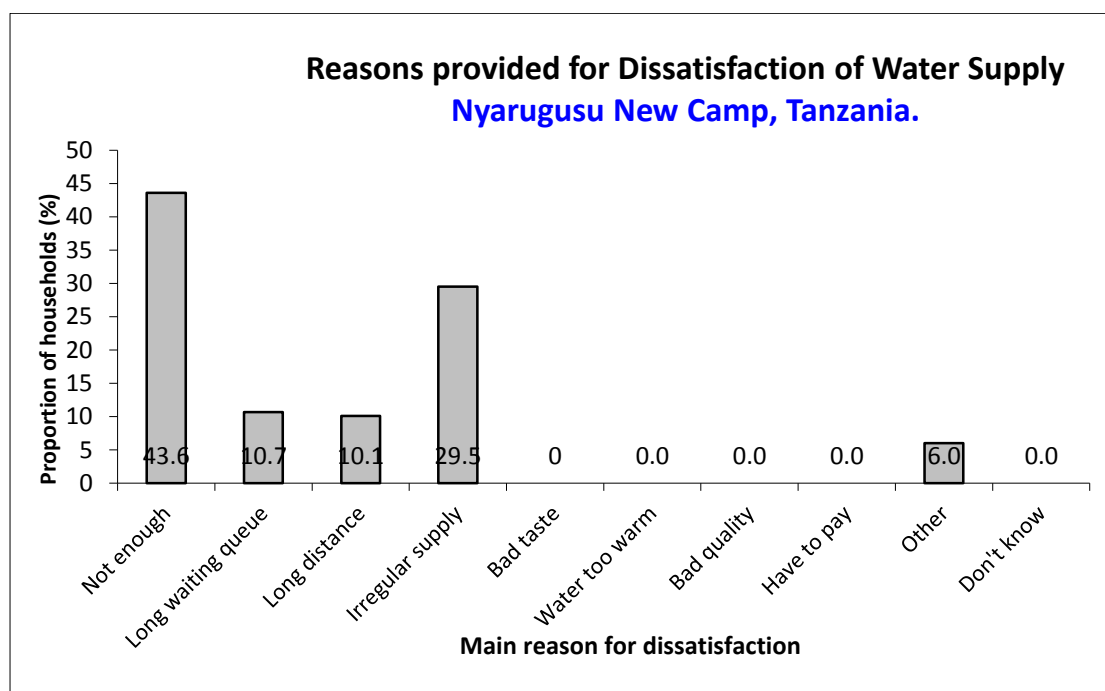
**Table 98:** Satisfaction with water supply

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	222/474	46.8% (34.4-59.2)

**Figure 34:** Proportion of households that say they are satisfied with the water supply



**Figure 35** Main reason for dissatisfaction among households not satisfied with water supply



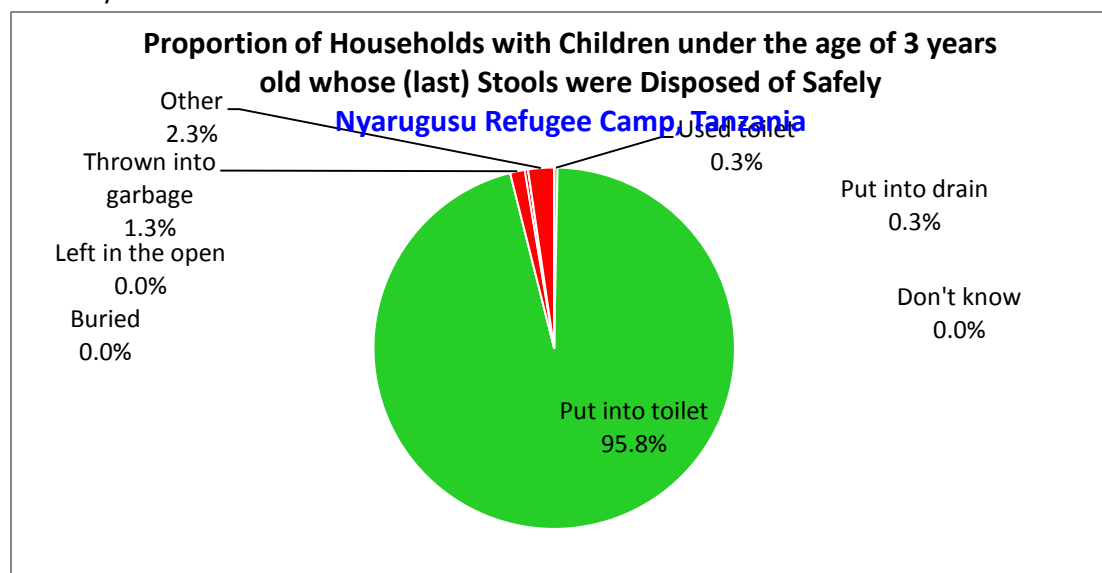
**Table 99:** Safe Excreta disposal

	Number/total	% (95% CI)
<b>Proportion of households that use:</b>		
<b>An improved excreta disposal facility (improved toilet facility, 1 household)*, **</b>	246/473	52.0% (33.3-70.7)
<b>A shared family toilet (improved toilet facility, 2 households)**</b>	11/473	2.3% (0.1-4.5)
<b>A communal toilet (improved toilet facility, 3 households or more)</b>	7/473	1.5% (0.3-2.6)
<b>An unimproved toilet (unimproved toilet facility or public toilet)</b>	209/473	44.2% (24.5-63.9)
<b>Proportion of households with children under three years old that dispose of faeces safely</b>	288/301	95.7% (92.5-98.8)

\*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an **“improved excreta disposal facility”** as a toilet in the “improved” category **AND** one that is **not shared** with other families / households.

\*\*According to UNHCR WASH monitoring system, an **“improved excreta disposal facility”** is defined differently than in survey instruments and is defined as a toilet in the “improved” category AND one that is shared by a *maximum* of 2 families / households or no more than 12 individuals. Therefore, the following two categories from the SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility (improved toilet facility, 1 household)” and “shared family toilet (improved toilet facility, 2 households)”.

**Figure 36** Proportion of households with children under the age of 3 years whose (last) stools were disposed of safely



### 3.7 Mosquito Net Coverage

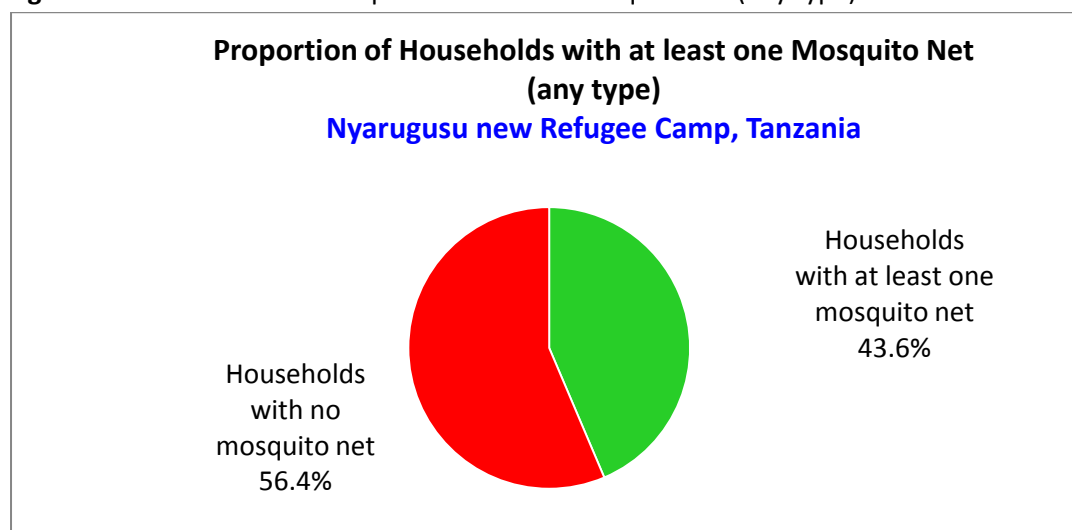
**Table 100** Mosquito net coverage SAMPLING information

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	265	250	94.2

**Table 101** Household Mosquito net ownership

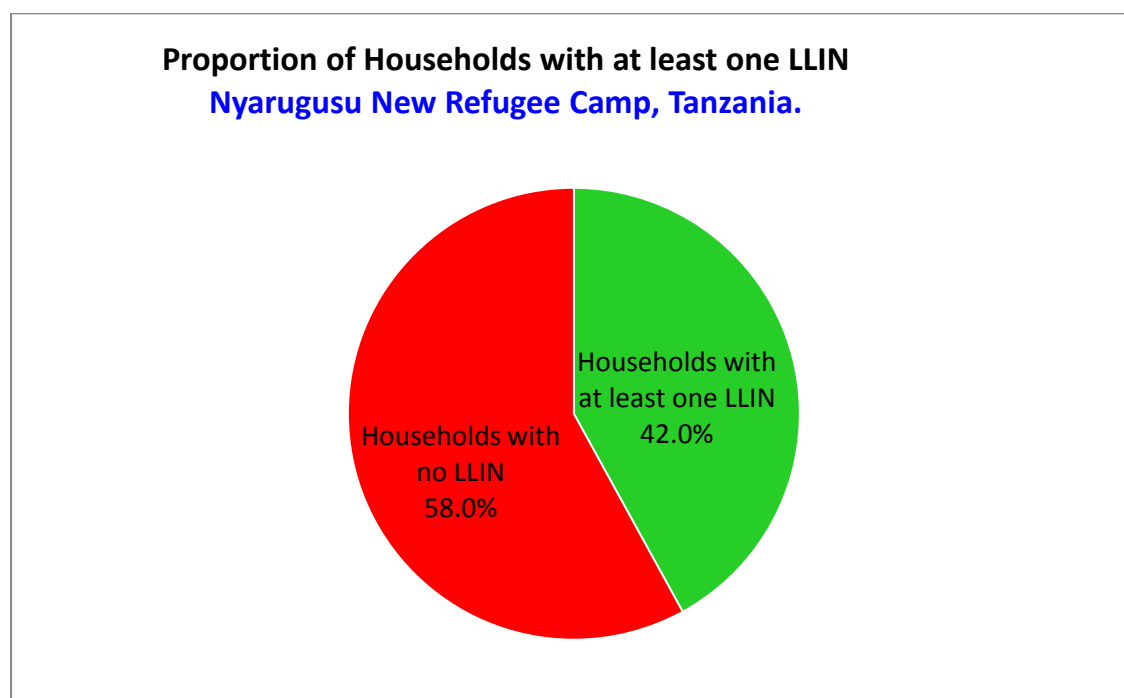
	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	109/250	43.6% (35.6-51.7)
Proportion of total households owning at least one LLIN	105/250	42.0% (33.6-50.4)

**Figure 37** Household ownership of at least one mosquito net (any type)





**Figure 38** Household ownership of at least one LLIN



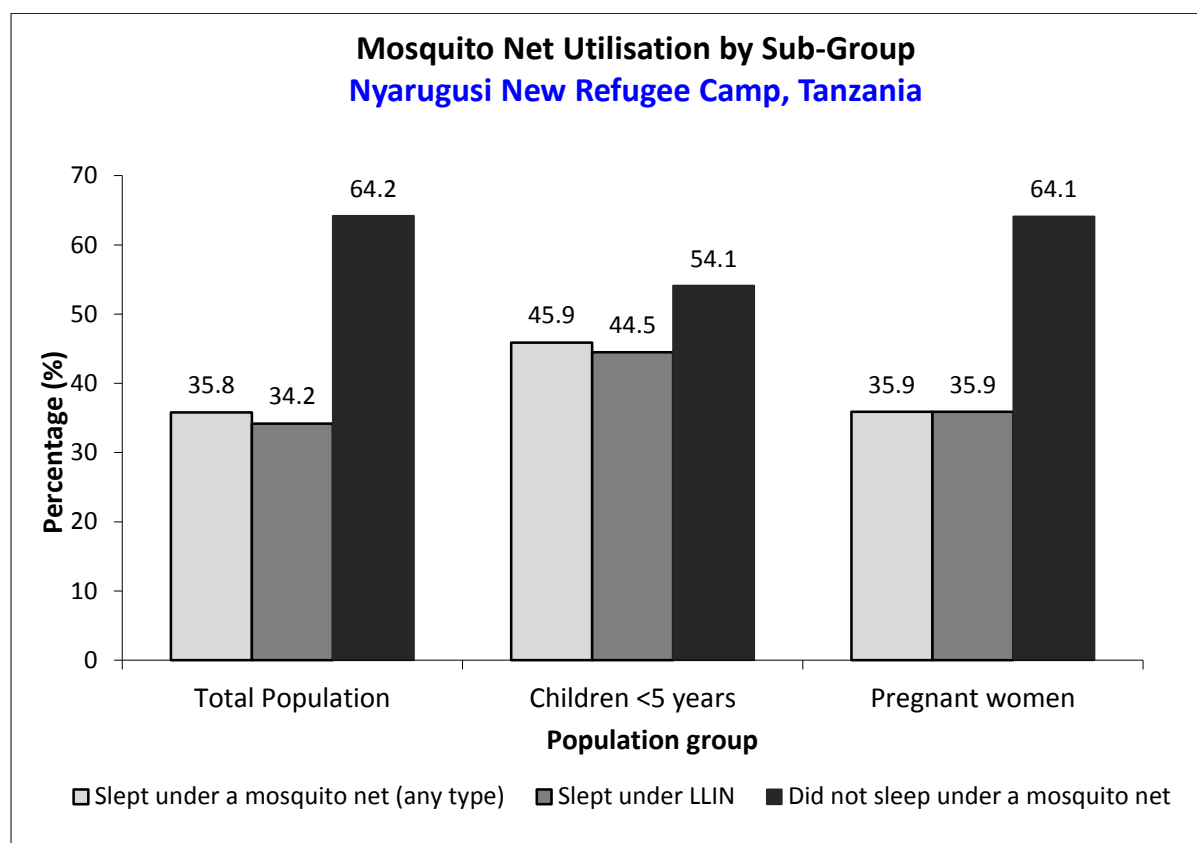
**Table 102** Number of nets

Average number of LLINs per household	Average number of persons per LLIN
1.8	7.0

**Table 103:** Mosquito net Utilisation.

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No=1405	%	Total No=292	%	Total No=39	%
Slept under net of any type	No 503	35.8%	No 134	45.9%	No 14	35.9%
Slept under LLIN	No 480	34.2%	No 130	44.5%	No 14	35.9%

**Figure 39: Mosquito Net Utilisation by sub-group**



## 6 Results (Nduta Refugee Camp)

**TABLE 104** DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION

Total households surveyed	510
Total population surveyed	2550
Total U5 surveyed	568
Average household size	5.0
% of U5	22.3%

### 6.1.1 Anthropometry and Health Children 6-59 months (Nduta Refugee Camp)

#### 6.1.1.1 Sample size and clusters

**TABLE 105:** TARGET AND ACTUAL NUMBER CAPTURED

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	413	568	111.4%
Clusters (where applicable)	30	30	100%

**TABLE 106** CHILDREN 6-59 MONTHS - DISTRIBUTION OF AGE AND SEX OF SAMPLE

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: Girl
6-17 months	75	54.7	62	45.3	137	24.1	1.2
18-29 months	67	47.2	75	52.8	142	25.0	0.9
30-41 months	75	53.2	66	46.8	141	24.8	1.1
42-53 months	52	50.0	52	50.0	104	18.3	1.0
54-59 months	22	50.0	22	50.0	44	7.7	1.0
Total	291	51.2	277	48.8	568	100.0	1.1

*Percentage of children with no exact birthday: 5 %*

All the children who participated in the survey were considered using the actual age from an official document or using an events calendar to estimate the age of the child.

### 6.1.1.2 Anthropometric results (based on WHO Growth Standards 2006) (Nduta Refugee Camp)

**TABLE 107: PREVALENCE OF ACUTE MALNUTRITION BASED ON WEIGHT-FOR-HEIGHT Z-SCORES (AND/OR OEDEMA) AND BY SEX**

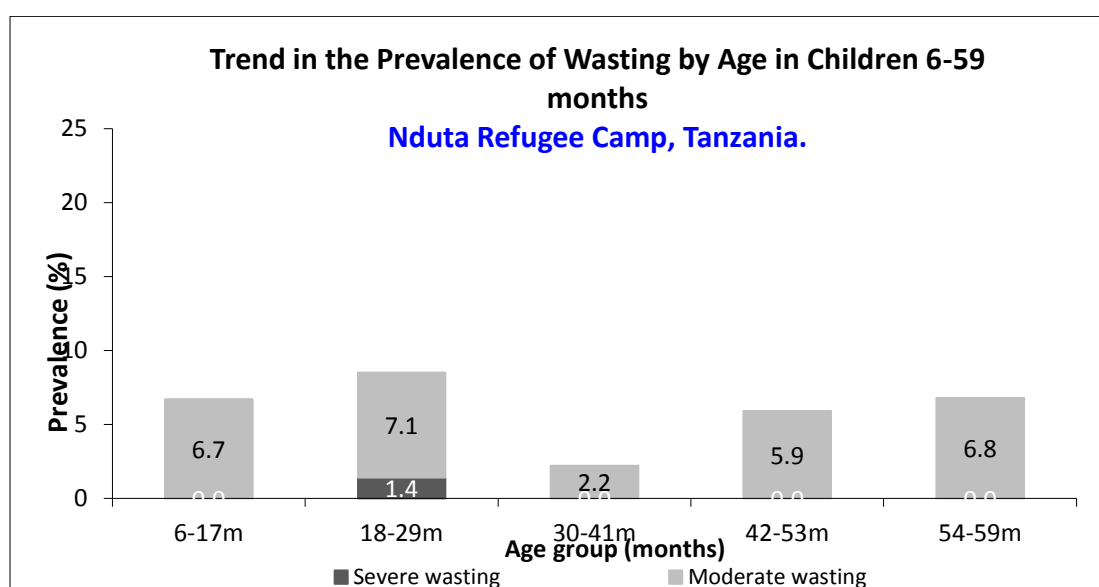
	<b>All</b> n = 559	<b>Boys</b> n = 286	<b>Girls</b> n = 273
<b>Prevalence of global malnutrition (&lt;-2 z-score and/or oedema)</b>	(34) 6.1 % (4.1 - 9.0 95% C.I.)	(20) 7.0 % (4.0 - 11.9 95% C.I.)	(14) 5.1 % (2.9 - 9.0 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt;-2 z-score and &gt;=-3 z-score, no oedema)</b>	(31) 5.5 % (3.5 - 8.6 95% C.I.)	(19) 6.6 % (3.7 - 11.6 95% C.I.)	(12) 4.4 % (2.3 - 8.3 95% C.I.)
<b>Prevalence of severe malnutrition (&lt;-3 z-score and/or oedema)</b>	(3) 0.5 % (0.1 - 2.4 95% C.I.)	(1) 0.3 % (0.0 - 2.7 95% C.I.)	(2) 0.7 % (0.2 - 3.0 95% C.I.)

