NUTRITION ASSESSMENT

HARGEISA, BURAO AND BERBERA RETURNEES AND IDP POPULATIONS

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unicef
United Nations Children's Fund

Table of Contents

LIST OF FIGURES **3**

LIST OF TABLES 3

ABBREVIATIONS AND ACRONYMS **4**

ACKNOWLEDGEMENTS **5**

EXECUTIVE SUMMARY **6**

SUMMARY OF ASSESSMENT FINDINGS **8**

1.0 INTRODUCTION **9**

1.1 BACKGROUND - HARGEISA, BURAO AND BERBERA SETTLEMENTS 9
1.2 ASSESSMENT JUSTIFICATION 10

2.0 METHODOLOGY **11**

3 ASSESSMENT RESULTS **12**

3.1 HOUSEHOLD CHARACTERISTICS OF STUDY POPULATION 12
3.2 CHARACTERISTICS OF ASSESSED CHILDREN 13
3.3 NUTRITIONAL STATUS OF ASSESSED CHILDREN USING ANTHROPOMETRY 13
3.4 ACCESS TO WATER AND SANITATION FACILITIES 15
3.5 HEALTH SEEKING BEHAVIOUR 15
3.6 MORBIDITY, MEASLES IMMUNISATION, POLIO VACCINATION AND VITAMIN A SUPPLEMENTATION 16
3.6.1 Morbidity and Health Programs Coverage 16
3.6.2 RDT Testing Results and report 17
3.7 FEEDING PRACTICES 17
3.7.1 Dietary Diversity 18
3.8 MORTALITY RATES IN HARGEISA IDP SETTLEMENTS 19

6.0 DISCUSSION **20**

6.1 NUTRITION STATUS IN PROTRACTED IDP SETTLEMENTS OF HARGEISA, BURAO AND BERBERA 20
6.1.1 Hargeisa 20
6.1.2 Burao 20
6.1.3 Berbera 20

7.0 CONCLUSIONS AND RECOMMENDATIONS **21**

8.0 APPENDICES **22**

APPENDIX 1: REPORT ON HARGEISA PROTRACTED IDPS NUTRITION [illegible] ..... 10 .....

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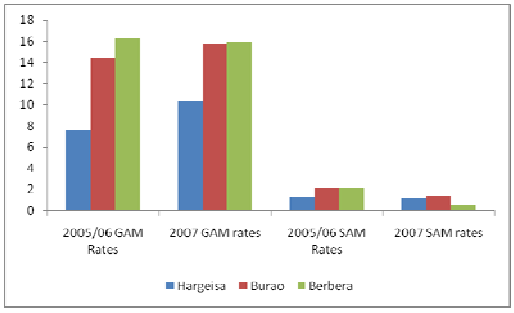
The data could not have been obtained without the co-operation and support of the communities assessed, especially the mothers and caregivers who took time off their busy schedules to respond to the interviewers. Their involvement is highly appreciated.

Executive Summary

In September 2007 FSAU in conjunction with MOHL and UNICEF conducted a nutrition assessment in the protracted IDP settlements in the Somaliland, in the main towns, of Hargeisa, Burao and Berbera. The main objective of the assessment was to asses the current magnitude of acute malnutrition and food security among the protracted IDP/returnee population in the North West zone. The latest assessment in these settlements was conducted in 2005/2006, therefore there was a need to determine the current situation and collate the latest information on the health and nutrition status of the IDP population to guide response and validate the information with data collected form surveillance sites in the region.

In Hargeisa IDP settlements, a two stage 30x30 cluster sampling methodology was used, and a total of 907 children aged 6-59 months measuring 65-109.9 cm from 503 households were examined. Along with the 30x30 cluster sampling methodology, the Lot Quality Assurance Sampling (LQAS) method was tested, using 6 children by 33 clusters (see details of this study in appendix 1). A mortality assessment was conducted concurrently in 913 households in Hargeisa only. In Burao and Berbera IDP settlements, exhaustive studies were conducted. All the children aged 6-59 months measuring 56-109.9 cm in Burao and Berbera were examined. In Burao 292 children from 184 households were examined and in Berbera the total number of children examined was 313 from 173 households. Household related data, dietary, anthropometry, and malaria data using Rapid Diagnostic Tests (RDTs) were also collected in the assessments.

