

Joint Nutrition and Health Surveys

Meheba and Mayukwayukwa Refugee Settlements

Surveys conducted December 2013

Report finalized January 2014

UNHCR, WFP, UNICEF, MCDMCH, MOH and MHA/COR





Photo: Some vulnerable refugees at one of the food distribution center receiving their monthly targeted food ration for the month of November 2013; in Meheba refugee settlement. © **Refugees in Meheba settlement.**

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ACRONYMS AND ABBREVIATIONS

ANC	Ante Natal Care
CMR	Crude Mortality Rate
CI	Confidence Interval
CHWs	Community Health Workers
ENA	Emergency Nutrition Assessment
EPI	Expanded Programme on Immunization
Epi Info	CDC software for epidemiological investigations
GAM	Global Acute Malnutrition
Hb	Haemoglobin
HDDS	Household Dietary Diversity Score
HH	Household
HIS	Health Information System
IYCF	Infant and Young Child Feeding
LPPD	Litre per person per day
MUAC	Middle Upper Arm circumference
NCHS	National Centre for Health Statistics
NFI	Non food items
OTP	Out-patient Therapeutic Programme
ProGres	UNHCR registration database for refugees
SD	Standard Deviation
SENS	Standardised Expanded Nutrition survey
SFP	Supplementary Feeding Programme
SMART	Standardised Monitoring & Assessment of Relief & Transitions
TFP	Therapeutic Feeding Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children’s Funds
WASH	Water Sanitation and Hygiene
WAZ	Weight-for-Age z-score
WFH	Weight-for-height
WHZ	Weight-for-Height z-score
WFP	World Food Programme
WHO	World Health Organization

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Finally, we sincerely thank the refugee population in Meheba and Mayukwayukwa refugee settlements for their willingness to participate and allowed us to interview them and measure their children.

FIGURE 1: Zambia at a glance: Mayukwayukwa to the West, and Meheba to the North-West



EXECUTIVE SUMMARY

TABLE 1 : Summary of key findings Meheba and Mayukwayukwa Settlements, (December 2013)

	MEHEBA		MAYUKWAYUKWA		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
CHILDREN 6-59 months					
Acute Malnutrition (WHO 2006 Growth Standards)					
Global Acute Malnutrition (GAM)	12/294	4.1% (2.4-7.0)	17/295	5.8% (3.6-9.0)	Critical if 15%
Moderate Acute Malnutrition (MAM)	12/294	4.1% (2.4-7.0)	16/295	5.4% (3.4-8.6)	
Severe Acute Malnutrition (SAM)	0/294	0.0% (0.0-1.3)	1/295	0.3% (0.1-1.9)	
Stunting (WHO 2006 Growth Standards)					
Total Stunting	108/294	36.7% (31.4-42.4)	103/293	35.2% (29.9-40.8)	Critical if 40%
Severe Stunting	26/294	8.8% (6.1-12.6)	22/293	7.5% (5.0-11.1)	
Programme coverage					
Measles vaccination with card (9-59 months)	204/298	69.6% (64.0-74.8)	140/298	75.7% (68.8-81.7)	Target of 95%
Measles vaccination with card or confirmation from mother (9-59 months)	251/298	85.7% (81.1-89.5)	162/298	87.6% (81.9-92.0)	
Vitamin A supplementation within past 6 months with card (9-59 months)	198/298	67.6% (61.9-72.9)	140/298	75.7% (68.8-81.7)	Target of 90%
Vitamin A capsule with card or confirmation from mother past 6 months (9- 59 months)	254/298	86.7% (82.3-90.4)	162/298	87.6% (81.9-92.0)	
Diarrhoea					
Diarrhoea in last 2 weeks	83/298	27.9% (22.8-33.3)	74/298	24.8% (20.0-30.1)	
Anaemia					
Total Anaemia (Hb <11 g/dl)	101/188	53.7% (46.3-61.0)	104/191	54.5% (47.1-61.7)	High if 40%
Mild (Hb 10-10.9)	56/188	29.8% (23.4-36.9)	59/191	30.9% (24.4-38.0)	

	MEHEBA		MAYUKWAYUKWA		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
Moderate (Hb 7-9.9)	42/188	22.3% (16.6-29.0)	40/191	20.9% (15.4-27.4)	
Severe (Hb <7)	3/188	1.6% (0.3-4.6)	5/191	2.6% (0.9-6.0)	
Mean Hb (g/dL)	10.8 g/dl (1.7 SD) [5.2 min,19.6 max]		10.9 g/dL (1.7 SD) [5.7 min,16.8 max]		
CHILDREN 0-23 months					
IYCF indicators					
Ever breastfed	144/155	92.9% (87.7-96.4)	128/132	97.0% (92.4-99.0)	
Timely initiation of breastfeeding	73/155	47.1% (39.0-55.3)	50/132	37.9 % (29.6-46.7)	
Exclusive Breastfeeding under 6 months	12/57	21.1% (11.4-33.9)	11/36	30.6% (16.3-48.1)	
Continued breastfeeding at 1 year	9/11	81.8% (48.2-97.7)	15/15	100.0% (100-100)	
Continued breastfeeding at 2 years	5/9	55.6% (21.2-86.3)	17/17	100.0% (100-100)	
Introduction of solid, semi-solid or soft foods	21/41	51.2% (35.1-67.1)	3/23	13.0% (2.8-33.6)	
Children bottle fed	14/155	9.0% (5.0-14.7)	32/132	24.2% (17.2-32.5)	
Consumption of iron rich or iron fortified foods	15/98	15.3% (8.8-24.0)	12/96	12.5% (6.6-20.8)	
Proportion of children aged 0-23 months who receive infant formula (fortified or non- fortified)	25/145	17.2% (11.5-24.4)	6/95	6.3% (2.4-13.2)	
Proportion of children aged 6-23 months who receive FBF	12/145	8.3% (4.3-14.0)	11/95	11.6% (5.9-19.8)	
Proportion of children aged 6-23 months who receive FBF++	18/145	12.4% (7.5-18.9)	1/95	1.1% (0.0-5.7)	
WOMEN 15-49 years					
Anaemia (non-pregnant women)					
Total Anaemia (Hb <12 g/dl)	66/173	38.2% (30.9-45.8)	56/176	31.8% (25.0-39.2)	High if 40%
Mild (Hb 11-11.9)	24/173	13.9% (9.1-19.9)	29/176	16.5% (11.3-22.8)	
Moderate (Hb 8-10.9)	40/173	23.1% (17.1-30.1)	26/176	14.8% (9.9-20.9)	
Severe (Hb <8.0)	2/173	1.2% (0.1-4.1)	1/176	0.6% (0.0-3.1)	
Mean Hb (g/dL)	12.3 g/dl (1.7 SD) [7.8 min, 16.0 max]		12.6 g/dL (1.6 SD) [7.8 min, 17.0 max]		

	MEHEBA		MAYUKWAYUKWA		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
WOMEN 15-49 years ANTENATAL CLINIC					
Women enrolled in the ANC program	33/35	94.3% (80.8-99.3)	34/34	100.0% (100.0-100.0)	
Women received iron foliate pills	32/35	91.4 % (76.9-98.2)	33/34	97.1% (84.7-99.9)	
FOOD SECURITY					
Food distribution					
Proportion of household with a ration card	27/150	18.0% (12.2-25.1)	53/163	32.5% (25.4-40.23)	
Average number of days targeted GFR lasts out of 30 days	22.1 days (3.5 SD) of 30 days		12.5 days (4.9 SD) of 30 days		
Proportion of households reporting that the targeted GFD lasted >75% of the distribution cycle [23 days or more]	17/27	63.0% (42.4-80.6)	1/52	1.9% (0.0-10.3)	
Proportion of households reporting that the targeted GFD lasted 75 of the distribution cycle [22 days or less]	10/27	37.0% (19.4-57.6)	51/52	98.1% (89.7-100)	
Borrowed cash, food or other items without interest	45/150	30.0% (22.8-38.0)	34/163	21.0% (15.0-28.1)	
Borrowed cash, food or other items with interest	16/150	10.7% (6.2-16.7)	15/163	9.2% (5.2-14.7)	
Sold any assets (furniture, seed stocks, tools, other NFI, Livestock etc.)	66/150	44.0% (35.9-52.3)	43/163	26.4% (19.8-33.8)	
Requested increase remittances or gifts as compared to normal	24/150	16.0% (10.5-22.9)	12/163	7.4% (3.9-12.5)	
Reduced the quantity and/or frequency of meals	75/150	50.0% (41.7-58.3)	97/163	59.9% (51.9-67.5)	
Begged	42/150	28.0% (21.0-35.9)	53/163	32.5% (25.4-40.3)	
Engaged in potentially risky or harmful activities	14/150	9.3% (5.2-15.2)	19/163	11.7% (7.2-17.6)	

	MEHEBA		MAYUKWAYUKWA		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
Household Dietary Diversity Score (HDDS)					
Average Household dietary diversity score	5.6 (1.9 SD) [1.0 min, 10.0 max]		4.9 (2.9 SD) [1.0 min, 11.0 max]		
Proportion of households <i>not consuming any</i> vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	1/150	0.7% (0.0-3.7)	78/163	47.9% (40.0-55.8)	
Proportion of households consuming either a plant or animal source of vitamin A	10/150	6.7% (3.2-11.9)	58/163	96.9% (93.0-99.0)	
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	61/150	40.7% (32.7-49.0)	69/163	42.3% (34.6-50.3)	
WASH					
Proportion of households using drinking water containers covered or narrow necked					
Proportion of households that say they are satisfied with the drinking water supply	92/150	61.3% (53.0-69.2)	105/163	64.4% (56.6-71.7)	
Proportion of households that use a covered or narrow necked container for storing their drinking water	85/150	56.7% (48.3-64.7)	102/163	62.6% (54.7-70.2)	
Proportion of households using improved drinking water source	140/150	93.3% (88.1-96.8)	133/163	81.6% (77.3-89.6)	
Water quantity					
Proportion of households that use:					Average quantity of water available per person / day 20 litres
20 lpppd	45/150	30.0% (22.8-38.0)	80	49.1% (41.2-57.0)	
15 - <20 lpppd	24/150	16.0% (10.5-22.9)	30	18.4 % (12.8-25.2)	
<15 lpppd	81/150	54.0% (45.7-62.2)	53	32.5% (25.4-40.3)	
Safe excreta disposal					
Proportion of households that use:					
An improved excreta disposal facility	18/150	12.0% (7.3-18.3)	23/163	14.1% (9.2-20.4)	

	MEHEBA		MAYUKWAYUKWA		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
(improved toilet facility, 1 household)					
A shared family toilet (improved toilet facility, 2 households)	25/150	16.7% (11.1-23.6)	29/163	17.8% (12.3-24.5)	
A communal toilet (improved toilet facility, 3 households or more)	9/150	6.0% (2.8-11.1)	34/163	20.9% (14.9-27.9)	
An unimproved toilet (unimproved toilet facility or public toilet)	98/150	65.3% (57.1-72.9)	21/163	47.2% (39.4-55.2)	
Proportion of households with children under three years old that dispose of faeces safely	9/150	93.8% (88.1-97.3)	91/96	94.8% (88.3-98.3)	
Mosquito coverage					
Proportion of households owning at least one LLIN	112/150	74.7% (66.9-81.4)	125/163	76.7% (69.4-82.9)	Target of >80%
Proportion of total population (all ages) who slept under LLIN	458/893	51.3%	661/963	68.6%	
Proportions of children under 5 years who slept under LLIN	55/121	45.5%	84/104	80.8%	
Proportions of pregnant women who slept under LLIN	18/31	58.1%	20/29	68.9%	
Average number of persons per LLIN (Mean)	3.6 Persons per Net		2.7 Persons per Nets		2 persons per LLIN

Interpretation of key findings

- The prevalence of the Global Acute Malnutrition for Meheba and Mayukwayukwa settlements was 4.1% (2.4-7.0) and 5.8% (3.6-9.0) respectively. These levels of malnutrition were within or close to the “acceptable” ranges according to the WHO classification of public health significance of the anthropometric results for children aged 6-59 months (acceptable when GAM <5%).
- The prevalence of global stunting (chronic malnutrition) was 36.7% (31.4-42.4) in Meheba and 35.2% (29.9-40.8) in Mayukwayukwa settlements. Both rates were within the “serious” category according to the WHO classification of public health significance of the anthropometric results for children aged 6-59 months. The upper limit of the confidence intervals was above 40 in both settlements, this call for caution interpretations of the stunting results as denotes the situation could be “critical”.
- The coverage for measles vaccination when assessed using the “measles vaccination with card or confirmation from mother or caregiver” in Meheba settlement was 85.7% and 87.6% in Mayukwayukwa settlement. These levels were below the UNHCR set targets (95%). All children had health or immunization card.
- The total anaemia prevalence for children aged 6-59 months was 53.7% (46.3-61.0) in Meheba and 54.5% (47.1–61.7) in Mayukwayukwa settlements. These rates are classified as “high” according to the WHO classification of public health situation for anaemia. The prevalence of total anaemia among non-pregnant women at reproductive age (15-49 years) in Meheba was 38.2% (30.9–45.8) while in Mayukwayukwa was 31.8% (25.0-39.2). The total anaemia prevalence of the non-pregnant women falls in the “medium” according to the WHO classification of public health situation for anaemia. However, women’s results in Meheba need to be interpreted with caution because the upper limit of the confidence interval was above 40 percent.
- Targeted food distribution system was implemented where only identified vulnerable individuals / households were provided with food ration cards. Therefore, only 18% and 32.5% in Meheba and Mayukwayukwa were found to have food ration cards.
- About 63.0% (42.4-80.6) and 1.9% (0.0-10.3) of the households with ration card in Meheba and Mayukwayukwa respectively, informed that the food ration received from the one month cycle before the nutrition survey lasted to more than 23 days (75%) of the 30 days expected duration. In Meheba the most frequently used coping mechanism by the refugee households was selling of any assets (furniture, seed stocks, tools, other NFI, Livestock etc.) whereby 44.0% (35.9-52.3) reported to have used this negative coping mechanism. In Mayukwayukwa the most used coping mechanism was to reduce the quantity and/or frequency of meals where 59.9% (51.9-67.5) of the sampled households reported to have used this coping mechanism.
- The infant and young child nutrition indicators in Meheba and Mayukwayukwa showed that; children who have ever breastfed were 92.9% in Meheba and 97.0% in Mayukwayukwa settlements. Timely initiation of breastfeeding was 47.1% in Meheba and 37.9% in Mayukwayukwa settlements. Exclusive breastfeeding was very low at 21.1% (11.4-33.9) in Meheba and 30.6% (16.3-48.1) in Mayukwayukwa refugee settlements.
- In Meheba the average household dietary diversity score based on the established 12 food groups was 5.6 and in Mayukwayukwa was 4.9. The proportion of households consuming organs, meat, or fish / sea foods (food source of haem iron) was 42.3% in Mayukwayukwa and 40.7% in Meheba settlements.
- About 61.3% and 64.4% of the households in Meheba and Mayukwayukwa reported to be satisfied with the drinking water supply. However 54.0% and 32.5% of the households reported to receive less than 15 liters of drinking water per day. Water is a human right issue. UNHCR recommends that a person receives 20 liters per day.
- Approximately 65.3% in Meheba and 47.2% in Mayukwayukwa used unimproved toilet or latrine to dispose human feces, which was very poor in Meheba.
- Of the surveyed households, 74.7% in Meheba and 76.7% in Mayukwayukwa confirmed that they owned at least one LLIN. The proportion of pregnant women who slept under the LLIN was 58.1% and 69.9% in Meheba and Mayukwayukwa settlements respectively. The proportion of children who slept under the LLIN was 45.5% and 80.8% in Meheba and Mayukwayukwa. For both pregnant women and children the situation was poor in Meheba.

Recommendations and priority areas

A. Nutrition

- a. Improve the quality of services in the selective feeding programme.
During the nutrition survey training, health and nutrition workers mentioned that the programme experiences high staff turnover. Most of the staff lacks basic knowledge on organizing the feeding programs and procedures for identifications of malnourished children in the settlements. Community health workers and social workers should be trained on community screening and referral mechanism. Agree on the frequencies and time to conduct community screening with MUAC. (UNHCR, MOH and MCD-MCH)

- b. Children 6-59 months identified with MUAC less than 12.5 centimeters should be further assessed using the weight for height z-score admission criteria. SFP supplements should be made available for these children. (UNHCR, MOH and MCD-MCH)
- c. Awareness and sensitization on the importance of supplementary feeding programme, measles vaccination, vitamin A supplementation and diarrhoea assessment should be done. (UNHCR, MOH and MCD-MCH)
- d. Partners working on community development, social welfare, health and nutrition should identify families with nutritionally healthy children and use these families as satellites in the settlements applying the “positive deviants” approach. The programme should target children 6-59 month’s old, moderate acute malnourished and severe acute malnourished children without medical complications, pregnant and lactating women to treat and reduce malnutrition and anaemia rates. The motive is to implement behaviour change and communication activities on prevention of malnutrition. (UNHCR, MOH and MCD-MCH)
- e. The health programme should maintain the current high coverage of health / immunization / growth monitoring cards. The health workers should be trained on the importance of proper documentation of the health services that are given to children, pregnant and lactating women in the Maternal and child health programmes. (MOH and MCD-MCH)
- f. Undertake bi-annual joint nutrition surveys in all camps to analyze trends and facilitate program impact evaluation. Integrate the use of digital data collection to decrease data entry time and data check, hence to raise the quality of data. (UNHCR and IPs)

B. Prevention and control of anaemia

- a. Reinforce the current existing interventions in preventing, controlling and treating anaemia: consider distribution of LLIN to the refugee population, deworming campaigns to cover children from 12 months to school going children, raise coverage of antenatal activities, provision of iron and folic acid tablets to pregnant women.
- b. Provide information and education for the refugee community on anaemia and micronutrient deficiencies;
- c. Consider introducing a new approach to improve food security and livelihood i.e. use of cash and or voucher system, income generating activities, cash and food for work programmes, and augmenting safety net programmes for vulnerable groups i.e those receiving food assistance from UNHCR;
- d. Strengthen training of health staff on anaemia detection, treatment and reporting as well as supply equipment for measuring anaemia.

C. Water, sanitation and hygiene

- a. Investigate on the on-going hygiene promotion actions, if they have been successful or if the strategy used needs to be changed particularly in Meheba where the use of unimproved toilet facility or public toilet is very high 65.3% (57.1-72.9).
- b. Identify areas of concern with regard to hygiene that require further in-depth actions with communities; i.e. construction of improved latrines,
- c. Work with refugee community in Meheba settlement to identify the reasons that cause majority of the refugees to receive less than 15 litres of water per person per day.

D. Infant and Young Child Feeding programme (IYCF)

- a. Raise awareness, promotion, and protection of IYCF through expanded mother-to-mother support groups; and develop strategies to prevent the use of bottle-feeding which is a risky IYCF practice in the settlements.
- b. Seek collaboration with UNICEF and National Food and Nutrition Commission in Lusaka - Zambia so that training on breastfeeding counselling is provided in order to raise the current sub optimal IYCF indicators in the settlements.

E. Mosquito net coverage

- a. Investigate in the community if there are LLIN, which are kept in the houses and not in use. Conduct a hang-up campaign so that unused LLINs are hung over sleeping surfaces and they are used.
- b. Mobilize and distribute LLINs to all age groups to achieve ownership of sufficient LLINs to reach universal coverage.
- c. Provide health education on the importance of sleeping under LLINs.

F. Food security, coping mechanisms and household dietary diversity

- a. Home gardening is possible in both settlements; seek collaboration with the Ministry of Agriculture and FAO under ONE UN umbrella for refugees to improve production of vitamin A rich vegetables and tubers, dark green leafy vegetables and vitamin A rich fruits.
- b. Support animal and poultry keeping so as to increase the availability of animal protein and micronutrients in the settlements through egg and meat production.

INTRODUCTION

This report presents two nutrition surveys conducted in Meheba and Mayukwayukwa Settlements. The surveys were carried out from December 8th to 21st 2013.

This report is divided into the following sections:

- The *background*: this section sets out background information related to the health, nutrition and food security situation for Meheba and Mayukwayukwa settlement as a whole.
- The *methodology*: the methodology used for the surveys was similar in all settlements.
- The *results*: presents the findings, and are all reported separately for each settlement survey.
- The *discussion*: refers to all settlements surveys and highlights similarities and differences between the settlements and trend monitoring over previous surveys.
- The *recommendations*: are made for all settlement as a whole because of the limited variation in the findings between the settlements.

BACKGROUND INFORMATION

Zambia is in Southern Africa and surrounded by eight countries; it has not gone through conflicts, however, has been recipient of refugees immediately after its independence. It has suffered consequently mass refugee influxes, and has hosted refugees from Angola, Democratic Republic of Congo, Namibia, Mozambique, Zimbabwe, Burundi, Rwanda and Somalia. The Government of the Republic of Zambia (GRZ) has continuously maintained an open-door policy by granting asylum to populations seeking refugee status. Following a successful voluntary repatriation and relocation of the remaining caseloads of the refugees in previous camps Kala, Nangweshi and Mwange, there are currently two refugee settlements in Zambia.

Mayukwayukwa refugee settlement is located in the West of Kaoma. Mayukwayukwa refugee settlement begun in 1966, and is the oldest refugee settlement in Africa. By the end of October 2013, it hosted 18,202 refugees. Meheba refugee settlement started in 1971 in response to the influx of thousands of individuals fleeing the war of independence in Angola. This settlement is located 70 kilometers from the town of Solwezi in the North Western Province of Zambia and covers 800 square kilometers and by the end of October 2013, hosted 11,244 refugees.

Selective feeding programme

Supplementary feeding programme is implemented in Meheba and Mayukwayukwa refugee settlements. Beneficiaries are registered in the programme based on specific criteria. Its main aim is to prevent and reduce acute malnutrition among moderate malnourished children below 5 years, pregnant and lactating women. Beneficiaries in the SFP receive take home food packages on biweekly basis. The Community Health Workers (CHWs) and Community Development Workers (CDW) are equipped with MUAC tapes. Through the outreach system, the CHWs and CDW are responsible for screening all children 6-59 months. Children with MUAC ≥ 115 mm and < 125 mm are sent to the SFP where their weight and height/length is measured. Their measurement are compared with the z-score where children with WFH < -2 z-score & ≥ -3 z-score as per the 2006 WHO Growth Standards are enrolled in the SFP. These children are checked for appetite, alertness and absence of signs of sickness.

Children found with < 115 mm are sent to the clinic for further assessment; those with oedema grade 1 and or 2 and their z-score is < -3 z-scores of the WHO growth standards of 2006 and passes the appetite test and are active with no medical signs are enrolled in the outpatient therapeutic feeding programme. Children found with severe bilateral pitting oedema (grade 3 or grade 1 or 2) or MUAC < 115 mm with their WFH < -3 z scores of the WHO Growth Standards. Furthermore if these children are not active, have medical complications or have anorexia they will be referred to the district hospitals for further managements.

At the time of the survey there were 32 children in Meheba and 61 children in Mayukwayukwa enrolled in the SFP. During the training sessions health workers both national and refugees working in the health and nutrition programme indicated that their level of skills was minimal because some of them had never received any formal training on the management of acute malnutrition. There had been high staff turnover in the health and nutrition programme. A formal training in management of acute malnutrition, use of the UNHCR and WFP Guidelines of the feeding programmes in the management of acute malnutrition, management of micronutrient deficiencies and infant and young child feeding practices in the context of HIV will assist in improving the quality of services.

Food security (Food access and availability), Jan. 2010 - Jun. 2013

Following the repatriations of Angolans (76,000) and Congolese (43,000) between 2003 and 2011 the population of refugees was reduced to nearly 28,000 hosted in Meheba and Mayukwayukwa refugee settlements. 6,000 refugees were identified as vulnerable through a profiling exercise which was conducted between August and November 2010 in both settlements. The criteria used to identify the vulnerable refugees included; severe disabilities, chronically ill, unsupported elders, single headed households, child-headed households, children under foster care, orphans and new arrivals. During that period WFP provided adequate basic nutritious diet. Between January 2010 and June 2013 vulnerable refugees received monthly general food ration comprised of 12.5 kg maize meal or 13.5 maize grain, 1.5 kg High Energy Protein Supplements (HEPS), 1.8 kg pulses, 0.75 kg vegetable oil and 0.15 kg iodized salt per person per month. By the end of May 2013, the refugee populations eligible to receive the general food distribution were below 5000 the mandated figure for WFP to continue providing the general food ration as per

the Global UNHCR and WFP Memorandum of Understanding. Due to the reduced number of refugees WFP had to stop providing the general food ration. From June 2013, UNHCR took over the responsibilities of providing general food ration to the identified vulnerable refugees in Meheba and Mayukwayukwa settlements. UNHCR is now responsible in mobilizing, transportation, storage and distribution of the general food ration. UNHCR is reporting regularly to WFP on issues pertaining to general food distribution in the settlements.

All refugee new arrivals register in the food distribution list for a maximum of 1 year. This permits refugee new arrivals to farm their own food, become self-sufficient and are graduated from the food list once they harvest their farmed food products.

Currently the list of vulnerable refugees in Mayukwayukwa has 1,372 refugees while in Meheba has 1,331 refugees.

TABLE 2: Food basket and daily food ration in Meheba and Mayukwayukwa scellemnts Jun.2013 to date

Daily												
Ration	Energy	Protein	Fat	Calcium	Iron	Iodine	Vit. A	Thiamine	Riboflavin	Niacin	Vit.C	
g/person/day	Kcal	g	g	mg	mg	µg	µg RE	mg	mg	mg	mg	mg
450	1,575	45.0	18.0	32	12.2	0	0	1.73	0.90	9.9	0	
60	201	12.0	0.7	86	4.9	0	0	0.30	0.13	3.7	0	
20	177	0.0	20.0	0	0.0	0	180	0.00	0.00	0.0	0	
0	0	0.0	0.0	0	0.0	0	0	0.00	0.00	0.0	0	
10	0	0.0	0.0	0	0.0	600	0	0.00	0.00	0.0	0	
50	175	7.5	3.0	87	6.9	0	251	0.30	0.40	4.4	25	
590	2,128	64.5	41.7	204	24.0	600	431	2.33	1.44	18.0	25	

Note: From this food ration, the percentage of energy supplied by the cereals, pulses and vegetable cooking oil (macronutrients) was 70% cereals, 12% protein and 18% fats.

Access to health and reproductive health services

UNHCR through its protection mandate ensures provision of comprehensive health services in the settlements. The Ministry of Health offers both curative and preventive health services in the settlements. UNHCR on its part provides drugs to augment the government services. All refugees residing in the settlements have free access to the medical care. Depending with the location of the refugee households, health clinics are within 5 to 15 kilometers radius. The host communities access health services in the settlements up to a radius of 30 kilometers. Medical cases requiring advanced care are referred to the district hospitals where an ambulance is made available. In the settlements health services is provided 24 hours.

At the end of 2013; the three leading causes of morbidity were; fever (21%), diarrhea (22.8%) and upper respiratory tract infection (39%) and fever (24%), diarrhea (19%) and upper respiratory tract infection (26%) in Meheba and Mayukwayukwa refugee settlements respectively.

As regarding routine immunization at the end of 2013; fully vaccinated (78%), measles (81%) and vitamin A supplementation (83%) in Meheba and fully vaccinated (75%), measles (79%) and vitamin A supplementation (73%) in Mayukwayukwa settlement. The UNHCR coverage standard for measles is 95% and for vitamin A is 90%.

Maternal and newborn health antenatal coverage of at least four or more visits for pregnant women stood was 64% and 68 in Mayukwayukwa and Meheba settlements by the end of 2013. The UNHCR standard is 90% standard. The proportion of deliveries attended by skilled personnel was 71.4% at the beginning of the year and dropped to 51.7% at mid-year in 2013. The UNHCR standard is 90%. The proportion of newborn babies born with low birth weight (<2500g) was below 5%. The UNHCR standard indicator is 15%.

Water, Sanitation and Hygiene Situation

The WASH sector is one of the key functions, which UNHCR is responsible for delivering adequate services in the settlements. The Department of Water Affairs in Zambia is the Partner of UNHCR that manages WASH programme in the settlements. The Department of Water Affairs provides safe and clean water for domestic consumption, waste management, vector and rodent control and hygiene promotion.

In the two settlements refugees access water from different sources; taps, boreholes, protected and unprotected dug wells, rain water, rivers and ponds. Boreholes are the most commonly water sources with the utilization rate ranging from 42% in Meheba to 83% in Mayukwayukwa. Challenges with frequent repair of the water pumps and fuel provisions compromises efficient delivery of water services. However, records in the month of October 2013 indicated that refugees received 20 liters of water per person per day meeting the SPHERE and UNHCR standards. Percentage of persons of concern living within 200 meters from water point at the beginning of 2013 was 98% and at mid-year in 2013 had dropped to 90%. The UNHCR standard is 90%.

The Department of Water Affairs promotes good health and hygiene environmental practices. By the end of 2013, it recorded that the coverage of family latrines was 84% in Meheba and 85% in Mayukwayukwa. The UNHCR standard is 85%. In both settlements about 76 individuals shares one communal refuse pit. The standard for UNHCR is 600 individuals per communal refusal pit. At the end of 2013, the Department of Water Affairs had constructed 122 latrines of which 15 were elected in public places.

Agriculture production and market functions

In Mayukwayukwa refugee settlement household are allocated 2.5 hectares of land for agriculture purposes. Majority of the Angolans refugees (40%) are involved in farming activities and produce enough food products for their own consumptions. It is estimated that only 20% of other refugees’ nationalities are involved in farming activities. Refugees grow mainly, maize, sweet potatoes, sorghum, and millet, and cassava, pearl and groundnuts. In Meheba, settlement refugees have access to land for farming where at least 1.5 hectares of land have been allocated to each household. In Meheba more than 80% of the refugees practice agriculture. The crops mostly farmed are maize, rice, sweet potatoes, popcorn, sugar, beans and groundnuts. A significant number of households are involved in vegetable production i.e. cabbages and tomatoes.

The market forces in Meheba refugee settlement are very functional. Refugees exchange their goods and services through cash, barter and labour exchange. The refugees in Meheba access markets in the town of Solwezi and Copper belt. The market in Mayukwayukwa refugee settlement although smaller compared with the Meheba still offers different varieties of food commodities and some small shops around. There are several artisans around the market. A good road network to Mayukwayukwa allows refugees to access external markets as far as Kaoma and Mongu town.

The recent UNHCR Market study found that the vulnerable households apart from producing and buying their own food products they also employ also negative coping mechanisms to obtain food for their households, this includes; begging, borrowing, eating with neighbors, casual labor in exchange for food, and a barter system, even trading clothes for food. According to the UNHCR Market survey report, Angolans and Rwandans were much more involved in the above-mentioned coping mechanism as compared to other nationalities.