The prevalence of oedema is 0.2%

**TABLE 108: PREVALENCE OF ACUTE MALNUTRITION BY AGE, BASED ON WEIGHT-FOR-HEIGHT Z-SCORES AND/OR OEDEMA**

Age (mo.)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score )		Normal (>= -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	0	0.0	9	6.7	126	93.3	0	0.0	
18-29	2	1.4	10	7.1	128	90.8	1	0.7	
30-41	0	0.0	3	2.2	135	97.8	0	0.0	
42-53	0	0.0	6	5.9	95	94.1	0	0.0	
54-59	0	0.0	3	6.8	41	93.2	0	0.0	
<b>Total</b>	<b>2</b>	<b>0.4</b>	<b>31</b>	<b>5.5</b>	<b>525</b>	<b>93.9</b>	<b>1</b>	<b>0.2</b>	

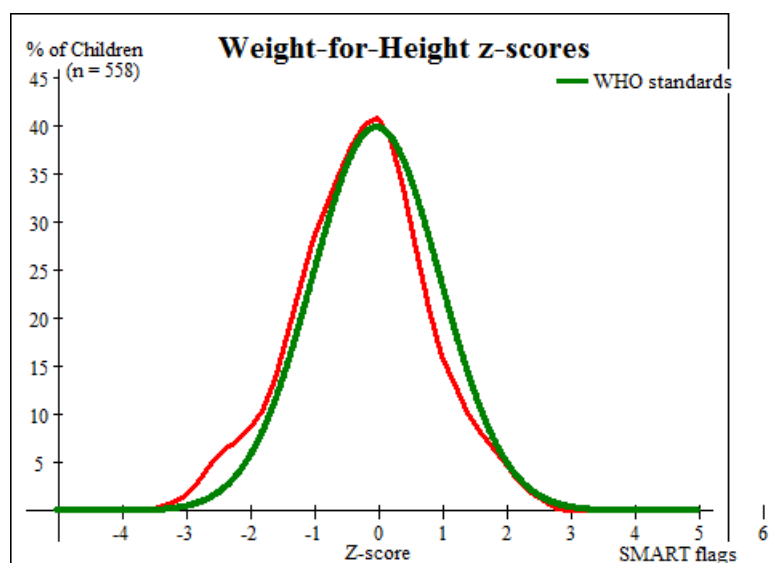
**FIGURE 40: TREND IN THE PREVALENCE OF WASTING BY AGE IN CHILDREN 6-59 MONTHS**



**TABLE 109:** DISTRIBUTION OF SEVERE ACUTE MALNUTRITION AND OEDEMA BASED ON WEIGHT-FOR-HEIGHT Z-SCORES

	<-3 z-score	>=-3 z-score
<b>Oedema present</b>	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 1 (0.2 %)
<b>Oedema absent</b>	Marasmic No. 8 (1.4 %)	Not severely malnourished No. 559 (98.4 %)

**FIGURE 41:** DISTRIBUTION OF WEIGHT-FOR-HEIGHT Z-SCORES (BASED ON WHO GROWTH STANDARDS; THE REFERENCE POPULATION IS SHOWN IN GREEN AND THE SURVEYED POPULATION IS SHOWN IN RED) OF SURVEY POPULATION COMPARED TO REFERENCE POPULATION



**TABLE 110:** PREVALENCE OF MUAC MALNUTRITION

	<b>All</b> n = 568	<b>Boys</b> n = 291	<b>Girls</b> n = 277
<b>Prevalence of MUAC &lt; 125 mm and/or oedema</b>	(24) 4.2 % (2.6 - 6.8 95% C.I.)	(9) 3.1 % (1.6 - 5.9 95% C.I.)	(15) 5.4 % (3.0 - 9.6 95% C.I.)
<b>Prevalence of MUAC &lt; 125 mm and &gt;= 115 mm, no oedema</b>	(19) 3.3 % (1.9 - 5.9 95% C.I.)	(6) 2.1 % (0.8 - 5.0 95% C.I.)	(13) 4.7 % (2.5 - 8.7 95% C.I.)
<b>Prevalence MUAC &lt; 115 mm and/or oedema</b>	(5) 0.9 % (0.4 - 2.0 95% C.I.)	(3) 1.0 % (0.3 - 3.2 95% C.I.)	(2) 0.7 % (0.2 - 2.9 95% C.I.)

**TABLE 111: PREVALENCE OF MUAC MALNUTRITION BY AGE, BASED ON MUAC CUT OFF'S AND/OR OEDEMA**

Age (mo.)	Total no.	MUAC < 115 mm		MUAC >= 115 mm and < 125 mm		MUAC > = 125 mm		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	137	3	2.2	9	6.6	125	91.2	0	0.0
18-29	142	0	0.0	9	6.3	133	93.7	1	0.7
30-41	141	1	0.7	2	1.4	138	97.9	0	0.0
42-53	104	0	0.0	0	0.0	104	100.0	0	0.0
54-59	44	0	0.0	0	0.0	44	100.0	0	0.0
Total	568	4	0.7	20	3.5	544	95.8	1	0.2

**TABLE 112: PREVALENCE OF UNDERWEIGHT BASED ON WEIGHT-FOR-AGE Z-SCORES BY SEX**

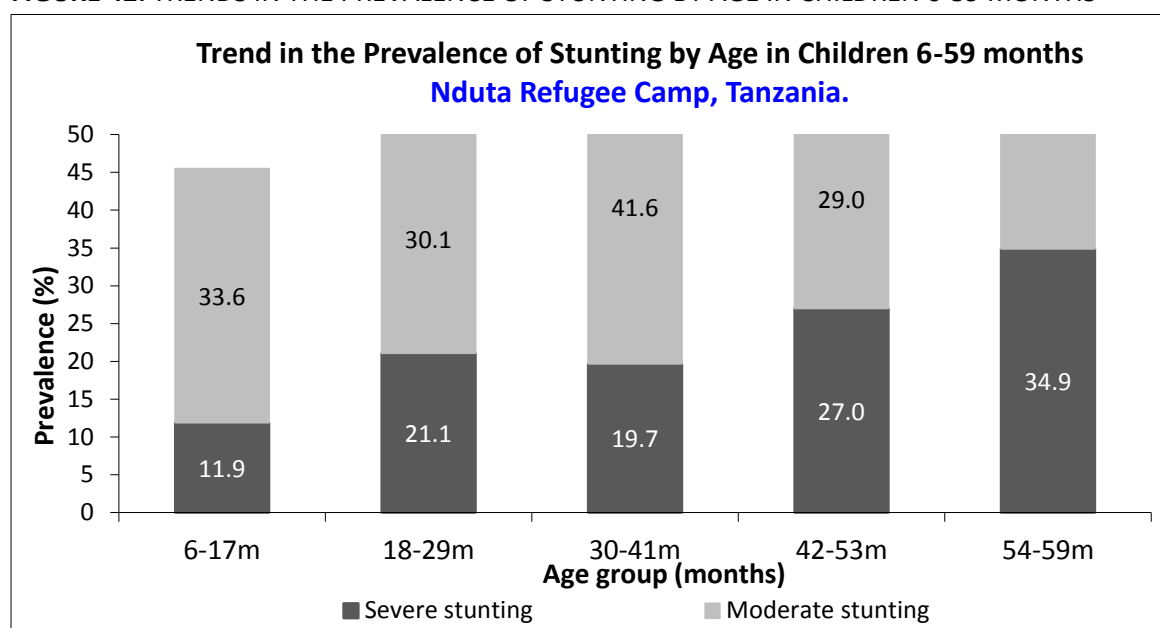
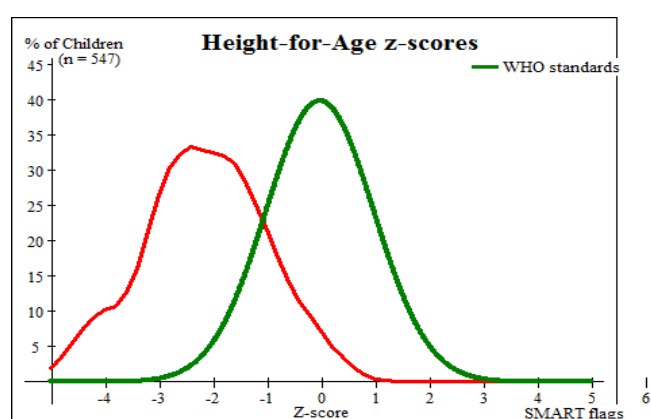
	All n = 560	Boys n = 286	Girls n = 274
Prevalence of underweight (<-2 z-score)	(152) 27.1 % (23.2 - 31.5 95% C.I.)	(77) 26.9 % (21.7 - 32.9 95% C.I.)	(75) 27.4 % (22.1 - 33.4 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(125) 22.3 % (18.8 - 26.3 95% C.I.)	(62) 21.7 % (16.9 - 27.4 95% C.I.)	(63) 23.0 % (18.1 - 28.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(27) 4.8 % (3.1 - 7.4 95% C.I.)	(15) 5.2 % (3.0 - 9.0 95% C.I.)	(12) 4.4 % (2.3 - 8.2 95% C.I.)

**TABLE 113: PREVALENCE OF STUNTING BASED ON HEIGHT-FOR-AGE Z-SCORES AND BY SEX**

	All n = 547	Boys n = 282	Girls n = 265
Prevalence of stunting (<-2 z-score)	(299) 54.7 % (47.7 - 61.5 95% C.I.)	(163) 57.8 % (49.5 - 65.7 95% C.I.)	(136) 51.3 % (42.4 - 60.1 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(186) 34.0 % (29.2 - 39.2 95% C.I.)	(111) 39.4 % (33.6 - 45.5 95% C.I.)	(75) 28.3 % (22.0 - 35.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(113) 20.7 % (15.4 - 27.1 95% C.I.)	(52) 18.4 % (13.2 - 25.2 95% C.I.)	(61) 23.0 % (16.8 - 30.7 95% C.I.)

**TABLE 114: PREVALENCE OF STUNTING BY AGE BASED ON HEIGHT-FOR-AGE Z-SCORES**

Age (mo.)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score )		Normal (>= -2 z score)	
		No.	%	No.	%	No.	%
6-17	134	16	11.9	45	33.6	73	54.5
18-29	133	28	21.1	40	30.1	65	48.9
30-41	137	27	19.7	57	41.6	53	38.7
42-53	100	27	27.0	29	29.0	44	44.0
54-59	43	15	34.9	15	34.9	13	30.2
<b>Total</b>	<b>547</b>	<b>113</b>	<b>20.7</b>	<b>186</b>	<b>34.0</b>	<b>248</b>	<b>45.3</b>

**FIGURE 42: TRENDS IN THE PREVALENCE OF STUNTING BY AGE IN CHILDREN 6-59 MONTHS****FIGURE 43: DISTRIBUTION OF HEIGHT-FOR-AGE Z-SCORES**

**TABLE 115: MEAN Z-SCORES, DESIGN EFFECTS AND EXCLUDED SUBJECTS**

Indicator	n	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	558	-0.24 $\pm$ 1.02	1.45	2	9
Weight-for-Age	560	-1.39 $\pm$ 0.97	1.16	2	7
Height-for-Age	547	-2.15 $\pm$ 1.13	2.55	1	21

\* contains for WHZ and WAZ the children with oedema.

### 6.1.1.3 Feeding programme coverage results (Nduta Refugee Camps)

**TABLE 116: PROGRAMME COVERAGE FOR ACUTELY MALNOURISHED CHILDREN**

	Number/total	% (95% CI)
<b>Supplementary feeding programme coverage</b> <i>Based on all admission criteria (MUAC, WHZ)</i>	18/43	41.9% (20.7-63.0)
<b>Supplementary feeding programme coverage</b> <i>Based on MUAC only</i>	9/20	45.0% (23.7-66.3)
<b>Therapeutic feeding programme coverage</b> <i>Based on all admission criteria (MUAC, WHZ, oedema)</i>	3/5	60.0% (0-100)
<b>Therapeutic feeding programme coverage</b> <i>Based on MUAC and/or oedema only</i>	3/5	60.0% (0-100)

### 6.1.1.4 Measles vaccination coverage results (Nduta Refugee Camps)

**TABLE 117 MEASLES VACCINATION COVERAGE FOR CHILDREN AGED 9-59 MONTHS (OR OTHER CONTEXT-SPECIFIC TARGET GROUP) (N=534)**

	<b>Measles (with card) n=195</b>	<b>Measles (with card <u>or</u> confirmation from mother) n=474</b>
<b>YES</b>	36.5 % (27.1-46.5 95% CI)	88.8 % (80.3-97.2 95% CI)

### 6.1.1.5 Vitamin A supplementation coverage results (Nduta Refugee Camp)

**TABLE 118: VITAMIN A SUPPLEMENTATION FOR CHILDREN AGED 6-59 MONTHS WITHIN PAST 6 MONTHS (OR OTHER CONTEXT-SPECIFIC TARGET GROUP) (N=568)**

	<b>Vitamin A capsule (with card) n=248</b>	<b>Vitamin A capsule (with card <u>or</u> confirmation from mother) n=514</b>
<b>YES</b>	43.7 % (29.5-57.8 95% CI)	90.5 % (85.0-96.0 95% CI)



### 6.1.1.6 Diarrhoea results (Nduta Refugee Camp)

**TABLE 119: PERIOD PREVALENCE OF DIARRHOEA**

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	80/568	14.1% (8.8-19.4)

### 6.1.2 Anaemia results Children 6-59 Months (Nduta Refugee Camp)

**TABLE 120: PREVALENCE OF TOTAL ANAEMIA, ANAEMIA CATEGORIES, AND MEAN HAEMOGLOBIN CONCENTRATION IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP**

	6-59 months n = 568	6-23 months n=208	24-59 months n=360
<b>Total Anemia (Hb&lt;11.0 g/dL)</b>	(233) 41.0 % (35.0-47.1 95% CI)	(104) 50.0% (43.0-57.0 95% CI)	(129) 35.8 % (28.7-43.0 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(145) 25.5% (21.3-29.7 95% CI)	(58) 27.9% (22.0-33.8 95% CI)	(87) 24.2 % (18.7-29.7 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(88) 15.5% (11.6-19.4 95% CI)	(46) 22.1% (16.3-28.0 95% CI)	(42) 11.7% (7.5-15.8 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(0) 0% (95% CI)	(0) 0 % (95% CI)	(0) 0 % (95% CI)
<b>Mean Hb (g/dL)</b> <b>(SD / 95% CI)</b> <b>[range]</b>	11.1g/dL (11.1-11.4 95% CI) [min 7.0, max 17.5]	10.1g/dL (10.5-11.0 95% CI) [7.0 min, 13.9 max]	11.4g/dL (11.1-11.6 95% CI) [7.1 min, 17.5 max]

**TABLE 121: PREVALENCE OF MODERATE AND SEVERE ANAEMIA IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP**

	6-59 months n = 568	6-23 months n=208	24-59 months n=360
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(88) 15.5% (11.5-19.4 95% CI)	(46) 22.1 % (16.3-28.0 95% CI)	(42) 11.7% (7.5-15.8 95% CI)

### 6.1.3 Children 0-23 months (Nduta Refugee Camp)

**TABLE 122: PREVALENCE OF INFANT AND YOUNG CHILD FEEDING PRACTICES INDICATORS**

Indicator	Age range	Number/total	Prevalence (%)	95% CI
<b>Timely initiation of breastfeeding</b>	<b>0-23 months</b>	250/285	87.7%	83.9-91.5
<b>Exclusive breastfeeding under 6 months</b>	<b>0-5 months</b>	65/80	81.2%	69.7-92.8
<b>Continued breastfeeding at 1 year</b>	<b>12-15 months</b>	37/42	88.1%	76.7-99.5
<b>Continued breastfeeding at 2 years</b>	<b>20-23 months</b>	18/46	39.1%	23.1-55.2
<b>Introduction of solid, semi-solid or soft foods</b>	<b>6-8 months</b>	25/34	73.5%	52.2-94.8
<b>Consumption of iron-rich or iron-fortified foods</b>	<b>6-23 months</b>	179/198	90.4%	85.7-95.1
<b>Bottle feeding</b>	<b>0-23 months</b>	16/280	5.7%	0.6-10.8

### 6.1.3.1 Prevalence of intake (Nduta Refugee Camp)

#### Infant formula

**TABLE 123: INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS**

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	0/205	0%

#### Fortified blended foods

**TABLE 124: FBF INTAKE IN CHILDREN AGED 6-23 MONTHS**

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	92/206	44.6% (31.8-57.5)

**TABLE 125: FBF++ INTAKE IN CHILDREN AGED 6-23 MONTHS**

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	156/206	75.7% (66.9-84.6)

