Health and Nutrition Survey Report
Kobe and Hilaweyn Refugee Camps, Dollo Ado Woreda, Somali Regional State of Ethiopia
Mid October to Early November 2011

December 2011

UNHCR, ARRA, WFP, UNICEF and GOAL

UNHCR The UN Refugee Agency

ARRA

WFP

unicef

GOAL

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Acronymes

ACF	Action Contre la Faim
ANC	Antenatal Care
ARRA	Administration for Refugee & Returnee Affairs
BFP	Blanket Feeding Program
CHW	Community Health Workers
CNW	Community Nutrition Workers
CI	Confidence Interval
CMR	Crude Mortality Rate
CSB	Corn-Soya-Blend
EPI	Expanded Program of Immunization
GAM	Global Acute Malnutrition
GFD	General Food Distribution
GFR	General Food Ration
HAZ	Height-for-Age Z-score
HFA	Height-for-Age
HIS	Health Information System
HH	Household
IMC	International Medical Corps
IP	Implementing Partner
IYCF	Infant and young children feeding
IRC	International Rescue Committee
JAM	Joint Assessment Mission
Kcal	Kilocalorie
Kg	Kilogram
MSF	Medecins sans Frontieres
NFI	Non-Food Items
MUAC	Mid-Upper Arm Circumference
NGO	Non-Governmental Organization
OTP	Outpatient program
PLW	Pregnant and Lactating Women
PDM	Post Distribution Monitoring
PNC	Postnatal Care
PoC	Person of Concern
SAAD	Somali Aid and Development
SAM	Severe Acute Malnutrition
SC	Stabilization Center
SCF	Save the Children Federation
SFP	Supplementary Feeding Program
TFP	Therapeutic Feeding Program
TSFP	Targeted Supplementary Feeding Program
U5 MR	Under 5 Mortality Rate
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water and Sanitation for Health
WFA	Weight-for-Age
WFH	Weight-for-Height

WFP	World Food Programme
WGF	Wako Gutu Foundation
WHO	World Health Organization

Executive summary

The Government of Ethiopia, UNHCR and partners currently provide assistance to at least 137,745 Somali refugees residing in four camps in addition to reception and transit centers in Dollo Ado, Somali region of Ethiopia. The two camps of Kobe and Hilaweyn were established June and August 2011 respectively as a result of continued influx of refugees from the drought affected areas in Somalia where famine has been declared. UNHCR and partners jointly conducted a survey to establish the nutrition and health status of children under-five and non pregnant women.

The objective of this nutrition and health survey was to determine the baseline nutritional status of children aged 6-59 months, non pregnant women of reproductive age group (15-49 years) and to establish the 90 day retrospective mortality rates in the camps of Kobe and Hilaweyn.

Methods: Systematic random sampling was used and a total of 1232 households (625 in Kobe and 607 in Hilaweyn) comprising 51.2% females and 48.8% males were surveyed. The study produced indicators for the following: global acute malnutrition, 90 day retrospective mortality, prevalence of anaemia among children aged 6-59 months and non pregnant women of reproductive age group, measles vaccination, vitamin A supplementation and food security status.

Results: The results show global acute malnutrition rates of 47.8% and 50.6% in Kobe and Hilaweyn camps. Almost one-fifths of children aged 6-59 months in the camps are severely malnourished. This is indicative of an acute nutritional stress prior to the survey. There is good evidence that this stress was higher ($p=0.046$) among the younger age groups 6 to 17 month ($p=0.046$) in Kobe while in Hilaweyn the different age groups were equally affected ($p=0.16$). One out of every three children aged 6-59 months in Kobe were stunted while at least one out of every five children in Hilaweyn was stunted. Chronic malnutrition in both camps was higher among the younger children in comparison to the older ones ($p<0.05$). Crude mortality rate for the 90 days retrospective identified 1.9 in Kobe and 1.35 in Hilaweyn. The under five mortality rate in Kobe was 5.95 and in Hilaweyn 4.57; mainly the under five mortality in the two camps evidenced the higher rate compared with the emergency threshold. The prevalence of anaemia among children aged 6-59 months and non pregnant women of reproductive age group (15-49 yrs indicates a public health problem (>40%). Measles vaccination (9-59 months) was above 95% in both camps while Vitamin A supplementation among children aged 6-59 months was 89%. Infant and young child feeding practices were very poor: Timely initiation of breast feeding had been practiced among 25% and 43% of the mothers in Kobe and Hilaweyn camps respectively; in both camps, 6.4% of the children received a diversified diet; at least one in every two children aged 0-23 months had reportedly been bottle-fed. Paradoxically, food consumption score, a proxy indicator of food security shows that 86.6% of all the households had an acceptable food security status.

Conclusions: The results indicate alarmingly high malnutrition rates among children 6-59 months in the Kobe and Hilaweyn camps. The study only had limited focus on nutrition and food security. Factors that were not further explored, but yet might have affected the malnutrition rates are:

- Immediate causes (insufficient intake of food / diseases):

- Most refugees arrived in bad nutrition and health condition
- Repeated infections (diarrhoea and respiratory tract infection) among young children in the camps

- Underlining causes:
  - Poor infant and young children feeding and carrying practices
  - Low health service seeking behaviours
  - Low utilisation of the general food ration at household level, significant amount of food sold in the local market in exchange powder milk, spaghetti, and other unmet needs purchased.
  - Miss-use of nutrition products for rehabilitation of malnourished children and (products shared among family members or sold)
  - Weak outreach, community mobilization and nutrition surveillance system for active cases finding, defaulter tracing, reducing selling and resource miss use etc.

Recommendations: Further exploration of the general food ration, look for options to minimize sells of main staple food. WFP with the support of donors to look for appropriate staple food ration (rice, wheat flour) or support refugees in milling. UNHCR, ARRA and partners to study why food is sold, in exchange type of items purchased, and address the needs accordingly. Nutrition and health projects implementing partners to revisit the ongoing community outreach program. UNHCR, ARRA and partners recommended revisiting the ongoing programs and developing a strategy to avert the situation.

Table 1 : Primary outcomes of nutrition survey

Indicators	Kobe camp	Hilaweyn camp	Public health significance
	CI 95 %	CI 95 %	
Anthropometry WHO standards			
Global acute malnutrition (GAM)	47.84 % (44.1-51.6)	50.6% (46.5 - 54.7)	Critical public health significance if ≥ 15%
Moderate acute malnutrition MAM	29.3% (26.1-32.8)	31.7% (28.0-35.7)	
Severe acute malnutrition, SAM	18.5% (15.8 - 21.6)	18.9 (15.9 - 22.3)	
MUAC			
At risk (125-134)	30.8 % (27.5-34.3)	32.1 (28.4-36.0)	
Moderate (115-124)	22.9 % (19.9 - 26.1)	24.8 (21.4 - 28.5)	
Severe (<115)	18.9% (15.9 - 22.3)	11.8% (9.4 - 14.7)	
Stunting			
Total	32.6% (29.2 - 36.1)	23.3% (20.0 - 26.9)	
Severe	10.1% (8.1 - 12.6)	6.1% (4.4 - 8.4)	
Mortality (90-day retrospective)			
CMR (deaths/10,000/day)	1.90 (1.42-2.55)	1.35 (0.96-1.89)	>1.00
U5MR (deaths/10,000/day)	5.95 (4.40-8.00)	4.57 (3.15-6.57)	>2.00
Anaemia			

Indicators	Kobe camp CI 95 %	Hilaweyn camp CI 95 %	Public health significance
Anaemia in children 6-59			
Total Anaemia (Hb<11)	51.6% (47.8-55.3)	53.1% (48.9- 57.3)	Severe pubic health problem (>40%)
By severity			
Mild (Hb 10-10.9)	30.3% (26.9, 33.8)	28.8% (25.1- 32.7)	
Moderate (7-9.9)	20.5% (17.6- 23.7)	22.9% (19.5-26.7)	
Severe (Hb<7)	0.9% (0.3-1.9)	1.7% (0.6-4.0)	
Anaemia in non-pregnant women of reproductive age (15-49)			
Total Anaemia (Hb<12)	42.3% (36.2-48.6)	40% (32.5-47.9)	
By severity			
Mild (Hb 11-11.9)	21.9% (17.0-27.5)	13.9% (9.0-20.2)	
Moderate (8-10.9)	18.5% (13.9-23.7)	22.4% (16.3-29.6)	
Severe (Hb<8)	1.9% (0.6-4.4)	3.6% (1.3-7.7)	
Nutrition Programme Enrolment			
Therapeutic feeding programme	77.3%	70.1%	
Supplementary feeding programme	80.3%	80.0%	
Vaccination and Vitamin A coverage			
Measles vaccination with card or recall	97.6% (96.0-98.5)	95.5% (93.3-97.0)	Target is >= 95%
Vitamin A supplementation coverage with card or recall, within past 6 months	89 (86.4-91.1)	89.2 (86.4-91.6)	Target is >= 90%
Food consumption score			
Acceptable (>35)	86.5%	86.7%	
Borderline (21.5-35)	9.6%	8.7%	
Poor (0-21.4)	3.9%	4.6%	
Infant and young child feeding practices			
Child ever breastfed	95.8%	94.9%	
Timely initiation of breastfeeding	43.2%	25%	
Exclusive Breastfeeding (0-5 months)	17.0%	43.8%	
Continued Breastfeeding at 1 year (12-15 months)	89.3%	88.9%	
Bottle feeding	69.4%	55.1%	

1. Introduction

Dollo Ado District of Somali Regional State in Southern Ethiopia has been hosting refugees from Somali since 2009 in four camps, namely Bokolmayo, Melkadida, Kobe and Hilaweyn of which Kobe and Hilaweyn refugee camps are established recently in June and August 2011 respectively. The opening of the fifth camp (Bur-Amino) is on process during the time of survey; about 7,000 refugees residing in the transit center will be relocated to the new camp in early December. The increased influx into Dollo Ado during the first half of 2011 has dramatically increased the population from 24,000 to 40,479 in Melkadida and from 28,000 to 37,000 in Bokolmayo. The two camps of Kobe and Hilaweyn were opened on 24th June and 5th August 2011 respectively. With the continued influx the total population of the four camps has reached over 137,745, as of 29th of November 2011. The main reasons for such a high influx to Ethiopia are associated with the frequent failure of seasonal rains which led to production failure, soaring market food prices coupled with lack of coping mechanisms and high insecurity situation due to conflict between the transitional government and the opposition Alshabab.

The camps are situated in arid range lands with the land features of plain, sandy red soil and covered with acacia bushes. The acacia trees are main sources of fuel wood and construction materials, such as fencing and establishment of Somali traditional houses. The perennial river Genale is adjacent to the camps and serves as main water source for refugees. IRC in Kobe and OXFAM-GB in Hilaweyn are providing the daily required water amount for refugees through water trucking from water purifying points and started establishing permanent water points with basic delivery facilities in the camps.

The hosting communities are dependent on Pastoral and Agro-pastoral livelihood system, failure of pasture due to recurrent drought affected potential grazing fields and negatively impacted on the livelihood system and as a result most of the communities are dependent on relief assistances. Competition over scarce natural resource, (bushes and trees) mainly in Kobe, contributed to sporadic conflict among refugees and hosting communities. Although the refugees are from similar ethnic (Somali) and religious (Islam) background as the host community, there is little social solidarity between the two communities.

UNHCR, ARRA, WFP, UNICEF and other UN and non governmental humanitarian actors are providing relief assistances to refugees, by the grant obtained from various public and private funding. All refugees are receiving their monthly food ration from WFP via ARRA; the amount given meets the daily minimum Kilocalories requirements (2100Kcal) per person. UNHCR with partners have been providing shelter, kitchen utensils and other non food items to all refugees on arrival to the camps. Water, hygiene and sanitation, health, nutrition, education, child protection etc services are delivered by ARRA (government organization) and different international and indigenous non governmental organizations. Primary health care and nutrition programs are implemented by two or more actors per camp.

Nutrition services in each camp are provided by two international agencies. In Kobe, MSF-Spain and IMC run the nutrition programme while in Hilaweyn it is MSF-Holland and ACF. In each of these camps, four nutrition responses (refer to annex 2) are in place

- Stabilisation center for all Person of Concern (PoC)s that are severely malnourished and have poor appetite or infections

- Outpatient therapeutic programme for all PoCs that are severely malnourished but have good appetite and no infections
- Supplementary feeding programme for all PoCs with moderate malnutrition
- Blanket supplementary feeding programme for all under five children, pregnant and lactating women.

The Nutrition and Health survey was conducted in the two camps (Kobe and Hilaweyn) during October- November 2011. The survey included an anthropometric measurement of weight for height/length for children 6-59 months, haemoglobin measurement to assess the prevalence of anaemia among children 6-59 month and non pregnant reproductive age women, coverage of immunization, vitamin A supplementation, retrospective mortality rate, level of enrolment to the ongoing nutritional programs, food security and infant and young child feeding practices. The survey was conducted jointly with the participation of experts from UNHCR, WFP, ARRA, UNICEF, GOAL, MSF-S, and ACF.

1.1 Survey Objectives

The purpose of this survey was to determine the baseline nutritional status of children aged 6-59 months, non pregnant women of reproductive age group (15-49 years) and to establish the 90 day retrospective mortality rates in the camps of Kobe and Hilaweyn.

1.1.1 Specific objectives of the surveys in Kobe and Hilaweyn camps

- To estimate the prevalence acute malnutrition, stunting and underweight among children 6-59 months as a baseline for future interventions
- To provide recommendations for appropriate response mechanisms to attain acceptable result.
- To estimate 90 day retrospective mortality rate (CMR and U5MR)
- To measure the prevalence of anaemia in children aged 6-59 months.
- To measure the prevalence of anaemia among non pregnant women of reproductive age group aged between 15-49 years.
- To estimate the coverage of measles vaccinations and vitamin A supplementation among children aged 6-59 months.
- To measure infant and young child feeding practices among children aged 0-23 months
- To understand the enrolment status of the surveyed children 6-59 months in the on-going selective feeding programmes
- To explore the food security situation and provide appropriate recommendations.

2. Methods

In each camp, a cross-sectional survey was conducted using systematic random sampling. Houses/tents were physically labelled with unique numbers per block/zone in each camp. To reduce non-response rate, empty tents, as verified through neighbours were not labelled and thus not included in the sampling list. Sample size was estimated based on UNHCR registration ProGress data base. This database was the source of demographic data for the total population, proportion or percentage of <5 children from the total population and average household size. Sampling interval per camp was calculated based on actual number of Tents that were physically verified before the survey and the estimated sample size based on the UNHCR ProGress data.

2.1 Sample size

Sample size was calculated with Standardized Monitoring and Assessment of Relief and Transitions (SMART ENA-Delta version) software. In each camp, sample size was calculated for two key indicators in emergencies namely GAM rate and mortality rate. An estimated prevalence rate of 50% was used for both Kobe and Hilaweyn, based on the MUAC and weight for height nutritional screening reports from partners, as there was no previously conducted nutritional survey. The percentage of 6-59 month children and average family size were used as per the UNHCR ProGress data for the respective camps population. A non-response rate of 10% was used because the population is mobile. The precision was +/- 4 %, the same with the previous survey conducted in Melkadida and Bokolmayo, and the design effect was 1, based on random sampling methodology selected for the two camps.