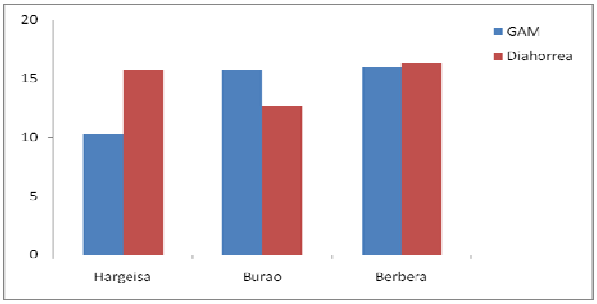
Figure 1: Malnutrition Trend 2005-07 in NWZ IDPs



The results of the nutrition assessments in Hargeisa and Burao IDP settlements indicated a slight deterioration in the nutritional status of the population from the previous assessments, while the rates remained unchanged in Berbera IDP settlement, which recorded the highest global acute malnutrition (GAM) rates among the three IDP settlements (see figure 1). The GAM (WHZ<-2 or oedema) rate for Hargeisa was **10.3% (CI 8.4-12.2),** and the severe acute malnutrition rate (SAM) (WHZ<-3 or oedema) was **1.2% (CI 0.6-1.9).** In Burao the GAM (WHZ<-2 or oedema) rate was recorded at **15.8%,** while SAM (WHZ<-3 or oedema) was **1.4%** and lastly in Berbera GAM (WHZ<-2 or oedema) rate was **16.0%** and SAM (WHZ<-3 or oedema) rate was **0.6%.** Mortality data was analyzed for Hargeisa protracted IDP population only, as the sample size in Burao and Berbera protracted IDP settlements was too small to compute the crude and under five mortality rates. In Hargeisa protracted IDPs settlements the crude mortality rate (CMR) of **0.90** (CI: 0.55-1.23) and under five mortality rate (U5MR) of **1.42** (CI: 0.68-2.71) per 10,000/day were within acceptable levels. A total of 913 households were assessed for the mortality indicator, the main cause of death in children <5 years and adults was diarrhoea.

The percentage of children who had suffered from one or more communicable childhood diseases in the two weeks prior to the assessment was 26.9% in Hargeisa, 24.3% in Burao and 26.5% in Berbera IDP settlements. In Hargeisa, 15.4% of the children reportedly had ARI, 12.8% in Berbera and 9.6% in Burao. In Burao, 10.3% of the children reported fever (malaria/febrile illness), 3% in Hargeisa and 2.9% in Berbera. These morbidity rates can be attributed to the lack of quality health services and poor sanitation in the settlements. The RDT results also indicated a low prevalence of malaria in Hargeisa 0.5%, and non in Berbera and Burao IDP settlements. In all the IDP settlements, the percentage of suspected measles cases one month prior to the assessment in children in all the IDP settlements was <3%. Skin diseases were noted in Berbera IDP settlements among the women and the children, and were mainly attributed to the high climatic temperatures experienced at this time of the year.

Figure 2: Comparison of reported cases of Diarrhoea and Rates of Acute Malnutrition



However, a high proportion of children reported to have suffered from diarrhoea in the two weeks prior to the study in all the IDP settlements. The highest rate of diarrhoea was in Berbera IDP settlement **(16.3%)**, followed by Hargeisa **15.8%**, and **12.7%** in Burao IDP settlements. The Berbera protracted IDP settlements recorded the highest acute malnutrition rate amongst the three towns and had the highest rate of diarrhoea. In all the settlements, there was a significant relationship between acute malnutrition and reported diarrhoea **(P<0.05)**. Poor sanitation and hygiene was reported in all the settlements. In Hargeisa IDP settlements, **68.4%** had access to sanitation facilities, while in

Berbera IDP settlements **67.5%** had access to sanitation facilities. Just over half of the population in Burao **(55%)** had access to sanitation facilities. The proportion of households that did not have access to sanitation facilities are more likely to be predisposed to diarrhoeal diseases. On the other hand, it was noted that in all the settlements a significant proportion of the households had access to safe protected water **(>80%),** even though this is the case, efforts should be made to ensure that all the households within the settlements have access to safe protected water. There was a significant difference in the nutrition status of children aged 6-29 months and those 54-59 months. The older children were two (RR=2.09) times more likely to be acutely malnourished than their younger counterparts, this indicates that the overall household food insecurity is likely to be poor and is having an impact on the nutritional status of the older children who eat from the family plate. The feeding frequency was also low for the children in all the settlements, with <50% of the children being fed <5 times a day. Disease and child care practices are a contributing factor to acute malnutrition, especially in the younger children (<29 months).