#### Special nutritional products

**TABLE 126: MNP INTAKE IN CHILDREN AGED 24-60 MONTHS**

	Number/total	% (95% CI)
Proportion of children aged >24 months who receive MNP	324/357	90.8% (85.6-96.0)

## 6.1.4 Women 15-49 years (Nduta Refugee Camp)

**TABLE 127: WOMEN PHYSIOLOGICAL STATUS AND AGE**

Physiological status	Number/total	% of sample
Non-pregnant	63	22.0%
Pregnant	221	77.3%
Mean age (range)	26.9 Yrs. (15-49)	

**TABLE 128: PREVALENCE OF ANAEMIA AND HAEMOGLOBIN CONCENTRATION IN NON-PREGNANT WOMEN OF REPRODUCTIVE AGE (15-49 YEARS)**

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 223
Total Anaemia (<12.0 g/dL)	(64) 28.7% (22.2-35.2 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(38) 17.0% (13.2-21.0 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(24) 10.8% (4.8-13.1 95% CI)
Severe Anaemia (<8.0 g/dL)	(2) 0.9% (0.0-2.2 95% CI)
Mean Hb (g/dL) (SD / 95% CI) [range]	12.7 g/dL (12.4-12.9 95% CI) [min 7.4 max 17.5]

**TABLE 129: ANC ENROLMENT AND IRON-FOLIC ACID PILLS COVERAGE AMONG PREGNANT WOMEN (15-49 YEARS)**

	Number /total	% (95% CI)
Currently enrolled in ANC programme	50/63	79.4% (67.1-91.7)
Currently receiving iron-folic acid pills	45/63	71.4% (58.5-84.3)

## 6.1.5 Food security (Nduta Refugee Camp)

**TABLE 130: FOOD SECURITY SAMPLING INFORMATION**

Household data	Planned	Actual	% of target
Total households surveyed for Food Security	245	273	111.4

### 6.1.5.1 Access to food assistance results

**TABLE 131: RATION CARD COVERAGE**

	Number/total	% (95% CI)
Proportion of households with a ration card	272/272	100%

**TABLE 132: REPORTED DURATION OF GENERAL FOOD RATION 1<sup>10</sup>**

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration*
17.3 (16.4-18.1) days out of 30 days	56.7%

**TABLE 133: REPORTED DURATION OF GENERAL FOOD RATION 2**

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	0/272	0%
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle [30DAYS]	258/272	94.9% (91.9-97.9)
>75% of the cycle [30 DAYS]	14/272	5.1% (2.1-8.2)

### 6.1.5.2 Negative coping strategies results (Nduta Refugee Camp)

**TABLE 134: COPING STRATEGIES USED BY THE SURVEYED POPULATION OVER THE PAST MONTH**

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items <i>with or without interest</i>	146/272	53.7% (38.8-68.5)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	51/272	18.7% (8.1-29.5)
Requested increased remittances or gifts as compared to normal	57/270	21.1% (12.9-29.3)
Reduced the quantity and/or frequency of meals	176/272	64.7% (47.8-81.6)
Begged	145/271	53.6% (37.7-69.3)
Engaged in potentially risky or harmful activities [STEALING/SMUGGLING, BREWING, PROSTITUTION]	80/271	29.5% (16.8-42.2)
Proportion of households reporting using none of the coping strategies over the past month	43/268	16.0% (11.9-21.0)

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

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

### 6.1.5.3 Household dietary diversity results (Nduta Refugee Camp)

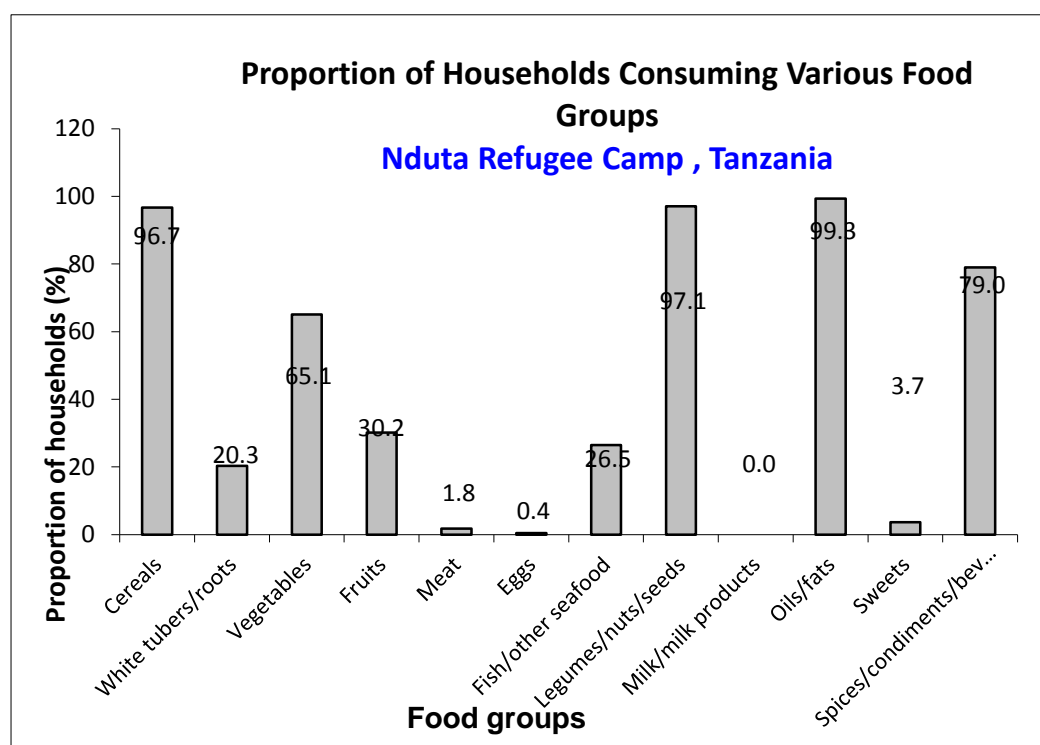
The last general food distribution ended [29] days prior to the start of the survey data collection. The survey was conducted during the annual lean season (dry season), during which the overall food availability is limited. It is hence likely that the household dietary diversity score is lower than it would be e.g. during the rainy season or after the harvest.

**TABLE 135: AVERAGE HDDS**

	Mean (Standard deviation or 95% CI)
Average HDDS	5.1 (4.5-5.6)

\* Maximum HDDS is 12.

**FIGURE 44: PROPORTION OF HOUSEHOLDS CONSUMING DIFFERENT FOOD GROUPS WITHIN LAST 24 HOURS**



**TABLE 136: CONSUMPTION OF MICRONUTRIENT RICH FOODS BY HOUSEHOLDS**

	Number/total	% (95% CI)
Proportion of households <i>not consuming any</i> vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	93/272	34.2% (21.2-47.1)
Proportion of households consuming either a plant or animal source of vitamin A	113/272	41.5% (28.4-54.7)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	74/272	27.2% (13.0-41.4)

## 6.1.6 WASH (Nduta Refugee Camp)

**TABLE 137: WASH SAMPLING INFORMATION**

Household data	Planned	Actual	% of target
Total households surveyed for WASH	490	510	104.1

**TABLE 138: WATER QUALITY**

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	502/510	98.4% (95.2-100.6)
Proportion of households that use a covered or narrow necked container for storing their drinking water	206/510	40.4% (26.1-54.7)

**TABLE 139: WATER QUANTITY: AMOUNT OF LITRES OF WATER USED PER PERSON PER DAY**

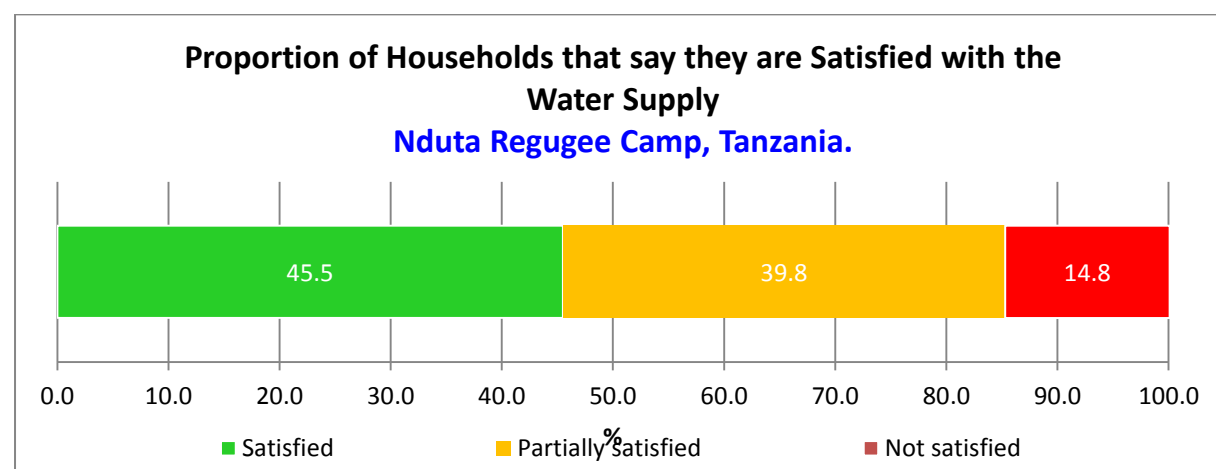
Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	209/510	41.0% (31.2-50.8)
15 – <20 lpppd	99/510	19.4% (14.7-24.1)
<15 lpppd	202/510	39.6% (29.7-49.6)

The average water usage in lppd was 18.8Litres (16.2-21.4 95% CI).

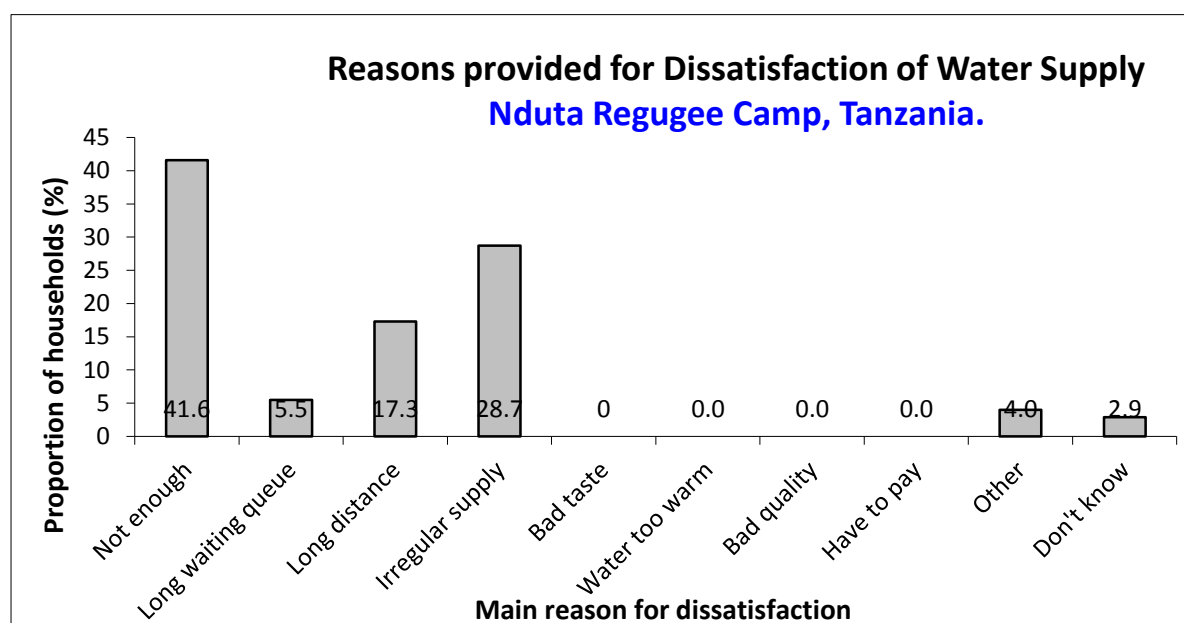
**TABLE 140: SATISFACTION WITH WATER SUPPLY**

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	231/508	45.5% (33.3-57.7)

**FIGURE 45: PROPORTION OF HOUSEHOLDS THAT SAY THEY ARE SATISFIED WITH THE WATER SUPPLY**



**FIGURE 46: MAIN REASON FOR DISSATISFACTION AMONG HOUSEHOLDS NOT SATISFIED WITH WATER SUPPLY**



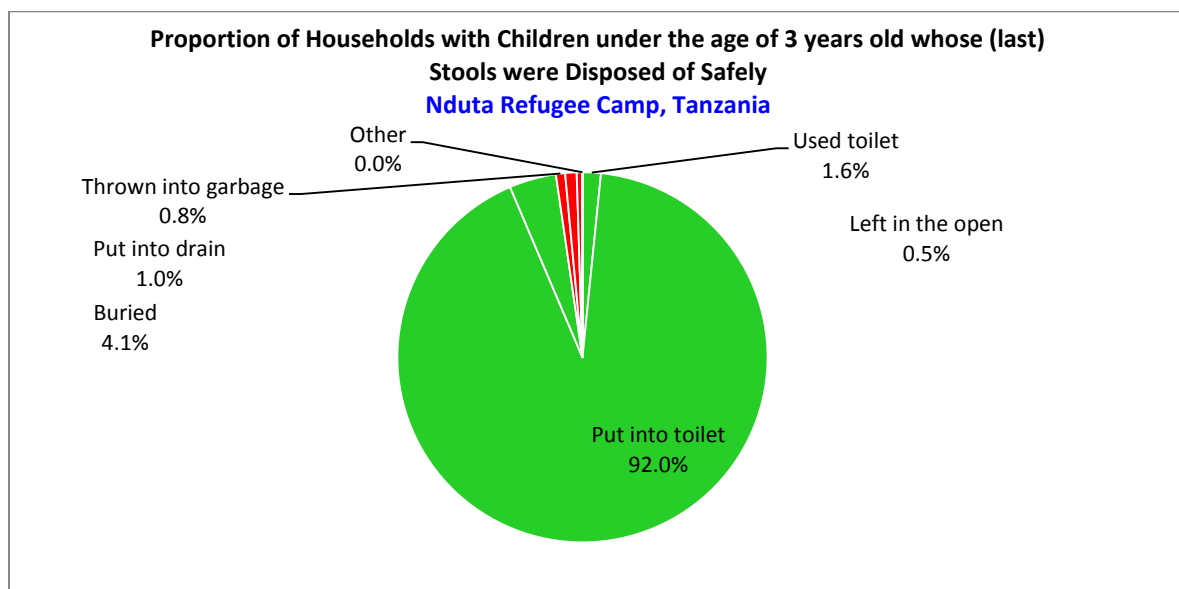
**TABLE 141: SAFE EXCRETA DISPOSAL**

	Number/total	% (95% CI)
<b>Proportion of households that use:</b>		
<b>An improved excreta disposal facility (improved toilet facility, 1 household)*, **</b>	163/510	32.0 (15.1-48.8)
<b>A shared family toilet (improved toilet facility, 2 households)**</b>	5/510	0.9% (0.0-2.6)
<b>A communal toilet (improved toilet facility, 3 households or more)</b>	2/510	0.4% (0.0-0.5)
<b>An unimproved toilet (unimproved toilet facility or public toilet)</b>	340/550	66.7% (49.3-84.0)
<b>Proportion of households with children under three years old that dispose of faeces safely</b>	379/388	97.7% (95.3-100.0)

\*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an **“improved excreta disposal facility”** as a toilet in the “improved” category **AND** one that is **not shared** with other families / households.

\*\*According to UNHCR WASH monitoring system, an **“improved excreta disposal facility”** is defined differently than in survey instruments and is defined as a toilet in the “improved” category **AND** one that is shared by a *maximum* of 2 families / households or no more than 12 *individuals*. Therefore, the following two categories from the SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility (improved toilet facility, 1 household)” and “shared family toilet (improved toilet facility, 2 households)”.