Table 2 Table 2: Sample size calculation: Anthropometric and Mortality for Kobe

Sample size calculation Anthropometric			**Sample size calculation Mortality**		
	Kobe	**Hilaweyn**		**Kobe**	**Hilaweyn**
Estimated prevalence (%)	50	50	Estimated prevalence (%)	3	3
± Desire precision (%)	4	4	± Desire precision (%)	0.75	0.75
Design effect	1	1	Design effect	1	1
Average household size	4.4	4.2	Average household size	4.4	4.2
<5 population (%)	25				
Non response households (%)	10	10	Non response households (%)	10	10
Children to be included	600	600	Population to be included	2277	2277
Households to be included	674	630	Households to be included	575*	602*
Anaemia 6-59 months	674	630	Anaemia NPW 15-49 yrs	337[1]	315

* The estimated sample size calculated by using ENA-Delta for the Anthropometry and Mortality resulted different number of households. The estimated sample size for mortality was less than that for GAM rate therefore the higher HH sample size was used for both indicators i.e. 674 HH in Kobe and 630HH in Hilaweyn camps.

2.2 Sampling procedure: Selecting households and sample subjects

Using the list generated from the physical counting and labelling of tents/ houses in the camps, a sampling interval for each camp was determined by dividing the total number of verified tents/houses by the estimated sample. The first household was then determined randomly using the lottery method by drawing a random number within the sampling interval. The interval was applied across the sampling frame to generate a list of households to be visited in the field. There was no replacement of empty houses or non respondents. Each team was then provided with a list of households to be surveyed.

2.2.1 Household information

The mortality questionnaire was administered in every household, while the food security[2] questionnaire was in every other household. Interviews were conducted by trained enumerators

[1] According to UNHCR standardized nutrition survey guidelines for refugee populations (May 2011), every other household visited for anthropometry could be selected for non pregnant women hemoglobin measurements.

[2] WFP (2008) Food Consumption analysis: *calculation and use of the food consumption score in food security analysis.*

with the adult member of the family (mostly women) present at the time of the survey. The SMART individual listing format for the collection of mortality data was used in both camps (Annex 4). The household members were defined as those who slept in the household the previous night. Members of the household who slept there last night but who were absent at the time of the survey but would return before the end of the day, were listed as part of the family. A child who was born and died during the recall period was counted as a death only when recorded in the format based on SMART guideline. Beginning of Ramadan period (1st of August) was used as a reference day for the 90 day recall for the retrospective mortality survey. In Hilaweyn data on location of death (Before or after arrival in the camp) was collected.

2.2.2 Information on children

Women (mother or care givers of children) in the selected households provided information on IYCF practices, measles immunization, Vitamin A supplementation, enrolment in ongoing nutrition programs, morbidity, health seeking behaviour. Haemoglobin concentration in children aged 6-59 was also determined. Recall method and confirmation by record cards were used where applicable.

2.2.3 Information on women of reproductive age

All women of reproductive age group (15-49 years) present in the household at the time of the survey were interviewed. Haemoglobin levels were only assessed among non pregnant women of reproductive age. Information on pregnancy status, receipt and consumption of iron folate tablets was also collected.

Table 3 : Target population and Survey Instruments

Population group	Instrument
Household Head (Husband/Wife)	Questionnaire, Mortality individual listing, food security
Children (6-59 months)	Questionnaire, weight, height, MUAC, haemoglobin measurement, and Immunization, Vitamin A and enrolment to ongoing nutrition program
Children (0-23 months)	Questionnaire: IYCF
Women (15-49 years)	Questionnaire, haemoglobin measurement

2.3 Case definitions and inclusion criteria

A household was defined as a group of people eating from the 'same pot'. All members residing in the households selected and eating together were considered in the survey. No verification of refugee status was done.

All children in the selected households aged 6 to 59 months, had their MUAC [to the nearest 0.1 cm], weight [to the nearest 0.1 kg] and length/height measured [to the nearest 0.1 cm] and checked for nutritional bilateral Oedema. Only children between the length/height of 65 and 110 cm (proxies for 6 and 59 months respectively) were included. Where a child's age was unknown, it was estimated using a seasonal and local events calendar (Annex 5). Children <87.0 cm were measured lying down and children with a height >= 87.0 measured in a standing position. Information on IYCF was assessed in every household that had a child less than 23 months of age as verified in the mortality questionnaire at the beginning of the interview in every household.

Measurement of haemoglobin (Hb) concentration in blood samples was performed directly in the selected households using a portable photometer 'HemoCue Hb 301[3]. Haemoglobin measurement was done on all children aged 6-59 months and non pregnant women of reproductive age (15-49 years). Peripheral blood was collected from a finger prick made using a safety lancet. The first two drops were allowed to form and wiped away using tissue paper and the third drop was transferred into a HemoCue cuvette for the measurement of haemoglobin. The haemoglobin level was displayed on the window of the HemoCue within 10 seconds and the readings in g/dl were registered for data analysis. All the HemoCue machines were controlled before the start of the survey and at mid point using HemoCue controls of low, normal and high values. None of the readings were beyond the expected ranges of the controls.

Table 4 : Definitions of acute malnutrition using WFH Z-score and/or oedema in children aged 6–59 months

Category of malnutrition	Z-scores	Oedema
Severe malnutrition	< -3 SD	Yes/No
	> -3 SD	Yes
Moderate malnutrition	< -2 SD and ≥ -3 SD	No
Global acute malnutrition	< -2 SD	Yes/No

Table 5 : Classification of Malnutrition based on MUAC[4]

Categories of Malnutrition	MUAC reading
Severe malnutrition and high risk of mortality	< 11.5cm
Moderate malnutrition and moderate risk of mortality	≥ 11.5cm and <12.5cm
At risk of malnutrition	≥ 12.5 cm <13.5 cm
Adequate nutritional status	≥ 13.5 cm

Table 6 : Classification of the public health significance of anaemia in populations on the basis of prevalence estimated from blood levels of haemoglobin[5]

Category of public health significance	Prevalence of anaemia (%)
Severe	≥ 40
Moderate	20.0 – 39.9
Mild	5.0 – 19.9
Normal	≤ 4.9

[3] HemoCue AB, Box 1204, SE-262 23 Angelholm, Sweden.

4 WHO (2009) WHO Child Growth Standards and the identification of severe acute malnutrition in infants and children. A joint statement by the WHO and UNICEF

[5] World Health Organization. 2001. Iron Deficiency Anaemia: Assessment, Prevention, and Control. *A guide for programme managers.*WHO/NHD/01.3

Table 7: Cut-off Points for Defining Anaemia

Age/Sex groups	Categories of Anaemia			
	Total	**Mild**	**Moderate**	**Severe**
Children 6 - 59 months	<11.0	10.9 - 10.0	9.9 - 7.0	< 7.0
Adult females (15- 49 years)	<12.0	11.9 - 11.0	10.9 - 8.0	< 8.0
Pregnant Women	<11.0	10.9 - 10.0	9.9 - 7.0	< 7.0

Crude mortality rate was defined as deaths /10,000 population per day measured of over a 90 day period. U5 mortality rate was measured as deaths of children under- five years of age /10,000 population/ day.

2.4 Questionnaire, training and supervision

2.4.1 Questionnaire

Questionnaires (Appendix 4) used were in English and interviews were conducted in Somali language. The questionnaires were pre-tested following the training.

2.4.2 Training

Training was organized for survey team and conducted for three days in Dollo UNHCR meeting room. The training was facilitated by the technical experts from UNHCR, UNICEF and GOAL who had experience of conducting health and nutrition survey among refugees. The training included both practical and theoretical sessions. The topics covered were the general and specific objectives of the survey, anthropometric measurements, data collection techniques, immunization, vitamin A supplementation, nutrition programme, mortality, haemoglobin measurement and infant and child feeding interview techniques. Survey questionnaires were exhaustively discussed and group rehearsal was applied. Standardization test (Appendix 3) were conducted for Anthropometric measurement (weight for height) and evaluated against the measurement of the supervisor. A pre-test was conducted for half a day on the last day of the training and discussions were made after the presentation of each team leaders.

2.4.3 Survey teams and supervision

The survey team was organized with the members of seven individuals per team to collect anthropometric (3 enumerators), mortality (1 enumerator), haemoglobin (1 enumerator), food security and IYCF (one enumerator) data from the sample households. In addition, each team had a guide/ interpreter recruited from the respective camps. Six teams were organized per camp, and each team contained one team leader (mostly nurses from GOAL) to mobilize the team and assure the quality of data. Each team was supervised by the experts from UNHCR, WFP, UNICEF and GOAL. Ad hoc data check was made in each team to provide timely correction and avoid any form of bias. Data collected on a daily basis was checked by supervisors and feedback provided to team leaders. The supervisors also checked the daily data entry to the ENA-Epi-INFO software by the data entry clerk, to ensure the quality of data entered. Data collection started in Kobe and later to Hilaweyn camps.

2.4.4 Ethical considerations

The objectives of the survey were discussed and agreed to with members of the refugee central committee and Zone/Block leaders of refugees in the camps. Information about the survey was disseminated to the refugees through their respective Zone/Block leaders and community health workers before the commencement of the survey. Verbal approval for support of the survey was sought from the RCC and Zonal leaders before the survey, and considered as refugees are communicated and aware on the purpose of the survey.

During the survey when each team arrived at a household they started by introducing themselves, explaining the purpose of the survey, procedures to be undertaken and the duration it might take. The purpose of taking a blood sample from children and non pregnant women of reproductive age group in the selected households was carefully explained to obtain consent before proceeding data collection. The teams also stressed that the information the participants provided would have no effect on their health care and other services. This was particularly important in order to get reliable data on the mortality information. Consent was taken for all the measurements and procedures. Consent was sought from the parents of children and individual consent was taken from women. Verbal consent was recorded on the questionnaire by the interviewer on the data collection forms. All records collected during the survey were maintained as confidential.

2.5 Data analysis

ENA for SMART (Delta Version) June 2011was used for the data entry and analyses for anthropometric measurement and mortality. Epi Info Version 3.5.1 was used for data entry and analyses for haemoglobin, immunization, and vitamin A supplementation, feeding status coverage and food security, morbidity for the past two weeks and IYCF.

3. Study limitations

This was a cross-sectional survey and not designed to assess causal factors of malnutrition therefore the analysis could not be performed to assess causal factors of malnutrition. From the analysis, some deductions/inferences have been made as to what the possible causes could be.

Age of the survey participants was determined using recall method and may not be accurate. An events calendar was used to determine age therefore measures of underweight and stunting may not be reliable.

Food consumption score results may not have been the norm since one month before the survey, food items from three different donors, beside WFP had been distributed by ARRA to the refugees.

Diet diversity of children was calculated as children who had consumed 4 out 6 food groups instead of 4 out of 7 food groups. During data collection, two food groups comprising; ‘Vitamin A rich fruits & vegetables’ and ‘other fruits and vegetables’ were combined.

WASH component was not included in the survey instruments; however, the discussions in the report focused on observations and secondary sources.

4. Results

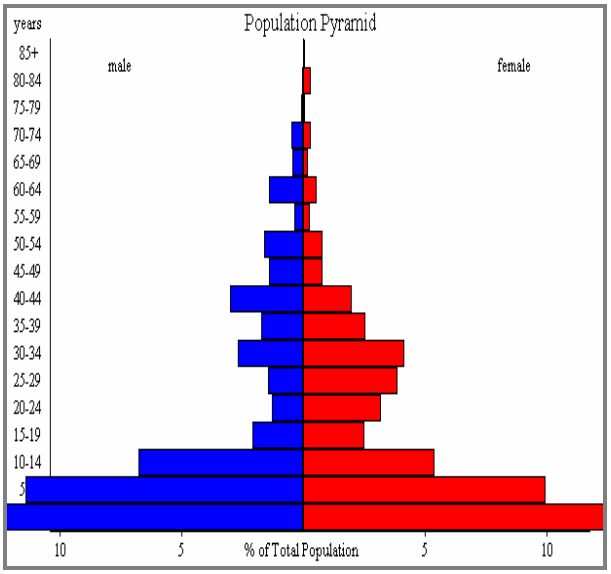
4.1 Demographic Characteristics of the study population

A total of 1232 households with 5,999 PoCs in Kobe and Hilaweyn were visited during the survey (625 households in Kobe and 607 households in Hilaweyn, respectively). Overall, there are more females (51.2%) than males (48.8%) within the sample. This differential is most notable in the age group 18 to 49 years wherein there are approximately 350 more women than men.

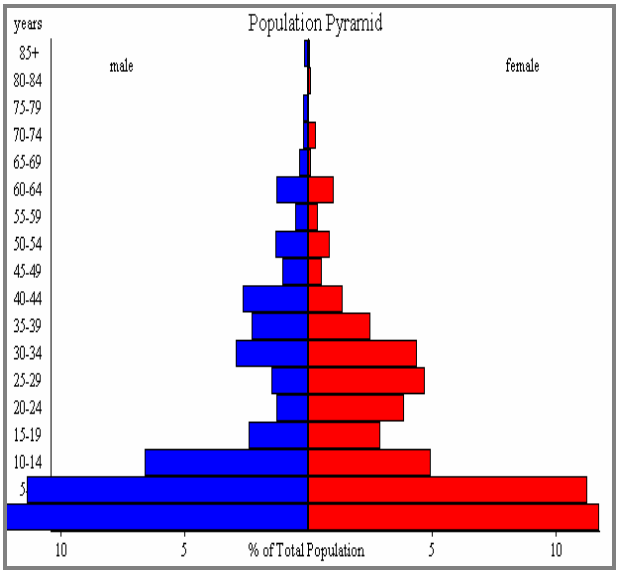
Table 8 : Demographic characteristics of the population assessed in Kobe and Hilaweyn camps

Years	Male (n=2929)	Female (n=3070)	Total population (n=5999)
0-4	764	774	1538
5-11	885	780	1665
12-17	303	278	581
18-49	723	1072	1795
50-64	195	117	312
65+	59	49	108

Figure 1 Population age and sex pyramid of surveyed households in Kobe and Hilaweyn camps



Kobe Camp



Hilaweyn Camp

4.2 Food security status

A total of 575 households were visited (311 in Kobe and 263 in Hilaweyn). On average, the food collected from the general food distribution lasted for 23.5 days and it had been 25.7 days since the last distribution had occurred.