TABLE 3: Total production (in MT) for host community compared to refugee population in August 2013

		Maize	Cassava	Sorghum	Millet	Sweet potatoes	Ground nuts
Mayukwayukwa	Host community	361	1269	37	17	16	11
	Refugees	198	1009	21	13	14	7
Meheba	Host community	263	1026	41	21	24	13
	Refugees	169	994	19	16	19	6

SURVEY OBJECTIVES

The main objective of this standardized expanded nutrition survey in the two refugee settlements is to determine the overall health and nutrition status, to determine anaemia and mortality rates in order to establish programme strategies and activities to sustainably improve the refugee livelihoods, nutritional and health status.

In order to achieve the main objective, the study will focus on the following specific objectives:

- a. To measure the prevalence of acute malnutrition in children aged 6 - 59 months.
- b. To measure the prevalence of stunting in children aged 6-59 months.
- c. To determine the coverage of measles vaccination among children aged 9 - 59 months and to determine the coverage of measles to the targeted children aged 9 - 23 months.
- d. To determine the ownership of mosquito nets (all types and LLINs) in households.
- e. To determine the utilisation of LLINs mosquito nets by children 0-59 months and non-pregnant women.
- f. To determine the coverage of vitamin A supplementation among children aged 6-59 months.
- g. To measure the prevalence of anaemia in children aged 6 - 59 months.
- h. To measure the prevalence of anaemia in non-pregnant women at reproductive age, 15 - 49 years.
- i. To determine the population’s access to, and use of, improved water, sanitation and hygiene facilities.
- j. To assess the proportion of households who say they are satisfied with their water supply
- k. To measure infant and young child feeding practices among children aged 0-23 months.
- l. To explore the food security situation of the general population
- m. To assess household dietary diversity
- n. To determine the extent to which negative coping strategies are used by households
- o. To estimate the prevalence of diarrhea among children
- p. To provide recommendations for appropriate response mechanisms.

Secondary objectives

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

METHODOLOGY

Sample size

The Standardized Monitoring and Assessment of Relief and Transitions (ENA for SMART) software was used to estimate the sample size while adhering to the UNHCR SENS methodology procedures. In both settlements, the sample sizes were calculated based on the highest GAM prevalence rate (JAM report 2007). The total population, total households, total under 5 years children, average family sizes and the percentage of the children under 5 years were based on the October 2013 updated UNHCR ProGres data. In all settlements, 10% of the sample size was added to take care of the non-response from the sampled households and / or individuals. In both locations, systematic random sampling approach was used.

The sample size was estimated based on 8.4% global acute malnutrition as reported in the 2007 Joint Assessment Report, ±3.5% desired precision as per UNHCR SENS guidelines, average household size 5.1 in Meheba and 5.15 in Mayukwayukwa, under 5 years population 19.2% in Meheba and 19.1% in Mayukwayukwa, and an additional 10% of the sample size were added in each settlement to take care of the non-responses. At the survey period the population was 11,244 in Meheba and 18,202 in Mayukwayukwa.

TABLE 4: Sample size calculation for anthropometry measurements for Meheba and Mayukwayukwa settlements, (December 2013)

Parameter	Meheba	Mayukwayukwa
Estimated prevalence (%)	8.4	8.4
± Desired precision (%) (UNHCR SENS guidelines)	3.5	3.5
Average household size	5.10	5.15
<5 population (%)	19.18	19.10
Non response households (NRR) (%)	10	10
Total settlement population (ProGres)	11,244	18,202
Children to be included	241	241
Households to be included for Anthropometry and Health module (ENA for SMART) Including NRR	305	303

The number of households the survey aimed to visit during data collection is presented in table 5.

TABLE 5: Calculated sample size for all modules

Modules	Meheba	Mayukwayukwa
Households included for Anthropometry and Health module (ENA for SMART)	320	300
Households included for anaemia assessment for children and women (UNHCR SENS guidelines)	320	300
Households included for IYCF module (UNHCR SENS Guidelines)	320	300
Households included for Food Security module (UNHCR SENS Guidelines)	160	150
Households included for WASH module (UNHCR SENS Guidelines)	160	150
Household included for mosquito net coverage	160	150

Sampling Procedure: Selecting households and individuals

The two cross-sectional surveys were conducted independently in Meheba and Mayukwayukwa using systematic random sampling. The sampled households were randomly generated in ENA for SMART based on the total number of households in each settlement. Generated numbers were assigned to the list of household, which was provided by the UNHCR Demographic ProGres unit that is responsible for managing the database. Each randomly selected household had a unique settlement address. On a monthly basis UNHCR demographic ProGres database is updated taking care of unoccupied plots and people actually occupying the referred plots.

Selecting Households and Target Individual Samples

Each team was provided with a list of households to survey on a daily basis that ranged from 10 to 15 houses. If a target individual or the entire household members were absent, the teams had to return to the house at least two times in a day. Many families were not available in the morning sessions due to farming activities, such families appointed the teams to visit them in the afternoon. The teams were instructed that if they were unsuccessful after two visits, the target individual and / or household be recorded as absent. If a targeted individual and / or entire household refused to participate, their decision was respected. In this survey, absentees including individuals or household members who opted out were not replaced.

All children with physical deformity obstructing certain anthropometric measurements, i.e. height and MUAC, had their sex recorded, age recorded and weight measured. Selected households without children aged 0 to 59 months interviewed for other questionnaires/ modules i.e. anaemia for women, food security, WASH and mosquito nets while adhering to the survey instructions accordingly.

If a selected child who was at the health / nutrition center at the time of the survey, survey teams visited the health and nutrition centers to collect the required measurements and records; when it was not possible to visit the health/nutrition center, the child was given an unique number and was recorded “absent” and was not “replaced”. Survey teams reported that such a child was in a health/nutrition center at the time of the survey. This practice differed from the standard SMART recommendation that determines nutrition surveys always conducted in large geographic areas and where it is often not possible to go to the health/nutrition center to take measurements of the admitted children.

Questionnaires

The UNHCR SENs questionnaires were used as these are in English language, they were translated into “Mbundu” languages in addition the Kinyarwanda and Congo Swahili versions were used. All questionnaires were pre-tested prior to the start of the actual survey. The Congo Swahili version and Kinyarwanda versions were obtained from the UNHCR SENS website, discussed and ascertained by the teams in both locations. Attached to this report is the “Mbundu” translated version (**Appendix 3**).

Six module questionnaires as per the UNHCR standardized expanded nutrition survey used to collect information on relevant indicators of the different target groups and households as indicated in the survey objectives. The six module questionnaires covered the following themes:

Module 1: Children 6-59 months: Included questions and measures on children aged 6-59 months. Information collected: anthropometric status, oedema, and enrolment in selective feeding programmes, immunization (measles), and vitamin A supplementation in past six months, and morbidity from diarrhea in past two weeks.

Module 2: Anaemia: Children 6-59 months and Women 15-49 years: All children assessed for anthropometric measurements had their hemoglobin levels measured. *Women at reproductive age, 15 – 49 years:* information was collected on pregnancy status, coverage of iron-folic acid pills and ANC attendance for pregnant women and hemoglobin assessment for non-pregnant women.

Module 3: Infant and Young Child Feeding: Included questions to determine practices on infant and young child feeding for children aged 0 - 23 months.

Module 4: Food Security: This collected information related to access and use of the targeted food distribution ration, negative coping mechanisms used by household members and household dietary diversity. In Zambia refugee settlements general food distribution was discontinued since June 2013.

Module 5: Mosquito net coverage: This assessed households' ownership of mosquito nets, looked into usages of mosquito nets and sought to establish the coverage of indoor residual spraying among households.

Module 6: WASH: The main objective of the water, sanitation and hygiene module were to establish the use of drinking water from either improved and / or unimproved drinking water sources, use of improved and unimproved excreta disposal.

Measurement Methods

Household-level indicators

Food security: the questionnaire adopted was the UNHCR's Standardized Expanded Nutrition Survey Guidelines for Refugee Populations (Version 2; 2013)

Water, sanitation and hygiene: the questionnaire adopted was the UNHCR's Standardized Expanded Nutrition Survey Guidelines for Refugee Populations (Version 1.3 March 2012)

Mosquito net: the questionnaire adopted was the UNHCR's Standardized Expanded Nutrition Survey Guidelines for Refugee Populations (Version 1.3 March 2012)

Individual-level Indicators

a) Anthropometric measurements:

Sex of children: sex was recorded as male (m) or female (f).

Birth date or age in months for children 0-59 months: the exact date of birth (day, month, and year) was recorded from age documentation records i.e. immunization or EPI or growth monitoring cards or child health cards. In the absence of age documentation records the age of the child was estimated by the use of the age calendar provided full months. In situations where age could not be reduced through age calendar or by probing, the length/height of the child was used to include the child in the survey provided fitted with the inclusion criteria of 65 cm to 110 cm length/height.

Weight of children 6-59 months: measurements were taken to the nearest 100 grams with one decimal point using a digital weighing scale (SECA) with a wooden board to obtain the level and stabilize it on the floor. Children had their weight measured while nude.

Height/Length of children 6-59 months: children's height or length was taken to the closest using a wooden height board (Shorr Productions), recorded at one decimal point in centimeters. All children measured less than 87cm had their length measured while lying down, while those equal or greater than 87cm had their height measured while standing up.

Oedema in children 6-59 months: bilateral pitting oedema was assessed by applying gentle thumb pressure on top of both feet of the child for a period of three seconds or counting one thousand and one, one thousand and two and one thousand and three. Followed by lifting the thumb a child had oedema if depression was observed in both feet.

MUAC of children 6-59 months: the circumference of the child's mid-upper arm point of the left arm established between the shoulder and elbow measured to the nearest millimeter with one decimal point using a standard tape. MUAC measurements were recorded in millimeters.

Child enrolment in selective feeding programme: selective feeding programme coverage was assessed for children aged 6 to 59 months if enrolled in the therapeutic or supplementary feeding programme. Guardians or parents of children presented the admission cards in the respective programmes or had to show the feeding supplies provided in the TFP or SFP.

Measles vaccination: for children 6-59 months: measles vaccination was recorded from all children aged 6 to 59 months by checking for the date measles vaccine was administered on the immunization card if recorded or by asking the mother or guardian to recall if the immunization card was not present. Data analysis for this indicator was done only for children aged 9-59 months.

Vitamin A supplementation in past 6 months: whether the child aged 6 to 59 months received a vitamin A capsule over the past six months was recorded from the immunization card or road to health card if available or by asking the mother or guardian to recall if no card is available. A vitamin A capsule was shown to the mother or guardian when it was not documented on the card or the card was not present.

Diarrhea in past 2 weeks: an episode of diarrhea was defined as three loose stool motions or more within 24 hours. Mothers or guardians were asked if their child aged 6 to 59 months had suffered episodes of diarrhea in the past two weeks from the date of the survey.

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

Hemoglobin concentration: Hb concentration was measured from a capillary blood sample of the child aged 6-59 months and women of 15-49 years index fingertip and recorded to the nearest gram per deciliter with one decimal point by using the portable HemoCue Hb 301 Analyzer (HemoCue, Sweden). If severe anaemia was detected, the child or the woman was referred to the clinic for further management immediately.

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

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

Age of women 15-49 years: women reported age in years which was recorded. Women were asked of their physiological status if they were pregnant or not.

Case Definitions and Calculations

Malnutrition in children 6-59 months: acute malnutrition was defined using weight-for-height index values or the presence of oedema and classified as show in the table below. Main results are reported after analysis using the WHO 2006 Growth Standards. Results using the NCHS 1977 Growth Reference are reported in **Appendix 4**.

TABLE 6: Definitions of acute malnutrition usine weight-for-height and/or oedema in children 6–59 months

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

Stunting or chronic malnutrition was defined using height-for-age index values and was classified as severe or moderate based on the cut-offs shown below. Main results were reported according to the WHO Growth Standards 2006. Results using the NCHS Growth Reference 1977 are reported in **Appendix 4**.

TABLE 7: Definitions of stunting using height-for-age in children 6–59 months

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

Underweight was defined using the weight-for-age index values and was classified as severe or moderate based on the following cut-offs. Main results were reported according to the WHO Growth Standards 2006. Results using the NCHS Growth Reference 1977 are reported in **Appendix 4**.

TABLE 8: Definitions of underweight usine weight-for-age in children 6–59 months

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

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

TABLE 9: MUAC malnutrition cut-offs in children 6-59 months

Categories of MUAC values	Cut off point in milimeters
Normal nutrition status	<125 mm
moderate malnutrition	115 mm and <125 mm
severe malnutrition	< 115 mm

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

Coverage of SFP programme (%) =

100 x

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

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

Coverage of TFP programme (%) =

100 x

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

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

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

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

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

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

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

Exclusive breastfeeding under 6 months:

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

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

Continued breastfeeding at 1 year:

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

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

Introduction of solid, semi-solid or soft foods:

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

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

Children ever breastfed:

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

Children born in the last 24 months who were ever breastfed
Children born in the last 24 months

Continued breastfeeding at 2 years:

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

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

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

Bottle feeding:
Proportion of children 0-23 months of age who are fed with a bottle
Children 0–23 months of age who were fed with a bottle during the previous day
Children 0–23 months of age

Anaemia in children 6-59 months and women of reproductive age: Anaemia was classified according to the following cut-offs in children 6-59 months and non-pregnant women of reproductive age. Pregnant women were not included in this surveys for the assessment of anaemia as recommended by UNHCR {pregnant women are not to be included in routine nutrition surveys for the assessment of anaemia owing to small sample size issues, (usually a small number of pregnant women are found) as well as the difficulties in assessing gestational age in pregnant women)}. Furthermore, observed anaemia levels for both children and non-pregnant women were adjusted for altitude¹. (Sullivan, 2008). Meheba refugee settlement is found at an altitude 4052 feet (1235 meters) above sea level and Mayukwayukwa is found at 3763 feet (1147 meters) above sea levels.

Haemoglobin adjustment
The adjustment for altitude was based on the following equation:
Hb adjustment = 0.032X (altitude X 0.0032808)
+ 0.022 X (altitude X 0.0032808)²

The Hb adjustment is the amount subtracted from each individual’s observed haemoglobin level. Use of the formula was preferred since it subtracted an exact amount of g/dl from the individual Hb based on the exact altitude value rather than clumping a range of altitude’s together and subtracting a value from the Hb reading in individuals in that altitude range. The formula therefore subtracted 0.2 g/dL from both Meheba and Mayukwayukwa settlements.

TABLE 10: Definition of anaemia (WHO 2000)

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

Classification of public health problems and targets

Anthropometric data: The target for the prevalence of Global Acute Malnutrition (GAM) for children 6-59 months of age by camp, country and region should be < 10% and the target for the prevalence of Severe Acute Malnutrition (SAM) should be <2%. The table below shows the classification of public health significance of the anthropometric results for children under-5 years of age according to WHO:

TABLE 11: Classification of public health significance for children under 5 years of age

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

Selective feeding programmes:

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

TABLE 12: Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012)*

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

* Also meet SPHERE standards for performance

¹ Sullivan, K.M, Zuguo Mei Z., Laurence Grummer-Strawn, L.G. and Parvanta, I, 2008; Haemoglobin adjustments to define anaemia; Tropical Medicine and International Health; volume 13 no 10 pp 1267–1271

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

Vitamin A supplementation coverage: UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the target for vitamin A supplementation coverage for children aged 6-59 months by camp, country and region should be >90%.

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

TABLE 13: 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 globally. Diarrhoea contributes to the rate of malnutrition which subsequently leads to high infant and child morbidity and mortality. Refugee populations are often more vulnerable to public health risks and reduced funding can mean that long term refugee settlements often struggle to ensure the provision of essential services, such as water, sanitation and hygiene. Hygienic conditions and adequate access to safe water and sanitation services is a matter of ensuring human dignity and is recognised as a fundamental human right. The following standards (amongst others) apply to UNHCR WASH programmes:

TABLE 14: UNHCR WASH Programme Standards

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

Training, Coordination and Supervision

The surveys were coordinated by the UNHCR Nutrition Survey Coordinator who was assisted by Refugee Officers in both settlements and the UNHCR HIV Counsltant. Further assistance was also provided by the health and nutrition teams from the two settlements.

Data collection were done by six teams independently recruited and trained from each settlement, each team had 5 individuals: one anthropometric measurer, one hemoglobin (HB) measurer, one Mosquito net, one food security and IYCF enumerator, one WASH questionnaires enumerator. One of the five team members was designated as the team leader. Refugee community health workers working in specific zones / blocks and roads in the settlements who were involved in locating and informing heads of sampled households acted as runners throughout the data collection period. Enumerators were drawn from the national and refugee health workers, environmental hygiene teams, and community health workers and social welfares staff. Hemoglobin measurers were either nurses or clinical staff working in different clinics in the settlements. Teams were coordinated and supervised daily.

In Meheba settlement enumerators were trained in all aspects of the nutrition survey from the 2nd December to the 6th December 2013, the last day of the training was used to pre-test the questionnaire and methodology. In Mayukwayukwa the training took place from 12th December to 16th December 2013. Each team had one team leader who was selected based on strenghtens demonstrated during the training sessions. As indicated in the attached training timetable, the training concentrated on: the goal and aim of the survey, functions of team member, orientation to the questionnaires; interviewing skills and data recording; use of age calendar in order to determine children age in months; measuring weight, height and mid upper arm circumference and haemoglobin measurements and sources of common mistakes. The testing session on haemoglobin measurements took place during the training sessions where the survey team members participated, during these sessions standardisation tests were also achieved. Piloting the use of equipments, methodology and the questionnaires itself took place in the nearby hosts communities where 4 households where involved in each location. Issues imaged from the pilot sessions related to translations, ability of team leaders and hand writing were accommodated thereafter. Standardization of measurements for anthropometric measurements took place with Zambian nationals children who were not part of this survey.

Data Collection, Entry and Analysis

Data collection lasted for five days in Meheba, which is a very large settlement, and six days in Mayukwayukwa due to heavy rainfall that interrupted the teams throughout the data collection period. Prior to starting the interview, upon arrival at the household, the team leader explained the aim of the visit and assured the house members of confidentiality. Heads of households or other senior members designated by families provided verbal consent (Appendix 3).

On a daily basis the Nutrition Survey coordinator reviewed all completed questionnaires and provided feedback the following morning prior to start of data collection. Teams not performing well were prioritised during supervisor visits. Data were collected on paper questionnaires; three data clerks were recruited and trained on data entry. Prior data entry questionnaires were verified if data recording followed instructions.

ENA for SMART software (November 24 2012 version) was used to enter data for anthropometry for children 6-59 months. The ENA - Epi Info Software (hybrid) (Centres for Disease Control, version 3.5.4) was used to enter data for children 0-23 months, anaemia data for children 6-59 months and women 15-49 years, household food security indicators, mosquito nets and WASH indicators. On a daily basis data clerks interchanged their laptops and checked all entered records against the original questionnaire to ensure that data were entered correctly.

As part of cleaning, inclusion criteria were set at ENA for SMART default cut off points where; 6 to 59.99 age in months and 65 to 110 height in centimeters; the exclusion criteria during analysis followed ENA for SMART recommendation; excluding all observed means of -3 to 3 weight for height, -3 to 3 height for age and -3 to 3 weight for age standard deviations, commonly known as “smart flags” (UNHCR SENs Guidelines, 2013). Anthropometric data for children were analyzed using ENA for SMART and while the rest of data were analyzed using ENA for EPI INFO software.

Technical consultations were sought from UNHCR Representation Office in Lusaka, UNHCR Field Offices in Solwezi and Mongu and UNHCR DPSM in Geneva.

RESULTS FROM MEHEBA REFUGEE SETTLEMENT

Population demographics and length of stay in the settlements

TABLE 15: Refugee length of stay in Meheba refugee settlement, Solwezi (December 2013)

Length of stay in years	No.	Angolans	Burundians	Congolese	Rwandans
1-5 years	85	(37) 43.5% (32.8-54.7)		(37) 43.5% (32.8-54.7)	(11)13.0% (5.8-27.0)
6-10 years	14	(10) 71.4% (41.9-91.6)		(4)28.6% (8.4-58.1)	
11-15 years	114	(59) 51.8 % (42.2 –61.2)	(2) 1.8% (0.2-6.2)	(27) 23.7% (16.2-32.6)	(26) 22.9% (14.2-29.7)
16-20 years	32	(11) 34.4% (18.6-53.2)		(15) 46.9% (29.1-65.3)	(6) 18.8% (4.0-50.0)
Above 20 years	53	(27) 50.9% (36.8-64.9)		(17) 32.1% (19.9-46.3)	(9) 17.0% (8.1-29.8)
Total	298	(144) 50.4% (34.5-65.1)	(2) 1.8% (0.2-6.2)	(100) 34.9% (21.3-51.4)	(52) 14.3% (6.4-27.3)

Population Demographics

This cross-sectional household survey was able to interview 298 households in Meheba settlement. The household size in this settlement ranged between 1 and 14 with an average household size of 5.2 members. This family size is exactly as the national average which stands at 5.2 (LCMS Report, 2004). When asked of the length of stay in the settlement, the survey found that about 114 households have been in the camp for between 11-15 years, with Angolans occupying 51.8% of them, followed by Congolese with 23.7%.

RESULTS INDIVIDUAL LEVEL, MEHEBA SETTLEMENT

Children 6-59 months, children 0-23 months, and women of reproductive age 15-49 years

TABLE 16: Different population groups and the total number of individuals sampled within each group in Meheba settlement, Solwezi (December, 2013).

Target group	Target sample size	Subjects measured/interviewed during the survey	% of the target
Children 6-59 months	241	298	123.7%
Children 0-23 months	127	155	122.0%
Women 15-49 years	241	250	103.7%

Children 6-59 months

Anthropometric results (based on WHO standards 2006)

TABLE 17: Distribution of age and sex of sample, Meheba settlement, Solwezi (December, 2013).

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	35	51.5	33	48.5	68	22.8	1.1
18-29	45	57.0	34	43.0	79	26.5	1.3
30-41	35	52.2	32	47.8	67	22.5	1.1
42-53	31	56.4	24	43.6	55	18.5	1.3
54-59	18	62.1	11	37.9	29	9.7	1.6
Total	164	55.0	134	45.0	298	100.0	1.2

TABLE 18: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex. Meheba settlement, Solwezi. (December 2013)

	All (n = 294)	Boys (n = 162)	Girls (n = 132)
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(12) 4.1 % (2.4-7.0 95% C.I.)	(5) 3.1 % (1.3-7.0 95% C.I.)	(7) 5.3 % (2.6-10.5 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(12) 4.1 % (2.4-7.0 95% C.I.)	(5) 3.1 % (1.3-7.0 95% C.I.)	(7) 5.3 % (2.6-10.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0-1.3 95% C.I.)	(0) 0.0 % (0.0-2.3 95% C.I.)	(0) 0.0 % (0.0-2.8 95% C.I.)

The prevalence of oedema is 0.0 %

TABLE 19: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema. Meheba settlement, Solwezi. (December 2013)

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	66	0	0.0	1	1.5	65	98.5	0	0.0
18-29	78	0	0.0	3	3.8	75	96.2	0	0.0
30-41	67	0	0.0	3	4.5	64	95.5	0	0.0
42-53	54	0	0.0	3	5.6	51	94.4	0	0.0
54-59	29	0	0.0	2	6.9	27	93.1	0	0.0
Total	294	0	0.0	12	4.1	282	95.9	0	0.0

FIGURE 2: Trends in the prevalence of wasting by age in children 6-59 months, Meheba settlement, Solwezi (December 2013)

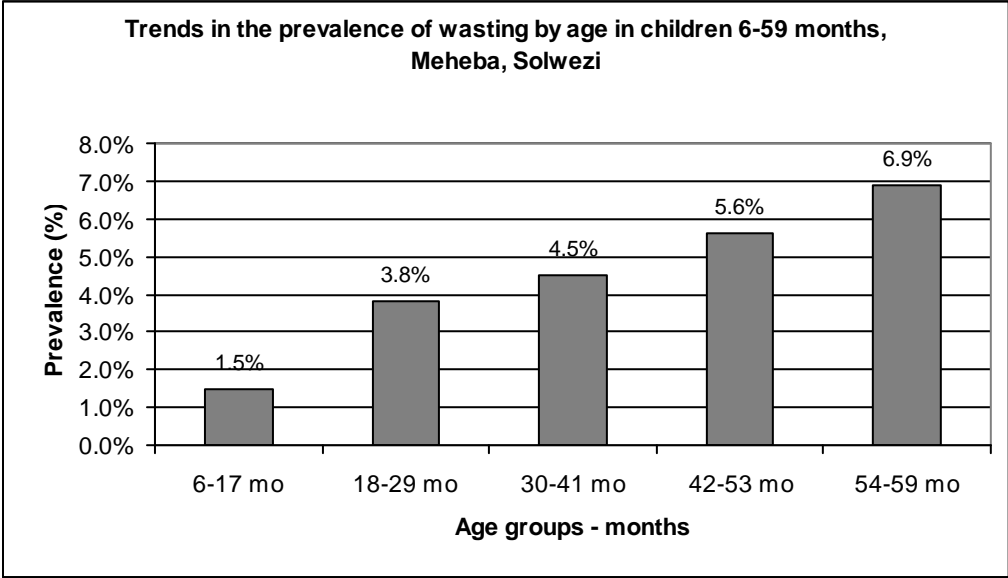


FIGURE 3: Distribution of weight-for-height z-scores (based on WHO Growth Standards ; The reference population is shown in green) of survey population compared to reference population- Meheba , Solwezi. (December 2013)

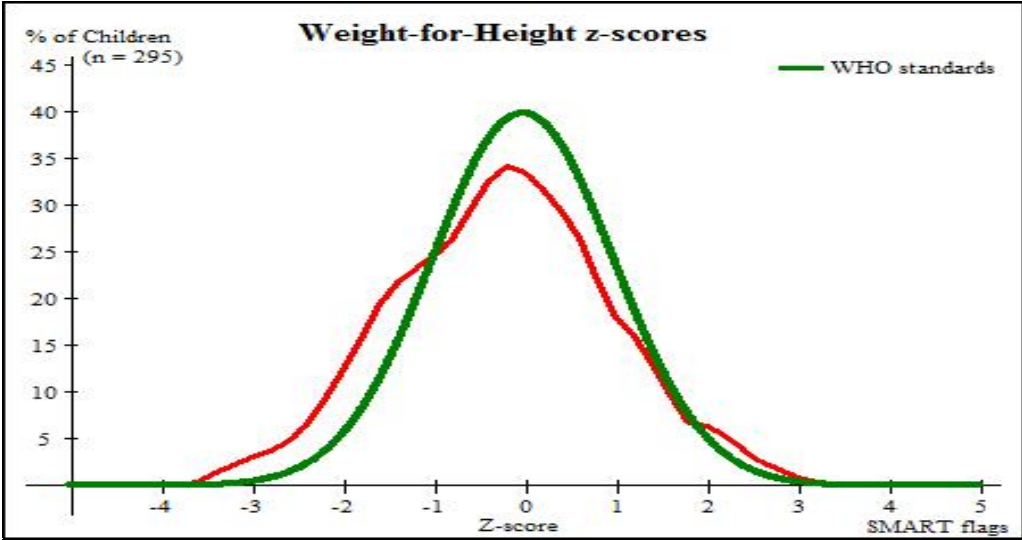


TABLE 20: Distribution of acute malnutrition and oedema based on weight-for-height z-scores, Meheba settlement, Solwezi (December, 2013).

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 0 (0.0 %)	Not severely malnourished No. 294 (100.0 %)

TABLE 21: Prevalence of underweight based on weight-for-age z-scores by sex, Meheba settlement, Solwezi (December, 2013) (95% C.I.)

	All n = 295	Boys n = 162	Girls n = 133
Prevalence of underweight (<-2 z-score)	(39) 13.2 % (9.8-17.6 95% C.I.)	(31) 19.1 % (13.8-25.9 95% C.I.)	(8) 6.0 % (3.1-11.4 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(37) 12.5 % (9.2-16.8 95% C.I.)	(31) 19.1 % (13.8-25.9 95% C.I.)	(6) 4.5 % (2.1-9.5 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(2) 0.7 % (0.2-2.4 95% C.I.)	(0) 0.0 % (0.0-2.3 95% C.I.)	(2) 1.5 % (0.4-5.3 95% C.I.)

FIGURE 4: Distribution of Weight-for-age z scores (based on WHO Growth Standards: The reference population is shown in green) of survey population compared to the reference population – Meheba, Solwezi. (December 2013)

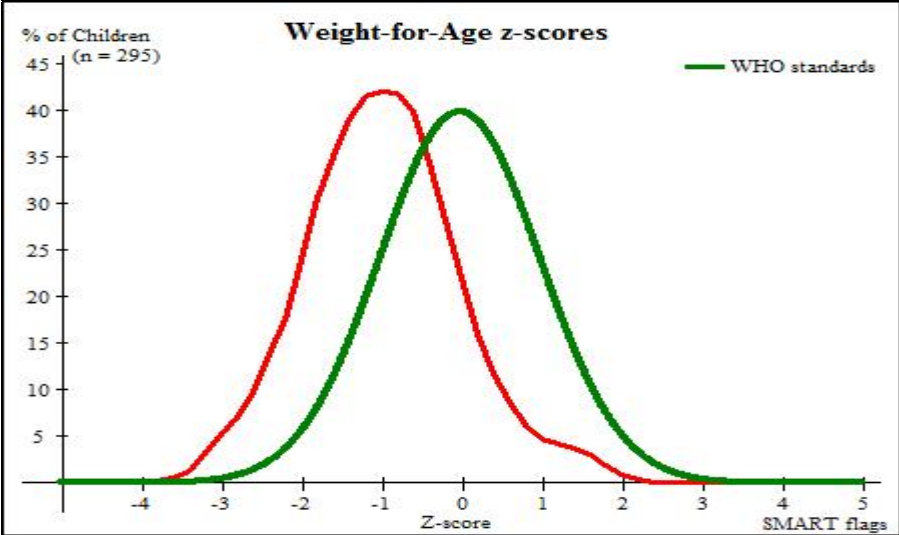


TABLE 22: Prevalence of underweight by age, based on weight-for-age z-scores, Meheba settlement, Solwezi (December, 2013).