**FIGURE 47: PROPORTION OF HOUSEHOLDS WITH CHILDREN UNDER THE AGE OF 3 YEARS WHO'S (LAST) STOOLS WERE DISPOSED OF SAFELY**



### 3.7 Mosquito Net Coverage (Nduta Refugee Camp)

**TABLE 142: MOSQUITO NET COVERAGE SAMPLING INFORMATION**

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	245	273	111.4%

**TABLE 143: HOUSEHOLD MOSQUITO NET OWNERSHIP**

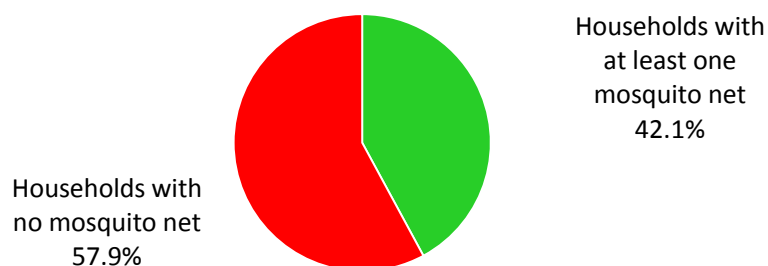
	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	115/273	42.1% (33.4-50.8)
Proportion of total households owning at least one LLIN	111/273	40.7% (32.0-49.3)

**FIGURE 48: HOUSEHOLD OWNERSHIP OF AT LEAST ONE MOSQUITO NET (ANY TYPE)**



**Proportion of Households with at least one Mosquito Net  
(any type)**

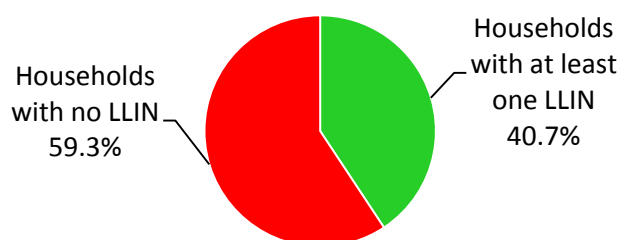
**Nduta Refugee Camp, Tanzania.**



**FIGURE 49: HOUSEHOLD OWNERSHIP OF AT LEAST ONE LLIN**

**Proportion of Households with at least one LLIN**

**Nduta Refugee Camp, Tanzania.**



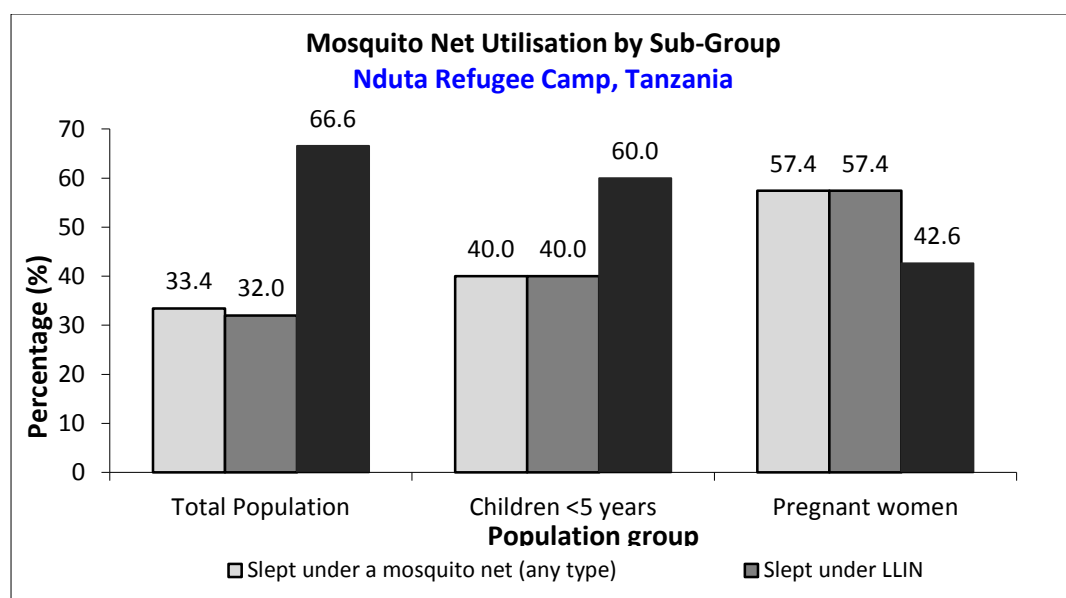
**TABLE 144: NUMBER OF NETS**

Average number of LLINs per household	Average number of persons per LLIN
1.4	8.7

**TABLE 145: MOSQUITO NET UTILISATION. NOTE THAT IT IS NOT REQUIRED TO INCLUDE CONFIDENCE INTERVALS FOR THESE INDICATORS AS THEY ARE COMPLEX TO CALCULATE**

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No=1354	%	Total No=360	%	Total No=61	%
Slept under net of any type	452	33.4%	No 144	40.0%	No 35	57.4%
Slept under LLIN	433	32.0%	No 143	39.2%	No 35	57.4%

**FIGURE 50: MOSQUITO NET UTILISATION BY SUB-GROUP**



## 7 Results (Mtendeli Camp)

**TABLE 146: DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION**

Total households surveyed	481
Total population surveyed	2541
Total U5 surveyed	559
Average household size	5.2
% of U5	21.9%

### 7.1.1 Anthropometry and Health; Children 6-59 months (Mtendeli Camp)

#### 7.1.1.1 Sample size and clusters

**TABLE 147: TARGET AND ACTUAL NUMBER CAPTURED**

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	362	559	154%
Clusters (where applicable)	30	30	100%

**TABLE 148 CHILDREN 6-59 MONTHS - DISTRIBUTION OF AGE AND SEX OF SAMPLE**

	Boys		Girls		Total		Ratio
AGE (mo.)	no.	%	no.	%	no.	%	Boy: Girl
6-17 months	79	51.6	74	48.4	153	27.4	1.1
18-29 months	74	59.2	51	40.8	125	22.4	1.5
30-41 months	72	54.1	61	45.9	133	23.8	1.2
42-53 months	51	54.3	43	45.7	94	16.8	1.2
54-59 months	30	55.6	24	44.4	54	9.7	1.3

<b>Total</b>	306	54.7	253	45.3	559	100.0	1.2
--------------	-----	------	-----	------	-----	-------	-----

### 7.1.1.2 Anthropometric results (based on WHO Growth Standards 2006)

**TABLE 149** PREVALENCE OF ACUTE MALNUTRITION BASED ON WEIGHT-FOR-HEIGHT Z-SCORES

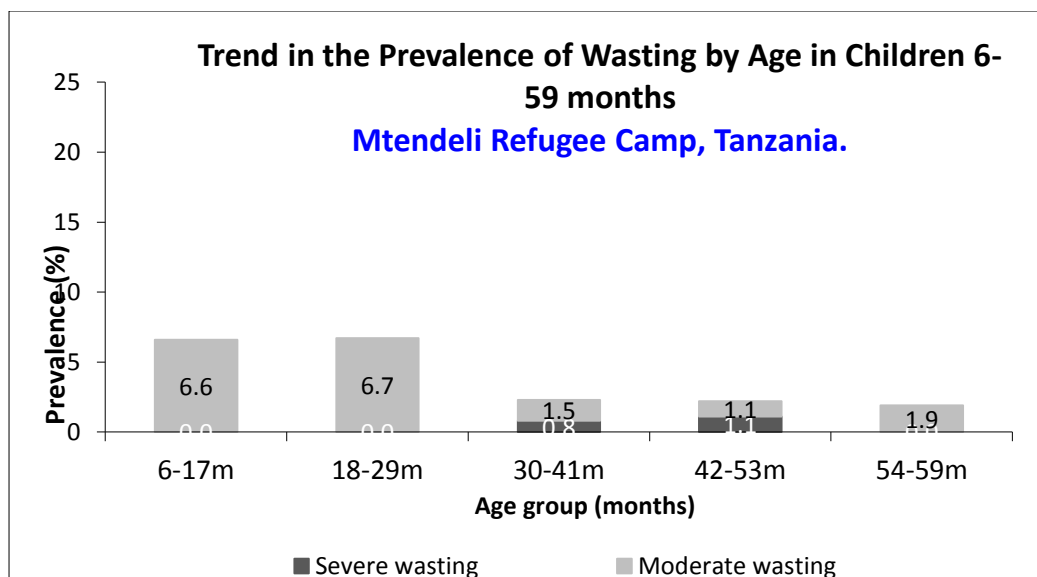
	<b>All</b> n = 549	<b>Boys</b> n = 301	<b>Girls</b> n = 248
<b>Prevalence of global malnutrition (<math>&lt;-2</math> z-score and/or oedema)</b>	(24) 4.4 % (2.7 - 6.9 95% C.I.)	(15) 5.0 % (2.6 - 9.4 95% C.I.)	(9) 3.6 % (1.8 - 7.2 95% C.I.)
<b>Prevalence of moderate malnutrition (<math>&lt;-2</math> z-score and <math>\geq -3</math> z-score, no oedema)</b>	(22) 4.0 % (2.6 - 6.2 95% C.I.)	(13) 4.3 % (2.3 - 8.1 95% C.I.)	(9) 3.6 % (1.8 - 7.2 95% C.I.)
<b>Prevalence of severe malnutrition (<math>&lt;-3</math> z-score and/or oedema)</b>	(2) 0.4 % (0.1 - 1.5 95% C.I.)	(2) 0.7 % (0.2 - 2.7 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

The prevalence of oedema is 0.0%

**TABLE 150:** PREVALENCE OF ACUTE MALNUTRITION BY AGE, BASED ON WEIGHT-FOR-HEIGHT Z-SCORES AND/OR OEDEMA

		<b>Severe wasting (<math>&lt;-3</math> z-score)</b>		<b>Moderate wasting (<math>\geq -3</math> and <math>&lt;-2</math> z- score )</b>		<b>Normal (<math>\geq -2</math> z score)</b>		<b>Oedema</b>	
<b>Age (mo)</b>	<b>Total no.</b>	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>
<b>6-17</b>	151	0	0.0	10	6.6	141	93.4	0	0.0
<b>18-29</b>	120	0	0.0	8	6.7	112	93.3	0	0.0
<b>30-41</b>	133	1	0.8	2	1.5	130	97.7	0	0.0
<b>42-53</b>	91	1	1.1	1	1.1	89	97.8	0	0.0
<b>54-59</b>	54	0	0.0	1	1.9	53	98.1	0	0.0
<b>Total</b>	549	2	0.4	22	4.0	525	95.6	0	0.0

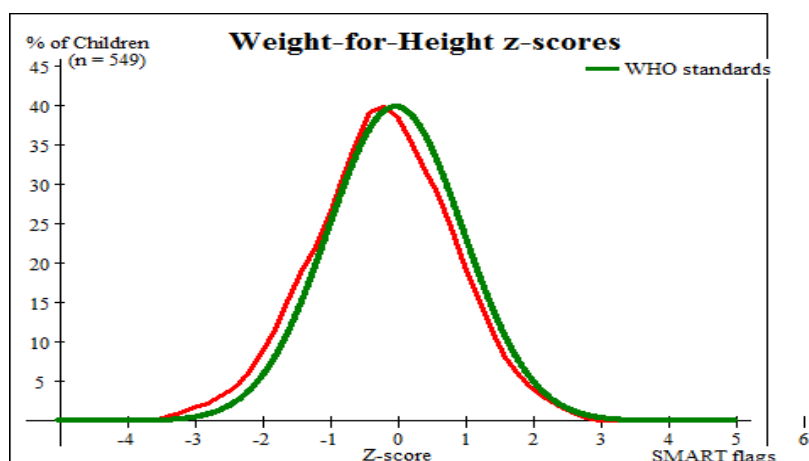
**FIGURE 51** TREND IN THE PREVALENCE OF WASTING BY AGE IN CHILDREN 6-59 MONTHS



**TABLE 151:** DISTRIBUTION OF SEVERE ACUTE MALNUTRITION AND OEDEMA BASED ON WEIGHT-FOR-HEIGHT Z-SCORES (THIS TABLE IS AUTOMATICALLY GENERATED BY ENA FOR SMART SOFTWARE)

	<-3 z-score	>=-3 z-score
<b>Oedema present</b>	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
<b>Oedema absent</b>	Marasmic No. 7 (1.3 %)	Not severely malnourished No. 552 (98.7 %)

**FIGURE 52:** DISTRIBUTION OF WEIGHT-FOR-HEIGHT Z-SCORES (BASED ON WHO GROWTH STANDARDS; THE REFERENCE POPULATION IS SHOWN IN GREEN AND THE SURVEYED POPULATION IS SHOWN IN RED) OF SURVEY POPULATION COMPARED TO REFERENCE POPULATION



**TABLE 152:** PREVALENCE OF MUAC MALNUTRITION

	All n = 559	Boys n = 306	Girls n = 253
--	----------------	-----------------	------------------

Prevalence of MUAC < 125 mm and/or oedema	(22) 3.9 % (2.3 - 6.6 95% C.I.)	(8) 2.6 % (1.3 - 5.4 95% C.I.)	(14) 5.5 % (2.6 - 11.2 95% C.I.)
Prevalence of MUAC < 125 mm and ≥ 115 mm, no oedema	(20) 3.6 % (2.0 - 6.3 95% C.I.)	(8) 2.6 % (1.3 - 5.4 95% C.I.)	(12) 4.7 % (2.0 - 10.7 95% C.I.)
Prevalence MUAC < 115 mm and/or oedema	(2) 0.4 % (0.1 - 1.5 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(2) 0.8 % (0.2 - 3.3 95% C.I.)

**153: PREVALENCE OF MUAC MALNUTRITION BY AGE, BASED ON MUAC CUT OFF'S AND/OR OEDEMA**

Age (mo.)	Total no.	MUAC < 115 mm		MUAC ≥ 115 mm and < 125 mm		MUAC ≥ 125 mm		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	153	2	1.3	10	6.5	141	92.2	0	0.0
18-29	125	0	0.0	8	6.4	117	93.6	0	0.0
30-41	133	0	0.0	2	1.5	131	98.5	0	0.0
42-53	94	0	0.0	0	0.0	94	100.0	0	0.0
54-59	54	0	0.0	0	0.0	54	100.0	0	0.0
Total	559	2	0.4	20	3.6	537	96.1	0	0.0

**TABLE 154: PREVALENCE OF UNDERWEIGHT BASED ON WEIGHT-FOR-AGE Z-SCORES BY SEX**

	All n = 554	Boys n = 304	Girls n = 250
Prevalence of underweight (<-2 z-score)	(136) 24.5 % (20.1 - 29.6 95% C.I.)	(75) 24.7 % (19.6 - 30.5 95% C.I.)	(61) 24.4 % (19.0 - 30.8 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and ≥-3 z-score)	(112) 20.2 % (16.1 - 25.1 95% C.I.)	(61) 20.1 % (15.1 - 26.1 95% C.I.)	(51) 20.4 % (15.1 - 27.0 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(24) 4.3 % (3.0 - 6.2 95% C.I.)	(14) 4.6 % (2.9 - 7.3 95% C.I.)	(10) 4.0 % (1.9 - 8.4 95% C.I.)

**TABLE 155: PREVALENCE OF STUNTING BASED ON HEIGHT-FOR-AGE Z-SCORES AND BY SEX**

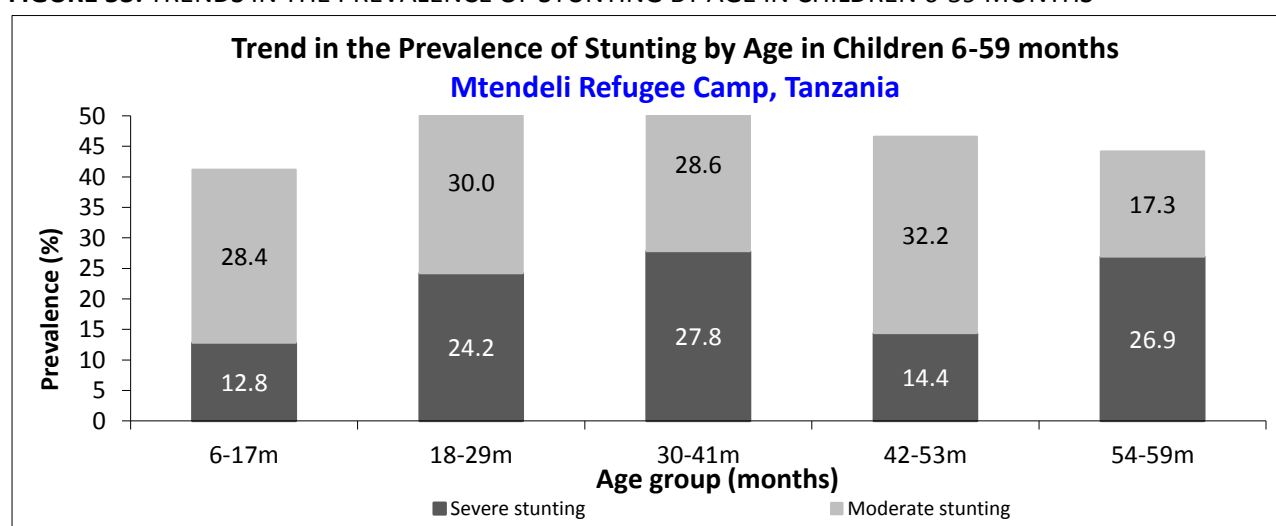
	All n = 543	Boys n = 297	Girls n = 246
Prevalence of stunting (<-2 z-score)	(266) 49.0 % (43.0 - 55.0 95% C.I.)	(148) 49.8 % (42.3 - 57.3 95% C.I.)	(118) 48.0 % (40.1 - 55.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥-3 z-score)	(154) 28.4 % (25.0 - 32.0 95% C.I.)	(87) 29.3 % (24.6 - 34.4 95% C.I.)	(67) 27.2 % (21.2 - 34.3 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(112) 20.6 % (16.0 - 26.2 95% C.I.)	(61) 20.5 % (15.1 - 27.2 95% C.I.)	(51) 20.7 % (14.3 - 29.0 95% C.I.)

**TABLE 156: PREVALENCE OF STUNTING BY AGE BASED ON HEIGHT-FOR-AGE Z-SCORES**

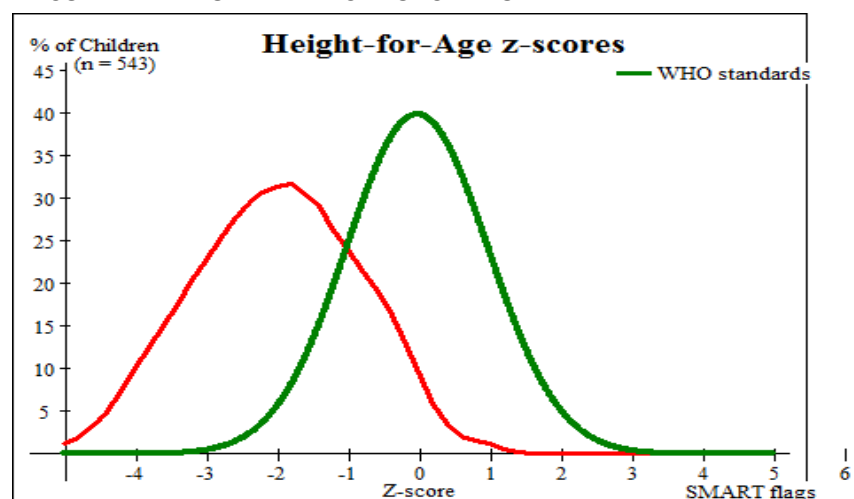
	Severe stunting	Moderate stunting	Normal
--	-----------------	-------------------	--------

Age (mo.)	Total no.	(<-3 z-score)		(>= -3 and <-2 z-score )		(> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	148	19	12.8	42	28.4	87	58.8
18-29	120	29	24.2	36	30.0	55	45.8
30-41	133	37	27.8	38	28.6	58	43.6
42-53	90	13	14.4	29	32.2	48	53.3
54-59	52	14	26.9	9	17.3	29	55.8
Total	543	112	20.6	154	28.4	277	51.0

**FIGURE 53: TRENDS IN THE PREVALENCE OF STUNTING BY AGE IN CHILDREN 6-59 MONTHS**



**FIGURE 54: DISTRIBUTION OF HEIGHT-FOR-AGE Z-SCORES (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**



**TABLE 157: MEAN Z-SCORES, DESIGN EFFECTS AND EXCLUDED SUBJECTS**

Indicator	n	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	549	-0.21 $\pm$ 1.01	1.31	76	10
Weight-for-Age	554	-1.28 $\pm$ 1.02	1.59	76	5

Height-for-Age	543	-2.00±1.15	1.88	76	16
----------------	-----	------------	------	----	----

\* contains for WHZ and WAZ the children with oedema.