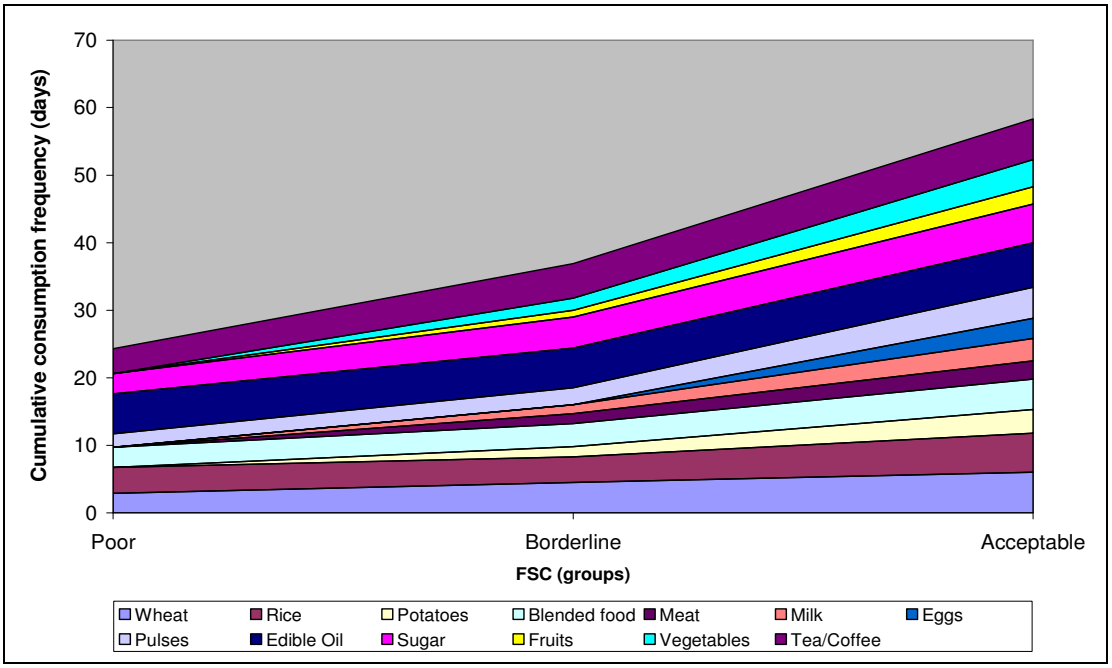
Using the food consumption score (FCS), a proxy for food security, overall, 86.6% of the households had acceptable food consumption, 9.2% and 4.2% respectively.

Table 9 : Food security score by camp[6]

Food security score	Kobe (N=311) n	Kobe (N=311) %	Hilaweyn (N=263) n	Hilaweyn (N=263) %	Overall (n=575) Overall %
Acceptable (>35)	269	86.5	228	86.7	86.6
Borderline (21.4-35)	30	9.6	23	8.7	9.2
Poor (<21.5)	12	3.9	12	4.6	4.2

Edible oil was most used among all the households sampled. Among the households with a poor FCS, this was followed by tea/coffee, rice, blended food and sugar. Unlike the households with borderline and acceptable food consumption scores, these households did not consume any vegetables, potatoes, milk and fruits. Tea/coffee was the most consumed food item among those not provided in the general food ration.

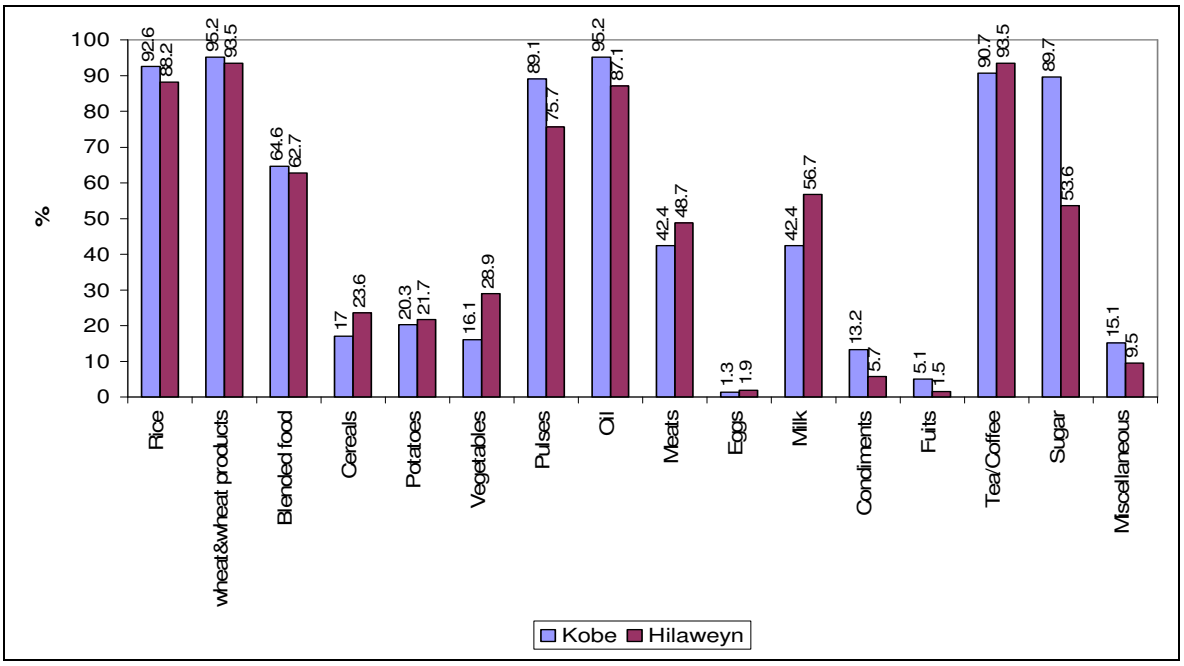
Figure 2. Mean consumption frequency of different food items by FSC groups



More than 80% of the households in both camps reported to have consumed edible oil, wheat & wheat products, rice, tea and coffee. Sugar (89.7%) and pulses (89.1%) consumption was higher in Kobe than Hilaweyn. On the other hand in Hilaweyn, consumption of milk (56.7%) and meat & fish (48.7%) vegetables (28.9%) and of other cereals (23.6%) was higher than in Kobe. Less than 25% of the residents in Kobe and Hilaweyn consumed spices, fruits and eggs.

[6] WFP (2008) Food Consumption analysis: *calculation and use of the food consumption score in food security analysis.*

Figure 3. Proportion of HHs consuming different food items in Kobe and Hilaweyn camps.



Most of the common consumption coping strategies in both camps were skipping meals, borrowing food, reduction of size of meals and purchase of food on credit. The practice of borrowing food and reducing meal sizes was more common in Kobe than Hilaweyn while that of skipping meals was relatively higher in Hilaweyn camp.

Table 10 : Coping strategies by camp

Consumption coping strategy	Kobe (n=311) %	Hilaweyn (n= 264) %
Skipped breakfast	25.4	51
Skipped lunch	42.1	49.8
Skipped dinner	25.8	47.5
Reduced size of meals	38.6	25.5
Purchased food on credit	33.4	23.2
Borrowed food	58.2	17.5
Used ration card as security for loan	0	16
Sent hh member elsewhere	10.3	9.5
Ate less preferred and cheaper foods	9	6.5
Begged for food	1.4	1.4
Restricted consumption of adults	5.1	0.8
Fed working member	0	0.8
Ate wild food	2.6	0

4.3 Nutritional status

4.3.1 Anthropometric results (based on WHO standards 2006):

The mean age of children in the two camps was 31.7 (SD ±14.6) months. The age distribution for boys and girls in the sample in both camps is similar.

Table 11 .Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**Number**	**%**	**Number**	**%**	**Number**	**%**	**Boy:girl**
6-17	137	21.3	145	22.6	282	21.9	0.9
18-29	168	26.1	176	27.4	344	26.8	0.9
30-41	146	22.7	131	20.4	277	21.6	1.1
42-53	142	22.1	136	21.2	278	21.6	1.0
54-59	50	7.8	54	8.4	104	8.1	0.9
Total	643	100.0	642	100.0	1285	100.0	1.0

The overall global acute malnutrition (GAM) prevalence for the two camps of Kobe and Hilaweyn, combined, was 49.1%. There was no statistical evidence for the difference between GAM prevalence in Hilaweyn and Kobe camp (p=0.32). Likewise, there was no statistical evidence for differences in levels of moderate acute malnutrition (MAM) and severe acute malnutrition (SAM) between the camps (p>0.05). Among the malnourished, in both camps, more than 60% were moderately malnourished whilst the remaining <40% were severely malnourished.

Table 12 . Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) in Kobe (N=692) and Hilaweyn (N=567) camps

	Kobe n (%) [95% CI][2]	**Hilaweyn** n (%) 95% [CI]	**Total**[7] (n = 1259) 95% [CI]
Prevalence of global malnutrition (<-2 z-score and/or oedema)	331 (47.8) [44.1-51.6]	287 (50.6) [46.5-54.7]	(n=618) 49.1% (46.3-51.8
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	203 (29.3) [26.1-32.8]	180 (31.7) [28.0-35.7]	(n=383) 30.4% (27.9-33.0)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	128 (18.5) [15.8-21.6]	107 (18.9) [15.9-22.3]	(n=235) 18.7% (16.6-20.9

No children were identified as being oedematous, i.e. the prevalence of oedema is 0.0% for both camps.

The prevalence of acute malnutrition by age group indicated differences among the youngest and older age groups in both camps. In Kobe, the youngest children (6 to 17 months) had the highest age-specific prevalence for severe malnutrition, with more than one in four children (25.3%) surveyed experiencing severe wasting. As regards moderate malnutrition, the distribution across age groups was relatively similar unlike that of the severely malnourished.

[7] Weighted prevalence calculated using Tool15_calculation_of_weighted_prevalence_from_combined camps_18.05.2011

[2] 95% Confidence Interval

Table 13 . Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema in Kobe camp (N=692).

		Severe wasting (< -3 z-score)		Moderate wasting (≥ -3 and < -2 z-score)		Normal (≥ -2 z score)		Oedema	
Age (months)	**Total**	**n**	**%**	**N**	**%**	**n**	**%**	**n**	**%**
6-17	146	37	25.3	43	29.5	66	45.2	0	0.0
18-29	184	30	16.3	60	32.6	94	51.1	0	0.0
30-41	151	25	16.6	42	27.8	84	55.6	0	0.0
42-53	151	27	17.9	39	25.8	85	56.3	0	0.0
54-59	60	9	15.0	19	31.7	32	53.3	0	0.0
Total	692	128	18.5	203	29.3	361	52.2	0	0.0

Table 14 . Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema in Hilaweyn camp

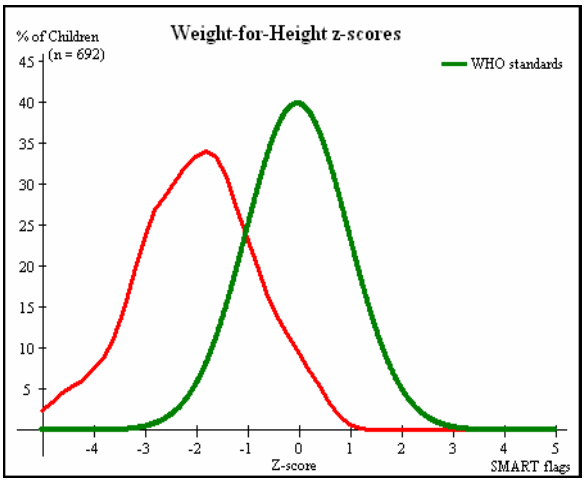
		Severe wasting (< -3 z-score)		Moderate wasting (≥ -3 and < -2 z-score)		Normal (≥ -2 z score)		Oedema	
Age (months)	**Total**	**N**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
6-17	124	34	27.4	34	27.4	56	45.2	0	0.0
18-29	152	31	20.4	48	31.6	73	48.0	0	0.0
30-41	123	19	15.4	41	33.3	63	51.2	0	0.0
42-53	126	18	14.3	43	34.1	65	51.6	0	0.0
54-59	42	5	11.9	14	33.3	23	54.8	0	0.0
Total	567	107	18.9	180	31.7	280	49.4	0	0.0

The distribution of the categories of malnutrition, as assessed by mid-upper arm circumference (MUAC) is shown in Table 15. In both camps, more than one-third of children were identified as being malnourished (GAM). Though little overall difference was noted for GAM between the camps (37.7% v 36.6%) a higher percentage of under-fives in Kobe (14.8%) were identified as being severely malnourished compared with Hilaweyn (11.8%), as per the MUAC findings. There was no statistical evidence for this difference (P>0.05).

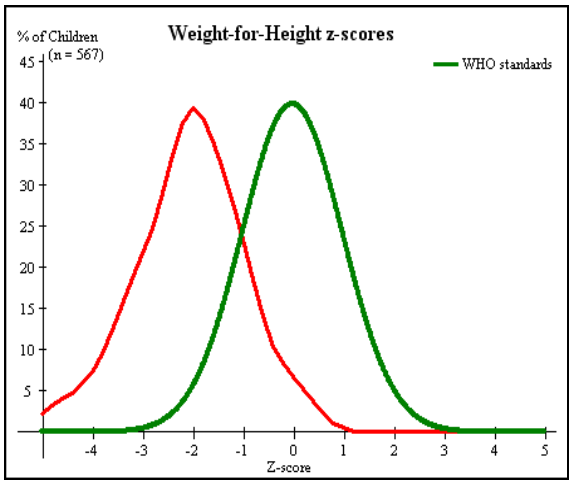
Table 15 . Prevalence of acute malnutrition based on MUAC cut-off values (and/or oedema), in Kobe (N=708) and Hilaweyn (N=577)

	Kobe n (%) [95% CI]	**Hilaweyn** n (%) [95% CI]	**Total** n = 1285
Prevalence of global malnutrition (< 125 mm and/or oedema)	267 (37.7) [34.2 - 41.3]	211 (36.6) [32.7 - 40.6]	(478) 37.2 % (34.6 - 39.9
Prevalence of moderate malnutrition (< 125 mm and ≥ 115 mm, no oedema)	162 (22.9) [19.9 - 26.1]	143 (24.8) [21.4 - 28.5]	(305) 23.7 % (21.5 - 26.1
Prevalence of severe malnutrition (< 115 mm and/or oedema)	105 (14.8) [12.4 - 17.6]	68 (11.8) [9.4 - 14.7]	(173) 13.5 % (11.7 - 15.4

Figure 4.Distribution of weight for height z-scores based on WHO growth standards in Kobe and Hilaweyn



Kobe



Hilaweyn

Programme enrolment rate as estimated during the survey were similar in Kobe and Hilaweyn camps. In both selective feeding programmes, the rates ranged from 70% to 80%. Kobe had higher coverage of SAM than Hilaweyn.

Table 16 . Estimated enrolment of children aged 6-59 months in selective feeding programmes at the time of the survey

Category	**Kobe n (%)**	**Hilaweyn n (%)**
Proportion of children aged 6-59 months with severe acute malnutrition currently enrolled in therapeutic feeding programme	(99) 77.3%	(75) 70.1%
Proportion of children aged 6-59 months with moderate acute malnutrition currently enrolled in supplementary feeding programme	(163) 80.3%	(144) 80%

The weight-for-age z-score results indicate that approximately 60% of the children surveyed are underweight, of which greater than one-third of children (37.3%) are moderately underweight in both camps. A higher proportion of children in Kobe were severely underweight than in Hilaweyn though this difference was not statistically significant (p>0.05). Notably, the weight-for-age results indicate a larger percentage of children are malnourished, i.e. underweight than the weight-for-height results. For instance, as per the weight-for-age assessment, 59.5% of the children in the two camps were underweight. However 49.2% of the children surveyed were found to be malnourished according to the weight-for-height results.