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z- score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	67	1	1.5	3	4.5	63	94.0	0	0.0
18-29	78	1	1.3	12	15.4	65	83.3	0	0.0
30-41	67	0	0.0	8	11.9	59	88.1	0	0.0
42-53	54	0	0.0	8	14.8	46	85.2	0	0.0
54-59	29	0	0.0	6	20.7	23	79.3	0	0.0
Total	295	2	0.7	37	12.5	256	86.8	0	0.0

FIGURE 5: Trend in prevalence of udnerweight by age in children 6-59 months, Meheba settlement, Solwezi (December 2013)

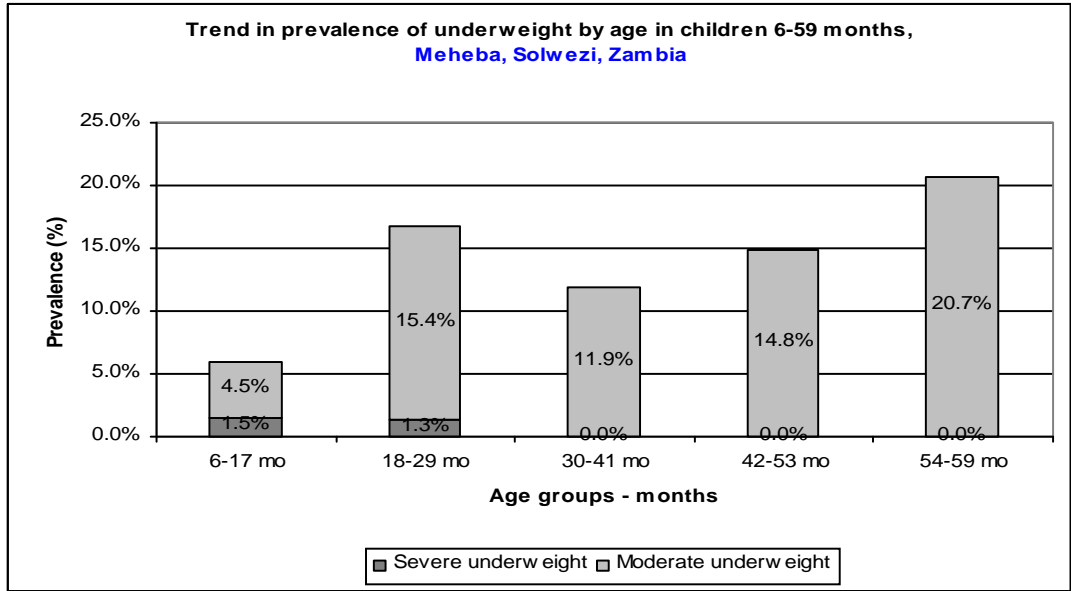


TABLE 23: Prevalence of stunting based on height-for-age z-scores and by sex, Meheba settlement, Solwezi (December, 2013)

	All n = 294	Boys n = 161	Girls n = 133
Prevalence of stunting (<-2 z-score)	(108) 36.7 % (31.4-42.4 95% C.I.)	(71) 44.1 % (36.7-51.8 95% C.I.)	(37) 27.8 % (20.9-36.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(82) 27.9 % (23.1-33.3 95% C.I.)	(53) 32.9 % (26.1-40.5 95% C.I.)	(29) 21.8 % (15.6-29.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(26) 8.8 % (6.1-12.6 95% C.I.)	(18) 11.2 % (7.2-17.0 95% C.I.)	(8) 6.0 % (3.1-11.4 95% C.I.)

FIGURE 6: Distribution of Height-for-age z scores (based on WHO Growth Standards: The reference population is shown in green of survey population compared to the reference population – Meheba, Solwezi. (December 2013)

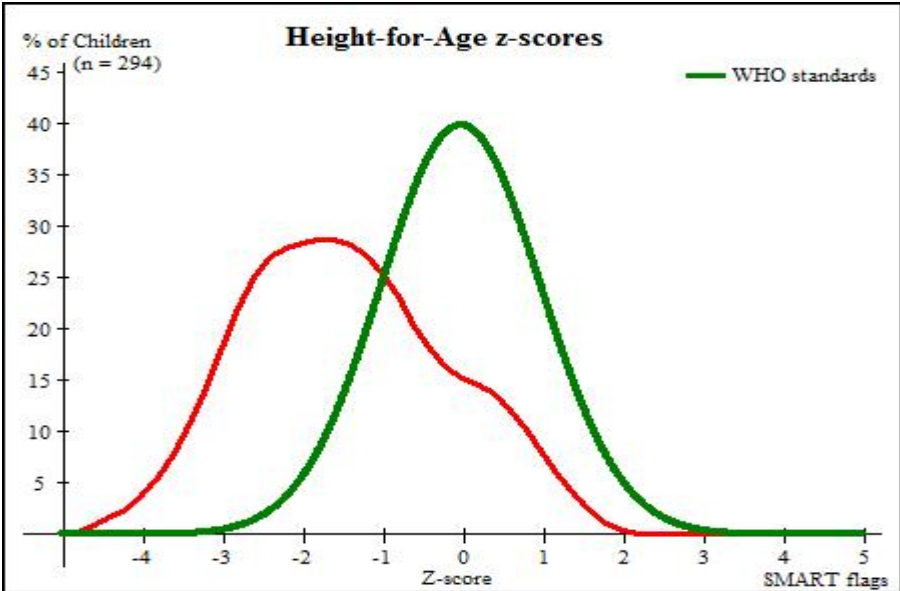


TABLE 24: Prevalence of stunting by age based on height-for-age z-scores, Meheba settlement, Solwezi (December, 2013) (95% C.I.)

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	67	3	4.5	16	23.9	48	71.6
18-29	76	11	14.5	22	28.9	43	56.6
30-41	67	6	9.0	19	28.4	42	62.7
42-53	55	3	5.5	19	34.5	33	60.0
54-59	29	3	10.3	6	20.7	20	69.0
Total	294	26	8.8	82	27.9	186	63.3

FIGURE 7: Trends in the prevalence of Stunting by age in children 6-59 months. Meheba settlement (December 2013)

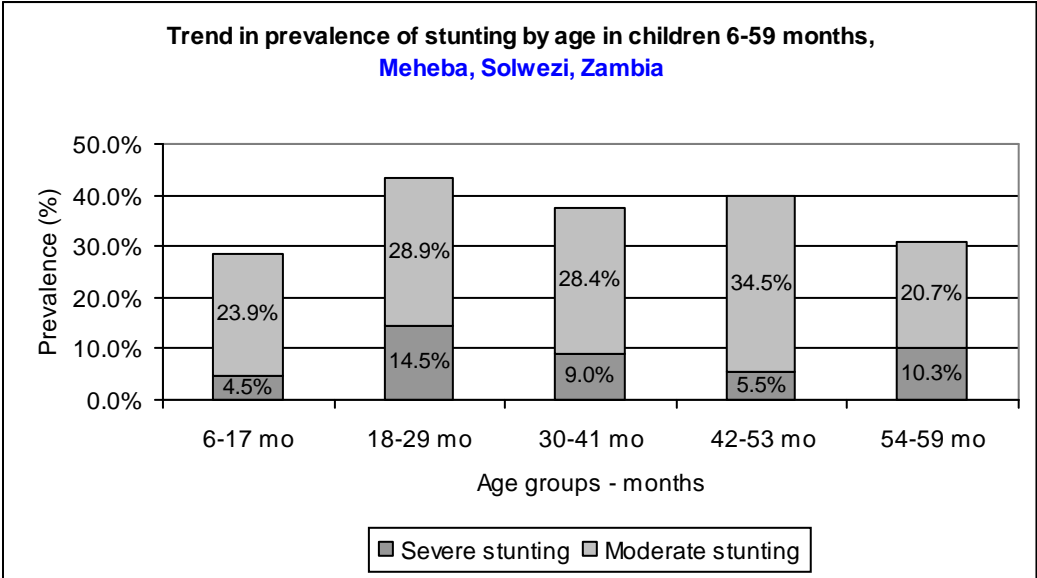


Table 25: Mean z-scores, Design Effects and excluded subjects, Meheba settlement, Solwezi (December, 2013)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	294	-0.29±1.15	1.00	0	4
Weight-for-Age	295	-0.98±0.94	1.00	0	3
Height-for-Age	294	-1.45±1.25	1.00	0	4

* contains for WHZ and WAZ the children with edema.

TABLE 26: Prevalence of MUAC malnutrition by sex; Meheba settlement, Solwezi (December 2013)

	All n = 298	Boys n = 144	Girls n = 154
Prevalence of global malnutrition (< 125 mm and/or oedema)	(32) 10.4% (7.2–14.2)	(20) 12.2% (7.6–18.2)	(11) 8.2% (4.2–14.2)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(21) 6.6% (4.4–10.6)	(15) 9.1% (5.2–14.6)	(6) 4.5 % (1.7–9.5)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(11) 3.7 % (1.9–6.5)	(6) 3.7% (1.4–7.8)	(5) 3.7 % (1.2–8.5)

TABLE 27: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema, Meheba settlement, Solwezi (December, 2013). (95% C.I.)

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	68	4	5.9	5	7.4	59	86.8	0	0.0
18-29	79	1	1.3	7	8.9	71	89.9	0	0.0
30-41	67	4	6.0	3	4.5	60	89.6	0	0.0
42-53	55	1	1.8	5	9.1	49	89.1	0	0.0
54-59	29	1	3.4	1	3.4	27	93.1	0	0.0
Total	298	11	3.7	21	6.6	266	89.7	0	0.0

Children’s morbidity

TABLE 28: Prevalence of diarrhoea among children aged 6-59 months within past two weeks before the survey, Meheba settlement, Solwezi (December, 2013)

	Number/total	(95% CI)
Diarrhoea last two weeks (6-59 months)	83/298	27.9% (22.8-33.3)

Measles vaccination and vitamin A supplementation coverage results

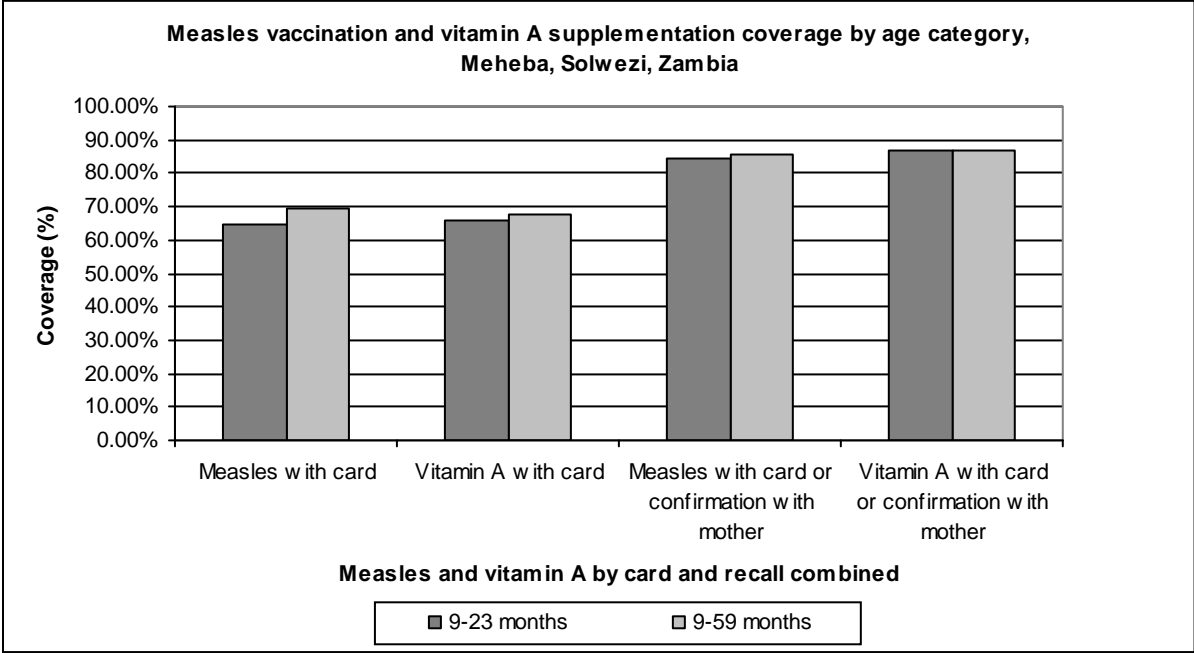
TABLE 29: Vaccination coverage: Measles program for children of 9-23 months and 9-59 months, Meheba settlement, Solwezi (December, 2013).

	Agegroup months	Measles (with card) n=108, (95% C.I)	Measles (with card or confirmation from mother) n=298, (95% C.I)
YES	9 - 23	(70) 64.8% (55.0 – 73.8)	(91)84.3% (76.0-90.6)
	9 - 59	(204) 69.6% (64.0-74.8)	(251) 85.7% (81.1-89.5)

TABLE 30: Vitamin A supplementary program for children of 9-59 months, Meheba settlement, (December 2013)

	Agegroup months	Vitamin A (with card) n=108 (95% CI)	Vitamin A (with card or confirmation from mother) n=298 (95% C.I.)
YES	9 - 23	(71) 65.7% (56.0–74.6)	(94) 87.0% (79.2-92.7)
	9 - 59	(198) 67.6% (61.9-72.9)	(254) 86.7% (82.3-90.4)

FIGURE 8: Measles vaccination and vitamin A supplementation coverage by age category, Meheba settlement, (December, 2013)



Programme coverage.

TABLE 31: Supplementary feeding programme coverage Meheba settlement, Solwezi (December, 2013).

Programme type	At 95% C.I.
Supplementary feeding programme coverage	19% (3.9 - 9.8)

Anaemia results for children 6 – 59 months

The HemoCue Hb 301 Analyser was used and the Hb results were recorded in g/dL as per the HemoCue machine displayed readings.

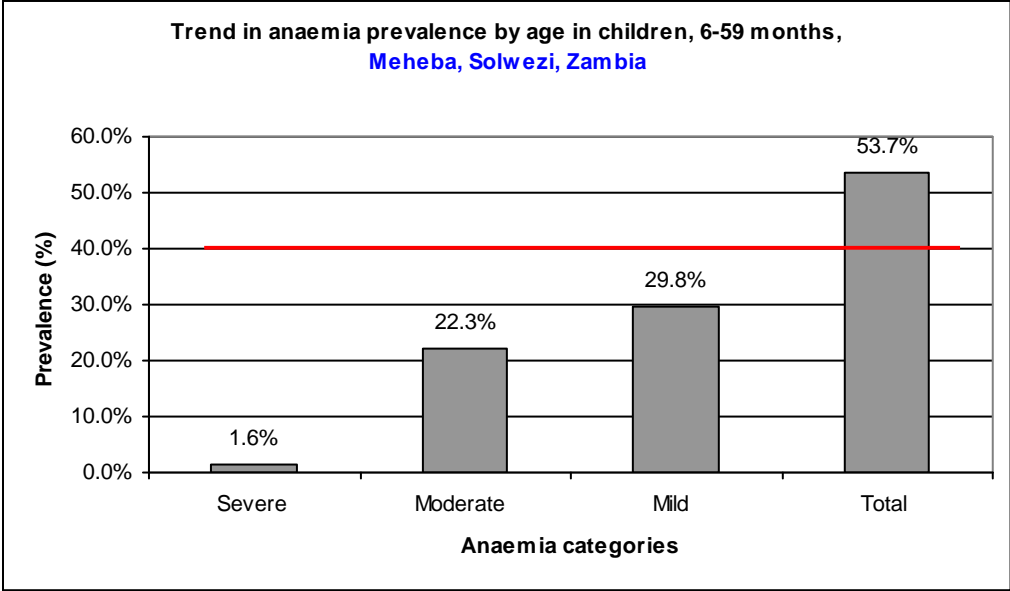
Solwezi district in Meheba settlement is situated at an altitude of 4052 feet (1235 meters) above sea levels. Hb results were adjusted for altitude by subtracting 0.2 g/dl in each individual.

TABLE 32: Anaemia prevalence adjusted for altitude for children 6 to 59 months and 95% C.I in Meheba settlement, Solwezi (December 2013)

Anaemia – Children 6-59 months	All n = 188
Total Anaemia (Hb<11.0 g/dl)	(101) 53.7% (46.3-61.0)
Mild Anaemia (Hb 10.0-10.9 g/dl)	(56) 29.8% (23.4-36.9)
Moderate Anaemia (7.0-9.9 g/dl)	(42) 22.3% (16.6-29.0)
Severe Anaemia (<7.0 g/dl)	(3) 1.6% (0.3-4.6)
Mean Hb (g/dl)	10.8 g/dl (1.7 SD) [5.2 min,19.6 max]

The mean haemoglobin concentration is 10.8 g/dl with 29.8% and 22.3% of the children presenting with mild and moderate anaemia respectively in Meheba settlement.

FIGURE 9: Anaemia prevalence by categories adjusted for altitude in children 6-59 months) Meheba settlement, Solwezi (December 2013)



The total anaemia prevalence of is 53.7%, according to the WHO classification of anaemia severity of public health situation this prevalence is classified as *“high”*. UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the targets for the prevalence of anaemia in children 6-59 months of age should be less than 20% .

TABLE 33: Prevalence of total anaemia, anaemia by categories and mean haeloglobin concentration adjusted for altitude in children 6-59 months and by age group; Meheba settlement, Solwezi (December 2014)

	6-59 months n =188	6-23 months n=68	24-59 months n=120
Total Anaemia (Hb<11.0 g/dl)	(101) 53.7% (46.3-61.0 95% CI)	(35) 58.3% (44.9–70.9 95% CI)	(66) 51.6% (42.6–60.5 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dl)	(56) 29.8% (23.4-36.9 95% CI)	(22) 32.4% (21.5-44.8 95% CI)	(34) 28.3% (20.5-37.3 95% CI)
Moderate Anaemia (7.0-9.9 g/dl)	(42) 22.3% (16.6-29.0 95% CI)	(12) 17.6% (9.5-28.8 95% CI)	(30) 25.0% (17.5-33.7 95% CI)
Severe Anaemia (<7.0 g/dl)	(3) 1.6% (0.3–4.6 95% CI)	(1) 1.5% (0.0-7.9 95% CI)	(2) 1.7% (0.2–5.9 95% CI)
Mean Hb, g/dL (SD) [Range]	10.8 g/dl (1.7 SD) [5.2 min,19.6 max]	10.8 g/dl (1.8 SD) [5.2min, 18.0max]	10.8 g/dl (1.7 SD) [6.8min, 19.6max]

TABLE 34: Prevalence of moderate and severe anaemia adjusted for altitude in children 6-59 months of age and age group; Meheba settlement, Solwezi (December 2013),

Indicator	6-59 months n = 188	6-23 months n=68	24-59 months n=120
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(45) 23.9 % (18.0–30.7)	(13) 19.1%% (10.6–30.5)	(32) 26.7 % (19.0–35.5)

In Meheba settlement, for both age groups of children (6-23 months and 24-59 months), the prevalence of both severe and moderate combined anaemia is of medium public health significance according to WHO classification (20-39%).

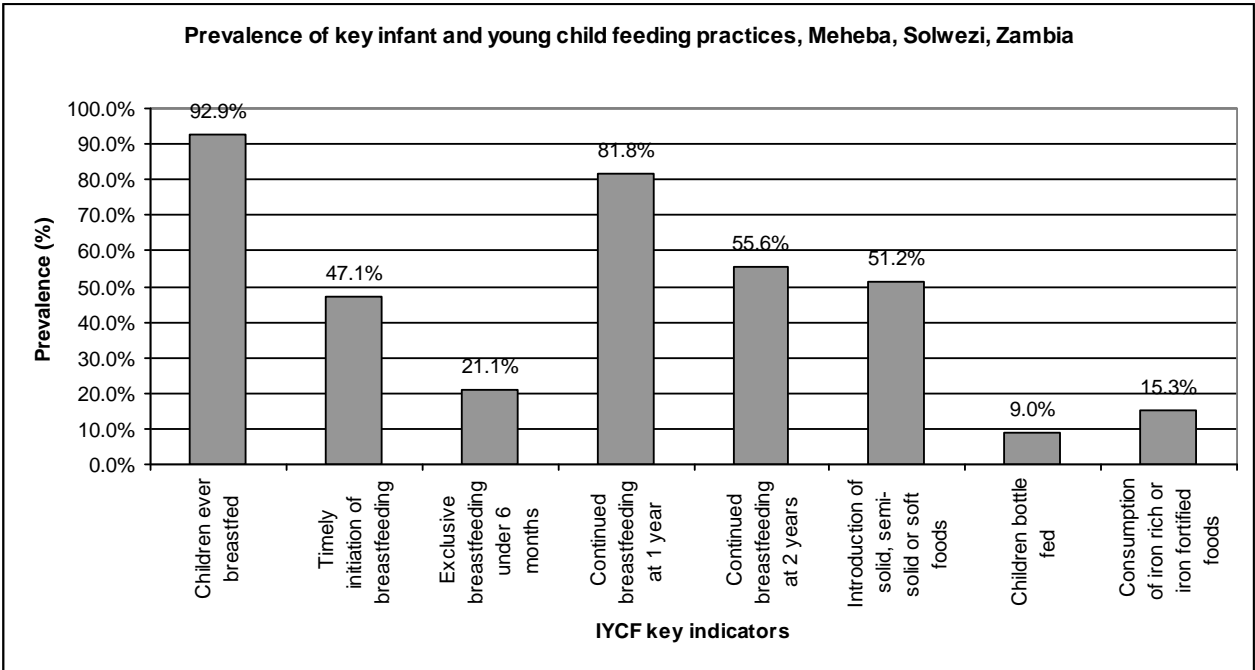
Children 0-23 months

Table 35: Prevalence of Infant and Young Child Feeding Practices indicators- Meheba settlement, Solwezi. (2013)

Indicator	Age range	Number	Prevalence (%) 95% CI
Children ever breastfed	0-23 months	144/155	92.9% (87.7-96.4)
Timely initiation of breastfeeding	0-23 months	73/155	47.1% (39.0-55.3)
Exclusive breastfeeding under 6 months	0-5 months	12/57	21.1% (11.4-33.9)
Continued breastfeeding at 1 year	12-15 months	9/11	81.8% (48.2-97.7)
Continued breastfeeding at 2 years	20-23 months	5/9	55.6% (21.2-86.3)
Introduction of solid, semi-solid or soft foods	6-8 months	21/41	51.2% (35.1-67.1)
Children bottle fed	0-23 months	14/155	9.0% (5.0-14.7)
Consumption of iron rich or iron fortified foods	6-23 months	15/98	15.3% (8.8-24.0)

Note: Exclusive breastfeeding under 6 months, continued breastfeeding at 1 year and 2 years, and introduction of solid, semi-solid or soft foods have small sample size and results should interpreted with caution. However, results still provide vital information for future studies and IYCF programming.

FIGURE 10: Prevalence of key infant and young child feeding practices in Meheba settlement at the time of the survey, (December 2013)



Prevalence of intake

Infant formula

TABLE 36: Infant formula intake in children aged 0-23 months, Meheba settlement, (December 2013)

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non- fortified)	25/145	17.2% (11.5-24.4)

Fortified blended foods

TABLE 37: CSB+ intake in children aged 6-23 months, Meheba settlement, (December, 2013)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	12/145	8.3% (4.3-14.0)

TABLE 38: CSB++ intake in children aged 6-23 months, Meheba settlement, (December 2013)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	18/145	12.4% (7.5-18.9)

Women 15-49 years

TABLE 39: Demographic information; Meheba settlement, Solwezi (December 2013)

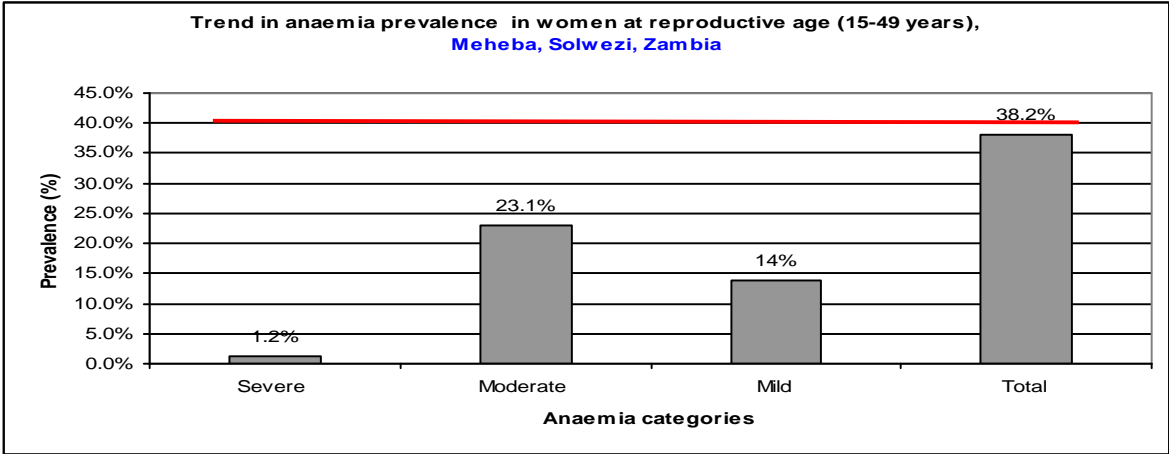
Physiological status	Number/total	%
Non-Pregnant	211/250	84.4% (79.3–88.7
Pregnant	39/250	15.6% (11.3–20.7
Mean age (range)	28.5 years (9.4 SD) [15min, 48max]	

TABLE 40: Prevalence of anaemia and Haemoglobin concentration in non-pregnant women of reproductive age (15-49 years), Meheba settlement, Solwezi (December, 2013)

	All n = 173 at 95% C.I
Total Anaemia (<12.0 g/dL)	(66) 38.2% (30.9–46.8)
Mild Anaemia (11.0-11.9 g/dL)	(24) 13.9% (9.1–19.9)
Moderate Anaemia (8.0-10.9 g/dL)	(40) 23.1% (17.1–30.1)
Severe Anaemia (<8.0 g/dL)	(2) 1.2 % (0.1–4.1)
Mean Hb (g/dL)	12.3 g/dl (1.7 SD) [7.8min, 16.0max]

The total anaemia prevalence of the non-pregnant women at reproductive age in Meheba settlement is slightly lower than the WHO cut off point; however, the upper confidence interval is 46.8%, which is higher than the 40% cut off point of high public health classification.

FIGURE 11: Anaemia categories in women of reproductive age, Meheba settlement, Solwezi, (December, 2013)



ANC enrolment and iron-folic acid supplementation coverage

TABLE 41: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) – Meheba settlement, Solwezi (December, 2013)

	Number/total	% (95% CI)
Currently enrolled in ANC programme	33/35	94.3% (80.8-99.3)
Currently receiving iron-folic acid pills	32/35	91.4% (76.9-98.2)

ANC enrolment and iron-folic acid pills coverage: In Meheba settlement pregnant women are enrolled in the antenatal care clinic. In the programme they receive iron and folic acid supplements in the second and third trimester of pregnancy. Verbal confirmation was asked on whether the woman is currently enrolled in the ANC programme and is receiving any iron-folic acid pills.

HOUSEHOLD LEVEL INDICATORS: Water, food security and mosquito net coverage meheba settlement (December 2013)

TABLE 42: Indicates the calculated sample sizes for each indicator that were intendend to be visited, total number of visited households and its percent at the indicator level.

Indicator	Target sample size	Household interviewed during the study	% of the target
Water	160	150	93.8
Food security	160	150	93.8
Mosquito net	160	150	93.8

Water

TABLE 43: Water Quantity: Amount of litres of water used per person per day- Meheba settlement, Solwezi (December 2013)

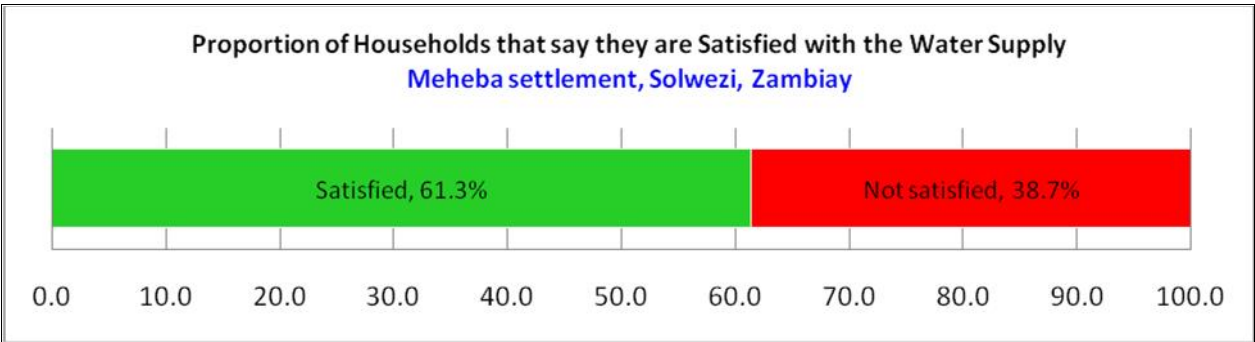
Proportion of households that access:	Number/total	% (95% CI)
20 litres	45/150	30.0% (22.8–38.0)
15 – <20 litres	24/150	16.0% (10.5-22.9)
<15 litres	81/150	54.0% (45.7–62.2)

The mean water quantity used in liters per person per day was 17.1 liters with a minimum of 4.4 liters and a maximum of 80.0 liters per person per day.

TABLE 44: Satisfaction with water supply- Meheba settlement, Solwezi (December 2013)

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	92/150	61.3% (53.0–69.2)

FIGURE 12: Proportions of households that say are satisfied with the water supply, Meheba settlement, Solwezi (December 2013)



Water quality

TABLE 45: Proportions of households on the water quality indicators, Meheba settlement, Solwezi (December, 2013)

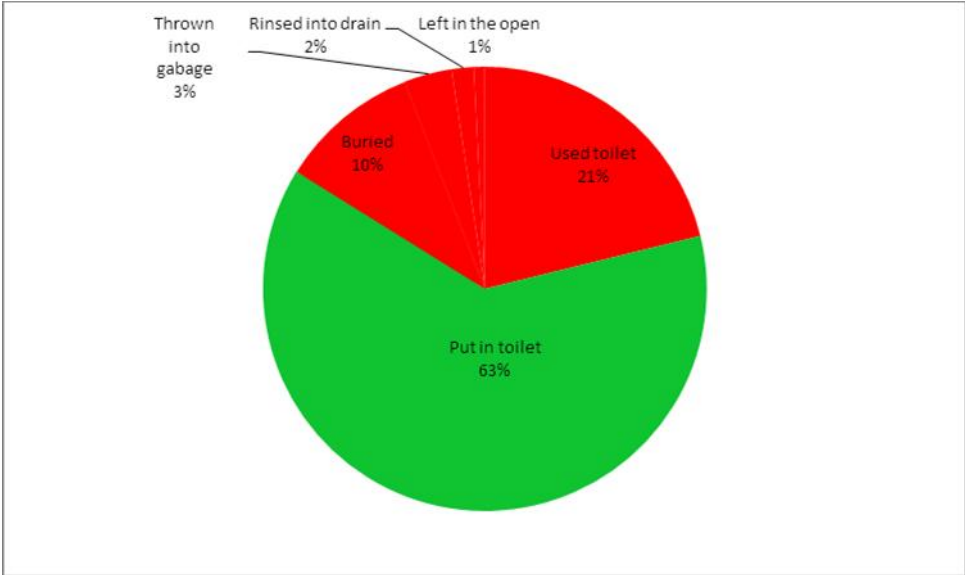
	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	140/150	93.3% (88.1–96.8)
Proportion of households that use a covered or narrow necked container for storing their drinking water	85/150	56.7% (48.3–64.7)

Safe excreta disposal

TABLE 46: Proportions of household use improved and unimproved latrines, Meheba settlement, (December, 2013)

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)*,**	18/150	12.0% (7.3–18.3)
A shared family toilet (improved toilet facility, 2 households)**	25/150	16.7% (11.1–23.6)
A communal toilet (improved toilet facility, 3 households or more)	9/150	6.0% (2.8–11.1)
An unimproved toilet (unimproved toilet facility or public toilet)	98/150	65.3% (57.1–72.9)
Proportion of households with children under three years old that dispose of faeces safely	120/128	93.8% (88.1–97.3)

FIGURE 13: Proportion of HH with children under the age of 3 years old whose (last) stools were disposed of safely, Meheba settlement, Solwezi, (December, 2013)



Food security

Ration card analysis

TABLE 47: Households possessing food ration card, Meheba settlement, (December 2013)

	Number/total	% (95% CI)
Proportion of households with a ration card	27/150	18.0 % (12.2-25.1)

Out of the households reporting not to have a ration card, 87/123, 70.7% (61.9-78.6) were not eligible for the targeted food distribution system in Meheba settlement; 14/123 11.4% (6.4-18.4) said that were not registered; 11/123, 8.9% (4.5%-15.4) said it was because they were not given one during the registration, 1/123, 0.8% (0.0-4.4) had traded the ration card while 4/123 3.3% (0.9-8.1) had other reasons.