### 7.1.1.3 Feeding programme coverage results (Mtendeli Camp)

**TABLE 158: PROGRAMME COVERAGE FOR ACUTELY MALNOURISHED CHILDREN**

	Number/total	% (95% CI)
<b>Supplementary feeding programme coverage</b> Based on all admission criteria (MUAC, WHZ)	22/32	68.8% (48.9)
<b>Supplementary feeding programme coverage</b> Based on MUAC only	15/20	75.0% (55.9-94.1)
<b>Therapeutic feeding programme coverage</b> Based on all admission criteria (MUAC, WHZ)	1/3	33.3% (0.0-100.0)
<b>Therapeutic feeding programme coverage</b> Based on MUAC only	1/2	50.0% (0.0-100.0)

### 7.1.1.4 Measles vaccination coverage results

**TABLE 159: MEASLES VACCINATION COVERAGE FOR CHILDREN AGED 9-59 MONTHS (OR OTHER CONTEXT-SPECIFIC TARGET GROUP) (N=513)**

	<b>Measles (with card) n=233</b>	<b>Measles (with card <u>or</u> confirmation from mother) n=438</b>
<b>YES</b>	45.4% (34.0-56.8 95% CI)	85.4 % (73.8-97.0 95% CI)

### 7.1.1.5 Vitamin A supplementation coverage results

**TABLE 160: VITAMIN A SUPPLEMENTATION FOR CHILDREN AGED 6-59 MONTHS WITHIN PAST 6 MONTHS (OR OTHER CONTEXT-SPECIFIC TARGET GROUP) (N=559)**

	<b>Vitamin A capsule (with card) n=351</b>	<b>Vitamin A capsule (with card <u>or</u> confirmation from mother) n=528</b>
<b>YES</b>	62.8 % (50.6-74.9 95% CI)	91.1 % (94.5-97.8 95% CI)

### 7.1.1.6 Diarrhoea results

**TABLE 161: PERIOD PREVALENCE OF DIARRHOEA**

	Number/total	% (95% CI)
<b>Diarrhoea in the last two weeks</b>	87/559	15.6% (9.8-21.3)

### 7.1.2 Anaemia results

**TABLE 162: PREVALENCE OF TOTAL ANAEMIA, ANAEMIA CATEGORIES, AND MEAN HAEMOGLOBIN CONCENTRATION IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP**

	<b>6-59 months</b> n = 559	<b>6-23 months</b> n=221	<b>24-59 months</b> n=338
<b>Total Anemia (Hb&lt;11.0 g/dL)</b>	(232) 41.5% (37.3-45.8 95% CI)	(115) 52.0% (45.9-58.2 95% CI)	(117) 24.6% (29.8-39.5 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(138) 24.7% (21.6-27.8 95% CI)	(67) 30.3% (24.9-35.7 95% CI)	(71) 21.0 % (17.5-24.5 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(92) 16.5% (13.5-19.5 95% CI)	(47) 21.3% (15.8-26.8 95% CI)	(45) 13.3% (10.0-16.7 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(2) 0.4% (0.0-0.9 95% CI)	(1) 0.5% (0.0-1.4 95% CI)	(1) 0.3% (0-0.9 95% CI)
<b>Mean Hb (g/dL)</b> <b>(SD / 95% CI)</b> <b>[range]</b>	11.1/dL (11.0-11.2 95% CI) [min 6.3, max 14.2]	10.8g/dL (10.6-11.0 95% CI) [min 6.4, max 13.9]	11.2g/dL (11.1-11.4 95% CI) [min 6.3, max 14.2]

**TABLE 163: PREVALENCE OF MODERATE AND SEVERE ANAEMIA IN CHILDREN 6-59 MONTHS OF AGE AND BY AGE GROUP**

	<b>6-59 months</b> n = 559	<b>6-23 months</b> n=221	<b>24-59 months</b> n=338
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(94) 16.8 % (13.8-20.0 95% CI)	(48) 21.7% (16.0-27.4 95% CI)	(46) 13.6% (10.3-17.0 95% CI)

### 7.1.3 Children 0-23 months

**TABLE 164: PREVALENCE OF INFANT AND YOUNG CHILD FEEDING PRACTICES INDICATORS**

<b>Indicator</b>	<b>Age range</b>	<b>Number/ total</b>	<b>Prevalence (%)</b>	<b>95% CI</b>
<b>Timely initiation of breastfeeding</b>	<b>0-23 months</b>	249/294	84.7%	78.0-91.3
<b>Exclusive breastfeeding under 6 months</b>	<b>0-5 months</b>	64/76	84.2%	74.8-93.7
<b>Continued breastfeeding at 1 year</b>	<b>12-15 months</b>	40/44	90.9%	82.2-99.7
<b>Continued breastfeeding at 2 years</b>	<b>20-23 months</b>	24/43	55.8%	38.6-73.0
<b>Introduction of solid, semi-solid or soft foods</b>	<b>6-8 months</b>	37/45	82.2%	71.6-92.9
<b>Consumption of iron-rich or iron-fortified foods</b>	<b>6-23 months</b>	208/218	95.4%	92.3-98.5
<b>Bottle feeding</b>	<b>0-23 months</b>	3/294	1.0%	0.0-2.2

#### 7.1.3.1Prevalence of intake (Mtendeli Camp)

##### Infant formula



**TABLE 165: INFANT FORMULA INTAKE IN CHILDREN AGED 0-23 MONTHS**

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	0/296	0%

### Fortified blended foods

**TABLE 166: FBF INTAKE IN CHILDREN AGED 6-23 MONTHS [PRODUCT TO BE ADAPTED: THE FBF MAY BE CSB+ FOR EXAMPLE; DO NOT INCLUDE TABLE IF NO FBF DISTRIBUTED]**

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	112/220	50.9% (33.2-68.6)

**TABLE 167 FBF++ INTAKE IN CHILDREN AGED 6-23 MONTHS [PRODUCT TO BE ADAPTED: THE FBF++ MAY BE CSB++ FOR EXAMPLE; DO NOT INCLUDE TABLE IF NO FBF++ DISTRIBUTED]**

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	203/220	92.3% (88.2-96.3)

### Special nutritional products

**TABLE 168: MNP INTAKE IN CHILDREN AGED 6-23 MONTHS [PRODUCT TO BE ADAPTED: THE MNP MAY HAVE A SPECIFIC NAME; DO NOT INCLUDE TABLE IF NO MNP DISTRIBUTED]**

	Number/total	% (95% CI)
Proportion of children aged >24 months who receive MNP	301/338	89.1% (83.2-94.9)

## 7.1.4 Women 15-49 years (Mtendeli Camp)

**TABLE 169 WOMEN PHYSIOLOGICAL STATUS AND AGE**

Physiological status	Number/total	% of sample
Non-pregnant	169/215	78.6%
Pregnant	46/215	82.1%
Mean age (range)	26.8 Yrs. (15-49)	

**TABLE 170: PREVALENCE OF ANAEMIA AND HAEMOGLOBIN CONCENTRATION IN NON-PREGNANT WOMEN OF REPRODUCTIVE AGE (15-49 YEARS)**

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 216
Total Anaemia (<12.0 g/dL)	(68) 31.5% (25.5-37.5 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(40) 18.5% (13.2-23.9 95% CI)

<b>Moderate Anaemia (8.0-10.9 g/dL)</b>	(27) 12.5% (7.4-17.6 95% CI)
<b>Severe Anaemia (&lt;8.0 g/dL)</b>	(1) 0.5% (0.0-1.4 95% CI)
<b>Mean Hb (g/dL)</b> <b>(SD / 95% CI)</b> <b>[range]</b>	12.6g/dL (12.4-12.7 95% CI) [min 7.9, max 17.5]

**TABLE 171: ANC ENROLMENT AND IRON-FOLIC ACID PILLS COVERAGE AMONG PREGNANT WOMEN (15-49 YEARS)**

	<b>Number /total</b>	<b>% (95% CI)</b>
<b>Currently enrolled in ANC programme</b>	32/45	71.1% (57.1-85.2)
<b>Currently receiving iron-folic acid pills</b>	28/45	62.2% (49.2-75.2)

## 7.1.5 Food security (Mtendeli Camp)

**TABLE 172: FOOD SECURITY SAMPLING INFORMATION**

<b>Household data</b>	<b>Planned</b>	<b>Actual</b>	<b>% of target</b>
Total households surveyed for Food Security	224	242	108.3

### 7.1.5.1 Access to food assistance results (Mtendeli Camp)

**TABLE 173: RATION CARD COVERAGE**

	<b>Number/total</b>	<b>% (95% CI)</b>
<b>Proportion of households with a ration card</b>	242/242	100%

**TABLE 174: REPORTED DURATION OF GENERAL FOOD RATION 1<sup>11</sup>**

<b>Average number of days the food ration lasts</b> <b>(Standard deviation or 95% CI)</b>	<b>Average duration (%) in relation to the</b> <b>theoretical duration of the ration*</b>
15.8 (15.2-16.4) days	52.7%

**TABLE 175: REPORTED DURATION OF GENERAL FOOD RATION 2**

	<b>Number/total</b>	<b>% (95% CI)</b>
--	---------------------	-------------------

<sup>11</sup> In contexts where a mix of full rations and half rations are given, only report this value for the households receiving the full ration.

Proportion of households reporting that the food ration lasts the entire duration of the cycle	0/161	0%
Proportion of households reporting that the food ration lasted:		
≤75% of the cycle [INSERT DAYS]	155/161	96.3% (93.6-99.0)
>75% of the cycle [INSERT DAYS]	6/161	3.7% (1.0-6.4)

### 7.1.5.2 Negative coping strategies results (Mtendeli Camp)

**TABLE 176: COPING STRATEGIES USED BY THE SURVEYED POPULATION OVER THE PAST MONTH**

	Number/total	% (95% CI)
<b>Proportion of households reporting using the following coping strategies over the past month*:</b>		
Borrowed cash, food or other items <i>with or without interest</i>	137/242	56.6% (41.4-71.8)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	44/242	18.2% (8.7-27.7)
Requested increased remittances or gifts as compared to normal	60/240	25.0% (14.6-35.4)
Reduced the quantity and/or frequency of meals	160/242	66.1% (48.4-83.8)
Begged	136/242	56.2% (42.5-69.9)
Engaged in potentially risky or harmful activities [SMUGGLING, BREWING,]	63/241	26.1% (14.0-38.3)
<b>Proportion of households reporting using none of the coping strategies over the past month</b>	38/239	15.9% (11.5-21.2)

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

### 7.1.5.3 Household dietary diversity results

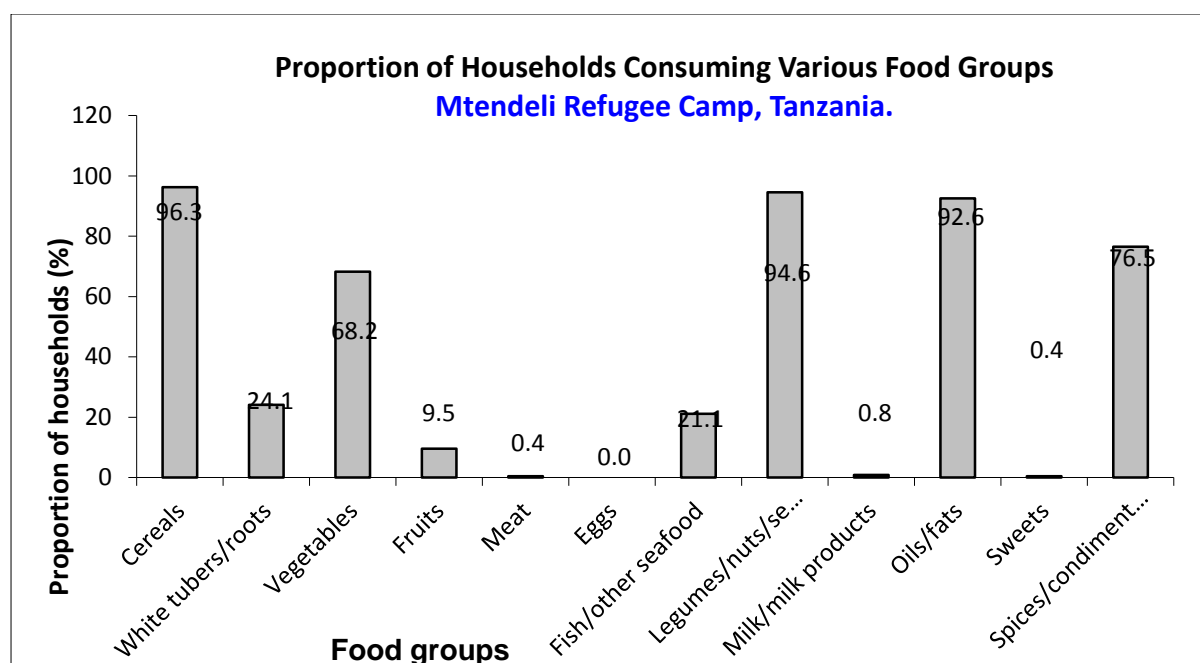
The last general food distribution ended [5] days prior to the start of the survey data collection. The survey was conducted during the annual lean season (Dry season), during which the overall food availability is limited. It is hence likely that the household dietary diversity score is lower than it would be e.g. during the rainy season and after the harvest. The reduction of monthly ration could have affected the diversity too.

**TABLE 177 AVERAGE HDDS**

	Mean (Standard deviation or 95% CI)
Average HDDS	4.8 (4.3-5.3)

\* Maximum HDDS is 12.

**FIGURE 55 PROPORTION OF HOUSEHOLDS CONSUMING DIFFERENT FOOD GROUPS WITHIN LAST 24 HOURS**



**TABLE 178: CONSUMPTION OF MICRONUTRIENT RICH FOODS BY HOUSEHOLDS**

	Number/total	% (95% CI)
Proportion of households <i>not consuming any</i> vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	75/242	31.0% (20.1-41.9)
Proportion of households consuming either a plant or animal source of vitamin A	115/242	47.5% (35.6-59.4)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	51/242	21.1% (7.7-34.4)

## 7.1.6 WASH (Mtendeli Camp)

**TABLE 179: WASH SAMPLING INFORMATION**

Household data	Planned	Actual	% of target
Total households surveyed for WASH	447	481	107.6

**TABLE 180: WATER QUALITY**

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	475/481	98.8% (96.2-100.0)
Proportion of households that use a covered or narrow necked container for storing their drinking water	242/481	50.3% (35.2-65.5)

**TABLE 181: WATER QUANTITY: AMOUNT OF LITRES OF WATER USED PER PERSON PER DAY**

Proportion of households	Number/total	% (95% CI)
--------------------------	--------------	------------

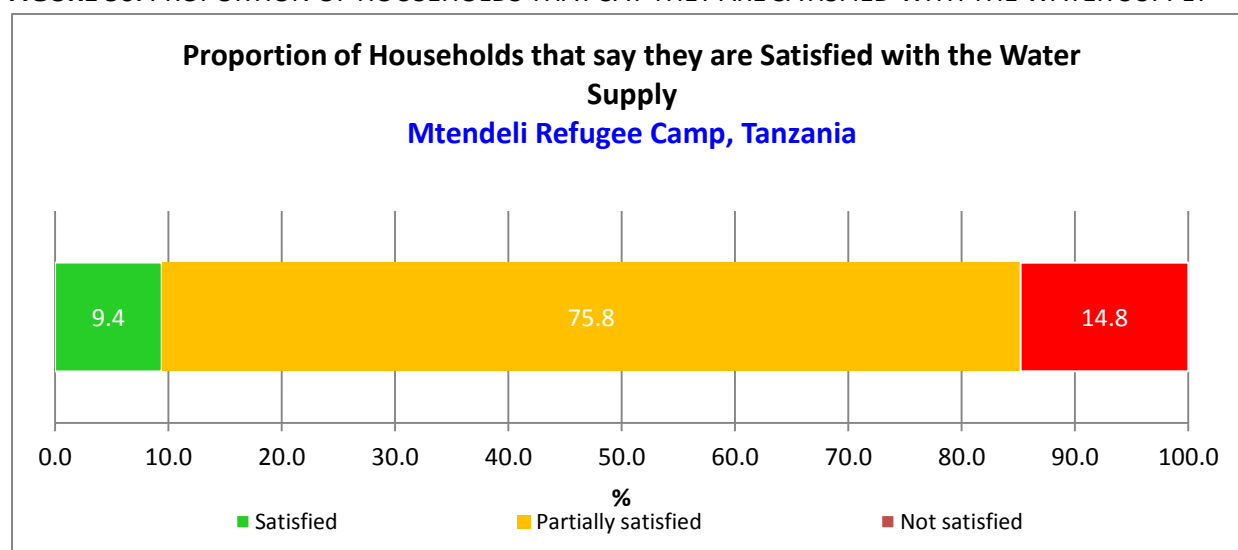
that use:		
≥ 20 lpppd	117/480	24.4% (15.3-33.4)
15 – <20 lpppd	56/480	11.7% (7.1-16.2)
<15 lpppd	307/480	64.0% (52.1-75.8)

The average water usage in lppd is 14.2 litres (11.7-16.7 95% CI).