Table 17 . Prevalence of underweight based on weight-for-age z-scores by camp

	Kobe n = 702	**Hilaweyn** n = 571	**Total** n = 1273
Prevalence of underweight (<-2 z-score)	(431) 61.4 % (57.7 - 64.9 95% C.I.)	(329) 57.6 % (53.5 - 61.6 95% C.I.)	(760) 59.7 % (57.0 - 62.4)
Prevalence of moderate underweight (<-2 z-score and ≥-3 z-score)	(262) 37.3 % (33.8 - 41.0 95% C.I.)	(213) 37.3 % (33.4 - 41.3 95% C.I.)	(475) 37.3 % (34.7 - 40.0)
Prevalence of severe underweight (<-3 z-score)	(169) 24.1 % (21.1 - 27.4 95% C.I.)	(116) 20.3 % (17.2 - 23.8 95% C.I.)	(285) 22.4 % (20.2 - 24.8

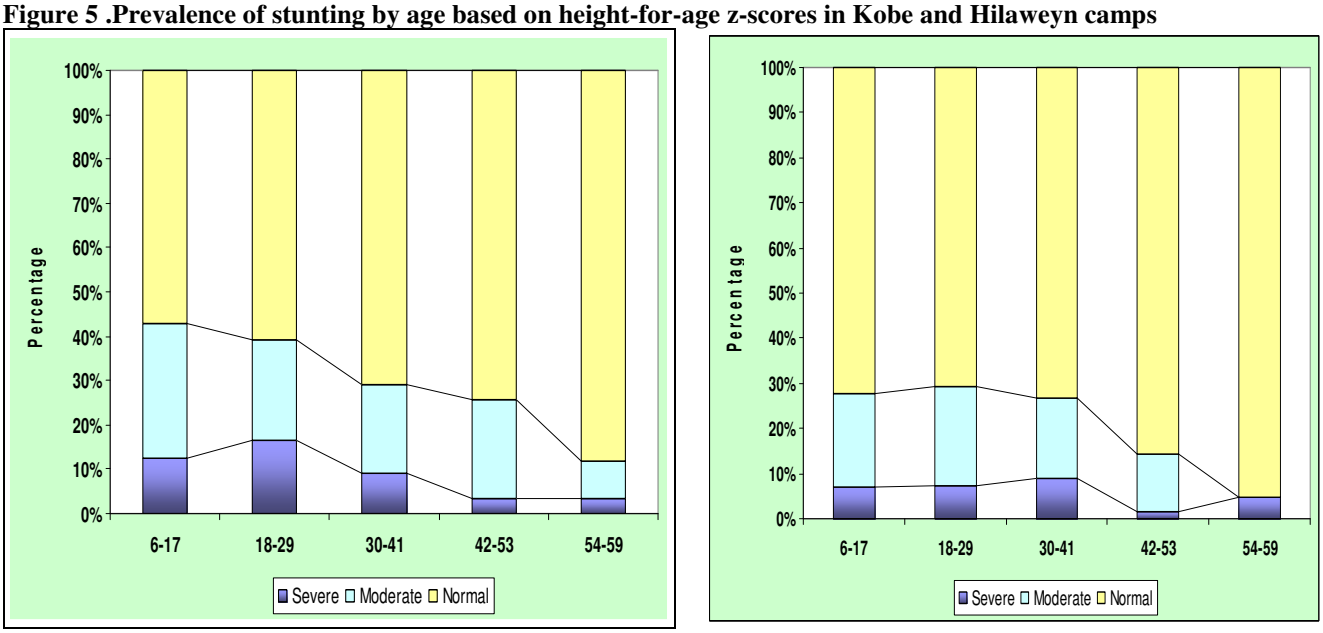
Across the two camps, more than one-quarter (28%) of all children were stunted. The prevalence of stunting was significantly higher amongst children in Kobe as compared to those from Hilaweyn (P<0.001). Moderate and severe stunting levels, respectively, were also significantly higher in Kobe than in Hilaweyn.

Table 18 . Prevalence of stunting based on height-for-age z-scores by camp

	Kobe n = 700	**Hilaweyn** n = 572	**Total** n = 1268
Prevalence of stunting (<-2 z-score)	(228) 32.6 % (29.2 - 36.1 95% C.I.)	(133) 23.3 % (20.0 - 26.9 95% C.I.)	(357) 28.2 % (25.7 - 30.7)
Prevalence of moderate stunting (<-2 z-score and ≥-3 z-score)	(157) 22.4 % (19.5 - 25.7 95% C.I.)	(98) 17.1 % (14.3 - 20.4 95% C.I.)	(255) 20.1 % (18.0 - 22.4)
Prevalence of severe stunting (<-3 z-score)	(71) 10.1 % (8.1 - 12.6 95% C.I.)	(35) 6.1 % (4.4 - 8.4 95% C.I.)	(102) 8.0 % (6.7 - 9.7)

Moderate and severe stunting in Kobe camp was associated with younger children, particularly in age group 6 to 30 months. In this group, at least 40% were stunted, with moderate stunting predominating. However it merits pointing out that approximately one in every seven children (14.8%) less than 30 months were severely malnourished. In older children stunting was less common, i.e. less than 30%. Moreover, in those aged 3½ years and older, severe stunting was found in only 3.3% of the children in Kobe.

Figure 5 .Prevalence of stunting by age based on height-for-age z-scores in Kobe and Hilaweyn camps



Kobe Camp **Hilaweyn Camp**

In Hilaweyn, less than 30% of under-five year old children were stunted though evidence of moderate stunting was identified in a substantial percentage (17.1%) of those children aged 6 to 54 months. Severe stunting was less than 9% in all age groups in Hilaweyn. This differs substantially from the stunting profile in Kobe where the prevalence for under-fives was 10.1%, reaching as high as 16.7% in those 18 to 29 months of age.

The mean weight-for-height z-scores were very similar within the two samples of children assessed in Kobe and Hilaweyn. However, in terms of weight-for-age and height-for-age, Kobe had lower mean z-scores, i.e. higher prevalence results for both underweight and stunted children when compared to Hilaweyn.

Table 19 .Mean z-scores, design effects (DEFF) and excluded subjects in Kobe and Hilaweyn camps

	Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Kobe camp	Weight-for-Height	692	-1.99±1.15	1.00	0	16
	Weight-for-Age	702	-2.34±1.02	1.00	0	6
	Height-for-Age	700	-1.73±0.94	1.00	0	8
Hilaweyn camp	Weight-for-Height	567	-2.06±1.09	1.00	0	10
	Weight-for-Age	571	-2.23±0.91	1.00	0	6
	Height-for-Age	572	-1.49±0.84	1.00	0	5

* contains for WHZ and WAZ the children with oedema, i.e. none in the two camps.

4.4 Mortality results (retrospective over 90 days prior to interview)

The reported crude and under-five (U-5) mortality rates over a 90 day recall period were higher in Kobe than Hilaweyn camp. In the latter camp, 27.3% of the deaths had occurred before arrival in the camp while 72.7% took place in the camp itself. In both camps, the crude and U-5 mortality rates were above emergency threshold levels, particularly in Kobe camp.

Table 20 . Distribution of the crude (CMR) and under-five (U-5MR) mortality rates by camps

Mortality rate	Kobe	Hilaweyn
CMR (total deaths/10,000 people/day)	1.90	1.35
(95% CI)	(1.42 - 2.55)	(0.96 - 1.89)
U-5MR (deaths in children <5 years/10,000 children <5 years/day): (95% CI)	5.95 (4.40 - 8.00)	4.40 (3.02 - 6.38)

In Kobe camp, the crude mortality rate was higher among female than male refugees while, conversely, in Hilaweyn the CMR was higher among male than female persons of concern.

Table 21 . Crude mortality rate (deaths/10,000/day) by camp and by sex

Sex	Kobe Crude Mortality Rate (95% CI)	Hilaweyn Crude Mortality Rate (95% CI)
Male	1.74 (1.15-2.63)	1.50 (0.95-2.35)
Female	1.98 (1.35-2.92)	1.20 (0.73-1.97)
Overall	**1.90 (1.42-2.55)**	**1.35 (0.96-1.89)**

As indicated previously, the CMR and U-5 mortality rate were higher in Kobe than Hilaweyn. In both camps the large majority of the deaths that occurred were amongst children less than five years of age. These resultant U-5 mortality rates for both camps were in excess of the emergency threshold of 2 deaths in children less than five years per 10,000 children of these ages per day. Notably, no persons aged 50 years and older were reported to have died during the 90-day period of enquiry. This finding may be associated with the predominantly young age profile of the persons – principally young mothers and children – who sought refugee status and were later re-settled in the camps in 2011.

All the deaths (54) for the Kobe cohort occurred in the camp. In the case of Hilaweyn, nine of the 33 deaths took place prior to arriving at the camp. Of the 24 deaths that occurred in the camp, 18 (75.0%) were in children aged less than five years whereas all the children who died prior to arrival to the camp were under five years.

Table 22 . Age-specific mortality rates (death /10,000/day) 95% CI by camp

Years	Kobe	Hilaweyn
0 to 4	5.95 (4.40-8.00)	4.57 (3.15-6.57)
5 to 11	0.46 (0.15-1.43)	0.15 (0.03-0.82)
12 to 17	0.00 (0.00-0.00)	0.83 (0.23-2.98)
18 to 49	0.43 (0.14-1.31)	0.40 (0.13-1.16)
50 to 64	0.00 (0.00-0.00)	0.00 (0.00-2.79)
65+	0.00 (0.00-0.00)	0.00 (0.00-8.83)
Overall	1.90 (1.42-2.55)	1.35 (0.96-1.89)

4.5 Children's morbidity

About one-third of the children in Kobe (30.6%) and one-quarter in Hilaweyn (26.0%) were reportedly sick in the two weeks prior to the survey. Of the children that were sick, a higher proportion of those living in Hilaweyn (74.4%) attended the health centre compared to that for Kobe (59.7%).

Table 23 . Prevalence of reported illness in children in the two weeks prior to interview in Kobe and Hilaweyn camps

	Kobe camp 6-59 months n =708	**Hilaweyn camp 6-59 months n =577**
Prevalence of reported illness	217 (30.6)	150 (26.0)

In those children with a reported illness in the previous two weeks, diarrhoea, cough and fever were the most commonly reported conditions/symptoms. Notably, the reported level of symptoms related to 'measles' in both camps is low.

Table 24 . Distribution of reported symptoms in children aged 6-59 months in the two weeks prior to interview, in Kobe (n=708) and Hilaweyn (n=577)

	Kobe camp 6-59 months n (%)	**Hilaweyn camp 6-59 months n (%)**
No reported symptoms	491 (69.4)	427 (74.0)
Diarrhoea	75 (10.6)	64 (11.1)
Cough	87 (12.3)	49 (8.5)
Fever	45 (6.4)	27 (4.7)
Measles	1 (0.1)	1(0.2)
Malaria	1 (0.1)	3 (0.5)
Other	8 (1.1)	6 (1.0)

4.6 Vaccination Results

Overall, measles immunisation coverage – based on vaccination card records *or* recall by the parent(s) – was greater than 90% in both camps. Although a higher prevalence was observed in Kobe than Hilaweyn, availability of the vaccination card was higher in Hilaweyn (62.7%) than in the other camp (48.1%). Nonetheless the level of 'vaccination with card' was low, especially in Kobe where less than half of those reportedly immunised.

Table 25 . Measles vaccination coverage in children aged 9-59 months in Kobe and Hilaweyn camps

Measles vaccination in children 9-59 months	**Kobe** n = 695	**Hilaweyn** n = 555	**Total** n = 1250
Vaccinated with card	(344) 48.1% (44.3-51.8, 95% C.I.)	(348) 62.7 % (58.5-66.7 95% C.I.)	(n=682) 54.6% (51.7 -57.3%)
Vaccinated with card *or* confirmation from parent	(678) 97.6 % (96.0-98.5, 95% C.I.)	(530) 95.5 % (93.3-97.0, 95% C.I.)	(n=1208)96.6% (95.4 -97.5%

A large majority of children in both camps were reported to have received Vitamin A supplementation, i.e. coverage levels of approximately 90% in Kobe and Hilaweyn.

Table 26 . Vitamin A supplementation for children aged 6 -59months

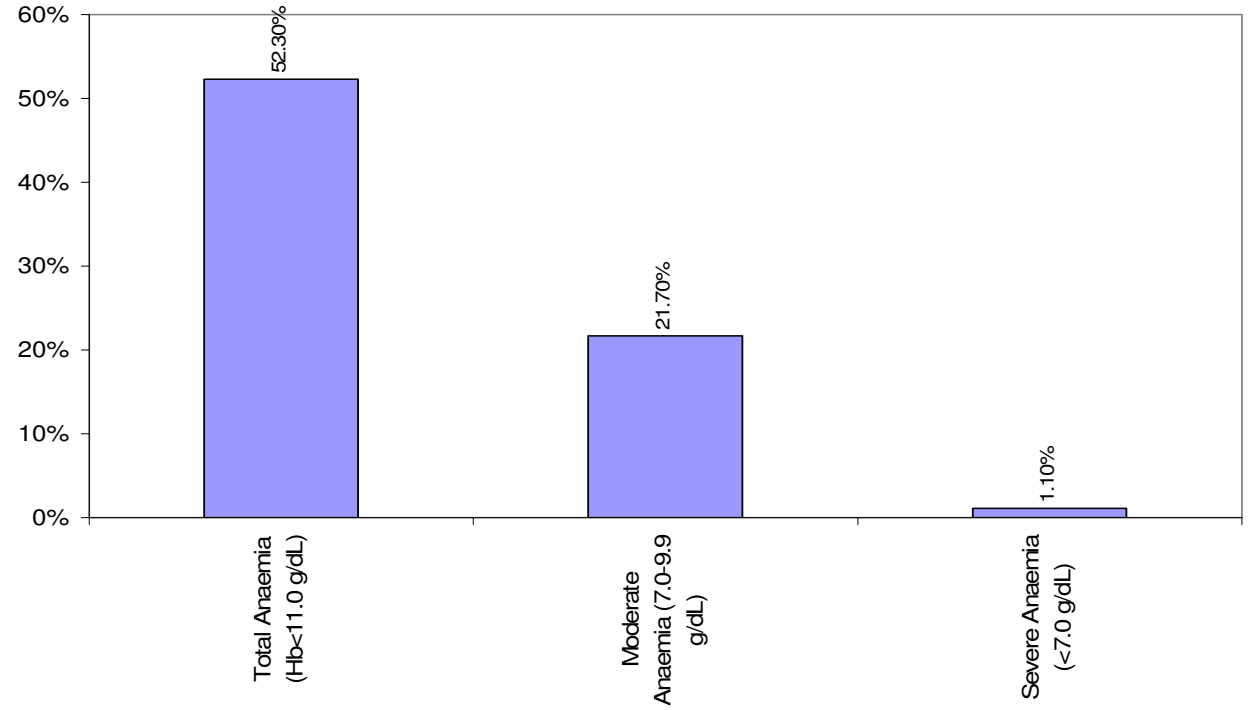
Vitamin A supplementation for children aged 6-59 months	**Kobe** n = 708	**Hilaweyn** n = 577	**Total** n = 1285
Received Vitamin A (the past 6 months prior the survey)	(630) 89 % (86.4-91.1, 95% C.I.)	(515) 89.2 % (86.4-91.6, 95% C.I.)	(1145) 89.1% (87.2 - 90.7%)

4.4. Anaemia results

4.4.1 Anaemia prevalence in children aged 6-59 months

In both camps, a total of 1277 children (638 boys and 629girls) had their haemoglobin concentration was measured to asses the prevalence of anaemia. Overall, half of the children aged 6-59 months (52.3%) were anaemic (Hb <11.0g/dL). There was no significant difference (p=0.595) in the prevalence of anaemia in the two camps.