Reported duration of general food ration

TABLE 48: Reported duration of the general food ration, Meheba settlement, (December, 2013)

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration
22.1 days (3.5 SD) of 30 days	73.7%

TABLE 49: Reported duration of the general food ration, Meheba settlement, (December, 2013)

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasted:		
75% of the cycle 30 days	10/27	37.0% (19.4-57.6)
>75% of the cycle 30 days	17/27	63.0% (42.4-80.6)

COPING STRATEGIES USED BY THE SURVEYED POPULATION OVER THE PAST MONTH

TABLE 50: Coping mechanisms used by sampled households, Meheba settlement (December, 2013)

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items without interest	45/150	30.0% (22.8-38.0)
Borrowed cash, food or other items with interest	16/150	10.7% (6.2-16.7)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	66/150	44.0 % (35.9-52.3)
Requested increased remittances or gifts as compared to normal	24/150	16.0% (10.5-22.9)
Reduced the quantity and/or frequency of meals and snacks	75/150	50.0% (41.7-58.3)
Begged	42/150	28.0% (21.0-35.9)
Engaged in harmful activities	14/150	9.3% (5.2-15.2)
Child labour for cash or food	49/150	45.8% (36.1-55.7)
Proportion of households reporting using none of the coping strategies over the past month	9/150	6.0% (2.8-11.1)

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

HOUSEHOLD DIETARY DIVERSITY SCORE, MEHEBA SETTLEMENT

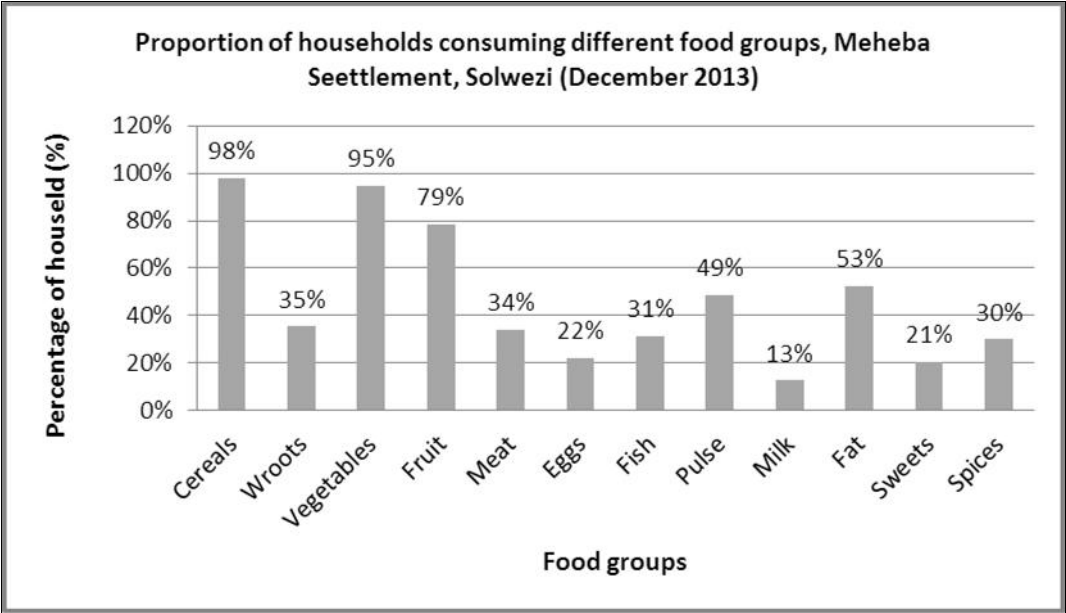
TABLE 51: Average household dietary diversity score, Meheba settlement, Solwezi, (December, 2013)

Average HDDS	Mean (95% CI)
5.6 (1.9 SD)	5.6 (1.0 min, 10.0 max)

TABLE 52: Consumption of various food groups by households, Meheba settlement, (December, 2013)

	Number/total	% (95% CI)
Proportion of households <i>not consuming any</i> vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	1/150	0.7% (0.0-3.7)
Proportion of households consuming either a plant or animal source of vitamin A	10/150	6.7% (3.2-11.9)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	61/150	40.7% (32.7-49.0)

FIGURE 14: Proportion of households consuming different food groups, Meheba settlement, Solwezi (December, 2013)



Mosquito net

MOSQUITO NET OWNERSHIP ANALYSIS

TABLE 53: Household mosquito net ownership in Meheba settlement, Solwezi (December 2013)

	Number/total	% (95% CI)
Proportion of households owning at least one LLIN	112/150	74.7% (66.9–81.4)

Note: Of the sampled households in Meheba settlement all households that owned a LLIN; no households owned a mosquito net that was non-LLIN.

FIGURE 15: Household that have at least one LLIN, Meheba settlement, Solwezi, (December 2013)

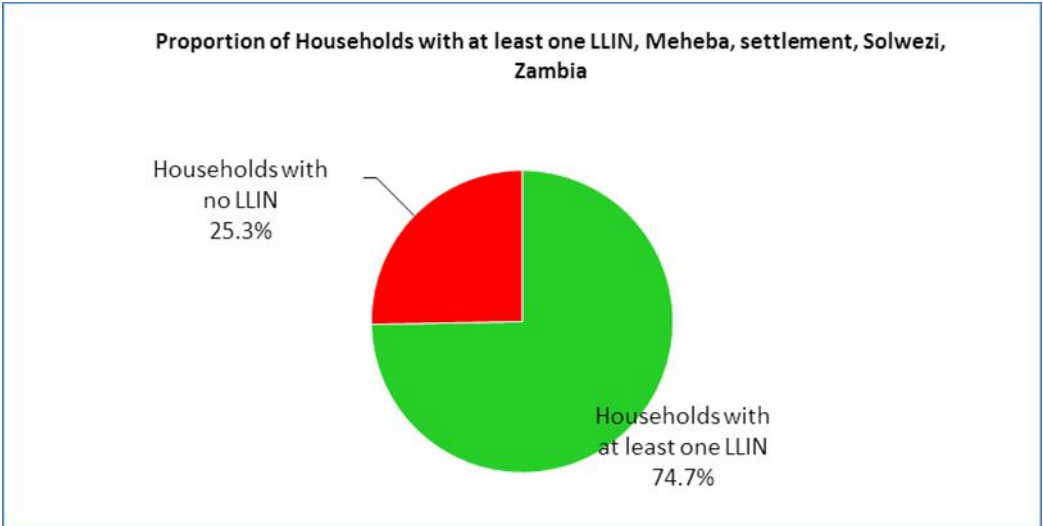


TABLE 54: Average number of LLINs per household and average number of persons per LLIN, Meheba settlement, Solwezi (December 2013)

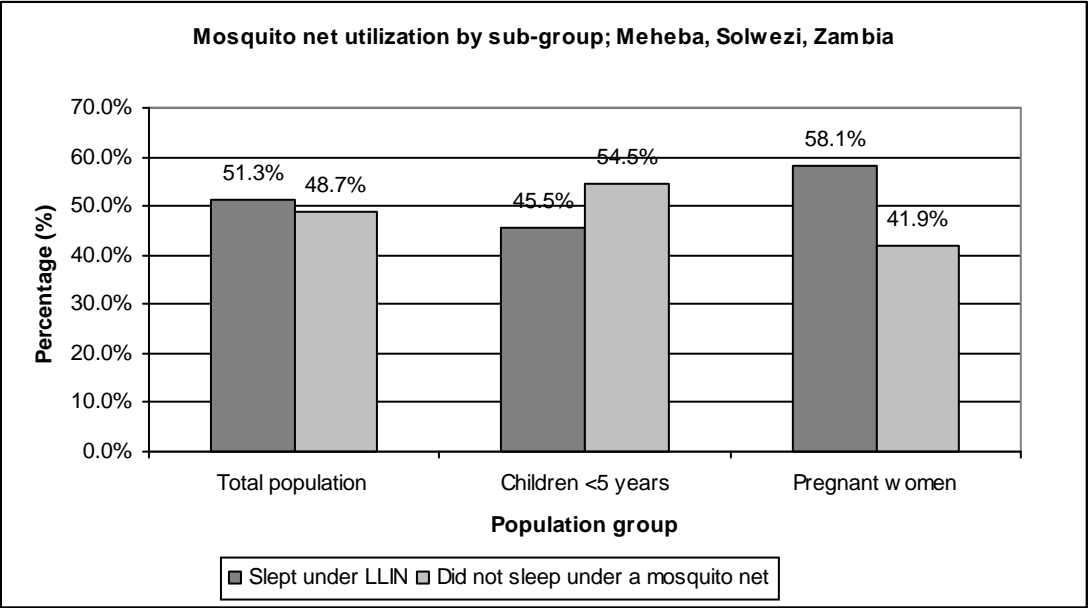
Average number of LLINs per household	Average number of persons per LLIN
1.6	3.6

Mosquito net utilisations

TABLE 55: Proportion of total population, children 0-59 months and pregnant women who slept under net of any type and LLIN, Meheba settlement, (December 2013)

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No=	%	Total No=	%	Total No=	%
	893		121	12.6	31	3.2
Slept under LLIN	458	51.3%	55	45.5%	18	58.1%

FIGURE 16: Mosquito net utilization by sub group; Meheba settlement, Solwezi, (December 2013)



RESULTS FROM MAYUKWAYUKWA SETTLEMENT

Population demographics and length of stay in the settlement

TABLE 56: Refugee length of stay in the settlement, Mayukwayukwa settlement, (December 2013)

	Angolans	Burundians	Congolese	Rwandans
1-5 years n = 88	(56) 12 % (52.7-73.6)	(1) 1.1% (0.0-6.2)	(28) 31.8 % (22.3-42.6)	(1)1.1 % (0.0-6.2)
6-10 years n=83	(61)73.5% (62.7-82.6)	(1)1.2% (0.0-6.5)	(20)24.1% (15.4-34.7)	(1)1.2% (0.0-6.5)
11-15 years n=109	(72) 66.1 % (56.4–74.9)	(5)4.6% (1.5-10.4)	(27)24.8% (17.0-34.0)	(4)3.7% (1.0-9.1)
16-20 years	(13) 72.2% (46.5-90.3)		(3) 16.7% (1.5-72.0)	(2) 11.1% (1.4-34.7)
Above 20years				

Population Demographics

From this cross-sectional household survey the household size across the camps ranges between 1 and 18 with an average household size of 5.2 members. This family size is exactly as the national average which stands at 5.2 (LCMS Report, 2004). 298 refugee households were interviewed in Mayukwayukwa settlement, Angolans (72.2%) of those who were interviewed have been in the settlement for a about 16-20 years. This settlement is mostly dominated by Angolans.

INDIVIDUAL LEVEL INDICATORS: Mayukwayukwa settlement, Kaoma (December, 2013); Children 6-59 months, children 0-23 months and women at reproductive age 15-49 years

TABLE 57: Target sample size and actual number interviewed during the survey in Mayukwayukwa settlement, Kaoma (December 2013)

Target group	Target sample size	Subjects surveyed	% of the target
Children 6-59 months	241	298	123.6%
Children 0-23 months	127	132	103.9%
Women 15-49 years	241	235	97.5%

Children 6-59 months

Anthropometric results (based on WHO Growth Standards 2006)

The survey team found that all sampled children had their health cards, road to health cards or immunization cards of which birthdates were recorded from.

TABLE 58: Distribution of age and sex of sample, Mayukwayukwa settlement, (December 2013)

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	28	41.8	39	58.2	67	22.5	0.7
18-29	34	42.5	46	57.5	80	26.8	0.7
30-41	33	50.0	33	50.0	66	22.1	1.0
42-53	30	54.5	25	45.5	55	18.5	1.2
54-59	19	63.3	11	36.7	30	10.1	1.7
Total	144	48.3	154	51.7	298	100.0	0.9

TABLE 59: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Mayukwayukwa settlement, (December 2013)

	All n = 295	Boys n = 142	Girls n = 153
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(17) 5.8 % (3.6-9.0 95% C.I.)	(11) 7.7 % (4.4-13.3 95% C.I.)	(6) 3.9 % (1.8-8.3 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >= -3 z-score, no oedema)	(16) 5.4 % (3.4-8.6 95% C.I.)	(11) 7.7 % (4.4-13.3 95% C.I.)	(5) 3.3 % (1.4-7.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.3 % (0.1-1.9 95% C.I.)	(0) 0.0 % (0.0-2.6 95% C.I.)	(1) 0.7 % (0.1-3.6 95% C.I.)

The prevalence of oedema is 0.0 %

TABLE 60: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema, Mayukwayukwa settlement, Kaoma (December 2013)

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	66	0	0.0	2	3.0	64	97.0	0	0.0
18-29	79	0	0.0	3	3.8	76	96.2	0	0.0
30-41	66	0	0.0	6	9.1	60	90.9	0	0.0
42-53	54	0	0.0	4	7.4	50	92.6	0	0.0
54-59	30	1	3.3	1	3.3	28	93.3	0	0.0
Total	295	1	0.3	16	5.4	278	94.2	0	0.0

FIGURE 17: Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population - Mayukwayukwa settlement, Kaoma (December, 2013)

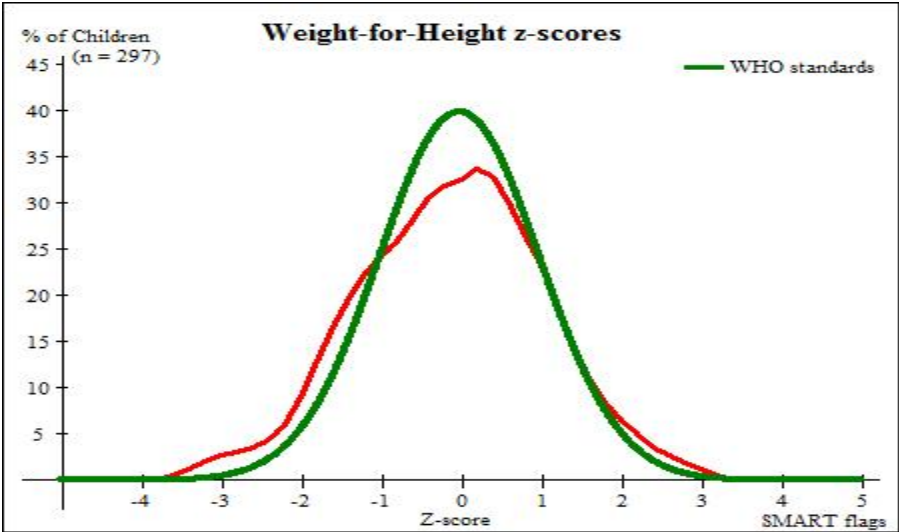


FIGURE 18: Trend in the prevalence of wasting by age in children 6-59 months, Mayukwayukwa settlement, Kaoma (December 2013)

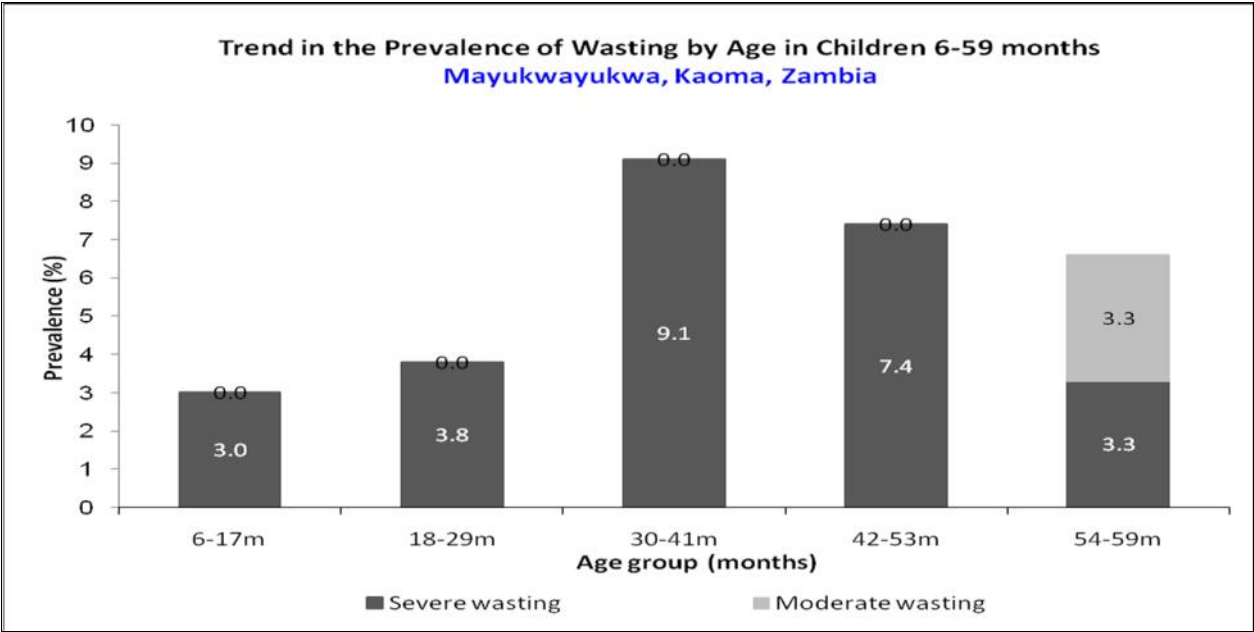


TABLE 61: Distribution of acute malnutrition and oedema based on weight-for-height z-scores, Mayukwayukwa settlement, Kaoma (December 2013)

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic (n=1) (0.3 %)	Not severely malnourished (n=294) (99.7 %)

TABLE 62: Prevalence of underweight based on weight-for-age z-scores by sex, Mayukwayukwa settlement, Kaoma, (December 2013)

	All n = 295	Boys n = 143	Girls n = 152
Prevalence of underweight (<-2 z-score)	(40) 13.6 % (10.1 - 17.9 95% C.I.)	(29) 20.3 % (14.5 - 27.6 95% C.I.)	(11) 7.2 % (4.1 - 12.5 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(37) 12.5 % (9.2 - 16.8 95% C.I.)	(27) 18.9 % (13.3 - 26.1 95% C.I.)	(10) 6.6 % (3.6 - 11.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(3) 1.0 % (0.3 - 2.9 95% C.I.)	(2) 1.4 % (0.4 - 5.0 95% C.I.)	(1) 0.7 % (0.1 - 3.6 95% C.I.)

FIGURE 19: Distribution of Weight-for-Age z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population- Mayukwayukwa settlement, Kaoma (December, 2013)

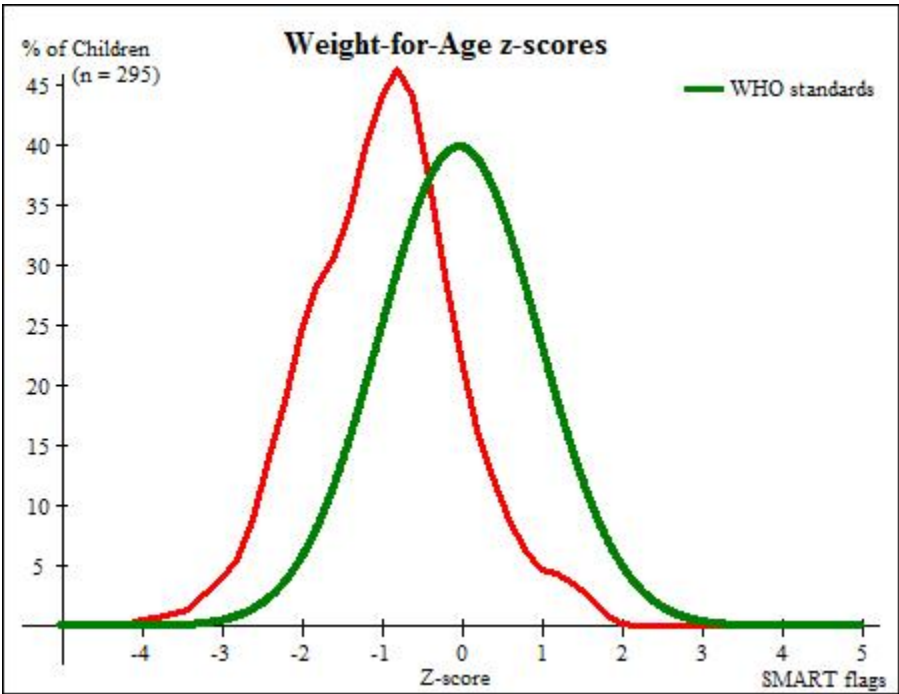


TABLE 63: Prevalence of underweight by age, based on weight-for-age z-scores, Mayukwayukwa settlement, Kaoma (December 2013)

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (>= -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	65	1	1.5	5	7.7	59	90.8	0	0.0
18-29	79	0	0.0	10	12.7	69	87.3	0	0.0
30-41	66	0	0.0	7	10.6	59	89.4	0	0.0
42-53	55	2	3.6	8	14.5	45	81.8	0	0.0
54-59	30	0	0.0	7	23.3	23	76.7	0	0.0
Total	295	3	1.0	37	12.5	255	86.4	0	0.0

FIGURE 20: Trend in the Prevalence of underweight by Age in Children 6-59 months; Mayukwayukwa, Kaoma, (December 2013)

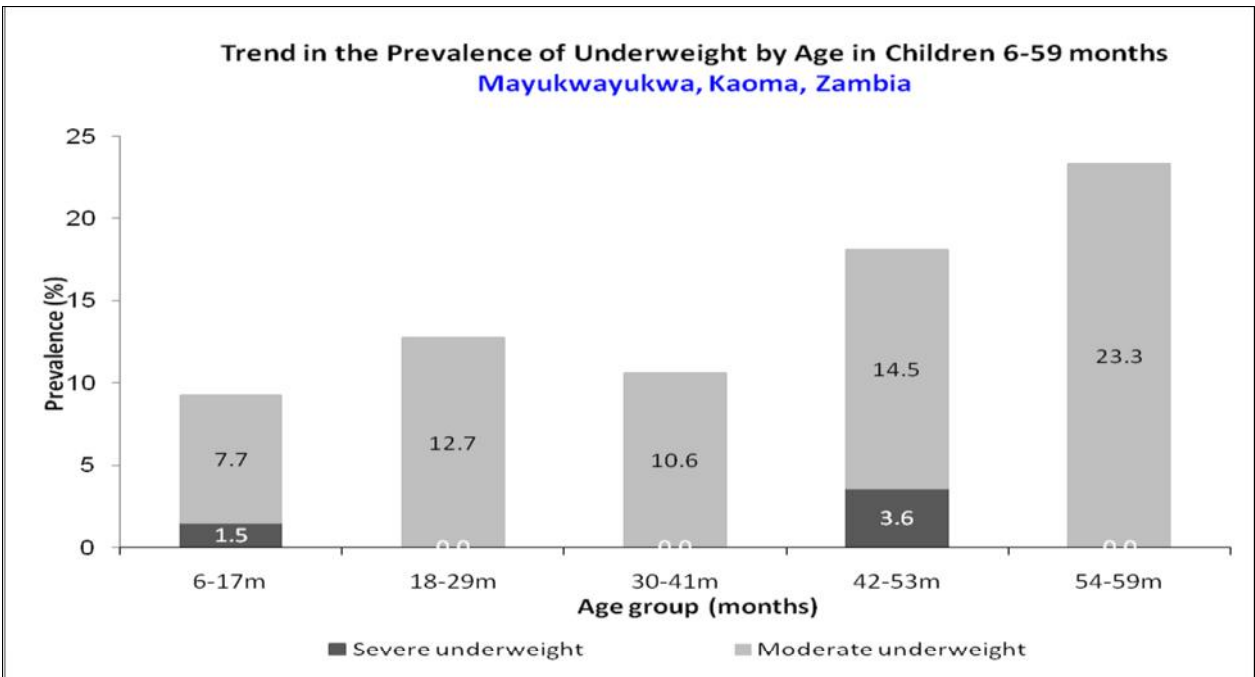


TABLE 64: Prevalence of stunting based on height-for-age z-scores and by sex, Mayukwayukwa settlement, Kaoma (December 2013)

	All n = 293	Boys n = 141	Girls n = 152
Prevalence of stunting (<-2 z-score)	(103) 35.2 % (29.9 - 40.8 95% C.I.)	(60) 42.6 % (34.7 - 50.8 95% C.I.)	(43) 28.3 % (21.7 - 35.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(81) 27.6 % (22.8 - 33.0 95% C.I.)	(48) 34.0 % (26.7 - 42.2 95% C.I.)	(33) 21.7 % (15.9 - 28.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(22) 7.5 % (5.0 - 11.1 95% C.I.)	(12) 8.5 % (4.9 - 14.3 95% C.I.)	(10) 6.6 % (3.6 - 11.7 95% C.I.)

FIGURE 21: Distribution of Height-for-Age z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population- Mayukwayukwa settlement, Kaoma (December, 2013)

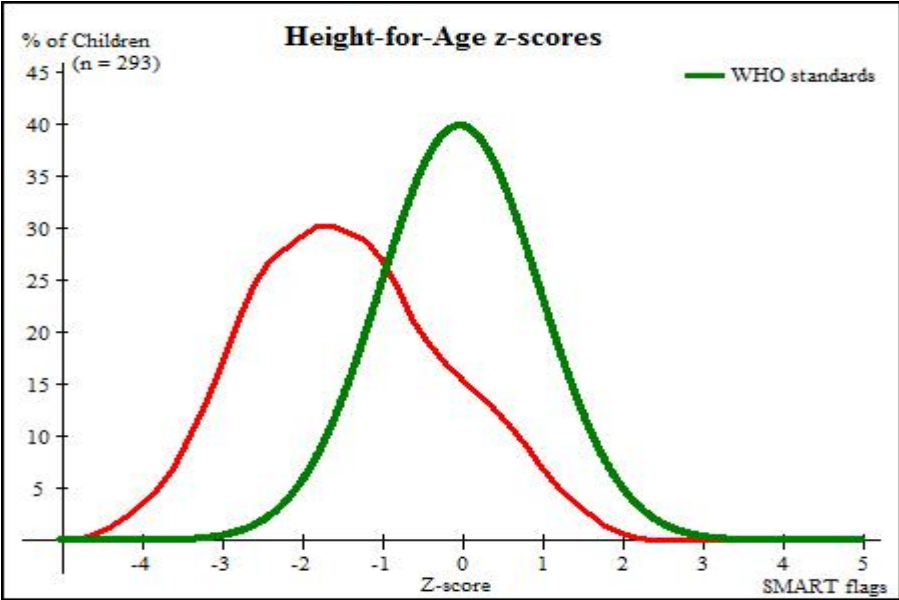


TABLE 65: Prevalence of stunting by age based on height-for-age z-scores, Mayukwayukwa settlement, Kaoma (December 2013)

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	64	3	4.7	12	18.8	49	76.6
18-29	78	8	10.3	22	28.2	48	61.5
30-41	66	5	7.6	20	30.3	41	62.1
42-53	55	3	5.5	20	36.4	32	58.2
54-59	30	3	10.0	7	23.3	20	66.7
Total	293	22	7.5	81	27.6	190	64.8

FIGURE 22: Trend in the Prevalence of Stunting by Age in Children 6-59 months; Mayukwayukwa, Kaoma, (December 2013)

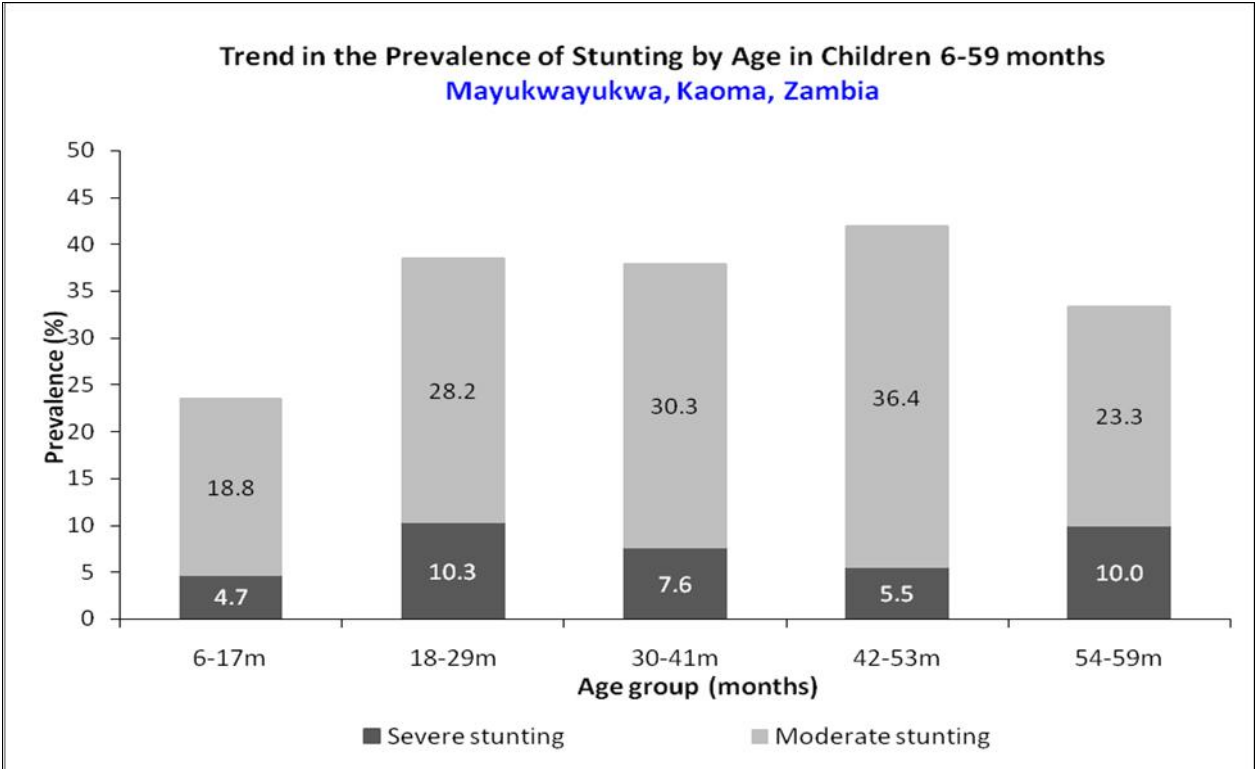


TABLE 66: Mean z-scores, Design Effects and excluded subjectsMayukwayukwa settlement, Kaoma (December 2013)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	295	-0.26±1.18	1.00	0	3
Weight-for-Age	295	-0.96±0.92	1.00	0	3
Height-for-Age	293	-1.42±1.22	1.00	0	5

* contains for WHZ and WAZ the children with edema.