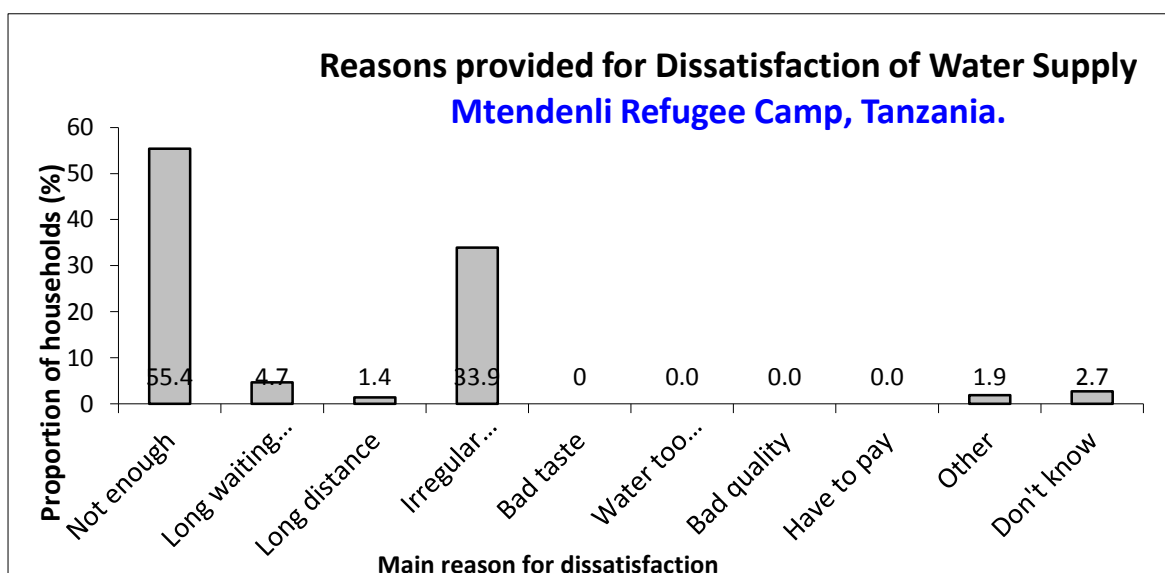
**TABLE 182: SATISFACTION WITH WATER SUPPLY**

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	45/479	9.4% (5.3-13.5)

**FIGURE 56: PROPORTION OF HOUSEHOLDS THAT SAY THEY ARE SATISFIED WITH THE WATER SUPPLY**



**FIGURE 57: MAIN REASON FOR DISSATISFACTION AMONG HOUSEHOLDS NOT SATISFIED WITH WATER SUPPLY.**



**TABLE 183: SAFE EXCRETA DISPOSAL**

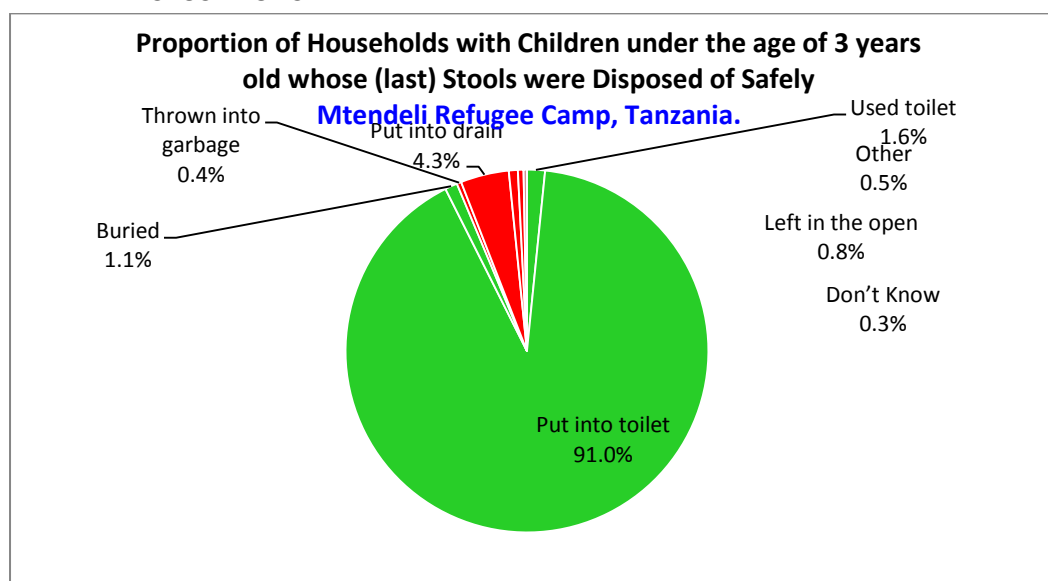
	Number/total	% (95% CI)
Proportion of households that use:		

An improved excreta disposal facility (improved toilet facility, 1 household)*, **	123/480	25.6% (10.9-40.4)
A shared family toilet (improved toilet facility, 2 households)**	10/480	2.1% (0.0-4.4)
A communal toilet (improved toilet facility, 3 households or more)	6/480	1.3% (0.0-3.0)
An unimproved toilet (unimproved toilet facility or public toilet)	341/480	71.0% (55.1-86.9)
<b>Proportion of households with children under three years old that dispose of faeces safely</b>	<b>347/370</b>	<b>93.8% (88.1-99.4)</b>

\*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an “improved excreta disposal facility” as a toilet in the “improved” category **AND** one that is **not shared** with other families / households.

\*\*According to UNHCR WASH monitoring system, an “improved excreta disposal facility” is defined differently than in survey instruments and is defined as a toilet in the “improved” category **AND** one that is shared by a *maximum* of 2 families / households or no more than 12 individuals. Therefore, the following two categories from the SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility (improved toilet facility, 1 household)” and “shared family toilet (improved toilet facility, 2 households)”.

**FIGURE 58 PROPORTION OF HOUSEHOLDS WITH CHILDREN UNDER THE AGE OF 3 YEARS WHOSE (LAST) STOOLS WERE DISPOSED OF SAFELY**



### 7.1.7 Mosquito Net Coverage (Mtendeli Camp)

**TABLE 184: MOSQUITO NET COVERAGE SAMPLING INFORMATION**

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	224	246	110.1%

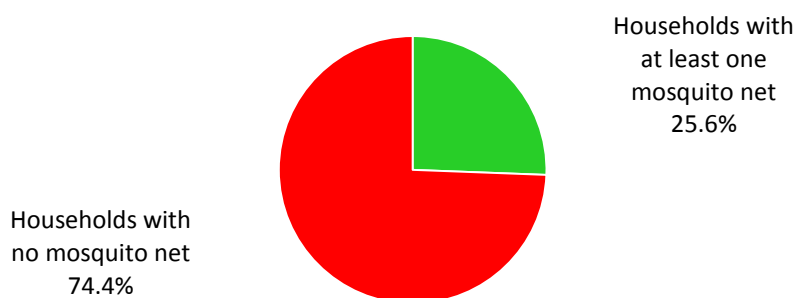
**TABLE 185: HOUSEHOLD MOSQUITO NET OWNERSHIP**

	Number/total	% (95% CI)
Proportion of total households owning at least one mosquito net of any type	63/246	25.6% (15.5-35.7)
Proportion of total households owning at least one LLIN	62/246	25.2% (15.0-35.3)

**FIGURE 59: HOUSEHOLD OWNERSHIP OF AT LEAST ONE MOSQUITO NET (ANY TYPE)**

**Proportion of Households with at least one Mosquito Net  
(any type)**

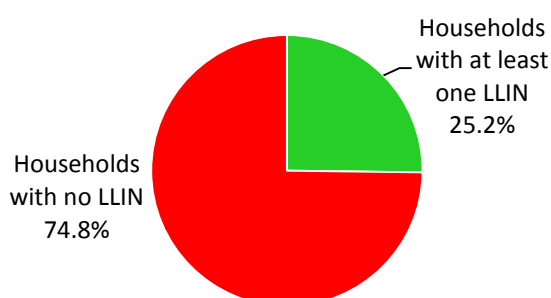
**Mtendeli Refugee Camp, Tanzania.**



**FIGURE 60** HOUSEHOLD OWNERSHIP OF AT LEAST ONE LLIN

**Proportion of Households with at least one LLIN**

**Mtendeli Refugee Camp, Tanzania.**



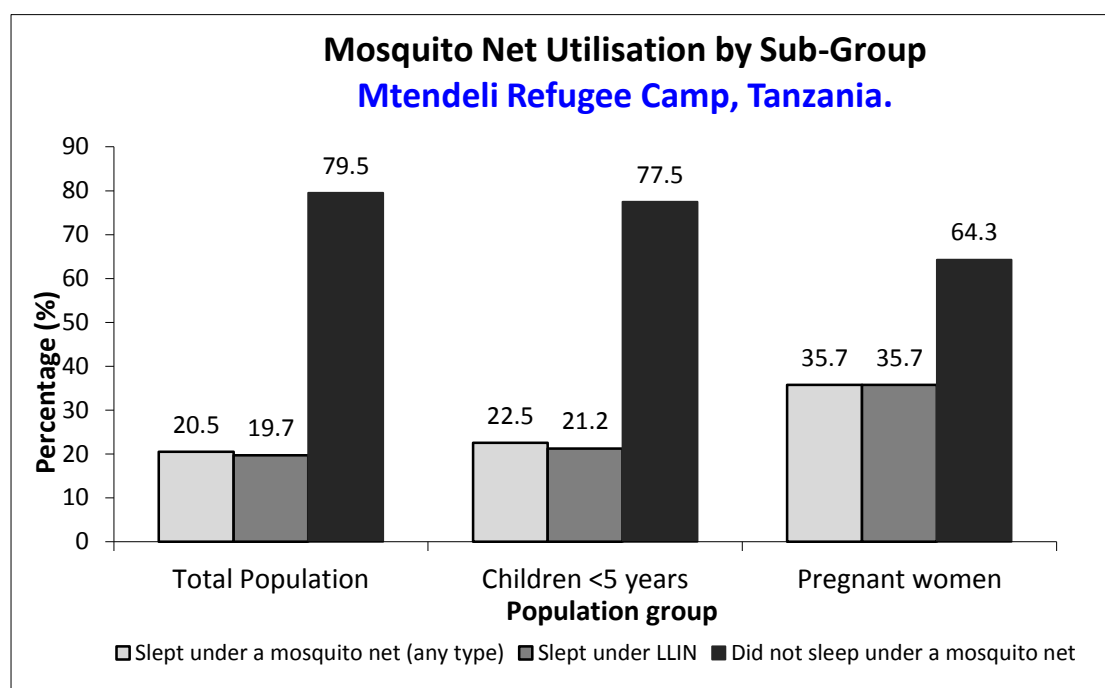
**TABLE 186:** NUMBER OF NETS

Average number of LLINs per household	Average number of persons per LLIN
0.4	14.1

**TABLE 187:** MOSQUITO NET UTILISATION. NOTE THAT IT IS NOT REQUIRED TO INCLUDE CONFIDENCE INTERVALS FOR THESE INDICATORS AS THEY ARE COMPLEX TO CALCULATE

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No=1320	%	Total No=338	%	Total No=42	%
Slept under net of any type	No 270	20.5%	No 76	22.5%	No 15	35.7%
Slept under LLIN	No 266	19.7%	No 75	21.2%	No 15	35.7%

**FIGURE 61: MOSQUITO NET UTILISATION BY SUB-GROUP**



## 8 Limitations

- Repatriation started while preparing for the survey in Nduta and Mtendeli camp, the repatriated household were few compared to the size of the camps. During house marking prior to data collection, household that were empty or earmarked for repatriation were excluded sampling frame for the second stage sampling.
- **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 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.
- **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.
- **Selective feeding programme coverage;** The SENS methodology provides an enrolment coverage indicator based on the identified number of children enrolled in the nutrition programmes. The results should be interpreted with caution and where needed a proper coverage assessment should be conducted to get the accurate coverage and also the factors affecting low coverage.



## 9 Discussion

	Nyarugusu Old Camp		Nyarugusu old camp		Nduta		Mtendeli	
	z-score/or oedema) n = 466	MUAC/or oedema N=473	z-score/or oedema) n = 421	MUAC/or oedema n = 423	z-score/or oedema) n = 559	MUAC/or oedema n = 568	z-score/or oedema) n = 549	MUAC/or oedema n = 559
<b>GAM</b>	(10) 2.1 % (1.2 - 3.8.)	(14) 3.0 % (1.8 - 4.7)	(10) 2.4 % (1.2 - 4.5.)	(18) 4.3 % (2.6 - 6.9)	(34) 6.1 % (4.1 - 9.0.)	(24) 4.2 % (2.6 - 6.8)	(24) 4.4 % (2.7 - 6.9)	(22) 3.9 % (2.3 - 6.6)
<b>MAM</b>	(9) 1.9 % (1.0 - 3.6)	(9) 1.9 % (1.0 - 3.7)	(10) 2.4 % (1.2 - 4.5)	(16) 3.8 % (2.2 - 6.4 95)	(31) 5.5 % (3.5 - 8.6)	(19) 3.3 % (1.9 - 5.9)	(22) 4.0 % (2.6 - 6.2)	(20) 3.6 % (2.0 - 6.3 )
<b>SAM</b>	(1) 0.2 % (0.0 - 1.7)	(5) 1.1 % (0.4 - 2.9)	(0) 0.0 % (0.0 - 0.0 )	(2) 0.5 % (0.1 - 3.5.)	(3) 0.5 % (0.1 - 2.4)	(5) 0.9 % (0.4 - 2.0)	(2) 0.4 % (0.1 - 1.5)	(2) 0.4 % (0.1 - 1.5 )

### 9.1 Nutritional status of young children

The overall age sex ratio of the anthropometric data is 1.0 for boys and girls of all ages, this shows that both sexes were equally represented in the survey.

The prevalence of Global acute malnutrition in Nduta camp has statistically significantly trebled ( $P=0.000$ ) from 2.4% to 6.1% compared to SENS 2016 and now indicating POOR nutrition situation as per WHO classifications. The GAM prevalence among children aged 6-59 months increased from 1.0% and 3.5% to 2.1% and 4.4% in Nyarugusu and Mtendeli camps, however, the increase is not statistically significantly and is within <5% WHO acceptable level threshold. The increase could be attributable to several factors e.g. the reduced ration starting in April (60% reduction), June (80% reduction) and reduced ration of 60% as of August 2017; Inadequate water and poor sanitation and hygiene in Nduta/Mtendeli refugee camps; relatively high morbidity among children under five (especially Malaria); low coverage of community mobilization activities especially in Nduta and Mtendeli where most of the acute malnourished children are not in programme; in addition to increased morbidity and poor health seeking practices in the two camps especially villages located at the peripheries. There is widespread sale of CSB and other food items reported to meet other needs.

In the coming months, possibly the nutrition situation may worsen given the funding challenges that may lead to continued reduction of food ration though in the long run, it might be mitigated by the outset of the rainy season; some of refugees are engaged in small scale agriculture activities. However, with the rainy season, morbidity incidences might spike especially malaria given the low coverage of LLIN. The community could be support with agricultural inputs and access to parcel of land to cultivate especially now that funding is dwindling in the region.

MUAC identified slightly more children with GAM compared with Z-Score in Nyarugusu, less in Nduta and Mtendeli camps. However, it identified more children with SAM in all the camps. The survey team realized most of children referred based on low MUAC were subjected to Z-score screening resulting in rejection of some cases. These double admission criteria could potentially discourage mothers from seeking timely nutrition services. Both MUAC and WfH are independent admissions criteria.

Based on recent studies, Weight-for-height and mid-upper-arm circumference should be used independently to diagnose acute malnutrition. The two criteria are not alternative measures of the loss of body tissue leading to an increased risk of death, but complementary variables that should both be used independently to guide admission for treatment of malnourished children. As they are additive and not complementary it would be prudent to retain both criteria for admission to treatment programs.

Table 188 : Comparison of WFH Z-score and MUAC in identification of wasting

Stunting or chronic malnutrition among children aged 6-59 months remains above the 40% of public health significance (critical) in all the camps (except in Nyarugusu old it has reduced from 44.0% to 39.6% in 2017, but not statistically significant). The stunting situation has remained critical in the last 4 years and is also indicative of the situation in the countries of origin of the refugee. 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.

The most affected age group are children 31-41 months. Given that it is irreversible after the age of 2 years, there is need to focus on effective and high impact programs that improve nutrition in the first 1000 days, from conception to age two years which means targeting women of reproductive age with appropriate interventions.

## **9.2 Programme coverage**

**Measles and Vitamin A coverage:** The overall measles vaccination coverage in all the camps below 95% SPHERE standards in the camps. However it was ranged 85.4% in Mtendeli and a high of 93.5% in Nyarugusu old camp. The coverage of Vitamin A coverage was above the expected 90% SPHERE standards in all the camps except in Nyarugusu new camp. Coverage confirmed by card in all the camps ranged between 36.5% to a high of 67.2; it is particular low in Nduta and Mtendeli, however, this is normal in post emergency situations; going forward, documentation needs to improve in the above mentioned camps in future to prevent cases of double doses of Vitamin A capsules and improve monitoring and evaluation outcomes.