Vitamin A supplementation was low in Hargeisa (60.9) but in Burao (90.4%) and Berbera (92.7%) it was close to the Sphere 2004 recommended coverage of 95%. It is crucial to note that during the assessment, a nationwide vitamin A supplementation exercise was underway and therefore the coverage is likely to be higher. None of the households reported any cases of night blindness. Immunization coverage for measles in the IDP settlements was below the recommended standards, in Hargeisa, the proportion of children immunized against measles was 58.3%, in Burao 61.3% and in Berbera 78.6%. Polio vaccination was far also below the recommended coverage, apart from Hargeisa (89.4%), in Burao the proportion of children immunized was 63.1% and in Berbera 52.4%, however, the polio nationwide campaign was also being conducted during the time of assessment and it is anticipated that the coverage will increase.

As expected among the urban populations, due to increased availability of food, dietary diversity in all the IDP settlements was high, with a significant proportion (>70%) of the households consuming four or more food groups in the preceding 24 hours. However less than half of the children aged 6-24 months in all the IDP settlements (Hargeisa 33.8%, Burao 32.4% and Berbera 45.5%) were fed ≥ 5 times a day as recommended. A low percentage of the children aged 6-24 months were introduced to complementary foods at the recommended 6 months of age (Hargeisa 9%, Burao 8.6% and Berbera 5.5%). As for the children who were still breastfeeding, more than 80% of them in Hargeisa and Berbera were fed on demand, while only 65.8% were fed on demand in Burao IDP settlements.

The ongoing nutrition interventions in the IDP settlements by UNICEF include therapeutic feeding in Hargeisa and therapeutic and supplementary feeding in Burao and Berbera. Plans are underway in Burao, for WFP to support the affected children in the feeding centres with a take home ration. In Berbera, UNICEF in partnership with the local health authorities and LNGO are conducting cleaning campaigns in the settlements, chlorination of water sources and community sensitization on the importance of proper sanitation, there is also diarrhoea treatment centre in Berbera hospital. In Burao there is a deworming programme with the sub national polio campaign, being conducted by WHO, MOHL and UNICEF.

The chronic poor nutrition situation, in all the IDP settlements can mainly be attributed to lack of adequate access to proper sanitation, high morbidity and poor child care practices. The nutritional status of the children in Berbera was of most concern, and has shown no improvement in the last year (2006 to 2007). Berbera town was also one of the most affected by the recent Acute Watery Diarrhoea (AWD) outbreak in the NWZ; it still has the highest rate of diarrhoea and malnutrition, emphasizing the link between diarrhoea and malnutrition (P=0.005). Therefore there is a need in all the settlements to expand the delivery of basic health services and to ensure access to these services. Health education is also imperative to assist the community in making informed decisions on health matters. There is also need to improve the water quality in all the settlements. Proper sanitation issues should be addressed such as providing adequate sanitation facilities to help control the spread of diarrhoea diseases in the settlements, and provision of adequate clean and safe water. Rehabilitation of acutely malnourished children and women through the health centres should continue; this should be followed up with intensified nutrition and health education programmes focusing on child care practices. Majority of the households main source of food is through purchasing, therefore they should have access to earning a decent source of income to be able to improve the food security in the households, and this can be done by implementing income generating activities in the area. Lastly monitoring of the nutritional and food security situation in the area should continue given the high nutritional vulnerability.

Summary of Assessment Findings

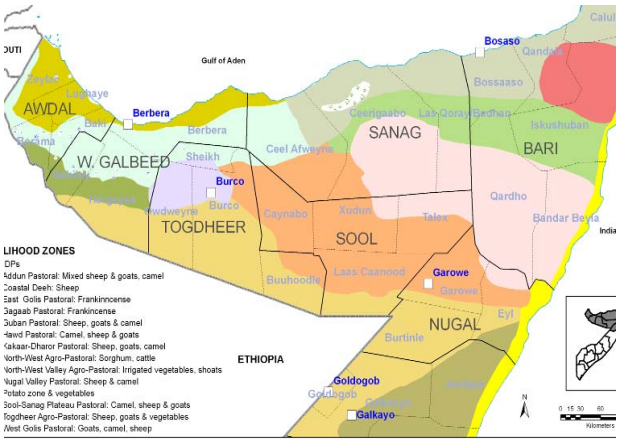
Table 1: Summary of Survey Findings in Hargeisa, Burao and Berbera Protracted IDPs