TABLE 67: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex, Mayukwayukwa settlement, Kaoma (December 2013) (95% C.I.)

	All n = 298	Boys n = 135	Girls n = 163
Prevalence of global malnutrition (< 125 mm and/or oedema)	(38) 12.7% (7.9–19.4)	(17) 11.8% (5.5–22.0)	(21) 13.6% (6.9–23.9)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(26) 8.7% (5.8–12.5)	(12) 8.3% (4.4–14.1)	(14) 9.1% (5.1-14.8)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(12) 4.0 % (2.1–6.9)	(5) 3.5 % (1.1–7.9)	(7) 4.5 % (1.8–9.1)

TABLE 68: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema, Mayukwayukwa settlement, Kaoma (December 2013)

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	67	3	4.5	7	10.4	57	85.1	0	0.0
18-29	80	4	5.0	6	7.5	70	87.5	0	0.0
30-41	66	4	6.1	6	9.1	56	84.8	0	0.0
42-53	55	1	1.8	4	7.3	50	90.9	0	0.0
54-59	30	0	0.0	3	10.0	27	90.0	0	0.0
Total	298	12	3.5	26	8.7	260	87.7	0	0.0

Measles vaccination and vitamin A supplementation programme results

TABLE 69: Vaccination coverage for measles for children 9-59 months, Mayukwayukwa settlement, Kaoma (December 2013)

	Agegroup months	Measles (with card) n=273	Vitamin A capsule (with card <u>or</u> confirmation from mother)=273
YES	9 - 23	(85) 96.6% (90.4–99.3)	(85) 96.6% (90.4–99.3)
	9 - 59	(140) 75.7% (68.8–81.7)	(162) 87.6% (81.9–92.0)

Table 70: Vitamin A supplementation coverage in children 6-59 months, Mayukwayukwa settlement, Kaoma (December 2013)

	Age group months	Vitamin A (with card) n=273	Vitamin A capsule (with card <u>or</u> confirmation from mother)=273
YES	9 - 23	(85) 96.6% (90.4–99.3)	(85) 96.6% (90.4–99.3)
	9 - 59	(140) 75.7% (68.8–81.7)	(162) 87.6% (81.9–92.0)

FIGURE 23: Measles vaccination coverage and vitamin A supplementation coverage ; Mayukwayukwa settlement, Kaoma, (December 2013)

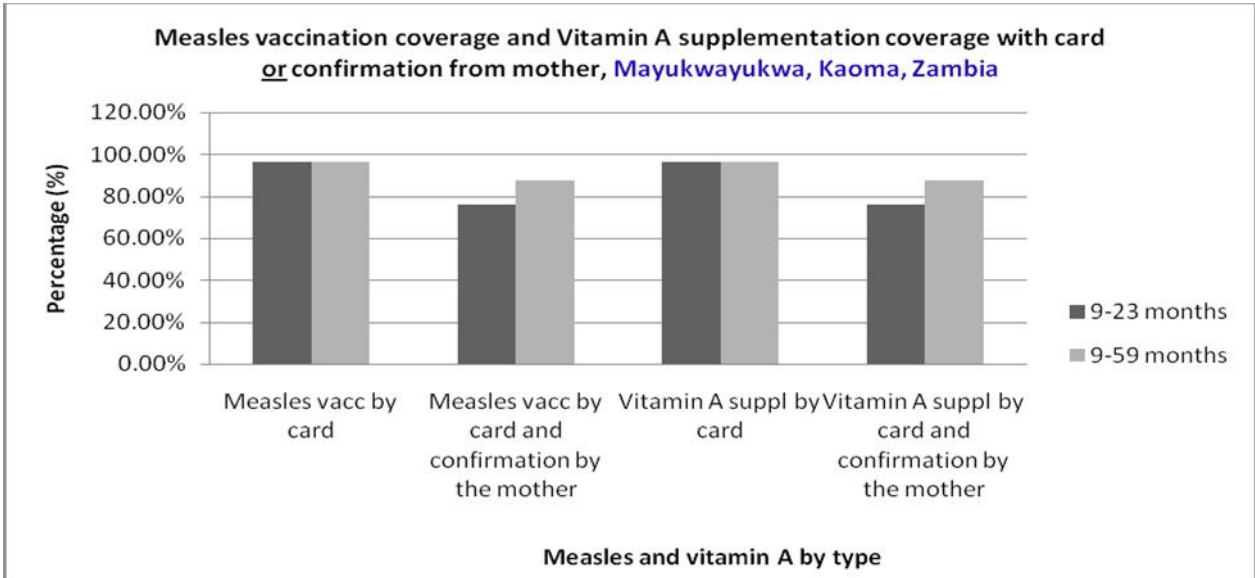


TABLE 71: Supplementary feeding programme coverage, Mayukwayukwa settlement, Kaoma (December 2013)

Programme type	Number/total	95% C.I
Child Enrolled in the feeding programme	5/298	1.7% (0.5–3.9)

TABLE 72: Prevalence of diarrhoea in children 6-59 months among children 6-59 months, Mayukwayukwa settlement, Kaoma (December 2013)

	Number/total	% (95% CI)
Diarrhoea last two weeks (6-59 months)	74/298	24.8 (20.0–30.1)

Anaemia results for children 6 – 59 months

TABLE 73: Prevalence of total anaemia, anaemia categories and mean haemoglobin concentration in children 6-59 months of age and by age group – Mayukwayukwa , Kaoma (Dec, 2013)

Anaemia – Children 6-59 months	All (n = 191)
Total Anaemia (Hb<11.0 g/dL)	(104) 54.4% (47.1–61.7)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(59) 30.9% (24.4–38.0)
Moderate Anaemia (7.0-9.9 g/dL)	(40) 20.9% (15.4–27.4)
Severe Anaemia (<7.0 g/dL)	(5) 2.6% (0.9–6.0)
Mean Hb (g/dL)	10.9 g/dL (1.7 SD) [5.7 min,16.8 max]

TABLE 74a: Prevalence of total anaemia, anaemia by categories and mean haeloglobin concentration adjusted for altitude in children 6-59 months of age and by age group; Mayukwayukwa settlement, Kaoma (December 2013)

	6-59 months n =191	6-23 months n=67	24-59 months n=124
Total Anaemia (Hb<11.0 g/dl)	(104) 54.5% (47.1-61.7 95% CI)	(42) 62.7% (50.0-74.2 95% CI)	(62) 50.0% (40.9–59.1 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dl)	(59) 30.9% (24.4-38.0 95% CI)	(25) 37.3% (25.8-50.0 95% CI)	(34) 27.4% (19.8-36.2 95% CI)
Moderate Anaemia (7.0-9.9 g/dl)	(40) 20.9% (15.4-27.4 95% CI)	(15) 22.4% (13.1-34.2 95% CI)	(25) 20.2% (13.5-28.3 95% CI)
Severe Anaemia (<7.0 g/dl)	(5) 2.6% (0.9-6.0 95%)	(2) 3.0% (0.4-10.4 95% CI)	(3) 2.4% (0.5–6.9 95% CI)
Mean Hb, g/dL (95% CI) [range]	10.9 g/dL (1.7 SD) [5.7 min,16.8 max]	10.7 g/dL (1.5 SD) [5.2 min, 14.8 max]	11.0 g/dL (1.7 SD) [5.7min, 16.8max]

FIGURE 24: Anaemia in children (6-59 months) Mayukwayukwa settlement, Kaoma (December 2013)

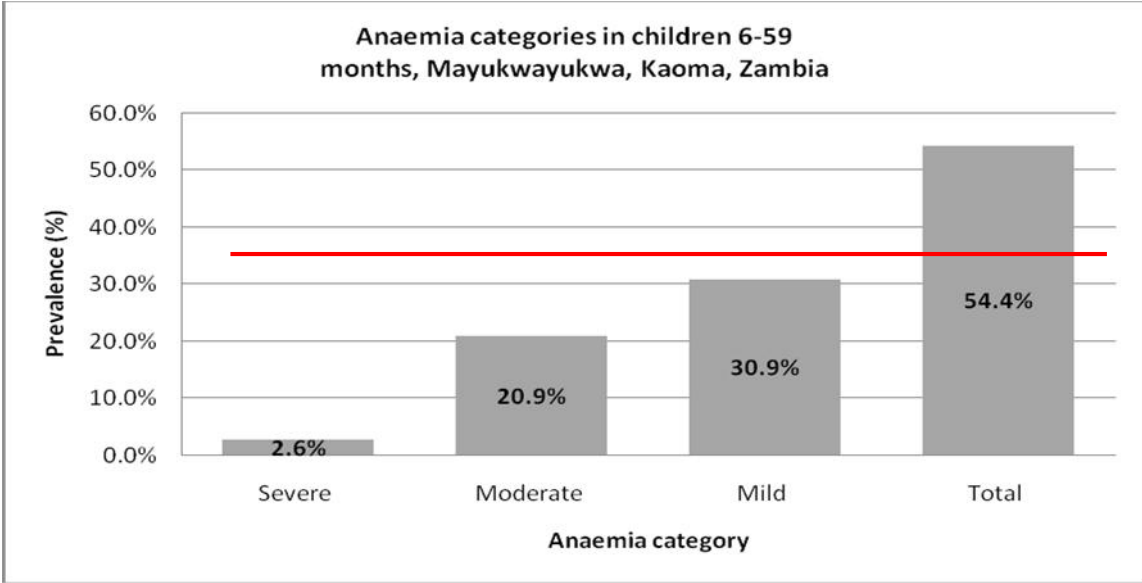


TABLE 74b: Prevalence of moderate and severe anaemia (Hb<10.0 g/dL) adjusted for altitude in children 6-59 months of age and age group; Mayukwayukwa settlement, Kaoma (December 2013),

Indicator	6-59 months n = 191	6-23 months n=67	24-59 months n=124
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(45) 23.6% (17.7–30.2)	(17) 25.4% (15.5–37.5)	(28) 22.6 % (15.6–31.0)

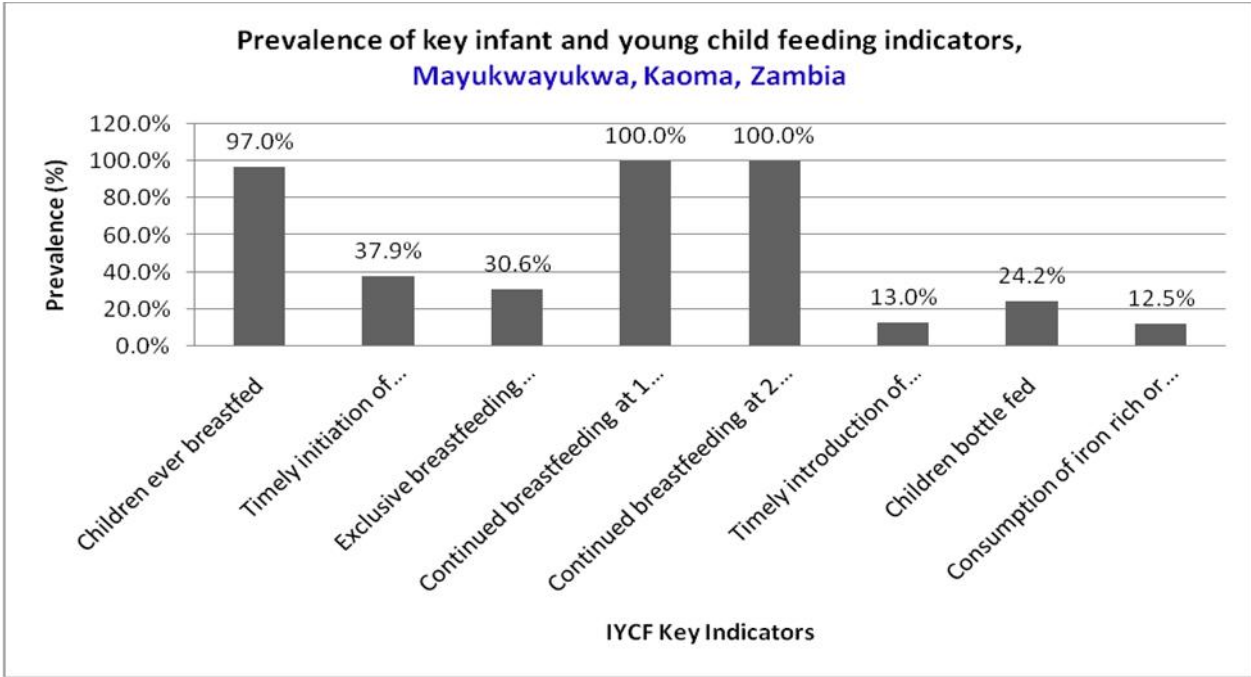
In Mayukwayukwa refugee settlement, for both age groups of children (6-23 months and 24-59 months), the prevalence of severe and moderate anaemia (combined) was found to be within the medium category (20-39%) of the WHO public health classification.

Children 0-23 months

TABLE 75: Prevalence of Infant and Young Child Feeding Practices indicators- Mayukwayukwa settlement, Kaoma (December 2013)

Indicator	Age range	Number/total	Prevalence (%)	95% CI
Children ever breastfed	0-23 months	128/132	97.0	(92.4-99.0)
Timely initiation of breastfeeding	0-23 months	50/132	37.9	(29.6-46.7)
Exclusive breastfeeding under 6 months	0-5 months	11/36	30.6	(16.3-48.1)
Continued breastfeeding at 1 year	12-15 months	15/15	100.0	(100-100)
Continued breastfeeding at 2 years	20-23 months	17/17	100.0	(100-100)
Timely introduction of solid, semi-solid or soft foods	6-8 months	3/23	13.0	(2.8-33.6)
Children bottle fed	0-23 months	32/132	24.2	(17.2-32.5)
Consumption of iron rich or iron fortified foods	6-23 months	12/96	12.5	(6.6-20.8)

FIGURE 25: Prevalence of key infant and young child feeding indicators, Mayukwayukwa settlement, Kaoma (December 2013)



Prevalence of intake

Infant formula

TABLE 76: Infant formula intake in children aged 0-23 months, Mayukwayukwa settlement, Kaoma (December 2013)

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	6/95	6.3% (2.4-13.2)

Fortified blended foods

TABLE 77: CSB+ intake in children aged 6-23 months, Mayukwayukwa settlement, Kaoma (December 2013)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	11/95	11.6% (5.9-19.8)

TABLE 78: CSB++ intake in children aged 6-23 months, Mayukwayukwa settlement, Kaoma (December 2013)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	1/95	1.1% (0.0-5.7)

Women aged 15-49 years

TABLE 79 : Physiological status of women who participated in the survey, Mayukwayukwa settlement, Kaoma (December 2013)

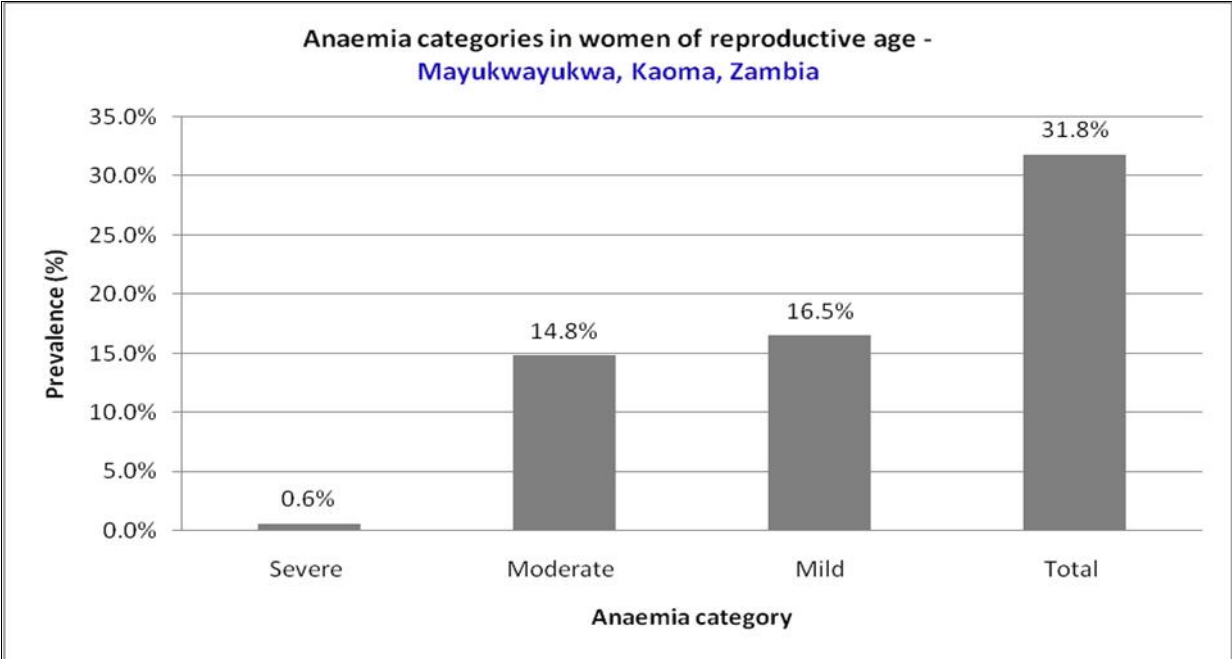
Physiological status	Number/total	% of sample
Non-pregnant	198/235	84.2
Pregnant	37/235	15.7
Mean age (range)	27.6 years (9.8 SD) (15 min – 47 max)	

TABLE 80: Prevalence of anaemia and haemoglobin concentration in non-pregant womenof reproductive age (15-49 years), Mayukwayukwa settlement, (December 2013)

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 235 (95% C.I)
Total Anaemia (<12.0 g/dL)	(56) 31.8% (25.0-39.2)
Mild Anaemia (11.0-11.9 g/dL)	(29) 16.5% (11.3-22.8)
Moderate Anaemia (8.0-10.9 g/dL)	(26) 14.8% (9.9-20.9)
Severe Anaemia (<8.0 g/dL)	(1) 0.6% (0.0-3.1)
Mean Hb (g/dL)	12.6 g/dL
(SD / 95% CI)	(1.6 SD)
[range]	[7.83 min, 17.0 max]

Anaemia prevalence (mild, moderate and severe) and mean Hb results in women of reproductive age (non-pregnant) presented based on categories of anaemia prevalence.

FIGURE 26: Anaemia categories in women of reproductive age (15-49 years) - Mayukwayukwa settlement, Kaoma (December 2013)



ANC enrolment and iron-folic acid supplementation coverage

TABLE 81: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) – Mayukwayukwa settlement, (December 2013)

	Number/total	% (95% CI)
Currently enrolled in ANC programme	34/34	100.0% (100-100)
Currently receiving iron-folic acid pills	33/34	97.1% (84.7-99.9)

Household –level indicators : Water, food security and mosquito net coverage Mayukwayukwa settlement, Kaoma (December, 2013)

TABLE 82: Targeted and total number of households sampled for each households-level module.

Indicator	Target sample size	Household interviewed during the study	% of the target
Water	160	163	101.8
Food security	160	163	101.8
Mosquito nets	160	163	101.8

Water

TABLE 83: Water Quantity: Amount of liters of water used per person per day- Mayukwayukwa, Kaoma (December 2013)

Proportion of households that access:	Number/total	% (95% CI)
<15 litres	80	49.1% (41.2–57.0)
15 – <20 litres	30	18.4% (12.8–25.2)
20 litres	53	32.5% (25.4–40.3)

TABLE 84: Average and mean water usage per person per day in Mayukwayukwa , Kaoma (December 2013)

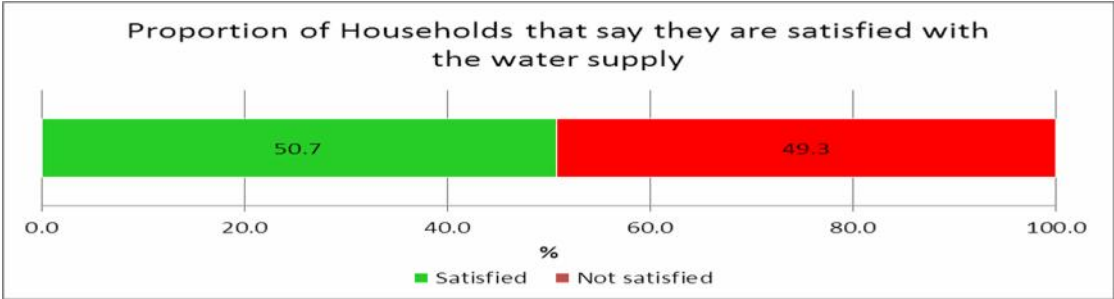
Average water usage	Mean (Standard deviation)
17 liters	16.6 (9.0 SD) [2.5 min, 56.0 max]

TABLE 85: Satisfaction with water supply- Mayukwayukwa settlement, Kaoma (December 2013)

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	105/163	64.4% (56.6–71.7)

35.6% (28.3-43.4 CI) of the surveyed household reported to not be satisfied with the water supply. The main reasons for the dissatisfaction were long distance to the water point (53.4%) and long waiting queues (46.6%).

FIGURE 27: Household satisfaction with the water supply, Mayukwayukwa settlement, Kaoma (Dec2013)

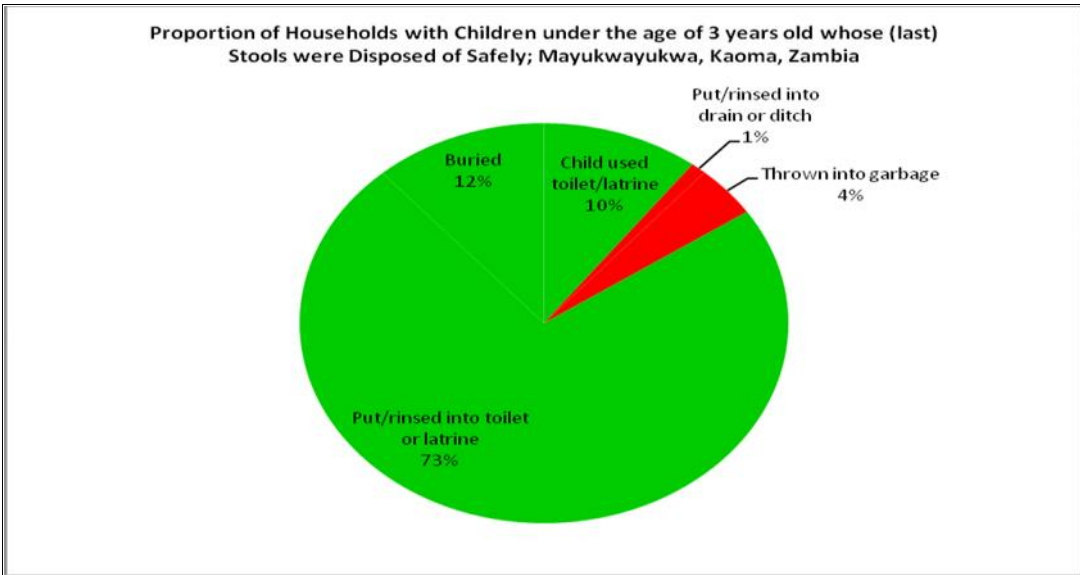


Safe excreta disposal

TABLE 86: Safe Excreta disposal Mayukwayukwa settlement, Kaoma (December 2013)

Proportion of households that use:	Number/total	% (95% CI)
An improved excreta disposal facility (improved toilet facility, 1 household)*,**	23/163	14.1 % (9.2–20.4)
A shared family toilet (improved toilet facility, 2 households)**	29/163	17.8 % (12.3–24.5)
A communal toilet (improved toilet facility, 3 households or more)	34/163	20.9% (14.9–27.9)
An unimproved toilet (unimproved toilet facility or public toilet)	77/163	47.2% (39.4–55.2)
Proportion of households with children under three years old that dispose of feces safely	91/96	94.8% (88.3– 98.3)

FIGURE 28: Proportion of HH with children under the age of 3 years old whose (last) stools were disposed of safely; Mayukwayukwa settlement, December 2013



FOOD SECURITY, COPING MECHANIMS AND HOUSEHOLD DIETARY DIVERSITY SCORES

Food security

TABLE 87: Proportion of households with ration card, Mayukwayukwa settlement (December 2013)

	Number/total	% (95% CI)
Proportion of households with a ration card	53/163	32.5% 25.4-40.23)

Out of the households reporting not to have a ration card, 62/110, 56.4% (46.6-67.3) were not eligible for the targeted food distribution system in Meheba settlement; 7/110, 6.4% (2.6-12.7) said that were not registered; 3/110, 2.7% (0.6-7.8) had lost there food ration cards ; 1/110, 0.9% (0.0-5.0) said it was because they were not given one at registration and 35/110, 31.8% (23.3-41.4) had other reasons.

TABLE 88: Average number of days the food ration lasts, Mayukwayukwa settlement, Kaoma (December, 2013)

Average number of days the food ration lasts (Standard deviation or 95% CI)	Average duration (%) in relation to the theoretical duration of the ration
12.5 days (4.9 SD) of 30 days	41.7%

TABLE 89: Duration of general food ration, Mayukwayukwa settlement, Kaoma (December 2013)

	Number/total	% (95% CI)
Proportion of households reporting that the food ration lasts the entire duration of the cycle	1/52	1.9% (0.0–10.3)
Proportion of households reporting the food ration lasted		
75% of the cycle 30 days	51/52	98.1% (89.7-100)
>75% of the cycle 30 days	1/52	1.9% (0.0–10.3)

NEGATIVE HOUSEHOLD COPING STRATEGIES ANALYSIS

TABLE 90: Coping strategies used by the sampled households, Mayukwayukwa settlement, Kaoma (December 2013)

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items without interest	34/163	21.0% (15.0-28.1)
Borrowed cash, food or other items with interest	15/163	9.2% (5.2-14.7)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	43/163	26.4% (19.8-33.8)
Requested increased remittances as compared to normal	12/163	7.4% (3.9-12.5)
Reduced the quantity and/or frequency of meals and snacks	97/163	59.9% (51.9-67.5)
Begged	53/163	32.5% (25.4-40.3)
Harmful practices	19/163	11.7% (7.2-17.6)
Household with children aged <=14 years	123/163	75.5% (68.1-81.9)
Any children of 14 years or below sent to work outside the household for cash or food	55/163	44.7% (35.7-53.9)
Proportion of households reporting using none of the coping strategies over the past month	12/163	7.4% (3.9-12.5)

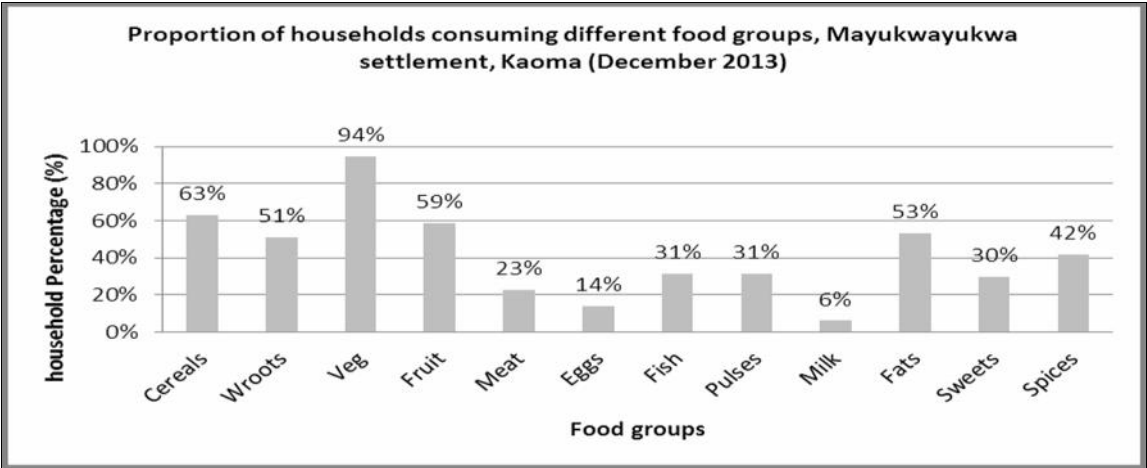
TABLE 91 : Average household dietary diversity score, Mayukwayukwa settlement, Kaoma (December 2013)

Average HDDS	Mean (95% CI)
4.9 (2.1 SD)	4.9 [1.0min, 11.0max]

TABLE 92: Consumption of various food groups by households- Mayukwayukwa settlement, Kaoma (December, 2013)

	Number/total	% (95% CI)
Proportion of households <i>not consuming any</i> vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	78/163	47.9% (40.0-55.8)
Proportion of households consuming either a plant or animal source of vitamin A	158/163	96.9% (93.0-99.0)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	69/163	42.3% (34.6-50.3)

FIGURE 29: Proportion of households consuming different food groups, Mayukwayukwa settlement, Kaoma (December 2013)



Mosquito net

MOSQUITO NET OWNERSHIP ANALYSIS

TABLE 93: Household mosquito net ownership in Mayukwayukwa settlement, Kaoma (December 2013)

	Number/total	% (95% CI)
Proportion of households owning at least one LLIN	125/163	76.7% (69.4–82.9)

Household owning at least one LLIN 125 (76.7%) and the survey team observed 285 LLIN nets (NetProtect and PermaNet).