**ANC coverage and Iron folic acid supplementation:** ANC coverage was in line to 2016 survey is still high in Nduta refugee camp with 79.4%, Mtendeli was at 71.1%, 75.0% among the old population in Nyarugusu and lowest among new arrivals in Nyarugusu new arrivals. Coverage of iron –folic acid supplementation was above 70% with the exception of the new population in Nyarugusu and Mtendeli Camp.

**Selective feeding programme coverage:** The programme coverage in all the camps was below the 90% SPHERE standards for camps. TSFP coverage in Nduta was 41.9%, relatively high in Mtendeli at 68.8%; 40.9 % & 41.2 in Nyarugusu new and old arrivals respectively. The OTP coverage was 60%% in Nduta; and 33.3% in Nyarugusu and 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; Nduta and Mtendeli camps had the highest number of acute malnourished children who are not enrolled in programme. Mass screening and referral should be undertaken in Mtendeli and Nduta while strengthening community mobilization and referral systems in the camps.

## **9.3 Anaemia in young children and women**

Anaemia prevalence among children aged 6-59 months remains above the 40% threshold of public health significance (critical) in all the camps. There is a reduction from 58.1% (53.0-62.7) to 41.0% (35.0-47.1) in Nduta camp and from 48.7% (43.1-54.2) to 42.3 % (36.5-48.2) Nyarugusu among the old population 2017 compared to 2016; however, the reduction is not statistically significant. Among the new arrivals in Nyarugusu, the prevalence was 41.2% (34.4-48.0) and in Mtendeli 41.5% (37.3-55.8). The most affected age category were children 6-23 months with prevalence as high 59.4%, accounting for a disproportionate proportion of anaemia prevalence compared to the older age group of 24-59 months. The highest prevalence was in Nyarugusu old camp with 57.9% (46.8-69.0); new arrivals in Nyarugusu 52.8% (45.9-59.7); Mtendeli 52.0% (45.9-58.2) and Nduta 50.0 % ( 43.0-57.0). This compares unfavourable to the older age group 24-59 months prevalence of 24.6% (29.8-39.5) in Mtendeli; Nyarugusu new camp 31.3% (23.2-39.4); Nduta 35.8% (28.7-39.5) and Nyarugusu Old camp 39.9% (31.3-47.8).

Analysis of morbidity patterns in the last one year shows Malaria account for over 30% of diseases among children under-5 years of age. Malaria could be therefore being one of the leading causes of anaemia in addition to dietary inadequacy of iron and worm infestations. Given the low coverage and use of LLIN, there is need for mass distribution and health education to ensure correct use of the nets especially as the rain season set in. Distribution of MNP among children 24-59 months is having good uptake with over 90% of the households with children 24-49 months reporting to be using sprinkles in its food. UNHCR and WFP strategy

of distributing MNP alongside GFD seems to yielding results. In the meantime there is need for other complementary strategies like de-worming and more importantly improving diet diversity; In the context of refugee (and displaced) populations, the most important cause of anaemia is usually inadequate dietary intake of micronutrients (especially iron, folic acid, vitamin B12), and a lack of appropriate complementary foods given the dependency on food aid.

Anaemia among non-pregnant women of reproductive age (15-49 years) was ranged between 22.3% - 31.6% which indicates medium level public health significance (WHO classifications).

## **9.4 IYCF indicators**

Key IYCF indicators have reduced across the camps compared to past assessments. The rate of early initiation of breastfeeding has significantly reduced ( $P=0.000$ ) in Nyarugusu New camp from 90.4% (85.8-95.1) to 74.5% (68.8-79.7). The reduction in the other camps is not statistically significant.

Similarly, exclusive breastfeeding rates has reduced compared to 2016 especially in Nyarugusu new and Old camps; current prevalence is 69.8% (52.2-87.4) and 72.2% (53.7-90.8) respectively compared to 89.4% (80.7-98.1) and 87.9% (79.4-96.5) for Nyarugusu New and Old camp respectively. Exclusive breastfeeding Rates have more or less remained the same in Nduta and Mtendeli Camps at 81.2% (69.7-92.8) and 84.2% (74.8-93.7) respectively. There is need to strengthen integration between Nutrition and reproductive Health, where these IYCF messages are passed on to mothers in the maternity ward and during ANC visits.

DHS showed that in countries of origin of refugees (Congo, Burundi) has a very high rate of exclusive breastfeeding of infants younger than six months; breastfeeding practices generally remains good in the camps. Continued breastfeeding at one year is good, however, continued breastfeeding at 20-24 months drops drastically; these could be due to high birth rate and short birth intervals.

## 9.5 Food security

The main source of food in the refugee camps is the WFP general food ration that supposes to provide the minimum 2155 kcal/p/day when full ration is provided.

Since April 2017, there has been ratio reduction; April- May, there was overall 60% reduction in Kcal from 2166 to 1296 Kcal (53% reduction in cereals, 50% less oil and 40% less CSB). In May-June, there was improvement with provision of 80% Cereals and 100% other commodities; overall the KCAL reduced by 13% reflecting a good improvement from the previous 4 months. However as from August, there was a further reduction of the ration distributed under GFD with refugee receiving 60% of full ration for cereals, 50% of full ration for super cereals with sugar, 70% of full ration for vegetables Oil and 80% of full ration for salt; this translates to 1330kcal (62% of the full ration).

Due to reduction of food ration, average food ration last average of 12.1 to 17.3 days a month. While last year, over 50-80% of the households report food ration lasting 75% the month (>23days), currently less than 5% this year report lasting more than 23 days; Virtually all the households (94.9-98.9%) report food lasting less 75% of the time compared to 19.2-44.8% of the household last year.

The reason for ration cut is global and regional due to funding shortfalls; the ration is impaired by challenges of procuring cereals locally (within Tanzania) and regionally and more importantly limited finance resources to build buffer stock; it is likely not to improve in the short term. Therefore, as the rainy season set in, the residents should be supported to cultivate their parcel of land and get access to more land. Fortunately, the communities in the camps have some agriculture practices background only needing support in terms of inputs, extension services and even markets for the extra food they would want to sale in order meet other needs.

## 9.6 WASH

Access to quality sources of water in the camps has been consistently good. The challenge is access to adequate quantity of water. The average individual water consumption meets the SPHERE standards of at least 15 litres per person per day (lpppd) in all the camps except Mtendeli camp. The UNHCR standard of 20 lpppd is met in Nyarugusu new and old camp only. This compares with the same situation in the previous 2016 year survey. The average water consumption in Nyarugusu New and Old camp is 23.4lpppd and 20.6lpppd respectively; in Nduta camp is 18.8lpppd and 14.2lpppd in Mtendeli Camp.

There is Water inadequacy especially in Mtendeli contributing to poor hygiene and sanitation. The WASH section has been facing challenge of poor yielding boreholes and well as dry boreholes. Out of 21 boreholes drilled, only 6 have yielded water but still not in adequate amounts. Consequently, hygiene and sanitation in Mtendeli camp is sub optimal. Improved provision of adequate water in Mtendeli is urgent. In the other camps, generally water supply is insufficient, the most urgent challenge is the uneven distribution of tap stands which is causing water access to some areas difficult.

Households report poor satisfaction with drinking water in all the camp; 46.8% (34.4-59.2) and 45.0% (33.3-57.7) in Nyarugusu New camp and Nduta respectively. The situation is worse in Nyarugusu Old Camp- 23.8% (14.0-33.7.2) and only 9.4% (5.3-13.5) in Mtendeli Camp are satisfied with the drinking water supply. In all the camps, the major reasons for the dissatisfaction cited by the refugees are not enough supply of water, irregular water supply, and long distances to the water points. There was drastic reduction in satisfaction in water supply in Mtendeli camp in 2017 compared to 2016.

Approximately half of the households in Nyarugusu New are using improved excreta disposal facility; the other camps only approximately 30% have access to improved excreta facility. This is an improvement compared to last year assessment where only the old 32.5 % households in Nyarugusu old reported using improved excreta facility. Unimproved toilet facility was the most commonly used excreta facility in all the camps; approximately half of the households in Nyarugusu old and new camps and a high proportion of the households in Nduta and Mtendeli camps

(66.7% and 71% respectively); it is an improvement compared with 2016 assessment where 60-95% reported using unimproved excrete facility in all the camps.

Although a good proportion of the population are using unimproved toilet facilities, there seems to be good knowledge of child stool disposal; Over 90% of households with a child less than 3 years report are safely disposing child faecal matter through mainly burying or throwing into the toilet.

## **9.7 Mosquito net coverage**

According to UNHCR standards, at least 80% of households in a refugee camp should have at least one long lasting insecticide treated mosquito net (LLIN) and not more than two people should share a mosquito net. Households owning at least one LLIN are less than 50% in all the camps; it is worse off in Mtendeli with less than 25% households reporting owning at least one LLIN compared to recommend >80%. Number of nets per person range from 7 to 14 persons per net compared to recommended 2 persons per LLIN. There is urgent need of distribution of net in addition to health promotion to ensure appropriate use of nets.

The high ratio of persons per LLIN in the refugee locations means that not every household member uses the net. In Nyarugusu Old Camp 36.4% of the population of all ages sleep under a mosquito net, 27.1% of children 0 to 59 months sleep under the net and 59.4% of pregnant women sleep under the net. In Nyarugusu New Camp, 34.2% of the population all ages sleeps under a mosquito net, 44.5% of children 0 to 59 months sleep under the net and 35.9% of pregnant women sleep under the net. In Nduta Camp, 32.0%, 39.2% and 57.4% of population of all ages, Children under-five years and Pregnant women sleep under LLIN. In Mtendeli Camp 19.7% of population of all ages; 21.2% of Children under five and 35.7% report sleeping under mosquito net. These ratios show that the general population has an appreciation of the population groups that are most vulnerable to malaria.

In 2016 assessment, Utilization of mosquito nets was relatively good in all the camps except Mtendeli camp that had a low coverage. The proportion of children 0-59 months and women pregnant women in Nduta and Nyarugusu among the old 95 population was above 80%.

## **9.8 Conclusions**

The Global acute malnutrition in Nduta camp has statistically significantly trebled ( $P=0.000$ ) from 2.4% to 6.1% compared to SENS 2016 and indicating POOR nutrition situation as per WHO classifications. There was also increase in global acute malnutrition prevalence by nearly two times in the two other camps but the increase is not statistically significant and it's still within <5% of acceptable level as per WHO classifications. The increase could be due among other factors the food ration cut currently proving 60% of the full ration. Though vulnerable groups continue to receive food ration e.g. in the supplementary programme, there is widespread sale of food aid especially in Mtendeli and Nduta camp; in addition, effort should be made to strengthen community mobilization activities as most of the malnourished children identified in the survey were not in programme in the two camps.

Anaemia prevalence and stunting among children 6-59 months remains a major public health concern being above 40% of public health significance in all the camps. 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 >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 camps as well as access to improved toilet facilities.

Mosquito-net coverage is poor with less than half of households reporting owning at least 1 Long Lasting Insecticide Net (LLIN) compared to recommended above 80%. Similarly, Average number of persons per LLIN range from 6.8 to 14 persons per net against the recommended 2 person per net. Given that Malaria is the leading morbidity and cause of mortality and onset of the rainy season, it is urgent to distribute LLIN as well as ensuring appropriate usage.

## **9.9 Recommendations and priorities**

### **Nutrition and Health Recommendations**

- Mass screening and referral campaign for malnutrition in Nduta and Mtendeli Refugee Camps. It can be integrated with de-worming and other relevant interventions.
- Assess the causes for the increased malnutrition levels; implement appropriate strategies (e.g. enhance support, promotion and protection of IYCF practices, behaviour change communication) to prevent, and reduce the malnutrition levels.
- Harmonize/adopt MUAC and WHZ as standalone screening, admission, monitoring and discharge criteria. Avoid two stage screening and admission.
- Investigate the main causes of the anaemia and Stunting among children 6-59 months, and develop and implement strategies to address anaemia and stunting.
- Nutrition partners in collaboration with Livelihoods partners to consider implementing proper back yard gardening project coupled with provision of training, seeds and tools as a way of addressing the anaemia situation.
- Investigate the reasons for the high Anaemia prevalence in children 6-24 months despite receiving Blanket Supplementary feeding and other modalities.
- Health agencies to conduct qualitative assessments of the health-seeking behaviour of new arrivals, with the aim of improving uptake of services and preventing a deterioration of their nutritional status.
- Distribute and encourage the use of long lasting insecticidal treated net.
- Access the distance of the villages from the Nutrition Programme sites and explore possibility bringing service closer to the villages at the peripheries in Nduta and Mtendeli.
- Strengthen promotion and advocacy of recommended IYCF practices; there is need to incorporate family planning to encourage adequate child spacing.

### **Food Security Recommendations**

- Consider supporting livelihood activities and other nutrition sensitive interventions e.g. agriculture to improve the camps' residents economy and increase the disposable income available to the population. Increased disposable income has high chances of having positive nutrition impact through dietary diversification.
- Consider alternative sources of cooking energy to control deforestation and more importantly avoid exposure to attacks/conflict as the refugee fetch fire wood. <sup>12</sup>

### **WASH recommendations**

- Improve water supply in Mtendeli camp
- WASH partners to improve water distribution network amongst all blocks to ensure adequate coverage of the water supply especially in Nduta and Mtendeli.
- Strengthen hygiene and sanitation promotion
- Toilet facilities coverage to be looked into so as to increase coverage of improved sanitation facilities and reduce sharing of toilets; structural improvements in terms of provision of toilet slaps will aid in maintenance of hygiene and cleanliness of the wash rooms.

---

<sup>12</sup> The recommendation is based on observation and discussion with residents especially women. We witnessed some people injured in clashes with host village when they venture to collect firewood.



## 7. References

1. Tanzania National Nutrition survey 2014, [www.lishe.org](http://www.lishe.org)
2. Nyarugusu SENS survey 2012, 2014
3. SENS survey Nduta, Mtendeli and Nyarugusu 2016.
4. USAID/FFP Food security country framework for Burundi
5. Nyarugusu Nutrition survey report 2012
6. The Sphere Project. Humanitarian Charter and Minimum Standards in Humanitarian Response, 2011
7. Jul 23, 2014 - UNHCR (2013) UNHCR Standardised Expanded Nutrition Survey (SENS) guidelines for refugee populations, [www.unhcr.org](http://www.unhcr.org)
8. Grellety and Golden BMC Nutrition (2016) Weight-for-height and mid-upper-arm circumference should be used independently to diagnose acute malnutrition: policy implications

## 10 Acknowledgements

- A. List all government departments, International agencies, International NGOs, National NGOs and other organizations that supported or participated in the survey.
  - UNHCR
  - WFP
  - WV
  - TRCS
  - MSF
  - Ministry of Interior
  - Ministry of Health
- B. List the individuals involved in the survey

### Survey Training

1. Dickson Sigei -Nutrition survey Consultant
2. Zahara Hazali – Nutritionist associate –Kasulu Field office
3. Miata Tubee Johnson –UNHCR Health Specialist

### Data analysis and Report compilation

1. Dickson Sigei –Nutrition Survey consultant
2. Zahara Hazali –UNHCR Nutritionist –Kasulu Field office

### Survey Management

- |  |
|--|
| 1. Zahara Hazali – Survey Coordinator              |
| 2. Dickson Kiplangat – Survey Technical Consultant |



## Supervisors

1. ABDUL OMARI	UNHCR
2. LENARD LUSHONGO	UNHCR
3. LINDA CHRISTY KIWIA	UNHCR
4. JOSEPH VALERIAN	WFP
5. DIGNA MLACHA	WFP
6. SIYALEO SHILAMBELE	Kigoma-RMO office

## Team leaders

1. SALUM MHITIRA	TRCS-Nyarugusu
2. VASCO CHUSI	TRCS-Ny
3. CHILOLE KAGONGO	World vision
4. JAMES KIMAMBO	TRCS-Ny
5. JAMES NGALABA	Kasulu District council
6. ALPHONCE BISHIRANGONGA	Kakonko District council

## Interviewers

1. YOHANA NZIZE	TRCS-Mt
2. AYUBU MENYO	WV
3. YASINTA LUAMBANO	WV
4. ANDREW MHAGAMA	WV
5. TERESIA JACOBO	TRCS-Mt
6. ISSA NALINGA	TRCS-Ny

## Haemocue operator (Medical Background)

1. JENIPHA MGENI	TRCS-Mt
2. ADELINA KAMWAGA	Kibondo- District council
3. HALIMA MKILAHA	MSF
4. LARRY SEMBOJA	TRCS-Mt
5. EDWARD KAICHILE	TRCS-Ny
6. ANGELINA NTAMBALIKA	TRCS- Mt

# 11 Appendices

## Appendix 1 SMART Plausibility Check (PC) Report

### Overall data quality (Old Camp)

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	0 (1.5 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	0 (p=0.748)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	0 (p=0.176)
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 (5)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	0 (5)
Standard Dev WHZ .	Excl	SD	<1.1 and >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	0 (1.00)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	0 (-0.05)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	0 (0.04)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	0 (p=0.622)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	0 %

The overall score of this survey is 0 %, this is excellent.

### Overall data quality (Nyarugusu New Camp)

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	0 (0.5 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	0 (p=0.189)
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=0.085)
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	2 (8)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	0 (5)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	

.				and	and	and	or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20		<b>0</b> (0.99)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5		<b>0</b> (0.03)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5		<b>0</b> (-0.05)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5		<b>0</b> (p=0.113)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25		<b>4</b> %

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

### Overall data quality (Nduta Refugee Camp)

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	<b>0</b> (1.6 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	<b>0</b> (p=0.527)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	<b>0</b> (p=0.102)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>0</b> (5)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>2</b> (11)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>0</b> (6)
Standard Dev WHZ .	Excl	SD	<1.1 and >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	<b>0</b> (1.02)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	<b>0</b> (-0.10)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	<b>0</b> (0.02)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	<b>0</b> (p=0.146)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	<b>2</b> %

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

### Overall data quality (Mtendeli Refugee Camp)

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	<b>0</b> (1.8 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	<b>4</b> (p=0.025)

Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	<b>2</b> (p=0.072)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>0</b> (5)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>0</b> (6)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	<b>0</b> (7)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	<b>0</b> (1.01)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	<b>0</b> (-0.11)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	<b>0</b> (-0.04)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	<b>0</b> (p=0.201)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	<b>6</b> %

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

Appendix 2:



## Appendix 6 Questionnaires

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

#### UNHCR Standardized Expanded Nutrition Survey (SENS) Questionnaire Tanzania Nutrition Survey, August/September 2017

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 mshiriki.