Figure 6 . Combined prevalence of anaemia in children 6-59 months of age (n=1267)



In Kobe camp, a higher percentage of boys were anaemic (Hb<11.0g/dL) compared to girls however this difference is not significant (p>0.05). One third of all the children are mildly anaemic and at least 20% are moderately or severely anaemic.

Table 27 . Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age in Kobe camp

Anaemia in Children 6-59 months	All n = 704	Boys n = 347	Girls n = 357
Total Anaemia (Hb<11.0 g/dL)	(363) 51.6% (47.8-55.3 95% C.I.)	(187) 53.9 % (48.5-59.2 95% C.I.)	(176) 49.3% (44.0-54.6 95% C.I.)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(213) 30.3 % (26.9, 33.8 95% C.I.)	(113) 32.6 % (27.7-37.8 95% C.I.)	(100) 28.0 % (23.5-33.0 95% C.I.)
Moderate Anaemia (7.0-9.9 g/dL)	(144) 20.5 % (17.6- 23.7 95%C.I.)	(70) 20.2 % (16.2-24.9 95% C.I.)	(74) 20.7% (16.7-25.4 95% C.I.)
Severe Anaemia (<7.0 g/dL)	(6) 0.9 % (0.3-1.9 95% C.I.)	(4) 1.2% (0.4-3.1 95% C.I.)	(2) 0.6 % (0.1-2.2 95% C.I.)
Mean Hb (g/dL)	10.8g/dL (±1.25 SD) [6g/dLmin, 14.9 g/dLmax]	10.8g/dL (±1.22 SD) [6g/dLmin, 14.9 g/dLmax]	10.9g/dL (±1.6 SD) [6.7g/dLmin, 14.0 g/dLmax]

Similarly in Hilaweyn camp, at least 50% of the children were anaemic and more than 20% were moderately or severely anaemic (Hb<9.9 g/dL). More boys (55.3%) than girls (50.7%) are anaemic however, there was no statistical evidence for the difference (p>0.05).

Table 28 . Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age in Hilaweyn camp

Anaemia in Children 6-59 months	All n = 563	Boys n = 291	Girls n = 272
Total Anaemia (Hb<11.0 g/dL)	(299) 53.1 % (48.9- 57.3 95% C.I.)	(161) 55.3 % (49.4-61.1 95% C.I.)	(138) 50.7 % (44.6- 56.8 95% C.I.)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(162) 28.8 % (25.1- 32.7 95% C.I.)	(85) 29.2 % (24.0-34.8 95% C.I.)	(77) 28.3 % (23.0- 49.6 95% C.I.)
Moderate Anaemia (7.0-9.9 g/dL)	(129) 22.9 % (19.5-26.7 95% C.I.)	(71) 24.4 % (19.6-29.8 95% C.I.)	(58) 21.3 % (16.6- 26.7 95% C.I.)
Severe Anaemia (<7.0 g/dL)	(8) 1.4 % (0.7-2.9 95% C.I.)	(5) 1.7 % (0.6-4.0 95% C.I.)	(3) 1.1 % (0.2- 3.2 95% C.I.)
Mean Hb (g/dL)	10.7g/dL (1.30 SD or 95% C.I.) [6g/dLmin, 14.4 g/dLmax]	10.6g/dL (1.30 SD or 95% C.I.) [6g/dLmin, 14.0 g/dLmax]	10.9g/dL (1.30 SD) [6g/dLmin, 14.0 g/dLmax]

The prevalence of anaemia by age was highest among children aged 6-23 months (62.6%) and lowest in the oldest age group of children aged 36 to 59 months (41.3%). This finding similar with the result of sever acute malnutrition, the youngest age group were the most affected. This might associated with infant and young children feeding practices of the community.

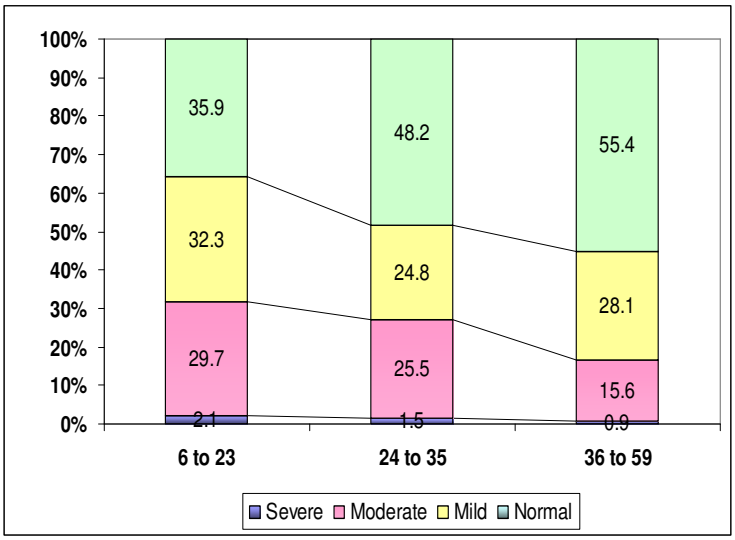
Table 29 . Prevalence of anaemia by age and severity in Kobe camp

		Severe Anaemia (<7.0 g/dL)	Moderate Anaemia (7.0-9.9 g/dL)	Mild Anaemia (Hb 10.0-10.9 g/dL)	Total Anaemia (Hb<11.0 g/dL)	Normal (Hb≥11.0 g/dL)
Age (months)	Total no.	% (95% C.I.)	% (95% C.I.)	% (95% C.I.)	% (95% C.I.)	% (95% C.I.)
6-23	253	(4)1.7 (0.5-4.3)	(59)25.1 (19.7-31.2)	(84)35.7 (29.6-42.2)	(147)62.6 (56.0-68.8)	(88) 35.9 (31.2-44.0)
24-35	181	(2)1.1(0.1-3.9)	(41) 22.7 (16.8-29.4)	(54)29.8 (23.3-37.1)	(97)53.6 (46.0-61.0)	(84) 46.4 (39.0-54.0)
36-59	288	(0)0.0	(44) 15.3 (11.3-20.0)	(75)26.0 (21.1-31.5)	(119)41.3 (35.6-47.2)	(169) 58.7% (52.8-64.4)
Total	704	(6)0.9 (0.3-1.9)	(144) 20.5 (17.6-23.7)	(213)30.3 (26.9-33.8)	(363)51.6 (47.8-55.3)	(341) 48.4 (44.7-52.2)

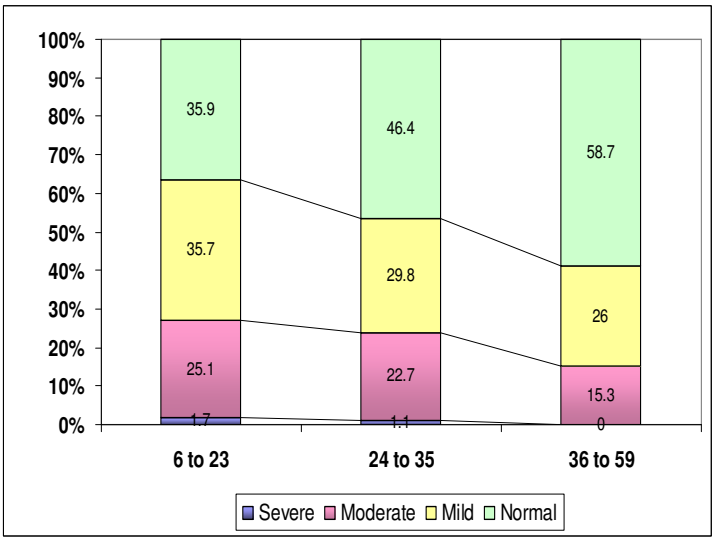
Table 30 . Prevalence of anaemia by age and severity in Hilaweyn camp

		Severe Anaemia (<7.0 g/dL)	Moderate Anaemia (7.0-9.9 g/dL)	Mild Anaemia (Hb 10.0-10.9 g/dL)	Total Anaemia (Hb<11.0 g/dL)	Normal (Hb≥11.0 g/dL)
Age (months)	Total no.	% (95% C.I.)	% (95% C.I.)	% (95% C.I.)	% (95% C.I.)	% (95% C.I.)
6-23	195	(4)2.1 (0.6- 5.2)	(58)29.7(23.4-36.7)	(63)32.3 (25.8-39.4)	(125)64.1 (56.9-70.8)	(70)35.9 (29.2-3.1)
24-35	137	(2)1.5(0.2-5.2)	(35)25.5 (18.5-33.7)	(34)24.8 (17.8- 32.9)	(71)51.8 (43.1-60.4)	(66)48.2 (39.6-56.9)
36-59	231	(2)0.9 (0.1-3.1)	(36)15.6 (11.2-20.9)	(65)28.1 (22.4-34.4)	(103)44.6 (38.1-51.2)	(128)55.4% (48.8-61.9)
Total	563	(8)1.4 (0.7,2.9)	(129)22.9 (19.5,26.7)	(162)28.8 (25.1,32.7)	(299)53.1 (48.9,57.3)	(264)46.9 (42.7,51.1)

Figure 7. Prevalence of anaemia by age in Kobe and Hilaweyn camps



Kobe



Hilaweyn

In Hilaweyn camp, almost two-thirds of the children aged 6-23 months were anaemic. However, even among the older children the prevalence of anaemia was above 40%.

4.4.2 Anaemia in non-pregnant women of reproductive age group (15-49 years)

The prevalence of anaemia (Hb<12.0g/dL) among women of reproductive age group was 41.2%. In Kobe, more women in the reproductive age group were anaemic (42.3%) than in Hilaweyn (40%) but there was no significant difference in prevalence of anaemia in the two camps(p>0.05).

Table 31 . Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) in Kobe and Hilaweyn camps

Anaemia in non-pregnant women of reproductive age (15-49 years)	Kobe n = 260	Hilaweyn n = 165	Total n = 425
Total Anaemia (<12.0 g/dL)	(110) 42.3% (36.2-48.6 95% C.I.)	(66) 40% (32.5-47.9 95% C.I.)	(176) 41.4% (36.7 - 46.3%)
Mild Anaemia (11.0-11.9 g/dL)	(57) 21.9 % (17.0-27.5, 95%C.I.)	(23) 13.9 % (9.0-20.2 95% C.I.)	(80)18.8% (15.3 -22.9%)
Moderate Anaemia (8.0-10.9 g/dL)	(48) 18.5 % (13.9-23.7 95% C.I.)	(37) 22.4 % (16.3-29.6 95% C.I.)	(85)20.0% (16.4 -24.2%)
Severe Anaemia (<8.0 g/dL)	(5) 1.9 % (0.6-4.4 95% C.I.)	(6) 3.6 % (1.3-7.7 95% C.I.)	(11)2.6% (1.4 -4.7%)
Mean Hb (g/dL)	12.1 g/dL (SD 1.6) [6.8 min, 15.9 max]	11.8 g/dL (SD 1.59) [7.1min, 14.8 max]	12.2 g/dL SD - 1.5989 [min 6.8 - max 15.9]
Mean Age (year)	29.3 yrs [15 -48 yrs]	28.2 yrs [15 -48 yrs]	28.9Yrs [15 -48 yrs]

4.4.3 Coverage and intake of iron-folic acid pills among all women (15-49 years)

The coverage and supplementations of iron-folic acid for pregnant and non pregnant women in Kobe and Hilaweyn camps found similar.

Table 32 . Coverage and intake of iron-folic acid pills among all women (15-49 years)

	Kobe n = 283		**Hilaweyn n = 184**	
	No.	(95% C.I.)	No.	(95% C.I.)
Coverage: non-pregnant women	260	91.9%, (88.1 -94.8%)	165	89.7%, (84.3 -93.7)
Coverage: pregnant women	23	8.1%, (5.2 -11.9%)	19	10.3%, (6.3 -15.7%)
Currently *taking* iron-folic acid pills Pregnant women	13	56.5% (34.5 -76.8%)	10	52.6% (28.9 -75.6%
Received iron-folic acid pill during most recent pregnancy	10	43.5% (23.2 -65.5%)	9	47.4%, (24.4 -71.1%

4.5 Infant and Young Child Feeding Practices

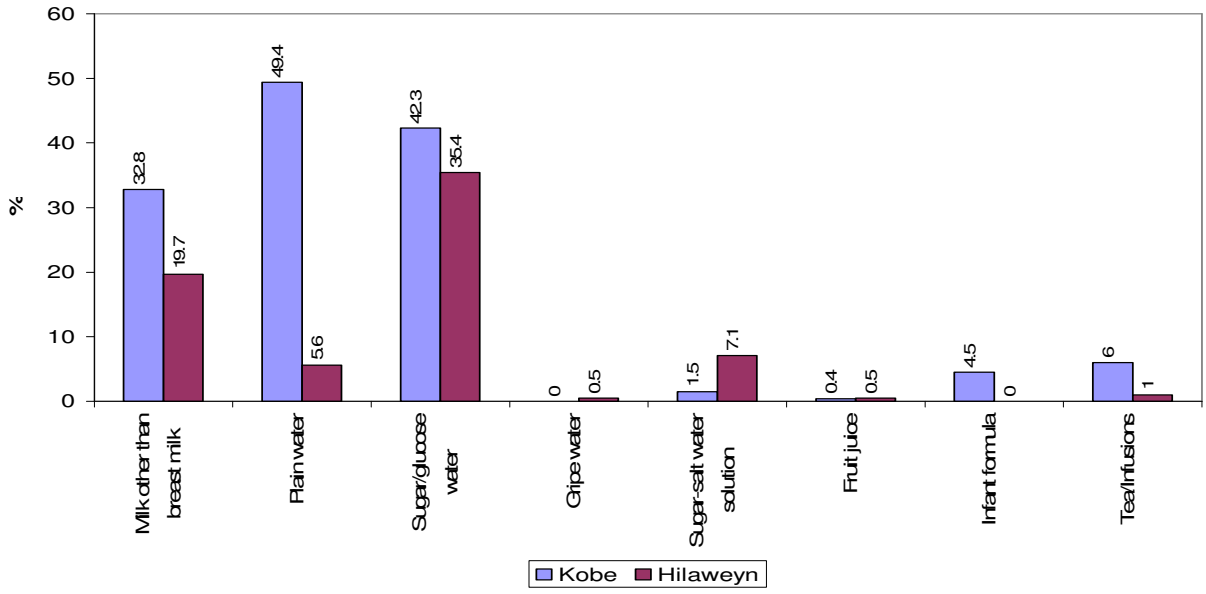
Breast feeding was predominantly practiced by mothers in the two camps. Overall 95.5% of all

children had ever been breastfed with similar breastfeeding rates in Hilaweyn (94.9%) and Kobe camp (95.8%). Timely initiation of breastfeeding within 24 hours after delivery was very low in both camps but higher in Kobe (43.2%) than Hilaweyn (25%) camps. Although colostrum feeding was at least 80% in both camps, introduction of other liquids (including prelacteals) within the first three days of birth was high; 76.8% and 58.5% of mothers and caretakers fed children other liquids in the first three days after birth. At least one in two children aged 0-23 months had been bottle-fed. This practice was higher in Kobe than Hilaweyn camp. Exclusive breastfeeding rates are very low in both camps and much lower in Kobe (17%) than Hilaweyn (43.8%) camp. More than 50% of the children aged 0-23 months in both camps had been bottle-fed.