FIGURE 30: Household with at least one LLIN, Mayukwayukwa settlement, Kaoma, (December 2013)

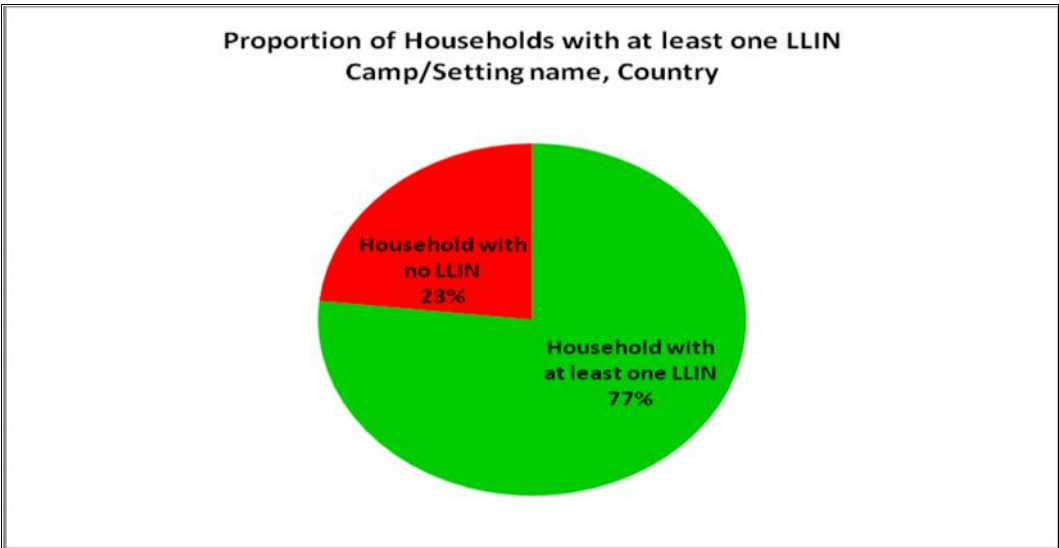


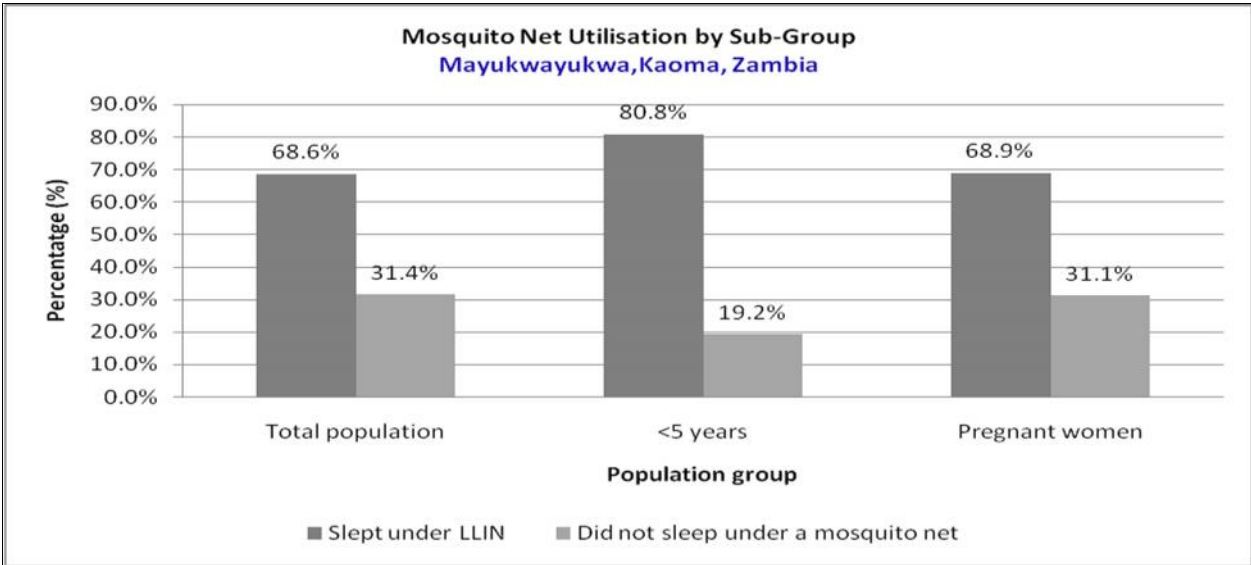
TABLE 94: Average number of LLINs per household and average number of persons per LLIN, Mayukwayukwa settlement, Kaoma (December 2013)

Average number of LLINs per household	Average number of persons per LLIN
2.3	2.7

TABLE 95: Proportion of total population, children 0-59 months and pregnant women who slept under LLIN, Mayukwayukwa settlement, (December 2013)

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No=	%	Total No=		Total No=	
	963		104	10.8%	29	3.2%
Slept under LLIN	661	68.6%	84	80.8%	20	68.9%

FIGURE 31: Mosquito net utilization by sub group, Mayukwayukwa settlement, Kaoma, Zambia



SURVEY LIMITATIONS

- **Infant and young child feeding practices:** Results from the following indicators; continued breastfeeding at one year and two years and introduction of solid, semi-solid or soft foods need to be interpreted with cautions due to the small sample size involved in establishing the prevalence rates.
- **Selective feeding programme coverage for young children:** Results for the supplementary feeding programme coverage rate should be interpreted with cautions due to the small sample size that was used (sampled) in establishing the referred results.
- **Programme coverage for women:** The number of randomly sampled pregnant women was small therefore the calculated coverage for the antenatal care enrolment and those women who receive iron and folic acid should be interpreted with care.

DISCUSSION

Anthropometric results (based on WHO standards 2006)

Children aged 6-59 months had their anthropometric measurements assessed in order to estimate the prevalence of acute malnutrition in Meheba and Mayukwayukwa settlements. Wasting which is a result of recent rapid loss of weight from decreased food intake, increased needs of nutrients due to illness or other incapacity to gain weight, was analysed together with bilateral oedema. The prevalence of global acute malnutrition (GAM) was 4.1% (2.4-7.0) in Meheba and 5.8% (3.6-9.0) in Mayukwayukwa settlements, and with overlapping confidence intervals the situation is similar in the two camps. There was no severe acute malnutrition in Meheba while in Mayukwayukwa the prevalence was 0.3% (0.1-1.9). There was no case of oedema. There was no significant difference in GAM between girls and boys found during the survey in the two settlements. According to the WHO classification of public health significance, the anthropometric situation is “acceptable” in both of the settlements.

Prevalence of stunting (<-2 z-score) or chronic malnutrition refers to poor linear growth in terms of height in comparison to age. It is associated with frequent episodes of illness during childhood and / or low food intake over prolonged time. Studies also indicate that it may be associated with deficiency of micronutrient including vitamin A, zinc, calcium or folate². The prevalence of global stunting among children 6-59 months in Meheba settlement was 36.7% (31.4 - 42.4) with 44.1% (36.7-51.8) for boys and 27.8% (20.9-36.0) for girls, showing a significant difference between boys and girls. In Meheba, overall the global stunting prevalence is within the “serious” category (30-39%) of public health significance, with girls falling in the “poor” category (20-29%). In Mayukwayukwa the prevalence of global stunting was 35.2% (29.9 - 40.8) with 42.6 % (34.7 - 50.8) for boys and 28.3 % (21.7 - 35.9) for girls.

In general terms in Mayukwayukwa global stunting can be interpreted as “serious” while for boys is “critical”, 42.6 % (34.7 - 50.8) and for girls as “poor”, 28.3 % (21.7 - 35.9). There is no significance different between boys and girls on stunting in Mayukwayukwa. It is important to acknowledge the fact that during the survey, all sampled children had the health card or immunization card or road to health cards recorded with their birthdates.

Measles vaccination and vitamin A supplementation coverage

Measles is an acute illness caused by a virus of the paramyxovirus family. It is a very contagious disease affecting non immune people especially children. In crowded environments i.e. refugee settings, measles is one of the leading causes of morbidity and mortality among children. In this survey measles vaccination coverage among children aged 9-59 months is 85.7% (81.1-89.5) in Meheba settlement. In Mayukwayukwa, measles vaccination coverage for children aged 9-59 months is 87.6% (81.9-92.0). In Meheba, the coverage of measles to the younger children aged 9-23 months when assessed with “measles with card or confirmation from the mother or caregiver” is 84.3% (76.0-90.6) while in Mayukwayukwa was 96.6% (90.4-99.3).

Vitamin A is obtained from both animal and plant food sources, it can also be obtained as supplement. Vitamin A deficiency arises from inadequate vitamin A intake to the body to satisfy physiological requirements. This survey found that Vitamin A supplementation coverage among children aged 9-59 months old was 86.7% (82.3-90.4) in Meheba and 87.6% (76.4-99.1) in Mayukwayukwa settlements. The coverage of vitamin A for children aged 9-23 months when assessed with “vitamin A capsule with card or confirmation from the mother or caregiver” in Mayukwayukwa is 96.6% (90.4-99.3) and in Meheba it is 87.0% (79.2-92.7). Vitamin A is essential for the children growth and cognitive development, it enhances vision and it increases child survival. Improving vitamin A status can reduce child mortality up to 23-34%³. This can be obtained through improving the general food security situation where vitamin A rich foods are consumed by children after 6 months of age and pregnant and lactating women. Vitamin A rich foods include yellow and orange fruits and vegetables such as carrot and orange-fleshed sweet potato, animal products (liver, egg yolk, sardines) and red palm oil.

UNHCR recommends that vitamin A supplementation coverage should be 90% at all times in refugee settings and that should be supplemented to children at an interval of 6 months. Health and nutrition programmers are encouraged to ensure that Vitamin A capsules are made available consistently, staff is trained and health cards for children are issued to children and health and nutrition services provided to children should be properly recorded in the cards.

Anaemia in children aged 6-59 months old and non-pregnant women aged 15-49 years

The total anaemia prevalence among sampled children aged 6-59 months was 53.7% (46.3-61.0) in Meheba and 48.7% (41.4-56.0) in Mayukwayukwa settlements. The prevalence in the two settlements exceeded 40%, which is the WHO classification of high public health significance.

The total anaemia (Hb <12 g/dl) prevalence among the sampled non-pregnant women of reproductive age (15-49 years) was 39.2% (31.9–46.8) and 31.8% (25.0-39.2) in Meheba and Mayukwayukwa settlements respectively.

² Allen LH. Nutritional influences on linear growth: a general review, Eur J Clin Nutr 1994; 48:S75-S89.

³ Bhutta, Z.A., Samana A., Cousens S., et al Interventions to address maternal, newborn, and child survival: what difference can integrated primary health care strategies make? (The Lancet, Volume 372, Issue 9642, Pages 972 - 989, 13 September 2008)

These levels are classified as “medium” according to the WHO classification of public health significance. Overall in both settlements anaemia is one of the most important public health problems to both children and women.

It is advised that the Ministry of Agriculture considers intensifying income generating activities such as poultry and animal husbandry, and gardening activities. The Ministry of Health should continue with preventive programmes such as deworming and distribution of LLIN. Investigations and treatment against bilharzia is also essential.

Coverage of selective feeding programme

Child enrolment in supplementary feeding programmes was assessed with the view to establish the coverage of feeding programmes for acutely malnourished children in the settlements. The assessment found that the SFP coverage based on MUAC and WHZ-scores admission criteria was very low at only 1.7% (0.5-3.9) in Mayukwayukwa and 6.4% (3.9-9.8) in Meheba. At the time of the survey there were 32 children enrolled for the SFP in Meheba and 61 children enrolled in the SFP in Mayukwayukwa. With this low coverage results it is likely that many eligible children are not enrolled in SFP. Health and nutrition workers through the outreach programme should design a mechanism to increase the coverage of the SFP in the settlements.

History of child morbidity based on symptoms

Diarrhoea is defined as the passage of uncommon loose or watery stools three times in a day. In Meheba settlement the prevalence of diarrhea two weeks prior the survey was found to be 27.9% (22.8-33.3) and 24.8% (20.0–30.1). Diarrhea is common in situations where water supply is poor in terms quality and quantity. Lack or poor coverage of improved latrines could also support the high prevalence of diarrhea. Although diarrhoea is a preventable disease it can in many cases lead to high morbidity and mortality. In 2013 in Meheba and Mayukwayukwa diarrhea was recorded as one of the top five causes of morbidity. Improving health seeking behaviour, expansion of community outreach system and good hygiene practices may reduce the number of diarrhoea episodes in the settlements.

Nutrition for pregnant and breastfeeding woman

It is a standard practice that pregnant women are enrolled in antenatal care where they receive iron and folic acid tablets so as to increase their haemoglobin levels. In Meheba settlement, 94.3% (80.8-99.3) of them were enrolled in the ANC programme and 91.4% (76.9-98.2) confirmed to have received the iron-folic acid tablets. In Mayukwayukwa settlement, 100% (100.0-100.0) of them were enrolled in the ANC programme and 97.1% (84.7-99.9) had received iron and folic acid tablets. Pregnant women enrolled in the ANC are dewormed and are treated against malaria and other causes of anaemia, they are provided with Long Lasting Treated Insecticide Net (LLIN) and are advised to limit the intake of tea and coffee as it interferes with iron absorption.

Pregnant and breastfeeding women are advised to attend antenatal care at least 4 times during pregnancy and continue with postnatal care after delivery. Programmers are advised to inform women on the importance of immediate initiating breastfeeding after birth during clinic visits and maintain exclusive breastfeeding during the first 6 months of the child age.

Infant and young child feeding practices

The infant and young child-feeding programme is implemented in the refugee settlements of Meheba and Mayukwayukwa. Findings from this survey indicate that most of the key IYCF indicators are sub-optimal.

The majority of children aged 0-23 months in the settlements were breastfed. In Meheba 92.9% (87.7-96.4) and 97.0 % (92.4-99.0) were breastfed. Continued breast-feeding at one year was 81.8% (48.2-97.7) in Meheba while in Mayukwayukwa was 100% (100-100). Timely introduction of solid, semi-solid or soft foods at age 6-8 months old was 51.2% (35.1-67.1) in Meheba and 13.0% (2.8-33.6) in Mayukwayukwa settlement.

Exclusive breastfeeding to six months is proven to contribute to proper child growth and development. Breastfeeding has been reported to reduce disease prevalence, it improves the immune system and it reduces mortality, and hence ensures future productivity of the child. Breastfeeding women are advised to timely initiate breastfeeding within one hour after birth and exclusively breastfeed their babies for six months with continued breastfeeding to two years or beyond⁴.

In the two settlements, the proportion of children 6-23 months old who consumed iron rich or iron fortified food were only 15.3% (8.8-24.0) and 12.5% (6.6-20.8) in Meheba and Mayukwayukwa. Iron rich foods both from animal and plant sources enhance physical growth and development of the child. Iron deficiency anaemia in children results into lower work capacity and increased morbidity, poorer school performance, and permanent cognitive effects. Improving household dietary diversity with a variety of food will contribute significantly in reducing the high levels of anaemia in the settlements.

⁴ Thairu, L.N., et al., *Sociocultural influences on infant feeding decisions among HIV-infected women in rural Kwa-Zulu Natal, South Africa*. *Matern Child Nutr.*, 2005. 1(1): p. 2-10.

Although some of the IYCF findings may have been affected by the small size of the samples, these results show that children below two years still needs more attention including adequate parental care. Breastfeeding should be protected, promoted and supported together with timely introduction to solid, semi-solid or soft foods based on locally available food sources.

Food security, coping mechanisms and household dietary diversity score

The general food distribution was discontinued in May 2013 following an agreement between the Government of Zambia (MHA), WFP and UNHCR. Currently only refugees identified as vulnerable receive general food ration from UNHCR. UNHCR have maintained the same food ration that WFP used to provide to the refugees. In this case refugees receive 2128 kilocalories and the proportions of supplied energy by the macronutrient are disaggregated as follows: 70% cereals, 12% protein and 18% fats.

Of the sampled households, the proportion of household with a ration card in Meheba settlement was 18.0% (12.2-25.1) and in Mayukwayukwa was 32.5% (25.4-40.23). The households receiving the targeted food basket from UNHCR in Meheba reported that the average number of days the food lasted was 22.1 days of the 30 days of the distribution circle while in Mayukwayukwa refugees reported an average of 12.5 days of the 30 days distribution circle.

The most common coping mechanism households reported were; reduced quantity and/or frequency of meals 50.0% (41.7-58.3) in Meheba and 59.9% (51.9-67.5) in Mayukwayukwa. 44.0% (35.9-52.3) selling of household assets in Meheba and 32.5% (25.4-40.3) begging in Mayukwayukwa. Households engaged in potentially risky or harmful activities were 9.3% (5.2-15.2) in Meheba and 11.7% (7.2-17.6) in Mayukwayukwa. Only 6.0% (2.8-11.1) and 7.4% (3.9-12.5) did not use any of the negative coping strategies. These findings suggest that most of the families do not meet their daily food needs.

The study also looked into household dietary diversity score, a measure of food access among households as an impact indicator on household food consumptions. The survey found that the average household dietary diversity score was 5.6 in Meheba settlement and 4.9 in Mayukwayukwa settlement out of a maximum score of 12. The proportion of households not consuming any vegetables, fruits, and meat, eggs, fish/seafood, and milk/milk products in Meheba was 0.7% while in Mayukwayukwa was 47.9%, showing a big difference between the two settlements. Reduced food group consumption may be linked to food insecurity that household experience. Keeping of small animals and poultry and farming of vitamin A fruit sources, green and dark vegetables may improve food diversity and intake of vitamin A and iron rich food sources.

Water supply and sanitation services

According to UNHCR standards drinking water per capita should be equal and / or above 20 liters per person per day. In the survey it was found that percentage of households using 20 liters of water per person per day were; 30% (22.8-38.0) in Meheba and 49.1% (41.2-57.0) in Mayukwayukwa settlements. Households using less than 15 liters of water per person per day were: 54.0% (45.7-62.2) in Meheba and 32.5% (25.4-40.3) in Mayukwayukwa settlements. Findings from this study suggest that in Meheba households using below 15 liters of water per day were very high, this needs to be followed up by the programmers. The proportions of households using improved drinking water sources were impressive with 93.3% (88.1-96.8) in Meheba and 81.6% (77.3-89.6) in Mayukwayukwa settlements.

The use of improved excreta disposal facility (improved toilet facility, 1 household) was found to be 12.0% (7.3-18.3) in Meheba and 14.1% (9.2-20.4) in Mayukwayukwa settlements. The use of unimproved excreta disposal facility (unimproved toilet facility or public toilet) was 65.3% (57.1-72.9) in Meheba and 12.9% (8.2-19.0) in Mayukwayukwa settlements. During the debriefing session in Meheba the Department of Water Affairs confirmed the “very high” use of unimproved excreta disposal facility (unimproved toilet facility or public toilet) to be true and that this situation was attributed by many collapsed latrines due to high rains which had happened few days prior the survey in Meheba settlement.

The findings on water supply and hygiene indicate a situation below standard and measures should be taken to improve access and availability of water and access and utilization of safe excreta disposal facilities.

Information on mosquito net ownership and utilization

The findings indicate that the proportion of households owning at least one LLIN is 74% (66.9-81.4) in Meheba and 76.7% (69.4-82.9) in Mayukwayukwa settlements. The proportion of total population (all ages) that slept under LLIN was 51.3% in Meheba and 68.6% in Mayukwayukwa settlement. The proportion of children under five years who slept under the LLIN was 45.5% in Meheba and 80.8% in Mayukwayukwa settlements. The proportion of pregnant women who slept under LLIN was 58.1% in Meheba and 68.9% in Mayukwayukwa settlements. The average number of persons per LLIN was 3.6 persons in Meheba and it was 2.7 persons per net in Mayukwayukwa, which is more than the UNHCR target at two persons per LLIN.

More LLIN should be supplied, and the community should be informed on better utilization of the LLINs. The value of LLIN will only be realized if all family members sleep under a LLIN.

CONCLUSION

Although the prevalence of acute malnutrition is within the “acceptable” limits as per WHO classifications of public health significance; the high prevalence of anaemia and stunting in children aged 6-59 months shows that both anaemia and stunting are the serious nutritional problems that children suffer in the two refugee settlements. Reduced food diversification to most of the households could increase all forms of malnutrition including anaemia. The poor rates of key infant and young child feeding indicators could contribute into poor growth and development of children. The findings suggest that many are not reached with the outreach system to join the SFP and as a result the coverage of SFP remains low. The relative high prevalence of diarrhoea among children can be related to inadequate supply of water and low coverage of improved latrines. Low coverage of long lasting insecticides nets among children, pregnant and other family members in the settlements could increase malaria risk hence contributing to high prevalence of anaemia. Poor dietary intake associated with high prevalence of morbidity i.e. diarrhea (in Mayukwayukwa during debriefing health teams reported high morbidity of bilharzias) favors children and vulnerable groups to develop malnutrition and anaemia.

Improved production of different varieties of food ensures food diversification at household level. Consumption of diversified meals from varieties of foods, vaccination of measles and other antigens, vitamin A supplementation and use of iodated salt improves the health status of children and general population. Programmes such as de-worming of children and provision of LLIN could reduce illness and in turn reduce malnutrition. Early health seeking behavior, family planning and child spacing practices and adhering to IYCF practices could reduce child morbidity and mortality at the same time. Adequate antenatal care and postnatal care with strong outreach system supporting women (pregnant and lactating) and households with children in the areas of breastfeeding and introduction of weaning food could improve the health and nutrition status of the community.

Improved sanitation and hygiene programme through provision of adequate latrines, refusal pits and soap contributes to reduced incidence of diseases. Deliberate efforts need to be undertaken that involves the community in cleaning their homestead environment. Most of the refugee households are expected to produce their own food/income. Agriculture extension services need to be improved to support refugee efforts. As the re-integration programme continues, other actors in the agriculture sector such as FAO need to be invited in the settlements so that the operation benefits from their expertise. Livestock keeping could contribute to improving the family food security and income.

The use of positive deviance families in the settlements should be explored. Households with healthy children, women attending antenatal and post natal clinics, households with improved latrines and children receiving all the vaccinations including measles and vitamin A supplementation can be identified and used to encourage other families with health related challenges. This goes well with a critical review of the current health and nutrition strategies. This can be achieved through evaluation of the current strategies in use. The evaluation should be able to establish existing gaps both from the institutions and refugees side. Finally, in order to bring positive change, it is advised to adopt a multisectoral approach with clear goals, agreed activities and time frame that involves partners and refugees.

RECOMMENDATIONS AND PRIORITY AREAS

a. Nutrition

- Improve the quality of services in the selective feeding programme. During the nutrition survey training the health and nutrition workers mentioned that the programme experiences high staff turnover. Most of the staff lacks basic knowledge on organizing the feeding programs and procedures for identifications of malnourished children in the settlements. Community health workers and social workers should be trained on community screening and referral mechanism. Agree on the frequencies and time to conduct community screening with MUAC. (UNHCR, MOH and MCD-MCH)
- Children 6-59 months identified with MUAC less than 12.5 centimeters should be further assessed using the weight for height z-score admission criteria. SFP supplements should be made available for these children. (UNHCR, MOH and MCD-MCH)
- Awareness and sensitization on the importance of supplementary feeding programme, measles vaccination, vitamin A supplementation and diarrhoea assessment. (UNHCR, MOH and MCD-MCH)
- Behaviour change and communication, early health seeking behaviour: Partners working on community development, social welfare, health and nutrition should identify families with nutritionally healthy children and use these families as satellites in the settlements applying the “positive deviants” approach. The programme should target children 6-59 month’s old, moderate acute malnourished and severe acute malnourished children without medical complications, pregnant and lactating women to treat and reduce malnutrition and anaemia rates. The motive is to implement behaviour change and communication activities on prevention of malnutrition. (UNHCR, MOH and MCD-MCH)

- Maintaining the current supply and retention of health record cards, and enhancing the recording of key information; the health programme should maintain the current high coverage of health / immunization / growth monitoring cards. The health workers should be trained on the importance of proper documentations of the health services that are given to children, pregnant and lactating women in the Maternal and child health programmes. (MOH and MCD-MCH)
 - Undertake bi-annual joint nutrition surveys in all camps to analyze trends and facilitate program impact evaluation. Integrate the use of digital data collection to decrease data entry time and data check to raise the quality of data. (UNHCR and IPs)
- b. Prevention and control of anaemia**
- Reinforce the current existing interventions in preventing, controlling and treating anaemia: malaria control: consider distribution of LLIN to the refugee population; deworming campaigns to cover children from 12 months to school going children, raise coverage of antenatal activities, provision of iron and folic acid tablets to pregnant women.
 - Providing information and education for the refugee community on anaemia and micronutrient deficiencies;
 - Consider introducing a new approach to improve food security and livelihood i.e. use of cash and or voucher system, income generating activities, cash and food for work programmes, and augmenting safety net programmes for vulnerable groups i.e those receiving food assistance from UNHCR;
 - Strengthen training of health staff on anaemia detection, treatment and reporting as well as supply equipment for measuring anaemia and ensuring adequate quantities of appropriate treatment.
- c. Water, sanitation and hygiene**
- Investigate on the on-going hygiene promotion actions if they have been successful or if the strategy used needs to be changed particularly in Meheba where the use of unimproved toilet facility or public toilet is very high 65.3% (57.1-72.9).
 - Identify areas of concern with regard to hygiene that require further in-depth actions with communities; i.e. construction of improved latrines,
 - Work with refugee community in Meheba settlement to identify the reasons that cause majority of the refugees to receive less than 15 litres of water per person per day.
- d. Infant and young child feeding programme**
- Raise awareness, promotion, and protection of IYCF through expanded mother-to-mother support groups; and develop strategies to prevent the use of bottle-feeding which is a risky IYCF practice in the settlements.
 - Seek collaboration with UNICEF and National Food and Nutrition Commission in Lusaka - Zambia so that training on breastfeeding counselling is provided in order to raise the current sub optimal IYCF indicators in the settlements.
- e. Mosquito net coverage**
- Investigate in the community if there are LLIN, which are kept in the houses and not in use. Conduct a hang-up campaign so that unused LLINs are hanged over sleeping surfaces so that they are used.
 - Mobilize and distribute LLINs to all age groups to achieve ownership of sufficient LLINs to reach universal coverage.
 - Provide health education on the importance of sleeping under LLINs.
- f. Food security, coping mechanisms and household dietary diversity**
- Home gardening is possible in both settlements; seek collaboration with the Ministry of Agriculture and FAO under ONE UN umbrella for refugees to improve production of vitamin A rich vegetables and tubers, dark green leafy vegetables and vitamin A rich fruits.
 - Support animal and poultry keeping so as increasing the availability of animal protein and micronutrients in the settlements through egg and meat productions.

Appendix 1: Names of contributors

No.	Meheba enumerators data collection team	Designation
1	Sagesse Gerald	Survey team member
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3	Benjamin Ilunga	Survey team member
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7	Patrick Kasenga	Survey team member
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9	Alice kapalu	Survey team member
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11	Mususu David	Survey team member
12	Loloji Mercy	Survey team member
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15	Kelvin Samalesu	Survey team member
16	Kenford Samuhula	Survey team member
17	Chipango Seke	Survey team member
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20	Andrew Mukushi	Survey team member
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23	Lydia Miziba	Survey team member
24	Alvaro chilala	Survey team member
25	Jacob Mackenzie	Survey team member

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27	Mirriam Hasani	Survey team member
28	Eric Munango	Survey team member
29	Franco Nyambe	Survey team member
30	Sanddra Linyanga	Survey team member
31	Elizabeth Kapinga	Survey team member
32	Richard Amisi	Survey team member
33	Catherine Maliti	Survey team member

Survey coordination and supervision

No.	Full name	Title	Location
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Data cleaning, analysis and report compilation

- Lucas Machibya (Nutrition survey consultant)

Funding, staffing and survey tools

- UNHCR provided funding, logistics and some survey tools for the entire survey
- UNICEF and National Food and Nutrition Commission provided survey tools

Appendix 2: Summary of overall quality of anthropometric data (weight-for-height data)

Plausibility check for: Mehebau514jan2014.as

Standard/Reference used for z-score calculation: WHO standards 2006

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Missing/Flagged data (% of in-range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-10 10	>10 20	0 (1.3 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<0.000 10	2 (p=0.082)
Overall Age distrib (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<0.000 10	0 (p=0.456)
Dig pref score - weight	Incl	#	0-5 0	5-10 2	10-20 4	> 20 10	2 (6)
Dig pref score - height	Incl	#	0-5 0	5-10 2	10-20 4	> 20 10	2 (6)
Standard Dev WHZ	Excl	SD	<1.1 0	<1.15 2	<1.20 6	>1.20 20	2 (1.15)
Skewness WHZ	Excl	#	<±1.0 0	<±2.0 1	<±3.0 3	>±3.0 5	0 (0.24)
Kurtosis WHZ	Excl	#	<±1.0 0	<±2.0 1	<±3.0 3	>±3.0 5	0 (-0.37)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<0.000 5	0 (p=)
Timing	Excl	Not	determined yet		3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	8 %

At the moment the overall score of this survey is 8 %, this is good.

Plausibility check for: MAYUKWAYUKWA MUAC 14jan2014.as

Standard/Reference used for z-score calculation: WHO standards 2006

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Missing/Flagged data (% of in-range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-10 10	>10 20	0 (1.0 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<0.000 10	0 (p=0.562)
Overall Age distrib (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<0.000 10	0 (p=0.424)
Dig pref score - weight	Incl	#	0-5 0	5-10 2	10-20 4	> 20 10	0 (3)
Dig pref score - height	Incl	#	0-5 0	5-10 2	10-20 4	> 20 10	0 (3)
Standard Dev WHZ	Excl	SD	<1.1 0	<1.15 2	<1.20 6	>1.20 20	6 (1.18)
Skewness WHZ	Excl	#	<±1.0 0	<±2.0 1	<±3.0 3	>±3.0 5	0 (0.16)
Kurtosis WHZ	Excl	#	<±1.0 0	<±2.0 1	<±3.0 3	>±3.0 5	0 (-0.32)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<0.000 5	0 (p=)
Timing	Excl	Not	determined yet		3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	6 %

At the moment the overall score of this survey is 6 %, this is good.

Appendix 3: Nutrition Surveys Questionnaires December 2013

Translated in Mbunda language

Greeting and reading of rights:

Kumeneka na kutanda byatela

THIS STATEMENT IS TO BE READ TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSE BEFORE THE INTERVIEW. DEFINE A HOUSEHOLD AS A GROUP OF PEOPLE WHO LIVE TOGETHER AND ROUTINELY EAT OUT OF SAME POT. DEFINE HEAD OF HOUSEHOLD AS MEMBER OF THE FAMILY WHO MANAGES THE FAMILY RESOURCES AND IS THE FINAL DECISION MAKER IN THE HOUSE.

MUZIMBU OU KUTANDELA MUTWE WA NJIBO NAMBE NGAWAHI, MUKULUNU WAKALA OHO HA NJIBO YA BO THIMBU KANDA BIHULA. LUMBUNUNENI NJIBO NGE CHIBUNGA CHA BANU BAJE BAKALA HAMOLIKA NA KULWA NDEHO IMOLIKA. LUMBUNUNENI MUTWE WA NJIBO NGE MUNU UJE AKA TONDO BUKWASI BWA NANGA NA KU YULA NANGA MUBITHIMUTWILA.