Tanzania Nutrition survey Aug/Sept 2017: 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	MT2	MT3	MT4	MT5	MT6	MT7	MT8	MT9	MT10	MT11	MT12	MT13	MT14	MT15
Utambulisho	Nyumba	Ridhaa 1=Ndiyo 2=Hapana 3=Hayupo	Jinsi (me/ke)	Kuzaliwa* (trh/mwezi/mwaka)	Umri** (miezi)	Uzito (kg) ±100g	Height (sm) ±0.1sm	Uvimbe (y/n)	Mzingo wa kati wa Mkono (mm)	Mtoto anahudh uria 1=SFP 2=TFP 3=None	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/sijui	Kuhara katika wiki 2 zilizopita 1=Ndiyo 2=Hapana 3=Sijui	Kiasi cha Da mu (g/L au g/d L)
01				/ /										
02				/ /										
03				/ /										
04				/ /										
05				/ /										
06				/ /										
07				/ /										
08				/ /										
...				/ /										

\* 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 2017: 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 ILIYOHAGULIWA)**

**Ukanda/Eneo:** \_\_\_\_\_

**Kijiji:** \_\_\_\_\_

**Namba ya Mtaa /Barabara:** \_\_\_\_\_

Tarehe ya usaili (siku/mwezi/mwaka):  _ _ / _ _ / _ _ _ _ _				Namba ya “mkusanyiko” (kwa <i>tafiti za “cluster” tu</i> )  _ _ _		Namba ya timu  _ _	
MM1	MM2	MM3	MM4	MM5	MM6	MM7	MM8
<b>Utambulis ho</b>	<b>Nyumba</b>	<b>Ridhaa</b> 1=ndiyo 2=hapana 3=hayupo	<b>Umri</b> (miaka)	<b>Una ujauzito?</b> 1=ndiyo 2=hapana (pima kiasi cha damu) 8=sijui (pima kiasi cha damu)	<b>Umeandikishwa kwenye kliniki ya afya ya mama na mtoto?</b> 1=Ndiyo 2=Hapana 3=Sijui	<b>Je unapokea vidonge vya kuongeza damu vinayotolewa kliniki? (ONYESHA VIDONGE)?</b> 1=Ndiyo (Komea hapa) 2=Hapana (Komea hapa) 8=Sijui (Komea hapa)	Kiasi cha damu (g/L au g/dL)
01							
02							
03							
04							
05							



**Tanzania Nutrition survey Aug/Sept 2017: 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: \_\_\_\_\_**

<b>Tarehe ya usaili (siku/mwezi/mwaka):</b>	<b>Namba ya “mkusanyiko” (kwa tafiti za “cluster” tu)</b>	
_ _ _ / _ _ _	_ _ _	
<b>Namba ya timu</b>	<b>Namba ya utambulisho</b>	<b>Namba ya Nyumba</b>
_ _	_ _ _ _	_ _ _ _

Na.	SWALI	ALAMA YA JIBU	
<b>KIPENGELE UW1</b>			
V1	Jinsia	Kiume .....1 Kike.....2	_
V2	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..... _ _ _  / _ _ _  /  _ _ _ _ _ _ _	
V3	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	_ _ _
V4	Je [taja jina la mtoto] aliwahi kunyonya?	Ndio.....1 Hapana .....2 Sijui.....8	_  <b>KAMA JIBU NI 2 AU 8 NENDA UW7</b>
V5	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	_
V6	Je (taja jina la mtoto) alinyonya jana mchana au usiku?	Ndiyo.....1 Hapana .....2	_

		Sijui.....8	
<b>KIPENGELE UW2</b>			
V7	<p>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;</p> <p>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.</p> <p>INGIZA MAJINA YA VITU KATIKA NAFASI YA MAANDISHI YALIYOWEKEWA KIVULI CHA KIJIVU KAMA YANAVYOTUMIKA MAHALI HAPO</p> <p>MAANDISHI YALIYOLALIA KULIA YANATAKIWA KUFUTWA KATIKA DODOSO LA MWISHO LITAKALOTUMIKA KWA UTAFAITI – ORODHA ILIYOTOLEWA HAPO CHINI NI MFANO.</p>		
			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 mfano? [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, vinywaji kutoka katika mitishamba, maji matamu ya chupa ndogo, chai isiyo na maziwa, kahawa isiyo na maziwa, vinywaji vya asili)	7I.....1	2 8
V8	Je, jana mchana au usiku [taja jina la mtoto] alikula chakula kigumu au laini (kilichopondwapondwa)	Ndiyo.....1 Hapana.....2 Sijui.....8	__
<b>KIPENGELE UW3</b>			
V9	Je jana mchana au usiku [taja jina la mtoto] alinyonya kupitia chupa au	Ndiyo.....1	

	vyombo bandia vya kunyonyeshea watoto?	Hapana.....2 Sijui.....8	__
<b>KIPENGELE UW4</b>			
<b>V10</b>	MTOTO ANA UMRI KATI YA MIEZI 6 – 23?  REJEA UW2/UW3	Ndiyo.....1 Hapana.....2	__  <b>KAMA JIBU NI 2 KOMEA HAPA</b>
<b>V11</b>	<p>Nataka nikuulize kuhusu vyakula fulani ambavyo [<i>taja jina la mtoto</i>] 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;</p> <p>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.</p> <p>INGIZA MAJINA YA VITU KATIKA NAFASI YA MAANDISHI YALIYOWEKEWA KIVULI CHA KIJIVU KAMA YANAVYOTUMIKA MAHALI HAPO.</p> <p>MAANDISHI YALIYOLALIA KULIA YANATAKIWA KUFUTWA KATIKA DODOSO LA MWISHO LITAKALOTUMIKA KWA UTAFITI – ORODHA ILIYOTOLEWA HAPO CHINI NI MFANO.</p> <p>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</p> <p style="text-align: right;">Ndy Hpn Sij</p>		
	11A . <b>NYAMA</b> (kwa mfano ya <i>Ngo’mbe, mbuzi, kondoo, nguruwe, sungura, kuku, bata, maini, figo, moyo</i> ) na samaki.	11A.....1	2 8
	11B. <b>Mchanganyo wa soja na unga wa mahindi [CSB+]</b>	11B.....1	2 8
	11C. <b>Mchanganyo wa soya na unga wa mahindi [CSB++] ONYESHA MFUKO AU KIFUNGASHIO)</b>	11C.....1	2 8
	11D. <i>Plumpy’Nut®</i> , <i>eeZeePaste™</i> ) (ONYESHA MFUKO AU KIFUNGASHIO)	11D.....1	2 8
	11E. <b>MAZIWA YA KOPO YA WATOTO WACHANGA TU YALIYOONGEZEW</b> <b>MADINI YA CHUMA YANAYOPATIKANA HAPO] (mf. Nan, S26 infant formula)</b>	11G.....1	2 8
	11F. <b>CHAKULA CHOCHOTE KIGUMU, CHEPESI AU LAINI KILICHOONGEZEW</b> <b>MADINI YA CHUMA KWA AJILI YA WATOTO WACHANGA</b> <b>KINACHOPATIKANA HAPO AMBACHO NI TOFAUTI NA KILE</b> <b>KINACHOGAWIWA NA TUMIA MAJINA YALIYOZOELEKA] (mf. Cerelac, Weetabix).</b>	11H.....1	2 8

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	
<b>KIPENGELE MU1</b>			
U1	Ni watu wangapi wanaokaa katika kaya hii na waliolala katika nyumba hii jana usiku?	_ _	
U2	Ni kipi chanzo <b>kikuu</b> 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	_ _
U3	Je unaridhika na upatikanaji wa maji?  SWALI HILI LINAZINGATIA UPATIKANAJI WA MAJI YA KUNYWA	Ndiyo ..... 1 Hapana ..... 2 Kiasi ..... 3 Sijui ..... 8	_ _  <b>KAMA JIBU NI 1, 3 AU 8 NENDA MU5</b>
U4	Sababu gani <b>hasa</b> 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	_ _
U5	Nyumba hii inatumia choo cha aina gani?	Choo cha shimo na kilicho sakafiwa na bomba la hewa chafu ..... 01	

	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	Choo cha shimo kisicho sakafiwa/kikavu/(traditional latrine)...02 Hakuna/uwanjani/vichakani/mifuko ya plastiki..... 03	__ __  <b>KAMA JIBU NI          10 NENDA          MU7</b>		
U6	Je! Ni <b>kaya</b> ngapi zinazochangia choo hiki?  HII NI PAMOJA NA KAYA INAYOTAFITIWA	ANDIKA IDADI YA KAYA KAMA ZINAFAHAMIKA (REKODI 96 KAMA NI CHOO CHA UMMA, 98 KAMA HAIJULIKANI)	__ __  Kaya		
		<b>MSIMAMIZI CHAGUA MOJA TU</b>  Hakichangiwi ( <b>Kaya 1</b> ) ..... 1 Cha kuchangia ( <b>Kaya 2</b> ) ..... 2 Cha jumuiya ( <b>Kaya 3 na zaidi</b> ) ..... 3 Cha umma ( <b>sokoni, kliniki/zahanati n.k</b> ) 4 Sijui ..... 8	__		
U7	Kuna watoto wenye umri chini ya miaka mitatu?	Ndiyo ..... 1 Hapana ..... 2	__  <b>KAMA JIBU NI 2          NENDA MU9</b>		
U8	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	__ __		
<b>KIPENGELE MU2</b> <b>Maswali kwa uchunguzi (yafanyike mara tu baada ya yale ya awali kumalizika ili kuhakikisha mtiririko wa usaili haukatiki)</b>					
<b>Na.</b>	<b>UCHUNGUZI / SWALI</b>	<b>JIBU</b>			
<b>MU9</b>	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 zilizofan yika kwa kila chombo	Jumla ya lita  <b>MSIMAMIZI          AMALIZIE          KUFANYA          HESABU KWA          MKONO</b>

		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
		<b>Jumla ya lita zilizotumiwa na kaya</b>			110
<b>MU10</b>	<p>Tafadhali nionyeshe vyombo unavyotumia kutunzia maji ya kunywa</p> <p>VYOMBO VYA KUTUNZIA MAJI YA KUNYWA VIMEFUNIKWA AU VINA MDOMO USIOMPANA/MWEMBAMBA</p>	<p>Vyote vina .....1</p> <p>Baadhi vina..... 2</p> <p>Hakuna chenye..... 3</p>	__		

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
<b>KIPENGELE UC1</b>		
C1	Je kaya yako ina kadi ya kupokelea chakula?	Ndiyo ..... 1 Hapana ..... 2 <div> _  KAMA JIBU NI 1 NENDA UC3</div>
C2	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 <div> _  NENDA UC5</div>
C3	Ni siku ngapi abazo chakula ulichopokea kutoka kwenye mgao wa [INGIZA] wa mwezi [INGIZA MWEZI] kilidumu? 1. <b>Nyarugusu the whole month of July 2017</b> 2. <b>Nduta and Mtendeli the whole month of August 2017</b>	ANDIKA NAMBA YA SIKU KAMA ZINAFAHAMIKA (ANDIKA 98 KAMA HAIJULIKANI) <div> _ _ </div>
C4	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 <div> _ </div>
C5	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliyeuza mali yoyote ambayo katika hali ya kawaida msingeiiza (mfano: viti, meza, mbegu za kupanda, zana za kazi, mifugo n.k)?	Ndiyo ..... 1 Hapana ..... 2 Sijui ..... 8 <div> _ </div>
C6	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 <div> _ </div>
C7	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 <div> _ </div>

8	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliyeomba, kitu chochote?	Ndiyo ..... 1 Hapana ..... 2 Sijui..... 8	__
9	Katika mwezi uliopita kuna mwanakaya yeyote katika kaya yako aliyejiingiza katika vitendo hatarishi au vyenye madhara kama <b>kukata mti , kutoka nje ya kambi bila kibali, kuuza pombe haramu</b> au mambo mengine hatarishi au yenye madhara katika maisha yake?	Ndiyo ..... 1 Hapana ..... 2 Sijui..... 8	__
<b>SECTION FS2</b>			
10	<p>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.</p> <p>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.</p> <p>INGIZA MAJINA YA VITU KATIKA NAFASI YA MAANDISHI YALIYOWEKEWA KIVULI CHA KIJIVU KAMA YANAVYOTUMIKA MAHALI HAPO.</p> <p>MAANDISHI YALIYOLALIA KULIA YANATAKIWA KUFUTWA KATIKA DODOSO LA MWISHO LITAKALOTUMIKA KWA UTAFITI – ORODHA ILIYOTOLEWA HAPO CHINI NI MFANO.</p>		
	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, tambu, maandazi, vitumbua n.k)	1.....	__
	2. VYAKULA VYA ASILI YA MIZI MYEUEPE (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 kukaanga, mihogo ya kukaanga, viazi au ndizi au mihogo ya kuchemsha.	2.....	__
	3A. MBOGA ZA MAJANI NA VYAKULA VYA MIZI 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, spinach 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 ilyokaushwa) 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..... __
	<b>5A.</b> NYAMA ZA VIUNGO VYA NDANI AU VYAKULA VITOKANAVYO NA DAMU VINAVYOPATIKANA KATIKA ENEO HILO] (mf. maini, figo, moyo na matumbo)	5A..... __
	<b>5B.</b> NYAMA ZA MNOFU (mf. 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..... __
	<b>6.</b> Mayai yotote kutoka kwa (mf. kuku, bata, kware, kanga, ndege wengine)	6..... __
	<b>7.</b> SAMAKI AU WANYAMA WA MAJINI WALIO KAUSHWA, WALIOSINDIKWA (mf. Dagaa/kamchungu, migembuka, mayai ya samaki,, sangara, pelege, na Kambara n.k)	7..... __
	<b>8.</b> CHAKULA JAMII YA KUNDE, KARANGA NA MBEGU ZINAZOPATIKANA KATIKA ENEO HILO] (mf. maharage makavu, mbaazi kavu, dengi, karanga, choroko, kunde) au vyakula vyoyote vinavyotokana na mazao hayo (mf. siagi ya karanga au ufuta)	8..... __
	<b>9.</b> MAZIWA NA VYAKULA VITOKANAVYO NA MAZIWA VINAVYOPATIKANA KATIKA ENEO HILO] (mf. maziwa ya watoto wachanga, jibini, mtindi)	9..... __
	<b>10.</b> MAFUTA YA KULA YATOKANAYO NA MIMEA NA WANYAMA YANAYOPATIKANA KATIKA ENEO HILO] (mf. ufuta, alizeti, pamba, mawese, mafuta ya uto, samli, siagi)	10..... __
	<b>11.</b> VITU VITAMU VYENYE SUKARI VINAVYOPATIKANA KATIKA ENEO HILO] (mf. sukari, asali, soda, maji ya matunda, chokoleti, biskuti, keki)	11..... __
	<b>12.</b> 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)	12..... __

Tanzania Nutrition survey Aug/Sept 2017: 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			
<b>KIPENGELE CM1</b>					
11	Ni watu wangapi wanaokaa katika kaya hii na waliolala katika nyumba hii jana usiku?  INGIZA NAMBA				_ _
12	Kuna watoto wangapi wa miezi 0 mpaka 59 wanaoishi hapa na waliolala katika kaya hii jana usiku?  INGIZA NAMBA				_ _
13	Kuna akina mama wenye mimba / ujauzito wangapi wanaoishi katika kaya hii na waliolala hapa jana usiku?  INGIZA NAMBA				_ _
14	Je, nyumba yako ilipuliziwa dawa katika kampeni ya kuuwa wadudu iliyofanyika mwezi  _  iliopita? (SIO LAZIMA)	Ndiyo..... 1 Hapana..... 2			_
15	Je, mnavyandarua ambavyo vinaweza kutumiwa kujikinga na mbu wakati wa kulala?	Ndiyo..... 1 Hapana..... 2			_  <b>KAMA JIBU NI 2 KOMEA HAPA</b>
16	Mna vyandarua vingapi vinavyoweza kutumiwa wakati wa kulala?  INGIZA NAMBA	KAMA NI ZAIDI YA VYANDARUA 4, INGIZA NAMBA NA TUMIA DODOSO LA NYENGEZA KUIINGIZA NAMBA YA VYANDARUA KWA MTIRIRIKO.			_  Vyandarua
17	MUOMBE MSHIRIKI AKUONYESHECHANDARUA KATIKA KAYA. KAMA VYANDARUA HAVIKUCHUNGUZIWA → SAHIHISHA JIBU LA CM6	CHANDARUA # _	CHANDARUA # _	CHANDARUA # _	CHANDARUA # _
18	CHUNGUZA CHANDARUA NA ANDIKA JINA LA CHANDARUA KWENYE TAG. KAMA HAKUNA TAG ILIYOPO AU HAIOMEKI ANDIKA "SJ" KUMAANISHA SIJUI.				
19	Kwa msimamizi/msimamizi tu (isifanyike wakati wa usaili):	1=LLIN 2=Nyingine/SJ	1=LLIN 2=Nyingine/SJ	1=LLIN 2=Nyingine/SJ	1=LLIN 2=Nyingine/SJ



				MWANAU ME)  Ndy Hpn/SJ HAIH			
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 chandar ua cha aina yoyote	Hesabu namb a 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 namb a 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   __ __	