Table 33 . Indicators of infant and young child feeding practices in Hilaweyn and Kobe camps

Indicator	Kobe N=265 %(n)	Hilaweyn N=198 %(n)
Child ever breastfed (0-23 months)	95.8 (254)	94.9 (188)
Timely initiation of breastfeeding (0-23 months)		
Less than 1hour	43.2(108)	25(47)
1-24 hours	45.2(113)	48.4(91)
>24 hours	11.6(29)	26.6(50)
Child fed colostrums (0-23 months)	80.3 (204)	88.0(169)
Introduction of liquids/solids in first 3 days after birth (0-23 months)	76.8 (195)	58.5 (110)
Exclusive Breastfeeding (0-5 months)	17 (9)	43.8 (14)
Child still breastfed (0-23 months)	90.9 (231)	89.9 (169)
Continued Breastfeeding at 1 year (12-15 months)	(50) 89.3	(40) 88.9
Continued Breastfeeding at 2 years (20-23 months)	(22) 75.9	(17) 73.9
Bottle feeding	69.4 (184)	55.1 (109)

Figure 8 . Liquids/ foods provided to children in the first 3 days of life



The most common liquids that were introduced to children's diet in the first three days of life were sugar/glucose water (41.4%), plain water (29.7%) and milk other than breast milk (26.2%). Tea, infant formula and sugar-salt solution were also given to a few children.

Diet diversity of children aged 6-23 months in both camps was 6.4% (n=21). Children in Hilaweyn camp had a higher diet diversity score of 12.9% (n=17) in comparison with children in

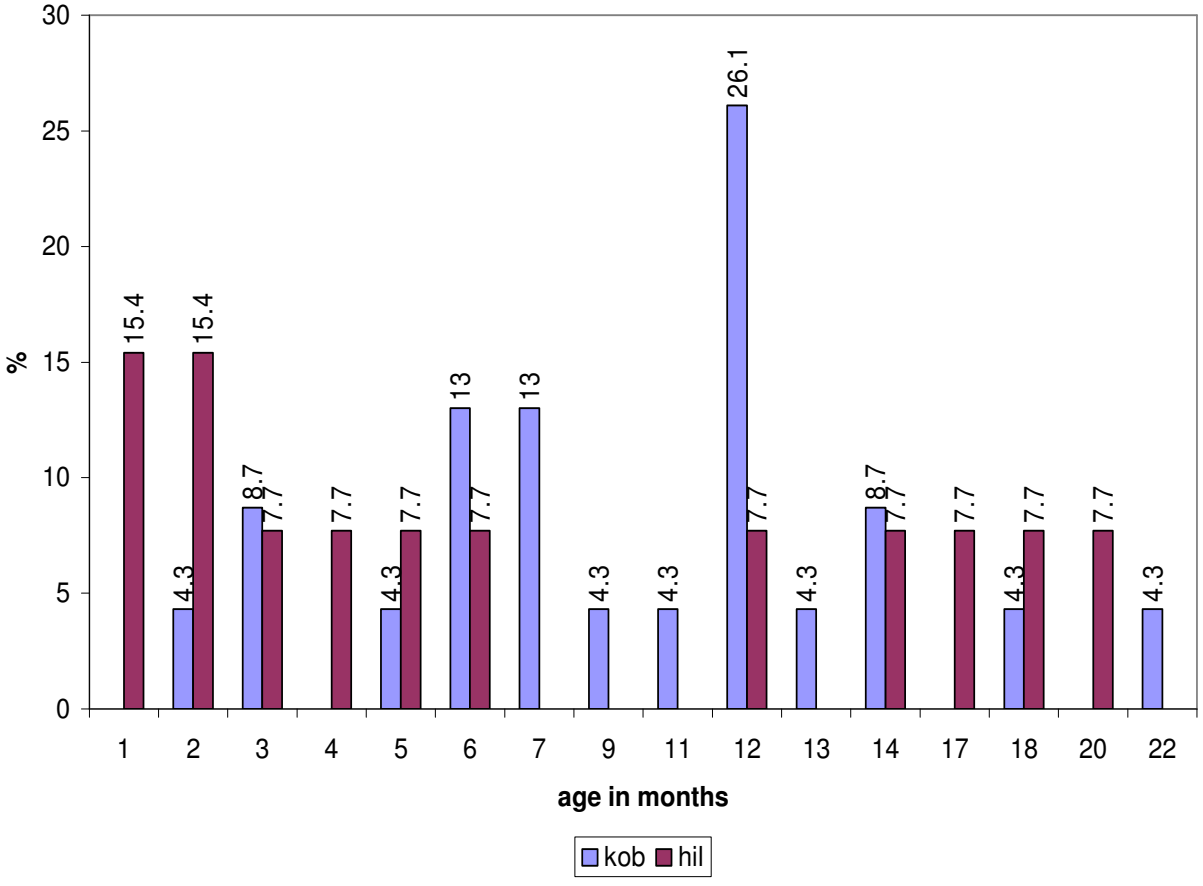
Kobe camp where only 2.0% (n=4) of the children had had a diversified diet. Milk & milk products, tea /coffee are the two food items that are consumed by most of the children in the two camps. Meat, fruits, vegetables, eggs and sugary foods were mostly consumed in Hilaweyn than in Kobe. Cereals and tubers were mostly provided to children in Kobe than in Hilaweyn camp.

Table 34 . Infant and young child feeding for children aged 6-23 months

Food consumed over the previous 24 hours	Kobe %(n)	Hilaweyn %(n)
Milk and milk products	82.7 (167)	78.7 (118)
Tea/coffee	81.2 (164)	77.3 (116)
Others liquids	64.4 (130)	42.0 (63)
Cereals and tubers	60.4 (122)	35.3 (53)
Beans lentils nuts	23.3 (47)	22.0(33)
Oils/fats	17.8 (36)	30.7 (46)
Sugary food e.g. candies, sweets, biscuits	16.4 (33)	37.3 (56)
Other meats	3.0(6)	24.7 (37)
Eggs	2.5 (5)	8.0 (12)
Fruits and vegetables	1.5 (3)	21.3 (32)
Organ meats	0.0(0)	22.0 (33)

For the 26 children aged 0-23 months that were no-longer breastfed, breastfeeding appears to have stopped at an earlier age in Hilaweyn (13 children) than in Kobe (23 children).

Figure 9. Duration of breastfeeding for children aged 0-23 months that were no-longer breastfed



5. Discussion of results

5.1 Food security status

Household food security in the camps is predominantly dependent of relief aid, provided in the form of general food ration that is distributed on a monthly basis to all households in the camps. This ration comprises wheat grain, corn soya blend, lentils, oil, sugar and salt. It provides more Kcal that the minimum requirement (2100Kcal) according to the sphere standards. In addition to the general food ration, several organisations namely SAAD, CDA and Wakogutu had distributed wheat flour, rice and oil to the refugees through ARRA in the month prior to the survey. Consequently, 86.6% of the households in the camps had an 'acceptable food consumption'[8] while 9.2% and 4.2% had borderline and poor status respectively. The food consumption score (FCS) used as a proxy shows an acceptable food security status.

Despite this relatively high food security status as indicated by food consumption score over a period of seven days prior to the survey, utilization remains a paradox. In fact, food consumption score refers to the food eaten in the household, but we do not have the information of the food distribution within the household members. Food consumption coping strategies which are indicative of food insecurity were employed by at least half the population in each camp. Meal skipping was the most commonly reported food consumption coping strategy; in both camps, about 40% skipped lunch, 25% skipped breakfast and 25% skipped dinner. Borrowing of food and reduction of meal size were also high. This implies that households that were found 'food secure' also seem to apply food consumption coping strategies to ensure availability of food for a longer time in their households. Further assessments need to be done on the possible contribution of purchase of non-food items such as fuel and clothing to household food availability.

This may be attributed to the loss of livelihoods impacting on the access to food and non food items that are culturally preferable. For instance, discussions with refugees revealed that food items such as wheat grain and plumpy-nut, a therapeutic food used for rehabilitation of malnourished children were sold to purchase milk, meat, sugar and tea among others that are habitually consumed by this predominantly pastoralists community. Food preferences indicated utilisation of rice, tea; milk and meat that are not provided in the general food ration but are key components of the cultural diet of Somalis especially pastoralists that are most predominant in the two camps.

Accordingly, food consumption over a period of seven days before the survey showed that at least 90% of the whole population surveyed had consumed tea/coffee and 40% meat and milk. Wheat grain is distributed as the main staple and the consequent need for milling results in sale of most of it on the market at a low price to purchase other preferable food items such as rice and spaghetti in less quantity than is adequate for the household. Furthermore, operational milling facilities in the camps are few and private ones are expensive and as such the extra 20% wheat provided by WFP for the milling cost is inadequate. Consequently, refugees are selling a large portion of their food ration to pay for milling. Recurring delays in delivery of food to start GFD

[8] The food consumption score (FCS) used as a proxy for food security is not sensitive to the quantity of food consumed per day. It captures consumption of a particular food item per day over a period of 7 days.

and the lengthy distribution period, purchase of non-food items such as clothes and soap and few livelihood opportunities around the camps affects the general food availability consequently food consumption coping strategies in this population.

5.2 Nutritional status

The baseline malnutrition rates in both camps are alarmingly high with global acute malnutrition (<-2 z-score and/or oedema) rates of 47.8% and 50.6% in Kobe and Hilaweyn camps respectively. The prevalence of Severe Acute Malnutrition (SAM) rate (<-3 z-score and/or oedema) in Kobe and Hilaweyn evidenced higher 18.5% and 18.9% respectively. This is indicative of an acute nutritional stress prior to the survey. There was good evidence for higher malnutrition rates among the younger age groups six to 17 months ($p<0.05$) in Kobe while in Hilaweyn the different age groups (6-59 months) were equally affected ($p>0.05$).

One out of every three children aged 6-59 months in Kobe was stunted while at least one out of every five children in Hilaweyn was stunted. Chronic malnutrition in both camps was significantly higher among the younger children in comparison to the older ones ($p=0.000$). The severity of stunting was also higher (10%) in Kobe than in Hilaweyn (6.1%). This implies that chronic malnutrition or persistent malnutrition is more prevalent among children in Kobe than Hilaweyn camp. Considering that Kobe camp had been in existence for about four months at the time of the survey, chronic malnutrition may be attributed to intrauterine growth retardation during the time of pregnancy. Most of the residents in Kobe and Hilaweyn camp arrived at the height of famine in Somalia with visible signs of malnutrition even among adults. The Hilaweyn population stayed at the transit center for about seven to eight weeks until the camp facilities organized for relocation, the camp opened late August.

5.3 Anaemia

Haemoglobin was measured on 1277 children in Kobe and Hilaweyn camps. The prevalence of anaemia in Kobe and Hilaweyn camps 51.6% and 53.1 % respectively, which indicates a severe public health problem (prevalence rates >40%) among children aged 6-59 months. The level of severity of the anaemia situation was more or less the same in both camps ($p>0.05$).

Similarly among women of non reproductive age group (15-49 years), the prevalence of anaemia is a severe public health problem (41.2%). Although anaemia is higher in Kobe than Hilaweyn camp, the severity of anaemia (moderate and severe anaemia) is higher in Hilaweyn (26%) than in Kobe (20.4).

Common causes of anaemia comprise blood loss, parasitic infection, and increased demand for iron during growth and infections, low intake of iron due to poor dietary quality of food, inadequate absorption due to presence of inhibitors in food such as tannins and phytates, low intake of Vitamin C. Anaemia among children affects cognitive development; resistance to infections reduces resulting in high mortality risk.

As a consequence of poor malnutrition status and relatively high tea consumption among under-five children and adults it is most probable that iron deficiency anaemia is a major contributor to total anaemia observed in the camps.

In Ethiopia, the preliminary report of "Demographic and Health Survey (EDHS)", conducted in 2011, indicated anaemia prevalence among children aged 6-59 months estimated 44.2% for the national, and 68.2% for the Somali region. The Somali region, refugee hosting community, classified as a public health emergency, with compared to the emergency thresholds. Despite the relatively lower prevalence of anaemia in the refugee community (53.1%), in comparison to the host community, the situation still fulfils the criteria as a severe public health emergency (prevalence of anaemia >40%).

Tea/coffee drinking is common (90%) among the refugees. Phenolic compounds in tea and coffee result in inhibition of non-heam iron absorption[9]. Adverse effects on iron absorption are more likely to happen if tea is consumed one hour before or after a meal. Phytates in the bran of wheat also strongly inhibit non-heam iron absorption affects the availability of non-heam iron from the food. On the other hand, iron from animal sources is better absorbed and also enhances the absorption of the iron from plant sources.

Similarly, vitamin C from fruits and vegetables also enhances absorption of non-heam iron. In the camps consumption of fruits and vegetables is about 5% proper preparation, through cooking demonstrations should be encouraged so as to ensure retention of some Vitamin C after cooking. Meat is purchased from camp markets and this practice could be encouraged through provision of meat vouchers and formalizing the system for meat provision to some vulnerable households.

Another cause of anaemia is infection. The prevalence of reported illness was 30.6% and 26.0% in Kobe and Hilaweyn respectively. Diarrhoea and cough in both camps were the most common illness among children but surprisingly low. Diarrhoeal diseases are usually a result of poor hygiene practices and relatively low WASH service provision. Use of latrines and hygiene promotion continues to improve. However, open defecation by children is common. Consequently, there have been reports of high prevalence of worm infestation among patients visiting the camp clinics. The last de-worming campaign took place at least 6 months ago and there is a need for routine de-worming campaigns to be established.

5.4 Mortality rate (90-day retrospective)

Baseline mortality rate in the camps was assessed over a 90-day period. Over this period, all residents in Kobe camp were living the camps unlike Hilaweyn camp. Crude mortality rate was higher in Kobe (1.9/10,000/day) than in Hilaweyn (1.35/10,000/day). With the exclusion of deaths that occurred before arrival in the camp, the CMR in Hilaweyn was 0.98/10,000/day that is below the emergency threshold of CMR<1death /10,000/day[10]. Under-five mortality rate in both camps was above the emergency threshold (< 2 deaths/10,000/day).