Hello, my name is _____ and I work with [organisation/institution]. We would like to invite your household to participate in a survey that is looking at the nutrition and health status of people living in this settlement.

Mwane, lizina lyange yange _____njapanga (kuchibunga/muntango).Tulomba njibo yeni tupangele hamolika kutondesesa kutala ha kulya na bukangule bwa buyoye bwa banu muno mumuhela wa baka kutewa.

- UNHCR is sponsoring this nutrition survey.
UNHCR inecha bukwasu mukutondesesa lithi yetu.

- Taking part in this survey is totally your choice. You can decide to not participate, or if you do participate you can stop taking part in this survey at any time for any reason. If you stop being in this survey, it will not have any negative effects on how you or your household is treated or what aid you receive.

Kupanganetu muchitonda echi chinapu chizango cheni. Mwasa kubyana,nambe ngamutaba kupanganetu mwasa kulikela yoshe thimbu imushaka. Nambe mulikela kupanga omu mulitondesesa kukwesi bitanga bije byasa kukala hali yena nambe bukwasu buje njibo yeni ika vukatambula.

- If you agree to participate, I will ask you some questions about your family and I will also measure the weight and height of all the children in the household who are older than 6 months and younger than 5 years. In addition to these assessments, I will test a small amount of blood from the finger of the children and women to see if they have anaemia

Nga mutaba, njimi hula bihula bimo kutwala ha nanga yeni chonawa njiseteka kulema na chitho cha bana beni baje bana tubakana bingonde bitanu na imo nawa bali mwisi ya miaka itanu. Kubwezelelako nawa tupima maninga amandende lika kufumisa kumunye wa bana na banakazi tumone ndi bali na maninga aengi indi amandende.

- Before we start to ask you any questions or take any measurements, we will ask you to state your consent on this form. Be assured that any information that you will provide will be kept strictly confidential.
- Thimbu kanda tuputuke kumihula nambe kuseteka, mutulekese bisinganyeka bwani hali papelo eli. Zibukeni ngweni bukaleho mutuhana bukapwa bwa kushweka.
- You can ask me any questions that you have about this survey before you decide to participate or not.
- Mwasa kunjihula bihula bimulinabwo muchitondesesa echi thimbu kanda musinganyeke mupanga netu ndi kwahi.
- If you do not understand the information or if your questions were not answered to your satisfaction, do not declare your consent on this form. Thank you.
- Nge kumwazibisisile muzimbu ou nambe kutwakumbulwile bwino bihula byeni cho kethi mutuleke bisinganyeka byeni. Twa kandlelelako.

FOOD SECURITY: 1 questionnaire per household (THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO THE MAIN CARETAKER WHO IS RESPONSIBLE FOR COOKING THE MEALS)
BUNYUNGI BWAKULWA (BB): Papelo imolika ha njibo (PAPELO EI IHULENI KANYUNGI UJI AKATALA BYA CHIPIKO)
Section code / number:_____ **Block code / number:** _____ **Consent** : yes / no / absent
Mutambela /numelu:_____ **Limbo / numelu:**_____ **Chiyongo:** eyo / kwahi / wahiho.

Date of interview (dd/mm/yyyy) Litangwa lya bihula (litangwa/ ngonde / mwaka)	Cluster Number (in cluster survey only) Numelu ya chibunga (chibunga cha kutondesesa lika)
	<div></div>
Team Number Numelu ya kabunga.	HH Number Numelu ya njibo.
<div></div>	<div></div>

	No Num elu	QUESTION chihula	ANSWER CODES Mwaku kumbulwila.
		SECTION FS1 MUTAMBELA BB1	
BYA KULYA.	FS1 BB1	Does your household have a ration card? Njibo yeni yakala na lipapelo lya kutambula nalyo bwa kulwa?	Yes1 Eyo_____1 No2 Kwahi_____2 IF ANSWER IS 1 GO TO FS3 Nga chikumbulula cheni 1 yeni ku BB3
	FS2 BB2	Why do you not have a ration card? Bika kumwesi na lipapelo lya kutambulu nalyo byakulya?	Not given one at registration.....1 Kubanjaanene ha litangwa lyakusonekesa_____1 Lost card.....2 Ya zimbala_____2 Traded card.....3 Ya landisiwa_____3 Not registered but eligible.....4 Kubanjisonekele oloni nja fwila_____4 Not eligible (not in targeting criteria).....5 Kunja fwilile (mukuhangula kwabo)_____5 Other.....6 Bikwabo.....6 GO TO FS4 Ya k u BB4
NRCARD			
GFDLAST	FS3 BB3	How many days did the food from the general ration from the [insert] cycle of [insert] month last? Matangwa angahi bya kulya bimukaholo akamiambatela kutunda ku ngonde inahu?	INSERT DAYS Hakeni Matangwa <div></div>

BORWOINT	FS4 BB4	In the last month, have you or anyone in your household borrowed cash, food or other items without interest? Yeni ndi umo wa njibo yeni na lombele bimbongo, byakulya nambe bimo bije kubyakele na nganyo ngonde inahu?	Yes1 Eyo.....1 No2 Kwahi.....2	<div></div>
BORWINT	FS5 BB5	In the last month, have you or anyone in your household borrowed cash, food or other items with interest? Yeni ndi umo wa njibo yeni na lombele bimbongo, byakulya nambe bimo bije binakele na nganyo ngonde inahu?	Yes1 Eyo.....1 No2 Kwahi.....2	<div></div>
SOLDASS	FS6 BB6	In the last month, have you or anyone in your household sold any assets (furniture, seed stocks, tools, other NFI, livestock etc.)? Yeni nambe umo wanjibo yeni na landesele bikwata bimo(bya bu mesele,mbuto,bikungo)	Yes1 Eyo.....1 No2 Kwahi.....2	<div></div>
REQREM	FS7 BB7	In the last month, have you or anyone in your household requested increased remittances or gifts as compared to normal? Yeni chipwe umo wamu njibo yeni nalobele bukwasi nambe bwana kutubakanesa theteko ngonde inahu?	Yes1 Eyo.....1 No2 Kwahi.....2	<div></div>
REDQUANT	FS8 BB8	In the last month, have you or anyone in your household reduced the quantity and/or frequency of meals? Yeni chipwe umo weni munjibo natepulwile ku seteko nambe ku mulilo wa byakulya ngonde inahu?	Yes1 Eyo.....1 No2 Kwahi.....2	<div></div>
BEGGED	FS9 BB9	In the last month, have you or anyone in your household begged? Yeni nambe umo wa munjibo yeni nalombele ngonde inahu?	Yes1 Eyo.....1 No.....2 Kwahi.....2	<div></div>
HARMACT	FS10 BB10	In the last month, have you or anyone in your household engaged in potentially risky or harmful activities such as: [Add list of local illegal activities] Yeni nambe umo weni munjibo na likobesele mubilinga bibana byanesa chipwe byakusasa bya chifwa ngwe: lyamba, kachipembe, bwizi nambe bupondwa mungonde inahu?	Yes1 Eyo.....1 No2 Kwahi.....2	<div></div>
CHILD14	FS11 BB11 1	Do you have one or more children 14 years of age or younger currently living in the household? Mulina mwana chipwe bana bamiaka likumi na iwana nambe balimwinsi bakala munjibo yeni?	Yes.....1 Eyo.....1 No2 Kwahi.....2	<div></div> <div>IF ANSWER IS 2 GO TO SECTION FS2 Ngwe chikumbulula cheni 2 yeni ku mutambela wa BB2</div>

CHILDWORK	FS12 BB1 2	In the last month, have you or anyone in your household sent your child or children of 14 years of age or younger to work outside the household in order to get cash or in-kind goods or services? Yeni nambe umo wa munjibo yeni natumine mwanike nambe banike ba miaka likumi na iwana chipwe baba ndende kukapangela kweka ngechi awane bimbongo nambe bikumba?	Yes1 Eyo.....1 No2 Kwahi.....2	
SECTION FS2 Mutambela BB2				
	FS13 BB1 3	Now I would like to ask you about the types of foods that you or anyone else in your household ate yesterday during the day and at night. I am interested in whether you or anyone else in your household had the item even if it was combined with other foods. Njishaka honi kunihula miyati yabya kulya yeni nambe umo wa njibo yeni nalile izau mutanya nambe buthiki. Njishakuzika ngwe yeni chipwe umo weni nalile bimo byakulya byakupandakana na byakulya bikwabo. READ THE LIST OF FOODS AND DO NOT PROBE. PLACE A <i>ONE</i> IN THE BOX IF ANYONE IN THE HOUSEHOLD ATE THE FOOD IN QUESTION, PLACE A <i>ZERO</i> IN THE BOX IF NO ONE IN THE HOUSEHOLD ATE THE FOOD. Tandeni mukana wa byakulya kethi mubehule. Hakeni 1 mu pongisi nga umo wabo munjibo nalile bwakulya bili muchihula, Hakeni liulu mupongisi nga wahi umo wamunjibo nalile byakulya. Adapt list to local setting before survey Hakeni mukana wa kutondesesa kweni byima bya mwimbo. The list that is provided below is an example Mukana uli mwinsi unapu chimweso. The text highlighted in bold grey needs to be deleted from the final survey questionnaire Oho habana soneka muvukama itundiseni aha papelo ya vihula yama maneselelo		
FAIDCERE AL NFAIDCEREAL WROOTS VITAVEG GLEAVES OVEG		1A. Food aid cereals: Any wheat, corn/maize or any foods made from these (e.g. bread, porridge). 1A. Byakulya byabi nona bya kutuhana; bya chifwa ngwe loso, mundele nambe byakulya bije bitunda ho (chimweso. Mbolo, ndengani). 1B. Non-food aid cereals: Any rice, sorghum, millet or any other grains or foods made from these (e.g. bread, noodles, porridge or other grain products) + <i>insert local foods e.g. ugali, nshima, porridge or paste</i> 1B. Byakulya bya binona bije kethi bya kutuhana; bya chifwa ngwe Loso, masha, mashangu nambe binona bikwabo chipwe byakulwa bitunda ho (chimweso. Mbolo, ndengani nambe byeka bya chifwa ngwe chibundu nambe ndengani) 2. White roots and tubers: Any green bananas, lotus root, parsnip, plantains, white potatoes, white yam, white cassava, or other foods made from roots 2. Mizi yakutoka nabikwabo; Nkala makonde abushopo, ntamba, bukola, mwanza nambe byakulya bitundaho. 3A. Vitamin A rich vegetables and tubers: Any carrot, pumpkin, squash, or sweet potato that are orange inside + other locally available vitamin A rich vegetables (e.g. red sweet pepper) 3A. Maputa na mizi ituhana vutamena A; Nkala mizi yakubenga, maputu, malalanja, bukola bu benguluka mukati chipwe biji byakulya biwaniwa mwimbo bwa vutamenaA. 3B. Dark green leafy vegetables: Any dark green leafy vegetables, including wild forms + locally available vitamin A rich leaves such as amaranth, arugula, cassava leaves, kale, spinach 3B Maputa a bushopo; nkala maputa a bushopo kwakako a mushwata na a mwimbo ali na vutamenaA maputa achifwa ngwe shopo. 3C. Other vegetables: Any other vegetables (e.g. bamboo shoots, cabbage, green pepper, tomato, onion, eggplant, zucchini) + <i>other locally available vegetables</i> 3C Maputa akwabo; nkala maputa(chimweso. Bisikila, kavichi,vimatia vizilo sapola) nambe nkala maputa awaniwa mwibo.		

ORGMEAT	VITAFRUIT	<p>4A. Vitamin A rich fruits: Any mango (ripe, fresh and dried), cantaloupe melon (ripe), apricot (fresh or dried), ripe papaya, passion fruit (ripe), dried peach, and 100% fruit juice made from these + <i>other locally available vitamin A rich fruits</i></p> <p>4A. Bushuka buli na vutanaA: <i>Nkala mango(yakuhya, busu chipwe na kuma), lihapu(likuhya) nambe musozi wa bushuka utunda halievi chipwe bushoka bwa vutamenA buwaniwa mwimbo.</i></p>	4A..... _ 4A.....
	OFRUIT	<p>4B. Other fruits: Any other fruits such as apple, avocados, banana, coconut flesh, lemon, , including wild fruits and 100% fruit juice made from these</p> <p>4B. Bushuka bukwapo: <i>nkala bushuka ngwe, kotape makonde, malalanja kwakako bushuka bwa mushwata na musozi wao.</i></p>	4B..... _ 4B.....
	T	<p>5A. Organ meat: Any liver, kidney, heart or other organ meats or blood-based foods</p> <p>5A. Vipuka bya situ; <i>nkala lishuli, vinso, mbunge nambe vipuka vikwav chipwe byakulya bya maninga.</i></p>	5A..... _ 5A.....
	MEAT	<p>5B. Flesh meats: Any beef, goat, lamb, mutton, pork, rabbit or other large wild (bush meat) or domesticated mammals, chicken, duck, or other wild or domesticated birds, cane rat, guinea pig, rat, agouti or other small wild (bush meat) or domesticated mammals, frogs, snakes, and other reptiles</p> <p>Insects</p> <p>5B. Thitu ya kutonola:<i>nkala thitu ya ngombe, membe, manga, ngulu, kalumba nambe thitu ya mushwata chipwe vimuna ngwe, kasumbi, lipato, nambe va mushwata chipwe va nyunga, vachifwa ngwe vimuku, nambe va shwata (thitu ya mushwata) nambe manyoka, vinjunda, tulongolo vakwavo va kunyunga.</i></p>	5B..... _ 5B.....
	EGGS	<p>6. Eggs: Any eggs from chicken, duck, guinea fowl or any other egg</p> <p>6. Mayaki: <i>nkala mayaki a tusumbi, mapato, mayembe nkala.</i></p>	6..... _ 6.....
	FISH	<p>7. Fish and seafood: Any fresh or dried fish, canned fish (anchovies, tuna, sardines), or shellfish</p> <p>7.Visi na vyakulya vya mukalunga mema: <i>nkala visi va kutonola nambe va kuma, visi va mukapa (mikunga, mingumba, vandembe) nambe van`ala.</i></p>	7..... _ 7.....
	FAIDLEG	<p>8A. Food aid legumes, nuts and seeds: Any dried beans or foods made from these.</p> <p>8A. Vyakulya vya kutuhana, makunde, vielu na mbuto: <i>nkala makunde a kuma nambe vyakulya vitundaho.</i></p>	8A..... _ 8A.....
	NFAIDLEG	<p>8B. Non-food aid legumes, nuts and seeds: Any dried peas, lentils, nuts, seeds or foods made from these (eg. hummus, peanut butter)</p> <p>8B. Vyakulya kethi vyakutuhana, makunde, vielu na mbuto: <i>nkala makunde a kuma, vielu, mbuto nambe vyakulya vitundaho(chimweso,kambumbwa)</i></p>	8B..... _ 8B.....
	MILK	<p>9. Milk and milk products: Any milk, infant formula, cheese, yogurt or other milk products (e.g. kiefer)</p> <p>9. Mavele na vitundaho:<i>nkala mavele, mavele ava mbututu, mazi, chipwe vikwavo vi tunda ha mavele (chimweso .ndengani)</i></p>	9..... _ 9.....
	FAIDOIL	<p>10A. Food aid oils and fats: Vegetable oil</p> <p>10.A <i>Vyakulya vya kutuhana vya mazi: maazi aku maputa.</i></p>	10A..... _ 10A.....
NFAIDOIL	<p>10B. Non food aid oils and fats: Any oil, fats, ghee or butter added to food or used for cooking</p> <p>10B. Vyakulya vya mazi kethi vya kutwana: <i>nkala mazi, lisuzwa, nambe litengelela lwa mavele vyakupandakana ku vyakulya nambe vya kutelekesa.</i></p>	10B..... _ 10B.....	
	SWEETS	<p>11. Sweets: Any sugar, honey, sweetened soda or sweetened juice drinks, sugary foods such as chocolates, candies, cookies, sweet biscuits and cakes</p> <p>11.Vilembuluka:<i>nkala vitobala, vuki, mukele uvanatobalesa, musozi uvana tovalesa, vyakulya viva natovalesa vya chifwa ngwe: vindanda, mbolo na mundondo.</i></p>	11..... _ 11.....

SPICEBEV		12. Spices, condiments, beverages: Any spices (black pepper, salt), condiments (soy sauce, hot sauce), coffee, tea, alcoholic beverages 12. Vitovalesa, vihungo, vyakunwa: nkala vitovalesa (mongwa, vindungu), vihungo (kahombo, kanikewasina) visangwa, mema aku shaluka akunwa, ndoka, kachipembe.	12..... _ 12.....
FAIDFORTBLE ND	FS14 BB1 4	Food aid fortified blended food: Have you or anyone else in your household eaten CSB or any food made from these yesterday during the day and at night? Vyakulya vya kutuhana vya kukumbasana: yene nambe umo weni mujibo na lile vunga bwa mundele bwa kukumbasana na vunga bwa makunde na vyakulya vya kutundaho izau mutanya nambe vunsiki?	Yes.....1 Eyo.....1 No.....2 Embwe.....2 DK.....8 Kututanekeya.....8
			_

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

WASH: Papelo imolika ha njibo (Papelo ei ehuleni kanyungi, ngavahiho nkala mukulunu wakala ha njibo oyo)

Section code / number_____ Block code/ number_____ Consent: yes/ no/ absent_____ Mutambela/ numelu:_____ Limbo/ numelu_____ Chiyongo: eyo/embwe/ bahiho_____

Date of interview (dd/mm/yyyy) Litangwa lya vihula (litangwa/ ngonde/ mwaka)	Cluster Number (in cluster survey only) Numelu ya chivunga(chivunga chakutondesesa lika)
____/____/____ ____	____
Team Number Numelu yakabunga	HH Number Numelu ya njib
____	____

	No num elu	QUESTION Chihula	ANSWER CODES Mwaku kumbulwila
	SECTION WS1 Mutambela ws1		
HHSIZE	WS1 Ws1	How many people live in this household? Banu bangahi bakala munjibo yeni?	____
SOURCE	WS2 Ws2	<div>What is the <i>main</i> source of drinking water for members of your household? Kwiko kuje banu bakala hanjibo yeni bakatekula manene mema akunwa?</div> <div>Adapt list to local setting before survey Hakeni mukana wa kutondesesa kweni wa mwimbo.</div> <div>DO NOT READ THE ANSWERS SELECT ONE ONLY Kethi mubatandele vikumbulula hangulenihi lika chimo.</div>	<div>Piped water.....01 Mema a muyengo.....01 Public tap/standpipe.....02 Mema a muyengo a mbunga.....02 Tubewell/borehole (& pump).....03 Lisima/ muchokocho.....03 Protected dug well04 Lisima lya kwinda lya ku fwika.....04 Protected spring05 Mema a mumabwe.....05 Rain water collection06 Mema a nyothi.....06 UNHCR Tanker.....07 Mungomo wa baka kunyunga ba kakutewa..07 Unprotected spring08 Mema a mumabwe a kweneka ku fwika.....08 Unprotected dug well.....09 Lisima lya kwinda lya kuna kufwika.....09 Small water vendor.....10 Mema a kwakela chimweja mutu shuwa twa kwanda nato.....10 Tanker truck.....11 Mungomo wa mema waku minyau.....11 Bottled water12 Mema aba naka mutushuwa.....12 Surface water (e.g. river, pond)13 Mema ahelu lya mavu (chimweso. Ndonga chishali).....13 Other.....96 Vikwabo.....96 Don't know.....98 Kunjithibuka.....98</div> <div>____ </div>

TIME_C	<div>WS3</div> <div>WS3</div>	<p>How long does it usually take you to go to your main water source, get water, and come back?</p> <p>Nunda yakupwa hali mukambata kuya na kwiluka kuje kuka tekula mema?</p>	<p>RECORD THE NUMBER OF MINUTES IF KNOWN (RECORD 000 IF ON PREMISE AND 998 IF UNKNOWN)</p> <p>Sonekeni numelu ya maminutu ngamuthivuka (sonekeni 000 nge ha thimba chipwe 998 nga kathivuka)</p>	<div><div></div><div></div><div></div></div> <div>Minutes</div> <div>Maminutu</div>
		<p>THIS RELATES TO DRINKING WATER Evi vinapandama kumema a kunwa lika.</p>	<p>SUPERVISOR TO SELECT ONE ONLY</p> <p>Twamena anguleho imolika.</p> <p>On premises1</p> <p>Ha thimba.....1</p> <p>Less than 30 minutes2</p> <p>Mwithi ya maminutu akupwa makumi atatu.....2</p> <p>More than 30 minutes3</p> <p>Kutuvakana maminutu akupwa makumi atatu.....3</p> <p>Don’t know8</p> <p>Kunji thivuka.....8</p>	
SATISFY	<div>WS4</div> <div>WS4</div>	<p>Are you satisfied with the water supply?</p> <p>Mwa byahelela nokukumukambata mema eni?</p> <p>THIS RELATES TO THE DRINKING WATER SUPPY</p> <p>Evi vipandama kumema akunwa lika.</p>	<p>Yes1</p> <p>Eyo.....1</p> <p>No2</p> <p>Embwe.....2</p> <p>Other6</p> <p>Vikwavo.....6</p>	
TOILET	<div>WS5</div> <div>WS5</div>	<p>What kind of toilet facility does this household use?</p> <p>Chifwa muka cha tunjivo twa maputa tumukalikwasesa hano njivo?</p> <div><p>Adapt list to local setting before survey</p><p>Hakeni mukana wa kutondesesa kweni kwavuma bya mwimbo</p></div> <p>DO NOT READ THE ANSWERS</p> <p>SELECT ONE ONLY</p> <p>Kethi mutande vikumbulula anguleniho chimolika.</p>	<p>Flush to piped sewer system01</p> <p>Kumwanyena mumiyeongo itwala ku vina bya mazilo.....01</p> <p>Flush to septic system.....02</p> <p>Kumwanyena muvina bya hathi.....02</p> <p>Pour-flush to pit.....03</p> <p>Kumwanyena muvina.....03</p> <p>VIP/simple pit latrine with floor/slab04</p> <p>Tu njivo twa maputa twa kuthalimba....04</p> <p>Composting/dry latrine05</p> <p>Tunjivo twa maputa twa kuvandamena omwo tuma ambahoni mu likwathethe05</p> <p>Flush or pour-flush elsewhere.....06</p> <p>Kumwanya lika nkala kwoshe.....06</p> <p>Pit latrine without floor/slab07</p> <p>Tunjivo twamaputa twa kweneka kuthalimba.....07</p> <p>Service or bucket latrine08</p> <p>Kupangesa mungomu cho kukombila.....08</p> <p>Hanging toilet/latrine.....09</p> <p>Tunjivo twamaputa twa ku shukika.....09</p> <p>No facility, field, bush, plastic bag10</p> <p>Kukwesi kanjivo kamaputa, mulihya, mushwata, mapapelo.....10</p>	<div><div></div><div></div><div></div></div> <div>IF ANSWER IS 10 GO TO WS7</div> <div>NGA</div> <div>CHIKUMBU</div> <div>LULA 10</div> <div>WS7</div>
TOILETHH	<div>WS6</div> <div>WS6</div>	<p>How many <i>households</i> share this toilet?</p> <p>Vinjovo vingahi vika likwathetha aka kanjivo ka maputa?</p>	<p>RECORD NUMBER OF HOUSEHOLDS IF KNOWN (RECORD 96 IF PUBLIC TOILET OR 98 IF UNKNOWN)</p> <p>THONEKENI NUMELU YAVINJIVO NGA VAITHIVUK (THONEKA 96 NGA KANJIVO KA MAPUTA KA MBUNGA NAMBE 98 NGA KATHIVUKA)</p>	<div><div></div><div></div><div></div></div> <div>Households</div> <div>Vinjivo</div>
TOILETSH			<p>SUPERVISOR SELECT ONE ONLY</p> <p>Twamena angula lika imo</p> <p>Not shared (1 HH)1</p> <p>Kethi kakulitepela.....1</p> <p>Shared family (2 HH).....2</p> <p>Kakuli tepela.....2</p> <p>Communal toilet (3 HH or more)3</p> <p>Kanjivo kamaputa kava pangetha vinjo vitatu.....3</p> <p>Public toilet (in market or clinic etc.).....4</p> <p>Kanjivo kamaputa ka mbunga (halilandethelo, nambe ha chipatela, nabikwavo ngoco.....4</p> <p>Don’t know8</p> <p>Kunjithivuka.....8</p>	

CHILD	WS7 WS7	Do you have children under three years old? Muli navana vali mwinsi ya mwika itatu?	Yes.....1 Eyo.....1 No.....2 Embwe.....2				IF ANSWER IS 2 GO TO WS9 NGA CHIKUMBU LULA 2 YENI KU WS9
STOOL	WS8 WS8	The last time [NAME OF YOUNGEST CHILD] passed stools, what was done to dispose of the stools? Thimbu yamamanethelelo [lithina Iya mwana wa mundende] DO NOT READ THE ANSWERS CHECK ONE ONLY Kethi mutanda chikumbulula anguleniho chimo lika.	Child used toilet/latrine.....01 Kanjivo ka maputa kavanike.....01 Put/rinsed into toilet or latrine02 Muno mbilile mu kanjivo ka maputa.....02 Buried.....03 Kushitika.....03 Thrown into garbage.....04 Kumbila muvi ngungulu.....04 Put/rinsed into drain or ditch05 Kumbila mumungelo nambe muchina....05 Left in the open.....06 Kutheza mwa ngoco.....06 Other (specify).....96 Vikwavo (lumbununa)......96 Don't know98 Kunjithivuka.....98				
SECTION WS2 Mutambela WS2 Observation Based Questions (done after the initial questions to ensure the flow of the interview is not broken) Kutalelela vihula byove (chije chinalika munima ya chihula chakulivanga linga kethi muvatwiye vihula)							
	No numel u	OBSERVATION / QUESTION KUTALELE/ CHIHULA	ANSWER CHIKUMBULULA				
	WS9 WS9	CALCULATE THE TOTAL AMOUNT OF WATER USED BY THE HOUSEHOLD PER DAY Pandakaneni mema abanalikwathetha ha njivo ha litangwa. THIS RELATES TO ALL SOURCES OF WATER (DRINKING WATER AND NON-DRINKING WATER SOURCES) Evi vipandama ku mema oshe amuna likwathetha (KUJE KWA KU TEKULA MEMA A KUNWA NAWA A KUPANGETHA LIKA)	Please show me the containers you used yesterday for collecting water Njimwetheniko vitenga vimuna tekulile mema izau. ASSIGN A NUMBER TO EACH CONTAINER Haka numelu hachitenga na chitenga	Capacity in litres Haka theteko	Number of journeys made with each container Numelu ya mangethi ha chitenga na chitenga	Total litres Theteko unapandakana SUPERVISOR TO COMPLETE HAND CACLULATION TWAMENA AMANUTHULILE	
1.			1 E.g. jerry can 1.Chimwetho. chitenga	25 L	1 x	25	
2.			2 E.g. jerry can 2. Chimwetho. chitenga	10 L	2 x	20	
3.			3 E.g. jerry can 3. chimwetho, chitenga	5 L	2 x	10	
4.			4 E.g. jerry can 4. chimwetho chitenga	5 L	1 x	5	
5.			5 E.g. bucket 5. chimwetho, chiyenje	50 L	1 x	50	
6.			6				
7.			7				
8.			8				
9.			9				
10.			10				

11.			Total litres used by household	110
STORE	WS10 WS10	Please show me where you store your drinking water. Njileketheni kumukatulika mema eni akunwa mwane. ARE THE DRINKING WATER CONTAINERS COVERED OR NARROW NECKED? BYAKUTEKWILA MEMA BABIFWIKILE INDI KWAHI?	All are.....1 Byoshe.....1 Some are.....2 Bimo bya kufwika bimo embwe.....2 None are.....3 Chahi chakufwika.....3	_____
TOIUSE	WS11 WS11	Please show me the toilet facility that is usually used by family members CONFIRM ANSWER TO WS 5 ABOVE Njilekeseni mwane kanjivo kamaputa kabalikwasesa vanu vaha njivo yeni MONENI CHIKUMBULULA CHILHA WS5 HELU.	ONLY ANSWER THIS FOR TOILETS USED BY 1 OR 2 HH (SEE WS4). IF TOILETS USED BY 3 HH OR MORE, SKIP TO NEXT MODULE AND LEAVE BLANK KUMBULULENI LIKA NGA BAKALIKWASESA OKO KANJIVO KAMAPUTA NJIVO IMOLIKA NAMBE VIVALI (MONENI WS4). NGA VINJIVO VITATU CHO JOMBOKENI LIVULU LYA HATAKO NA KUJENKA KUTHONAHU. Toilet in use.....1 Kanjivo kamaputa kavali na kuli kwasesa.....1 Toilet not in use.....2 Kanjivo ka maputa kukethi nakupanga....2 Not observed.....3 Kunjataleleko.....3	_____

MOSQUITO NET COVERAGE: 1 questionnaire per household (THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSEHOLD.
MANDA ATUNGENINGENI KWAKETE: PAPELO IMO HANJIVO (PAPELO EYI IHULENI KANYUNGI WA NJIVO OYO, NGEWAHIHO IHULENI NKALA MUKULUNU WAKA OHO HANJOVO)

Section code / number: _____ Block code / number: _____ Consent : yes / no / absent
Mutambela/ numelu; _____ Limbo/ numelu; _____ Chiyongo: eyo/ embwe/ wahiho.

Date of interview (dd/mm/yyyy) Litangwa lya vihula (litangwa/ ngonde/ mwaka)	Cluster Number (in cluster survey only) Numelu ya chivunga (chivunga chikutondethetha lika)
____/____/____ ____	____
Team Number Numelu ya kavunga	HH Number Numelu ya njivo
____	____

	No Num elu	QUESTION Chihula	ANSWER CODES Mwaku kumbwilila
	SECTION TN1 Mutambela waTN1		
TOTHH	TN1 TN1	How many people live in this household and slept here last night? INSERT NUMBER Vanu vangahi vakala muno manjivo vana lalamo vuthiki vunahu ngechi?	____

TOTCHILD	TN2 TN2	How many children 0-59 months live in this household and slept here last night? INSERT NUMBER Vanike vangahi va vingonde 0-59 vakala muno munjivo nawa vana lalamono vuthiki vunahu ngechi? HAKA NUMELU				
TOTPW	TN3 TN3	How many pregnant women live in this household and slept here last night? Tufumbakathi vangahi va kala muno munjivo nava vana lalamo vuthiki vunahu ngechi ? INSERT NUMBER HAKA NUMELU				
IRS	TN4 TN4	Did you have your house sprayed with insecticide in an indoor residual spray campaign in the past months? Ngonde inahu munjivo yeni vana pambelelemo byemba bya tungeningengeni?		Yes..... Eyo.....1 No Embwe.....2		
MOSNETS	TN5 TN5	Do you have mosquito nets in this household that can be used while sleeping? Muli na manda a tungeningeni munjivo yeni muje vanu vahatha kulalamo?		Yes..... Eyo.....1 No Embwe.....2		 IF ANSWER IS 2 STOP NOW Nge chikumbulu la 2 cho likeleni oho veni.
NUMNETS	TN6 TN6	How many of these mosquito nets that can be used while sleeping does your household have? Munjivo yeni muli manda a tungeningeni angahi atha kuli kwathetha? INSERT NUMBER HAKA NUMELU		IF 4 NETS OR MORE, ENTER THE NUMBER AND USE ADDITIONAL NET QUESTIONNAIRE SHEETS ENTERING THE NUMBER OF THE NETS SEQUENTIALLY AT THE TOP NGA MANDA A TUNGENINGENI A WANA NAMBA KUPULAKANA AWANA HAKA NUMELU NAKUPAKANA HA PAPELO KUPUTUKILA KUTHI KUTWALA KWILU.		 Nets manda
NID	TN7 TN7	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HH. IF NETS ARE NOT OBSERVED → CORRECT TN 6 ANSWER IHULA ALINAKUKUMBULULA AKUMWISE BWANDA BWA MUNJIVO. NGA MANDA KUMWA AMWENE TENGULULENI CHIKUMBULULA CHA TN6	NET BWANDA	NET # BWANDA	NET # BWANDA	NET # BWANDA
NETBRAND	TN8 TN8	OBSERVE NET AND RECORD THE BRANDNAME OF NET ON THE TAG. IF NO TAG EXISTS OR IS UNREADABLE RECORD ‘DK’ FOR ‘DON’T KNOW’ TALA NA KUTHONEKA MATHINA VAKA KUTUNGA OWO MANDA ATUMA PAPELO TUBANAKAKO. NGA KAH KAPAPELO KALIKO NAMBE KATANDEHA CHO THONEKA KUTHIVUKA.				

NETTYPE	TN9 TN9	For supervisor only (not to be done during interview): WHAT TYPE OF NET IS THIS? BASED ON THE TAG INDICATE IF THIS IS A LLIN OR OTHER TYPE OF NET OR DON'T KNOW. Cha twama lika (KETHI KUCHILINGA HA THIMBU YABIHULA) MUHYATI MUKA WA BWANDA KUTWALA NAKA PAPELO KALIKO, NGA LLIN NAMBE MUHYATI WEKA CHIPWE KUTANEKEYA.	1=LLIN 1= LLIN 2=Other/DK 2= AKWAVO/KU NJITANEKEY A	1=LLIN 1= LLIN 2=Other/DK 2= AKWAVO/ KUNJITANEKEY A	1=LLIN 1=LLIN 2=Other/DK 2=AKWAVO/ KUNJITANEKEY A	1=LLIN 1=LLIN 2=Other/DK 2=AKWAV O/ KUNJITAN EKEYA
TOTLIN	TN10 TN10	For supervisor only (not to be done during interview): RECORD THE TOTAL NUMBER OF LLINs IN HH BY COUNTING THE NUMBER OF '1' IN TN9. Chatwama lika (kethi kuvili thimbu ya vihula): Soneka numelu ya LLINs munjivo na kutanda numelu 1 mu TN 9.				LLINs LLINs

SECTION TN2 MUTAMBELA TN2							
Line no Num elu ya chipalo	Household members Vanu banjivo oyo	Sex chifwa	Age miaka	Pregnancy status Chifwa cha vufumba	Slept under net Vanakosele mu bwanda	Which net Bwanda muka	Type of net Muhya ti wa bwanda
#	COL1 COL1	COL2 COL2	COL3 COL3	COL4 COL4	COL5 COL5	COL6 COL6	COL7 COL7
MID MID	NAME LIZINA	SEX CHIFWA	AGE CA T MIAKA	PREGSTAT CHIFWA CHA VUFUMBA	SLEPTNET VANAKOSELE MU BWANDA	SLEPTIDNET VANA KUSELE MU BWANDA BWA KWAKA BYEMBA	SLEPT TYPE VANA KUSELE
	Please give me the names of the HH members who live here and who slept in your house last night Njaneni mathina a vanu bamwakala navo munjivo yeni na vaje vana lalelemo vuthiki vunahu.	Sex Chifwa. m/f munalume/ munakazi	Age Years miaka	FOR WOMEN 15 years, ASK: Is (NAME) currently pregnant? KU VANAKAZI VALI MUSETEKO YA MIAKA 15 NAMBE VATUBAKANA. (CIRCLE not applicable '99' if female 15 or male) ZENGULULA 99(kuyasiwa) ngwe munakazi na 15 nambe munalume. Yes No/DK N/A Eyo/ embwe/ kunjizivuka/ kuyathiwa.	Did (NAME) sleep under a net last night? OU (Lizina) Nakosele mubwanda izau vuthiki. Yes No/DK Eyo/ Embwe/ kunjizika	ASK THE RESPONDENT TO PHYSICALLY IDENTIFY WHICH OF THE OBSERVED NETS THEY SLEPT UNDER IHULA ANAKUKUMBULA AKULEKESE BWANDA BUBA NA KOSELE. CIRCLE THE NUMBER CORRESPONDING TO THE NET THEY USED. ZENGULULA NUMELU IJE YA LITOMBOLA NABWANDA BWA LIKWASESA. net#1 net#2 net# 3 net#4 BWANDA#1/ BWANDA#2/ BWANDA#3/ BWANDA#4	For supervisor only: Twame na lika: BASED ON THE OBSERVED NET BRANDAME RECORDED (TN8) INDICATE IF IT IS AN LLIN OR OTHER OR UNKNOWN (DK) KUTWALA HAKU NGENGE KWOV

							E KU BWAN DA THON EKA (TN8) KUMW ESA NGWE LLIN NAMB E IKWA VO CHIPW E KAIZI VUKA. LLIN OTHE R/DK LLIN VIKW AVO/ KAZIV UKA.
01		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
02		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
03		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
04		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
05		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
06		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
07		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
08		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
09		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
10		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
11		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
12		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
13		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
14		m f	5 5	1 0 99	1 0	1 2 3 4	1 2
15		m f	5 5	1 0 99	1 0	1 2 3 4	1 2

Mosquito net summary (for supervisor only, not to be done during interview)			
Mubiyihi bwa manda (twamena lika, kethi ku chilinga thimbu ya vihula)			
	Total HH members Kukumba thana vanu bali munjivo	Total 5 Twangumbathana 5	Total Pregnant Twakumba thana memo

Slept under a net of any type Bana kosele mu mubwanda na muhyati wayo	Count the number of ‘1’ in COL5 Tandeni numelu ili mu 1 mu COL5	TN11 TN 11 <div><div></div><div></div><div></div><div></div></div>	For children 5 (COL3 is ‘5’), count the number of ‘1’ in COL5 Kuvanike va 5 (COL3 IKEYO 5) Tanda numelu 1 ili 5	TN13 TN3 <div><div></div><div></div></div>	For pregnant women (COL4 is ‘1’), count the number of ‘1’ in COL5 Tufumbakazi (COL4 ILI 1), Tanda numelu ya 1 ili mu COL5	TN15 TN15 <div><div></div><div></div></div>
Slept under an LLIN Banakosele mu LLIN	Count the number of ‘1’ in COL7 Tanda numelu1 mu COL7	TN12 TN12 <div><div></div><div></div></div>	For children 5 (COL3 is ‘5’), count the number of ‘1’ in COL7 Vanike bali 5 (COL3 ili 5) Tanda numelu ya 1 ili mu COL7	TN14 TN14 <div><div></div><div></div></div>	For pregnant women (COL4 is ‘1’), count the number of ‘1’ in COL7 Tufumbakazi (COL4 ili mu 1) tanda numelu ili mu 1 na mu COL7	TN16 TN16 <div><div></div><div></div></div>

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

VANAKAZI VAKUJENA MANINGA: Papelo imolika ha chivunga/ mitambela/ membo. (eyi papelo kuihula vanakazi vali namiaka 15 kutwala 49 vali muvinjivo vana hangula.

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

Mutambela / numelu: _____ limbo/ numelu: _____

Date of interview (dd/mm/yyyy): Litangwa lyabuhula (litangwa/ ngonde/ mwaka) ____/____/____					Cluster Number (in cluster survey only) Numelu ya chibunga (valimuchivunga cha kutondesesa lika) ____		Team number Numelu ya kavunga ____	
WM1 WM1	WM2 WM2	WM3 WM3	WM4 WM4	WM5 WM5	WM6 WM6	WM7 WM7	WM8 WM8	
WID WID	HH HH	Consent Chiyongo	WAGE WAGE	PREG VUFUMBA	ANC ANC	FEREC FEREC	WHB VANAKAZI VA MANINGA.	
ID ID	HH HH	Consent given Chiyongo vanahye 1=yes 1=eyo 2=no embwee 3=absent 3=vahiko	Age (years) miaka	Are you pregnant? Ulina vufumba? 1=yes 1= eyo 2=no (GO TO HB) 2=embwee(yakumaninga) 8=DK (GO TO HB) 8= kunjitanekya (yakumaninga)	Are you currently <u>enrolled</u> in the ANC programme? Mwalisonekesa ololo ku chipimo cha tufumbakazi ? 1=yes 1= Eyo 2=no 2= Embwee 8=DK 8= kunjizivuka	Are you currently <u>receiving</u> iron-folate pills (<u>SHOW PILL</u>)? Mwalisonekesa ololo kukutambula bumbanda bwa iron- folate(njimwise bumbanda) 1=yes (STOP NOW) 1=eyo (likele ohobene) 2=no (STOP NOW) 2= Embwee (likele ohovene) 8=DK (STOP NOW) 8= kunjithivuka (likelo ohovene)	Hb (g/L or g/dL)	
01								
02								
03								
04								
05								
06								
...								

CHILDREN 6-59 MONTHS ANTHROPOMETRY, HEALTH AND ANAEMIA: 1 questionnaire per cluster / zones / sections (THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO ALL CARETAKERS OF A CHILD THAT LIVES WITH THEM AND IS BETWEEN 6 AND 59 MONTHS OF AGE)

VANIKE VAVINGONDE 6-59 KUYA MUCHIHINDU NA THETEKO YA MANINGA: Papelo imo ha chivunga /mitambela/ membo (eyi papelo ihuleni kanyungi vanike vavingonde 6-59 vaje vakalele)

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

Mutambela /numelu : _____ **Limbo / numelu:** _____

Date of interview (dd/mm/yyyy): Litangwa lya vihula (Litangwa/ ngonde/ mwaka)						Cluster Number (in cluster survey only) Numelu ya chivunga (valimuchivunga cha kutondesesa lika)					Team number Numelu ya kavunga			
CH1 CH1	CH2 CH2	CH3 CH3	CH4 CH4	CH5 CH5	CH6 CH6	CH7 CH7	CH8 CH8	CH9 CH9	CH10 CH10	CH11 CH11	CH12 CH12	CH13 CH13	CH14 CH14	CH15 CH15
	HH NJU VO	CONSENT CHİYONGO	SEX CHIF WA	BIRTHDATE LITHATHE LYA KUTHEMUWA	XAgeCalc Or MONTHS MIAKA NAMBE VINGONDE	WEIGHT VULEMU	HEIGHT CHITHO	EDEMA KUTHIM BA	MUAC MUAC	ENROL KUTHON A	MEASLES KACHAKALA	VITA VITA	Diarr Kupulukala	CHBC HB
ID CHIM WESO	HH NJU VO	Consent given CHİYONGO VA NANA 1=yes 2=no Embwee 3=absent 3= wahiho	Sex chifwa (m/f) Munalu me nambe munnaz i	Birthdate* Litangwa lyakuthemuwa dd/mm/yyyy litangwa/ ngonde/ mwaka	Age** mwaka (months) ngonde	Weight (kg) Vulemu (muma kilo) ±100g +_100g	Height (cm) Chitho (cm) ±0.1cm +_0.1m	Oedema (y/n) Kuthimba (y/n)	MUAC (mm) MUAC (MM)	Child enrolled VANIKE VANA THONE KIWA 1=SFP 1=SFP 2=TFP 2=TFP 3=None 3=YAHI	Measles KACHAKALA 1=yes card 1=Eyo 2=yes recall 2= eyo njithinganyeka 3=no or don't know 3= embwee nambe kunjitanekaya	Vit. A in past 6 months (SHOW CAPSULE) Kumihana vitamenaA MUVINGOND E 6 vinahiti (njimweseni byemba) 1=yes card 1=Eyo kapapelo 2=yes recall 2=eyo njithinganyeka 3=no or don't know 3= embwee nambe kunjithivuka	Diarrhoea in past 2 weeks Kupulukala muvi visimano vivali vinahu 1=yes 1= eyo 2=no 2= embwee 8=DK 8= kunjithivuka	Hb manin ga (g/L or g/dL) (g/l nambe l/dl)
01				/ /										
02				/ /										
03				/ /										
04				/ /										
05				/ /										

06				/ /										
07				/ /										
08				/ /										
...				/ /										

*The exact birth date should only be taken from an age documentation showing day, month and year of birth. It is only recorded if an official age documentation is available; if the mother recalls the exact date, this is not considered to be reliable enough. **Leave blank if no official age documentation is available.**

**If no age documentation is available, estimate age using local event calendar. If an official age documentation is available, record the age in months from the date of birth.

*Lithathe lya kusemuwa lya mbateni ha vukalehu vuje vuli na kumwetha litangwa, ngonde, na mwaka. Thonekeni lika nge vukaleho vumulinabwo mwa vukulahela, nga bwakuwana lika kuli vaina yamwana kethi mubu soneki mwafwa kethi bwa kukulahela manene. Kumwa thoneka ngwe kukwesi vukaleho vumuna kulahela.

**Ngwe kukwe thi vukaleho vumunakulahela bwa kusemuwa, likaseseni kutanda kwa mwimbo. Thonekeni miaka yende mu vingonde.

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

IYCF: papele imo ha mwana ali na vingonde 0-23 (PAPELO EI KUIHULA VAINA NAMBE NDEZI WA UJE AKA NYUNGU OU MWANA MUKUMU LITHA NAWA MWANA NATELA KUPWA HAKATI KA VINGONDE 0-23.)

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

Mutambela/ numelu: _____ **Limbo/ numelu** _____ **Chiyongo:** Eyo/ Embwee / Wahiko

Date of interview (dd/mm/yyyy) Litangwa lya vihula (Litangwa/ ngonde / mwaka0	Cluster Number (in cluster survey only) Numelu ya chibunga (chinakutondesesa lika)
<div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>	<div> <div></div> <div></div> </div>
Team Number Numelu ya kabunga	ID Number Numelu ya chitanekeyeso
<div> <div></div> <div></div> </div>	<div> <div></div> <div></div> </div>

No num elu	QUESTION CHIHULA	ANSWER CODES MWAKUKUMBWELILA
SECTION IF1 MUTAMBELA IF1		
IF1 IF1	Sex Chifwa	Male Munalume..... .1 Female Munakazi..... ..2
IF2 IF2	Birthdate Litangwa lya kusemuka RECORD FROM AGE DOCUMENTATION. LEAVE BLANK IF NO VALID AGE DOCUMENTATION THONEKENI MIAKA ILI HA LIPAPELO. THEZENI MUJEVENE NGWE KUMWESI NA BUKALEHO BWA MIAKA.	Day/Month/Year..... _ _ _ / _ _ _ / _ _ _ _ _ _ _ _ Litangwa/ ngonde/ mwawka.
IF3 IF3	Child's age in months Vingonde bya mwana	IF AGE DOCUMENTATION NOT AVAILABLE, ESTIMATE USING EVENT CALENDAR. IF AGE DOCUMENTATION AVAILABLE, RECORD THE AGE IN MONTHS FROM THE DATE OF BIRTH Nga miaka kubai sonekele singanyekeni kupangesa ya ya vingonde bya kusemuka. Nga miaka vana isoneka cho soneka miaka muvingonde ku fuma ha kusemuka.

EVERBF	IF4 IF4	Has [NAME] ever been breastfed? Ou [lizina] vamu ja mwesaho laja?	Yes..... 1 Eyo.....1 No2 Embwee.....2 DK8 Kunjizivuka.....8	<input type="checkbox"/> IF ANS WER IS 2 or 8 GO TO IF7 Ngwe chiku mbul ula 2 namb e 8 yemu ye ku IF7
INITBF	IF5 IF5	How long after birth did you first put [NAME] to the breast? Nunda yakupwa hali mwambatele kutunda ha kupapa amba [lizina] mumujamwese?	Less than one hour 1 Kukwetela ola.....1 Between 1 and 23 hours.....2 Mukati ka 1-23 viola.....2 More than 24 hours/3 Kutubaka viola 24.....3 DK (Do not know)8 Kunjithivuka.....8	<input type="checkbox"/>
YESTBF	IF6 IF6	Was [NAME] breastfed yesterday during the day or at night? Ou [LIZINA] najamwene izau mutanya nambe buthiki?	Yes 1 Eyo.....1 No2 Embwee.....2 DK (Do not know)8 Kunjizivuka.....8	<input type="checkbox"/>
SECTION IF2 Mutambela IF2				

	IF7	<p>Now I would like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] receive any of the following:</p> <p>Njishaka honi kwihula indi [lizina] na nwine byakunwa vilibyoshe izau mutanya nambe vuthiki. Njitonda kuthibuka indi muneni nalile vino vina pandakaneni na bya kulya vikwavo izau mutanya nambe vuthiki, ou [lizina] natambwileko vili byoshe:</p> <p>ASK ABOUT EVERY LIQUID. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE</p> <p>Ihula ha bya kunwa byoshe. Ngakuli vivana muhanene zingulukisa 1. nge kubamuhanene zingulukisa 2 nge ndezi kazivuka zingulukisa 8. Nkala chipalo chikale no mwakuchisonekela..</p> <p>Adapt list to local setting before survey Hakeni mukana wa kutondesesa kweni wa mwimbo.</p> <p>The list that is provided below is an example Mukana uli mwinsi unapu chimweso.</p> <p>The text highlighted in bold grey needs to be deleted from the final survey questionnaire Oho habana soneka muvukama itundiseni aha papelo ya vihula yamamaneselelo 1=yes 1= eyo 2=no 2= embwee DK= Kunjizivuka</p>	
WATER(C)		7A. Plain water 7A. Mema angocho	7A.....1 2 8
INFORM(C)		7B. Infant formula: for example [add locally available brand names of fortified and non-fortified infant formula: 7B. Byakulya vatuokeke chimweso [ndengane ya byelu, kambumbwa]	7B.....1 2 8
MILK(C)		7C. Milk such as tinned, powdered, or fresh animal milk 7C. Mavele achifwa amu kapa, a vunga nambe atunda ngu vimuna	7C.....1 2 8
FFJUICE(C)		7D. Juice or juice drinks [add locally available brand names of juice drinks]/ Musoji wa bushuka nambe bya kunwa [visangwa, mango, malalanja]	7D.....1 2 8
BROTH(C)		7E. Clear broth 7E. Byakunwa vitoka	7E.....1 2 8
SOURMILK(C)		7F. Sour milk or yogurt for example: [add local names of yogurt] 7F. Mavele akulikonda nambe vizi bibakatundisaho [ndengani,mazi]	7F.....1 2 8

PORRIDGE (C)		7G. Thin porridge for example: [use local names] 7G. Chimwetho [Ndengani, kambumbwa, mulelengwa]	7G.....1 2 8	
TEACOF(C)		7H. Tea or coffee with milk 7H. Mema akushaluka akwaka mavele	7H.....1 2 8	
OLLIQUID(C)		7I. Any other water-based liquids [list other water-based liquids available in the local setting] : for example sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual fluids Nkala mema ali avimo chimweso [Visangwa, mema akushaluka chipwe nkala vyakunwa]	7I.....1 2 8	
FOOD(C)	IF8 IF8	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? Izau mutanya nambe vuthiki ou [lizina] nalile vyakulya vimo vya kuli konda nambe bya memamema	Yes.....1 1 eyo No.....22 embwee DK Kunjizivuka	<input type="checkbox"/>
SECTION IF3 Mutambela IF3				
BOTTLE(C)	IF9	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night? Ou [Lizina] nathinganyeka ngweni na nwineka nkala chuma cha mukashuwa?	Yes.....1 Eyo.....1 No.....2 Embwee.....2 DK.....8 Kunji tanekeya.....8	<input type="checkbox"/>
SECTION IF4 MUTAMBELA IF4				
	IF10	Is child aged 6-23 months? Mwana ali vingonde bya mukati ka 6-23? REFER TO IF2 Tala ku IF2	Yes.....1 Eyo.....1 No.....2 Embwee.....2	<input type="checkbox"/> IF ANS WER IS 2 STOP NOW Nga chiku mbul ula 2, cho likele ahabe ne

	IF11	<p>Now I would like to ask you about some particular foods [NAME] may eat. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] consume any of the following?</p> <p>Njishaka kwihula indi [lizina] nalileko byakulya vili byosho. Njishaka kuzivuka ndi muneni nail choma nambe chakupandakana na byakulya vikwavo. Izau mutanya nambe vuthiki [Lizina] nalile nkala chakulya chilyaha?</p> <p>ASK ABOUT EVERY ITEM. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE.</p> <p>Ehula nkala chuma nganalile zingukisa 1, nga kuvamuhanene chuma zingulukisa 2, nga kanyungi kazivuka mzingulukisa 8. . Nkala chipalo chikale no mwakuchisonekela.</p> <p>Adapt list to local setting before survey Hakeni mukana wa kutondesesa kweni wa mwimbo. The list that is provided below is an example Mukana uli mwinsi unapu chimweso. The text highlighted in bold grey needs to be deleted from the final survey questionnaire Oho habana soneka muvukama itundiseni aha papelo ya vihula yamamaneselelo</p> <p style="text-align: right;">eyo / Kunjizivuka</p>
FLESH		<p>11A. Flesh foods [list common meat, fish, poultry and liver/organ flesh foods used the local setting] for example: beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart 11A. Vyakulya vyakutonola [soneka mukana wavyakulya biwaniwa bya thitu, vithi, membe, tusumbi, vipuka vya mashuli]</p> <p>11A.....1 2 8</p>
FBF		<p>11B. FBF [list FBF available in the local setting]: for example CSB 11B. FBF [Sonaka vyakulya vyaku tonola viwaniwa omwo mwimbo] chimweso HEEKE.</p> <p>11B.....1 2 8</p>
FBFPLUS		<p>11C. FBF++ [list FBF++ available in the local setting] : for example CSB++ 11C. FBF [Sonaka vyakulya vyaku tonola viwaniwa omwo mwimbo] chimweso HEEKE</p> <p>11C.....1 2 8</p>
RUTF		<p>11D. RUTF [list RUTF products available in the local setting]: for example Plumpy'Nut® 11D. RUTF [Sonaka vyakulya vikatundu ha vyakulya vikwavo viwaniwa omwo mwimbo] chimweso mundondo.</p> <p>11D.....1 2 8</p>
RUSF		<p>11E. RUSF [list RUSF products available in the local setting]: NONE 11E. RUSF [Sonaka vyakulya vikatundu ha vyakulya vikwavo viwaniwa omwo mwimbo] VYAH</p> <p>11E.....1 2 8</p>
LNS		<p>11F. LNS [list LNS products available in the local setting]: for example NONE 11F [Sonaka vyakulya vikatundu ha vyakulya vikwavo viwaniwa omwo mwimbo] VYAH</p> <p>11F.....1 2 8</p>
IRONFORTO RM		<p>11G. Infant formula: for example [add locally available brand names of iron fortified infant formula]. 11G. Byakulya babanike chimweso [akaho vyakulya vikawaniwa mwibo vize vili na thili yakunena maninga.</p> <p>11G.....1 2 8</p>

IRONFORT		<p>11H. List any <i>iron fortified</i> solid, semi-solid or soft foods designed specifically for infants and young children available in the local setting that are different than distributed commodities.</p> <p>11H. Soneka nkala vyakulya vili mukulikwata, memamema nambe vyakulya vya kubothisa vivina lingila lika tukeke na banike baba ndondo vyakuli seza seza vyamwimbo kutubakana vije bibaka kalandesa.</p>	<p>11H.....1 2 8</p>
MNP	IF12	<p>In a setting where MNP are used: Yesterday, during the day or night, did [NAME] consume any food to which you added a [powder or sprinkles] like this?</p> <p>Muchifwa cha muhele muvakalikwasesa MNP: Ihula indi izau mutanya indi vuthiki ou [lizina] nalile vyakulya vimuna hakele [vunga nambe vyakushinga] ngeche mwa chimweso?</p> <p>Example: SALT Chimweso: mukele</p> <p>SHOW TYPES OF MICRONUTRIENT POWDERS AVAILABLE IN THE LOCAL SETTING</p> <p>Tumwese vyakulya bya Mukaka ku metha oku nana kulya.</p>	<p>Yes.....1 Eyo.....1 No.....2 embwee.....2 DK.....8 Kunjizivuka.....8</p> <p><input type="checkbox"/></p>

Appendix 4: Result tables for NCHS growth reference 1997, Meheba and Mayukwayukwa

MEHEBA SETTLEMENT: Result Tables for NCHS growth reference 1977

Table 3.2: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 294	Boys n = 163	Girls n = 131
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(18) 6.1 % (3.9 - 9.5 95% C.I.)	(11) 6.7 % (3.8 - 11.7 95% C.I.)	(7) 5.3 % (2.6 - 10.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and ≥ -3 z-score, no oedema)	(17) 5.8 % (3.6 - 9.1 95% C.I.)	(10) 6.1 % (3.4 - 10.9 95% C.I.)	(7) 5.3 % (2.6 - 10.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(1) 0.3 % (0.1 - 1.9 95% C.I.)	(1) 0.6 % (0.1 - 3.4 95% C.I.)	(0) 0.0 % (0.0 - 2.8 95% C.I.)

The prevalence of oedema is 0.0 %

Table 3.5: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 294
Prevalence of global acute malnutrition ($<80\%$ and/or oedema)	(7) 2.4 % (1.2 - 4.8 95% C.I.)
Prevalence of moderate acute malnutrition ($<80\%$ and $\geq 70\%$, no oedema)	(7) 2.4 % (1.2 - 4.8 95% C.I.)
Prevalence of severe acute malnutrition ($<70\%$ and/or oedema)	(0) 0.0 % (0.0 - 1.3 95% C.I.)

Table 3.7: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 295	Boys n = 163	Girls n = 132
Prevalence of underweight (<-2 z-score)	(58) 19.7 % (15.5 - 24.6 95% C.I.)	(42) 25.8 % (19.7 - 33.0 95% C.I.)	(16) 12.1 % (7.6 - 18.8 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and ≥ -3 z-score)	(55) 18.6 % (14.6 - 23.5 95% C.I.)	(41) 25.2 % (19.1 - 32.3 95% C.I.)	(14) 10.6 % (6.4 - 17.0 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(3) 1.0 % (0.3 - 2.9 95% C.I.)	(1) 0.6 % (0.1 - 3.4 95% C.I.)	(2) 1.5 % (0.4 - 5.4 95% C.I.)

Table 3.9: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 294	Boys n = 161	Girls n = 133
Prevalence of stunting (<-2 z-score)	(89) 30.3 % (25.3 - 35.8 95% C.I.)	(59) 36.6 % (29.6 - 44.3 95% C.I.)	(30) 22.6 % (16.3 - 30.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and ≥ -3 z-score)	(71) 24.1 % (19.6 - 29.4 95% C.I.)	(49) 30.4 % (23.9 - 37.9 95% C.I.)	(22) 16.5 % (11.2 - 23.8 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(18) 6.1 % (3.9 - 9.5 95% C.I.)	(10) 6.2 % (3.4 - 11.1 95% C.I.)	(8) 6.0 % (3.1 - 11.4 95% C.I.)

Table 3.11: 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	294	-0.57 \pm 1.04	1.00	0	4
Weight-for-Age	295	-1.25 \pm 0.91	1.00	0	3
Height-for-Age	294	-1.27 \pm 1.20	1.00	0	4

* contains for WHZ and WAZ the children with edema.

MAYUKWAYUKWA SETTLEMENT: Result Tables for NCHS growth reference 1977

Table 3.2: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 293	Boys n = 143	Girls n = 150
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(21) 7.2 % (4.7 - 10.7 95% C.I.)	(13) 9.1 % (5.4 - 14.9 95% C.I.)	(8) 5.3 % (2.7 - 10.2 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(19) 6.5 % (4.2 - 9.9 95% C.I.)	(11) 7.7 % (4.3 - 13.2 95% C.I.)	(8) 5.3 % (2.7 - 10.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(2) 0.7 % (0.2 - 2.5 95% C.I.)	(2) 1.4 % (0.4 - 5.0 95% C.I.)	(0) 0.0 % (0.0 - 2.5 95% C.I.)

The prevalence of oedema is 0.0 %

Table 3.5: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 293
Prevalence of global acute malnutrition (<80% and/or oedema)	(9) 3.1 % (1.6 - 5.7 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(9) 3.1 % (1.6 - 5.7 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(0) 0.0 % (0.0 - 1.3 95% C.I.)

Table 3.7: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 295	Boys n = 143	Girls n = 152
Prevalence of underweight (<-2 z-score)	(56) 19.0 % (14.9 - 23.8 95% C.I.)	(35) 24.5 % (18.2 - 32.1 95% C.I.)	(21) 13.8 % (9.2 - 20.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(52) 17.6 % (13.7 - 22.4 95% C.I.)	(32) 22.4 % (16.3 - 29.9 95% C.I.)	(20) 13.2 % (8.7 - 19.5 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(4) 1.4 % (0.5 - 3.4 95% C.I.)	(3) 2.1 % (0.7 - 6.0 95% C.I.)	(1) 0.7 % (0.1 - 3.6 95% C.I.)

Table 3.9: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 292	Boys n = 140	Girls n = 152
Prevalence of stunting (<-2 z-score)	(84) 28.8 % (23.9 - 34.2 95% C.I.)	(49) 35.0 % (27.6 - 43.2 95% C.I.)	(35) 23.0 % (17.0 - 30.3 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(67) 22.9 % (18.5 - 28.1 95% C.I.)	(41) 29.3 % (22.4 - 37.3 95% C.I.)	(26) 17.1 % (11.9 - 23.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(17) 5.8 % (3.7 - 9.1 95% C.I.)	(8) 5.7 % (2.9 - 10.9 95% C.I.)	(9) 5.9 % (3.1 - 10.9 95% C.I.)

Table 3.11: 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	293	-0.57 \pm 1.04	1.00	0	5
Weight-for-Age	295	-1.22 \pm 0.88	1.00	0	3
Height-for-Age	292	-1.27 \pm 1.17	1.00	0	6

* contains for WHZ and WAZ the children with edema.