On the other hand, weekly grave counting, a crude method for determining mortality rates that has been implemented on a weekly basis since the peak of the emergency show a tremendous reduction in mortality rates to below the emergency threshold.

5.5 Infant and young child feeding practices

Breast feeding is practiced by 95% of all mothers of children aged 0-23 months in both camps. In

[9] Disler et al (1975) The effect of tea on iron absorption. Gut 16 193-200
[10] UNHCR (2007) Hand book for emergencies .UNHCR Geneva. Pg 345

addition, breastfeeding within the first 3 days thus providing colostrum which has immunity properties to improve child survival is also above 80%. However, at least 75% and 55% of the children in Kobe and Hilaweyn respectively had received other liquids other than breast milk in the first three days of their lives, potentially exposing them to risk of disease. Sugar/ glucose water, plain water and milk other than breast milk were the frequently provided fluids. At least one in two children aged 0-23 months had been bottle-fed. This potentially very harmful practice considering camp conditions was higher in Kobe (69.4%) than Hilaweyn (55.1%) camp.

Exclusive breastfeeding rates are very low in both camps and much lower in Kobe (17%) than Hilaweyn (43.8%). Timely initiation of breastfeeding is low in both camps and much less in Hilaweyn (25%) than in Kobe camp (43%). This may be attributed to cultural practices, low utilization of health centers for delivery and low awareness on the importance of early initiation of breastfeeding to children and their mothers.

Diet diversity of children aged 6-23 months in both camps was 6.4% (n=21). Children in Hilaweyn camp had a higher diet diversity score of 12.9% (n=17) in comparison with children in Kobe camp where only 2.0% (n=4) of the children had had a diversified diet. Most children had consumed dairy products, tea/coffee and other liquids despite the distribution of blended food in the GFR and blanket provision of corn-soya-blend, oil and sugar premix for children aged 6-59 months. Evidently utilisation of nutritious products provided as part of the GFR is of great concern. The malnutrition situation is further exacerbated by extremely poor infant and young child feeding practices that are even worse in Kobe than Hilaweyn. Diet diversity was very low with about seven in every 100 children eating an adequately diversified meal on the day prior to the survey.

5.6 Water, Sanitation and Hygiene

Current coverage of latrines is 36 and 56 persons per drop hole in Kobe and Hilaweyn respectively (UNHCR WASH reports, 2011 unpublished). This is below the sphere standard of 20 persons per drop hole but in line with the emergency phased target for Dollo Ado of 50 persons per drop hole. Open defecation commonly observed in Kobe than Hilaweyn, it is among contributing factor for environmental pollution and spread of communicable diseases.

Water availability according to production figures rather than consumption at household level, is 8 litters per person per day in Hilaweyn and 13 litters per person per day in Kobe. This indicator is lower than the UNHCR and Sphere emergency standard of 15 litres per person per day and may contribute to poor hygiene practices at critical times such as hand washing after use of latrines. Overall chlorination of water also remains a challenge in both camps with lack of consistency in chlorination in Hilaweyn and high turbidity of water in Kobe that may affect utilisation. A formative assessment to identify risk factors has been planned for 2012.

5.7 Health and Nutrition programme implementation

MUAC has a stronger association with risk of mortality than WFH among children aged one to 5 years[11]. Based on MUAC, the prevalence of global malnutrition (MUAC<125mm) was 37.7% however, current mortality rates have reduced below the emergency threshold.

[11] Young H, Jaspers S (2006) The meaning and measurement of malnutrition in emergencies; A primer for decision makers. ODI London.

Measles vaccination among children aged 9-59 months was above 95% in both camps indicating a good coverage of immunisation. This was above the 90% minimum coverage requirement for displaced populations to prevent the risk of a measles outbreak. In addition vitamin A supplementation has been estimated to reduce mortality by about 34%[12]. Coverage of 89% among children aged 9-59 months was achieved in both camps.

Enrolment of malnourished children ranged from 70% to 80% in both camps. This was the case for both the therapeutic and supplementary feeding programmes. It is important to note that this nutrition survey was collected data to understand the enrollement status of the surveyed children and may not be interpreted as a coverage survey. However, at the time of the survey, outreach programmes were weak and some of the agencies did not have a team of outreach nutrition workers resulting in poor/ no individual follow up, and defaulter tracing of beneficiaries throughout their stay in the programmes. Defaulting from the SC and OTP has also been attributed to the many distributions that occur throughout the month in the camps, mother/care giver of a child misses the therapeutic scheduled days due decisions for competing priorities in various food and non food distributions. Loss in follow up has also been due to poor coordination between the several partners running the various components of the nutrition program.

Poor health seeking behaviour may be a contributing factor to malnutrition as a consequence of the infection-malnutrition cycle. Of the children that were ill two weeks prior to the survey, 59.7% and 74.4% in Kobe and Hilaweyn respectively, visited a health facility.

Low utilization of nutritional products by beneficiaries should be seen as a major challenge for all partners implementing curative nutrition programmes. Mothers/caregivers and other household members share and also sell a significant amount of the therapeutic products i.e. plumpy nut and supplementary plumpy to purchase milk and sugar. To this effect: operational challenges faced were long duration of stay in the program; high non-response rate, low average weight gain per kg per day. As a result, performance of nutrition programmes is mostly below sphere and UNHCR standards.

6. Conclusions

The survey result evidenced high malnutrition rates among children 6-59 months in the Kobe and Hilaweyn camps. The under five children mortality rate and anaemia result indicated above acceptable/emergency threshold and categorized as crtical public health significance. Poor infant feeding practices noted as part of contributing factors for the under five malnutrition.

Low utilisation of the general food ration, mainly wheat grain, at household level due to cultural preferences appear to be the major causes of malnutrition and anaemia while poor nutrition programme performance may be attributed to mis-use of nutrition products for rehabilitation of malnourished children and a weak outreach system for household monitoring and defaulter tracing. Therefore there is an urgent need to fully develop and implement a comprehensive IYCF programme and to strengthen community outreach activities.

[12] Sommer et al (1986) Impact of Vitamin A supplementation on childhood mortality: A randomised control community trial. *Lancet* volume 327, Issue 8491 pgs 1169-1173.

The study only had limited focus on nutrition and food security. Factors that were not further explored, but yet might have affected the malnutrition rates, as per the UNICEF conceptual frame work of malnutrition are:

- **Immediate causes** (insufficient intake of food / diseases):
  - Most refugees arrived in bad nutrition and health condition (malnourished or ill)
  - Repeated infections (diarrhoea and respiratory tract infection) among young children in the two camps
  - Low intake of food (which includes: therapeutic/nutrition products, poor access to micronutrient rich fresh products/ vegetables and fruits, etc.).
- **Underlining causes**:
  - Poor infant and young children feeding and carrying practices
  - Low health service seeking behaviours
  - Low utilisation of the general food ration at household level; significant amount of food sold in the local market.
  - Miss-use of nutrition products for rehabilitation of malnourished children (products shared among family members or sold)
  - Predominantly dependent on relief aid (low or poor income options)
  - Weak outreach, community mobilization and nutrition surveillance system for active cases finding, defaulter tracing, reducing selling and resource miss use etc.

7. Recommendations and priorities

7.1 Food security

Immediate

Review the food distribution process and ensure that the duration of general food distribution within all camps is maximum one week. WFP, UNHCR and ARRA to work together and increase distribution centers and food outlet chutes, to minimize length of food distribution.

Agencies involved in general food distribution should collaborate effectively towards one distribution system of food from all donors. UNHCR and ARRA to share information with WFP and coordinate any form food assistances in the camp.

Further assessments need to be done on the possible contribution of purchase of non-food items such as fuel and clothing to household food availability. WFP and UNHCR to start food basket monitoring in all camps

Conduct a PDM and market survey to understand the economic and social dynamics in and around the camps regarding food and non-food items. WFP and UNHCR to put in place regular post food distribution and market monitoring.

WFP and UNHCR work towards reducing pipeline breaks and delays in food distribution.

Intermediate

Strengthen and improve livelihood opportunities for refugees. UNHCR, ARRA, WFP and partners to work together and support livelihood interventions

7.2 Nutrition

Immediate:
All IPs should strengthen community outreach programmes through recruitment and training to improve defaulter tracing and community awareness on health and nutrition.

Revisit the ongoing nutrition program and devise a mechanism to improve treatment protocols, defaulter tracing, active case findings and community mobilizations. ARRA, UNHCR and UNICEF to develop a strategy, provide technical and logistical supports to project implementing partners.

Scale up IYCF activities in all camps and integrate this programme into the existing nutrition programmes in order to achieve a high coverage.

Intermediate

Identify the causal factors of malnutrition via a causal nutritional analysis within the next 6 months. The causes of malnutrition would be 'weighted' so as to support programming. UNHCR, UNICEF, WFP and ARRA to lead the process and support partners in programming

UNHCR should recruit an HIS focal person for Dollo Ado to support the data quality management of health and nutrition data received from partners.

Conduct and integrated quarterly review of all programmes and their progress towards achieving standards. UNHCR, ARRA, WFP and UNICEF to lead coordination

Put in place clear nutrition programme guidelines and timely reporting systems for all nutrition programmes such that programme performance can be followed at most on a monthly basis.

Coordinate nutrition programmes across camps such that they complement rather than overlap each other. UNHCR and ARRA to support partners and harmonise nutrition programmes between camps

Develop and implement an anaemia reduction programme for children aged 6-59 months and non-pregnant women of reproductive age. UNHCR to support partners

WFP to consider fortification of wheat flour or replacing wheat by rice to reduce sells of food for milling, meet the preferences of refugees and support the anaemia reduction intervention

Conduct an anthropometric survey after one year to assess the impact of assistance programme.

Conduct JAM to review the preferences of the food basket that is provided to refugees

7.3 Health

Immediate
Establish routine de-worming campaigns for all refugees above 1 years of age. The last de-worming campaign was conducted mid 2011.

Intermediate
Implement the HIV/TB nutrition support programme.

Integrate EPI in the nutrition programme to maintain high immunisation coverage rates and make immunisation cards available to caretakers. Implement a computerised immunisation recording system.

Establish a linkage between blanket feeding for PLW and ANC / PNC services to ensure that all mothers attend the nutrition programme after receiving an ANC card from the health center. This will be checked at the nutrition center for ANC attendance

7.4 Hygiene and sanitation

Immediate:
Continue construction of pit latrines and meet minimum standards. UNHCR, ARRA and UNICEF to coordinate and support partners

Strengthen community outreach activities and pass key hygiene and sanitation messages to community. All partners implementing the WASH program.

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9. Annexes

Annex 1. Result tables for NCHS growth reference 1977

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

	All n = 692	**Boys** n = 343	**Girls** n = 349
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(331) 47.8 % (44.1 - 51.6 95% C.I.)	(183) 53.4 % (48.1 - 58.6 95% C.I.)	(148) 42.4 % (37.3 - 47.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(201) 29.0 % (25.8 - 32.5 95% C.I.)	(112) 32.7 % (27.9 - 37.8 95% C.I.)	(89) 25.5 % (21.2 - 30.3 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(130) 18.8 % (16.1 - 21.9 95% C.I.)	(71) 20.7 % (16.7 - 25.3 95% C.I.)	(59) 16.9 % (13.3 - 21.2 95% C.I.)

The prevalence of oedema is 0.0 %

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

	All n = 567	**Boys** n = 287	**Girls** n = 280
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(287) 50.6 % (46.5 - 54.7 95% C.I.)	(153) 53.3 % (47.5 - 59.0 95% C.I.)	(134) 47.9 % (42.1 - 53.7 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(180) 31.7 % (28.0 - 35.7 95% C.I.)	(98) 34.1 % (28.9 - 39.8 95% C.I.)	(82) 29.3 % (24.3 - 34.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(107) 18.9 % (15.9 - 22.3 95% C.I.)	(55) 19.2 % (15.0 - 24.1 95% C.I.)	(52) 18.6 % (14.5 - 23.5 95% C.I.)

The prevalence of oedema is 0.0 %

Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema Kobe

		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	150	39	26.0	43	28.7	68	45.3	0	0.0
18-29	180	29	16.1	59	32.8	92	51.1	0	0.0
30-41	151	25	16.6	41	27.2	85	56.3	0	0.0
42-53	151	27	17.9	39	25.8	85	56.3	0	0.0
54-59	60	10	16.7	19	31.7	31	51.7	0	0.0
Total	692	130	18.8	201	29.0	361	52.2	0	0.0

Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema Hilaweyn

		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	124	34	27.4	34	27.4	56	45.2	0	0.0
18-29	152	31	20.4	48	31.6	73	48.0	0	0.0
30-41	123	19	15.4	41	33.3	63	51.2	0	0.0
42-53	126	18	14.3	43	34.1	65	51.6	0	0.0
54-59	42	5	11.9	14	33.3	23	54.8	0	0.0
Total	567	107	18.9	180	31.7	280	49.4	0	0.0

Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex in Kobe

	All n = 708	**Boys** n = 350	**Girls** n = 358
Prevalence of global malnutrition (< 125 mm and/or oedema)	(267) 37.7 % (34.2 - 41.3 95% C.I.)	(128) 36.6 % (31.7 - 41.7 95% C.I.)	(139) 38.8 % (33.9 - 44.0 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(162) 22.9 % (19.9 - 26.1 95% C.I.)	(82) 23.4 % (19.3 - 28.1 95% C.I.)	(80) 22.3 % (18.3 - 26.9 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(105) 14.8 % (12.4 - 17.6 95% C.I.)	(46) 13.1 % (10.0 - 17.1 95% C.I.)	(59) 16.5 % (13.0 - 20.7 95% C.I.)

Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex in Hilaweyn

	All n = 577	**Boys** n = 295	**Girls** n = 282
Prevalence of global malnutrition (< 125 mm and/or oedema)	(211) 36.6 % (32.7 - 40.6 95% C.I.)	(100) 33.9 % (28.7 - 39.5 95% C.I.)	(111) 39.4 % (33.8 - 45.2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(143) 24.8 % (21.4 - 28.5 95% C.I.)	(68) 23.1 % (18.6 - 28.2 95% C.I.)	(75) 26.6 % (21.8 - 32.0 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(68) 11.8 % (9.4 - 14.7 95% C.I.)	(32) 10.8 % (7.8 - 14.9 95% C.I.)	(36) 12.8 % (9.4 - 17.2 95% C.I.)

Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema Kobe

		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	157	47	29.9	43	27.4	67	42.7	0	0.0
18-29	186	32	17.2	54	29.0	100	53.8	0	0.0
30-41	152	12	7.9	38	25.0	102	67.1	0	0.0
42-53	152	12	7.9	18	11.8	122	80.3	0	0.0
54-59	61	2	3.3	9	14.8	50	82.0	0	0.0
Total	708	105	14.8	162	22.9	441	62.3	0	0.0

Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema Hilaweyn

		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	129	35	27.1	47	36.4	47	36.4	0	0.0
18-29	154	24	15.6	46	29.9	84	54.5	0	0.0
30-41	125	6	4.8	29	23.2	90	72.0	0	0.0
42-53	126	2	1.6	18	14.3	106	84.1	0	0.0
54-59	43	1	2.3	3	7.0	39	90.7	0	0.0
Total	577	68	11.8	143	24.8	366	63.4	0	0.0

Mean z-scores, Design Effects and excluded subjects

Indicator	n		Mean z-scores ± SD		Design Effect (z-score < -2)		z-scores not available*		z-scores out of range	
	Kobe	Hilaweyn	Kobe	Hilaweyn	Kobe	Hilaweyn	Kobe	Hilaweyn	Kobe	Hilaweyn
Weight-for-Height	692	567	-2.00±1.16	-2.06±1.09	1.00	1.00	0	0	16	10
Weight-for-Age	702	571	-2.33±1.02	-2.23±0.91	1.00	1.00	0	0	6	6
Height-for-Age	701	572	-1.72±0.95	-1.49±0.84	1.00	1.00	0	0	7	5

Annex 2. Plausibility report –Kobe

Standard/Reference used for z-score calculation: WHO standards 2006
(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (2.3 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.764)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.118)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (2)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (2)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**6** (1.16)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.16)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.21)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**0** (p=)
Timing	Excl	Not determined yet					
			0	1	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.

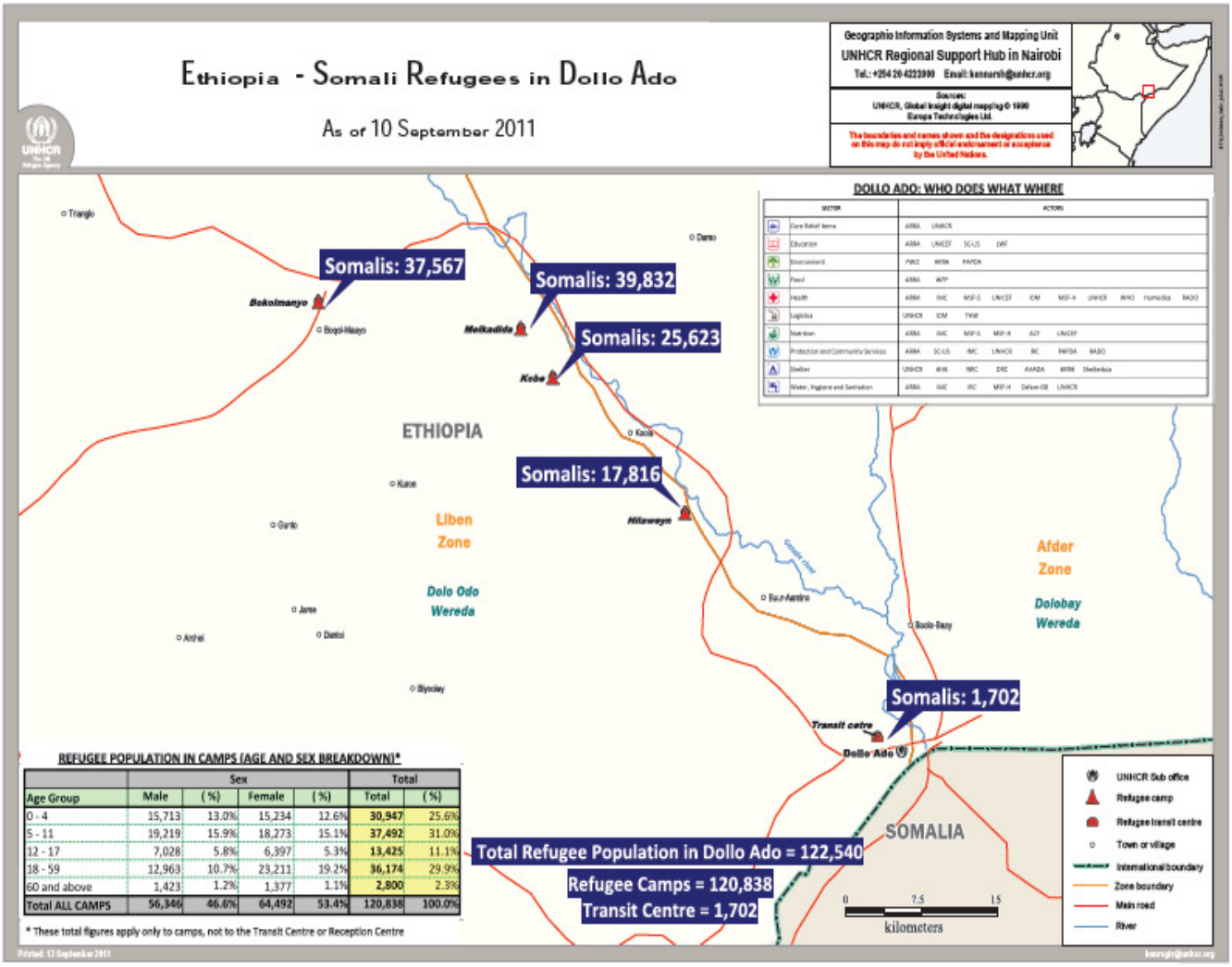
Plausibility report –Kobe

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (1.7 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.588)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**4** (p=0.040)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (1)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (3)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**0** (1.09)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.20)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.03)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**0** (p=)
Timing	Excl	Not determined yet					
			0	1	3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	**4** %

At the moment the overall score of this survey is 4 %, this is excellent.
There were no duplicate entries detected for both camps.
Percentage of children with no exact birthday: 100 %

Annex 3. Map of area



REFUGEE POPULATION IN CAMPS (AGE AND SEX BREAKDOWN)*

	Sex				Total	
Age Group	Male	(%)	Female	(%)	Total	(%)
0 - 4	15,713	13.0%	15,234	12.6%	30,947	25.6%
5 - 11	19,219	15.9%	18,273	15.1%	37,492	31.0%
12 - 17	7,028	5.8%	6,397	5.3%	13,425	11.1%
18 - 59	12,963	10.7%	23,211	19.2%	36,174	29.9%
60 and above	1,423	1.2%	1,377	1.1%	2,800	2.3%
Total ALL CAMPS	56,346	46.6%	64,492	53.4%	120,838	100.0%

* These total figures apply only to camps, not to the Transit Centre or Reception Centre

Q-1 HOUSEHOLD ENUMERATION FOR MORTALITY DATA COLLECTION (ONE SHEET/HOUSEHOLD) _____SNO... RATION CARD # _____

Camp: _____ Block: _____ HHNo_____ Team No: _____ Enumerator Name: _____

Date of data collection: _____/_____/____ Supervisor's Name: _____ Checking Date: _____/_____/_____

Date of arrival in the camp _____ **Consent (circle as appropriate) …..Yes…..No**

MORTALITY						
#	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**
	Name	Sex **M/F**	Age (Years) **"Adult" or years if >59months**	Age (months) **If ≤59 months** **If <1 month =0**	BORN SINCE THE BEGINNING OF RAMDAN **(Y /N)**	ARRIVED SINCE THE BEGINNING OF RAMDAN **(Y/N)**
A.	**LIST ALL THE HOUSEHOLD MEMBERS PRESENT IN THE HOUSEHOLD NOW***					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
B.	**LIST ALL THE MEMBERS OF THE HOUSEHOLDS THAT LEFT THE HOUSEHOLD SINCE THE BEGINNING OF RAMADAN**					
1						
2						
3						
4						
5						
C.	**LIST ALL THE HOUSEHOLD MEMBERS WHO DIED SINCE THE BEGINNING OF RAMDAN:**				Before Arrival	After Arrival
1						
2						
3						
4						

MORTALITY SUMMARY (for supervisor only)

		TOTAL	Under 5
1.	*Members present now*	**A.** COL **1**		
2.	*Arrived in the household since beginning day of Ramadan*	**A**. COL **6**		
3.	*Members that left the household since the beginning of*	**B**. COL **1**		
4.	*Births since the beginning day of Ramadan* **	**A, B**. COL **5**		
5.	*Deaths since the beginning day of Ramadan*	**C**. COL **1**		

*Members of the household present now are the members who slept in the household last night. Members of the household who slept here last night but who are away today to the market/elsewhere and will return before the end of the day should be listed here.

**A child who was born and dead during the recall period is counted as a death only when entering data in ENA (SMART Version 1, April 2006).

Q-3 Women of reproductive age group (15-49 years of age)

Camp : _____ Zone/Section: _____ Team No: _____ Enumerator Name: _____

Date of data collection: _____/_____/____ Supervisor Name: _____ Checking Date: _____/_____/_____

HH No	Woman No	Consent given 1=yes 2=no 3=absent	Age (yrs)	Are you pregnant? 1=yes 2=no **go to Hb** 3=unk **go to Hb**	Are you currently receiving iron-folate pills (*show pill*)? 1=yes 2=no **(END)** 3=unk **(END)**	If yes, are you taking these pills? 1=yes **(END)** 2=no **(END)**	Hb (g/dl) **(refer all <10.0g/dL)**
	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
	8.						
	9.						
	10.						
	11.						
	12.						
	13.						
	14.						
	15.						
	16.						
	17.						
	18.						
	19.						
	20.						
	21.						
	22.						
	23.						
	24.						
	25.						

Key:
Unk=unknown

Q.5 Nutrition Survey for Dollo-Ado Refugee Camps: October-November 2011

5. Food Security

Camp: _____ Zone/Section: _____ HHNo _____
Team No: _____ Enumerator's Name_____ Date:__/__/____ **Consent YES / NO**

SNo .....

H 1-1: Arrival in the camp: For how long have you been living in this camp?_____

H1-2: Food consumption

Over the past 7 days, what foods have you eaten in your household? [(***Do NOT count small quantities (less than 1 tea spoon)]***
(0=Not eaten, 1=1 day, 2=2 days, 3=3 days, 4=4 days, 5=5 days, 6=6 days, 7=7 days)

Code	Food Items	No. of times in last 7 days
RIC	Rice	
WHE	Wheat (anjera, soor, pasta….)	
BLE	Blended food (Ugi..)	
CER	Other cereals	
POT	Potatoes	
VEG	Vegetables	
PUL	Pulses (Miser, digir, quamate… etc)	
OIL	Edible oil	
MEA	Meat& fish (goat, camel, beef, poultry)	
EGG	Eggs	
MIL	Milk & milk products (e. susah)	
SPI	Condi & spices	
FRU	Fruits (mango, water melon, pawpaw.)	
SUG	Sugar/Honey	
TEA	Tea/ coffee	
MIS	Miscellaneous (soft drinks, biscuits…..)	

H 1-4: Copying strategy mechanisms

In the last 2 weeks, how many times has the household?

code	Coping Strategies	Number of times
BRE	Skipped Breakfast	
LUN	Skipped Lunch	
DIN	Skipped Dinner	
SIZ	Reduced size of meals	
RES	Restricted consumption of adults to allow more for children	
WOR	Fed working members at expense of non-working	
PRE	Swapped consumption to less preferred or cheaper foods	
BOR	Borrowed food from a friend or relative	
CRE	Purchased food on credit	
RAT	Use ration card as security for a loan	
SEN	Sent household members to eat elsewhere	
BEG	Beg for food	
OTH	Other (specify) _____	

H 1-3: Food Aid

When did you last receive food from ARRA? ……. Days

For how many days did the last general food ration (distributed by ARRA) last for your family? ……..Days

Nutrition Survey for Dollo-Ado Refugee Camps: October-November 2011
Q2. Anthropometric Data Collection Format

Camp: _____ Zone/Section: _____ HHNo _____

Team No: _____ Enumerator Name_____ Date:_____/_____/_____ **SNo** ……

No. of refusals:_____ No. of Absentees:_____ No. not measured (eg: disability): _____ Checked by _____ Date _____

HH No.	Chi No.	Sex **(F/M)**	Age **(months)**	Wt. (kg) 100g	Ht (cm) 0.1 cm	Oedema **(Y/N)**	MUAC **(cm)**	Refer to **1= OTP 2= SC** (<11.5 cm & Odema , <-2Z score) **3=SFP**	Vitamin A supplementation **(Y/N)**	Vaccination: Measles (>= 9 Mth) 0,1,2	Illness (**2 weeks**): No 0, Diarrhea 1, Cough 2, Fever 3, Measles 4, Malaria 5, Other 6	If child was sick, did he/she visit health facility? **(Y/N)**	Is this child enrolled in nutrition program 0= N0 1=SFP 2= OTP 3= SC 4= BFP	Hb*** (g/dL) **(refer all <10.0g/dL)**

Two weeks prior to the survey period, has the child been sick? Diarrhea, Cough, Fever, Malaria, Measles and others.....

- **Diarrhea (D),** any episode of more than 3 stools in 24 hours (it can be bloody or not).
- **Cough(C),** cough or difficulty breathing;
- **Fever (F),** elevated body temperature;
- **Measles (ML),** fever and rash/measles can have red eyes also.
- **Malaria (MR)** High fever with other malaria symptoms
- **Other (O),** other illness two weeks prior to the survey.

** **Measles**: Has the child been vaccinated against Measles? 0= Not vaccinated. **1= Yes, with card, 2= Yes, with recall**

** **Vitamin A**: Has the child received Vitamin A in the last 6 months? **Y= Yes received a capsule, N= No, has not received a capsule**.

Oedema: can be diagnosed by placing a medium pressure (with a thumb) on the forepart of the leg/on the upper side of the foot for three seconds. Other symptoms e.g. skin change, hair loss, irritable weak mood etc.

***Hb**: Haemoglobin measured in g/dL using haemocue 301.

Annex 5. Somali Calendar for the Nutrition Survey in Dollo-Ado Refugee Camps: October-November 2011

Months	Traditional months	Seasonal classification	2011	2010	2009	2008	2007	2006
JANUARY	Safar	Korhed	**10**	**22**	**34**	**46**	**58**	
FEBRUARY	Mou-lid	Gu	**9**	**21**	**33**	**45**	**57**	
MARCH	Mal-ba-dona	Gu	**8**	**20**	**32**	**44**	**56**	
APRIL	Jima-dima-wel	Gu	**7**	**19**	**31**	**43**	**55**	
MAY	Jima-dura-kir	Hagaya	**6**	**18**	**30**	**42**	**54**	
JUNE	Rajab	Hagaya		**17**	**29**	**41**	**53**	
JULY	Sa-haban	Hagaya		**16**	**28**	**40**	**52**	
AUGUST	Sou-un	Dayir		**15**	**27**	**39**	**51**	
SEPTEMBER	Sanfur	Dayir		**14**	**26**	**38**	**50**	
OCTOBER	Sadi-tal	Dayir		**13**	**25**	**37**	**49**	
NOVEMBER	Arafa	Korhed		**12**	**24**	**36**	**48**	
DECEMBER	Marab/Zakhat	Korhed		**11**	**23**	**35**	**47**	**59**

Annex 6. Amount and type of food distributed in the month of September 2011

Food Type	Food In Kg: person/month			
	WFP/ARRA	WGF	CDA	SAAD
Wheat Grain	12.5			
Wheat Flour	-	4.0	4.0	6.0
Rice	-	4.0	4.0	4.0
Blended food (CSB/FAMIX)	1.5	-	-	-
Pulses (beans/Peas)	1.8			
Oil	8.3	1.0	1.0	1.0
Sugar	0.45	-	-	-
Salt	0.2			