Indicator	Hargeisa			Burao		Berbera	
	No	**%**	**(95% CI)**	**No**	**%**	**No**	**%**
Total number of households surveyed	503	100		184	100	173	100
Mean household size	7.02		± 2.8	7.02	± 2.8	7.3	± 2.4
Mean number of children <5 per household	1.8		± 0.8	1.62	± 0.75	1.8	± 0.83
Total number of children assessed	907			292		313	
Child Sex: Males (boys) Female (girls	 431 476	 47.5 52.5	 43.6-51.3 48.6 -56.3	 147 145	 50.3 49.7	 161 152	 51.4 48.6
Global Acute Malnutrition (WHZ<-2 or oedema)	93	**10.3**	8.4- 12.2	46	**15.8**	50	**16.0**
Severe Acute Malnutrition (WHZ<-3 or oedema)	11	**1.2**	0.6- 1.9	4	**1.4**	2	**0.6**
Global Acute Malnutrition (WHM<80% or oedema)	60	6.6	5.0- 8.3	25	8.6	32	10.2
Severe Acute Malnutrition (WHM<70% or oedema)	2	0.2	0- 1.0	1	0.3	0	0
Proportion of children reported to have had diarrhoea 2 weeks prior to assessment	143	15.3	11.8- 19.7	37	12.7	36	19.4
Proportion of children reported with ARI within 2 weeks prior to assessment	139	15.4	11.3- 19.4	28	9.6	58	31.2
Proportion of children reported with Febrile illness 2 weeks prior to assessment	27	3.0	0.9- 1.2	30	10.3	2	1.1
Proportion of children with suspected measles one month prior to assessment	19	2.2	0.8- 3.6	3	1.1	4	2.3
Proportion of Children (9-59 months) immunized against measles(by recall/ or card) (N=878)	498	58.3	52.3- 64.5	176	63.1	152	52.4
Proportion of Children who have received polio vaccine (by recall or card)	809	89.4	86.5- 92.5	264	90.4	290	92.7
Proportion of Children who received vitamin A supplementation in last 6 months or before	51	60.9	53.6- 68.2	179	61.3	246	78.6
Proportion of Children 6-24 months reported to be introduced to other foods at <6 months	300	89.0	85.1- 92.1	94	89.5	137	94.5
Proportion of children 6-24 months reported to be breastfeeding (N=270)	152	45.1	39.3-50	38	36.2	84	57.9
Proportion of households reported to have consumed ≤3 food groups (N=456)	96	19.1	15.8- 22.9	52	28.6	45	26.6
Proportion of households that consumed ≥4 food groups	407	80.9	77.1- 84.2	130	71.4	124	73.4
<5 Mortality Rate (U5DR) as deaths/10,000/ day	**1.42**		0.68- 2.71				
Crude Death Rate (CDR) as deaths/10,000/ day	**0.90**		0.55- 1.25				

1.0 Introduction

1.1 Background - Hargeisa, Burao and Berbera Settlements

Figure 3: IDP camps in Hargeisa, Burao and Berbera Towns



The north west region comprises of the areas, formerly known as British Somaliland Protectorate. Hargeisa town is the biggest urban setting in the northwest and is the capital town (headquarter) of Somaliland. Hargeisa is located in an enclosed valley in a mountainous area called Galgodon (Ogo) highlands in the western section of the country. It is 1334 meters (4,377 feet) above sea level. This altitude gives Hargeisa and the surrounding area a milder climate than the Gulf of Eden coastal area. The temperature ranges between 13 and 32 degrees Celsius. Hargeisa town concentrates public administration, private sector and international community interventions. It is the destination for a large number of refugees, returnees and IDPs hosting over 72,500 displaced populations, 60% of whom were returnees. A considerable number of refugees from the Ethiopian camps (Camoboker, Rabasso, Daror) choose Hargeisa as their zone of repatriation (IGAD/UNDP/UNHCR, June 2002). It is perceived that the majority of IDPs are women and children. Since 1997 more than 80,000 of UNHCR's "official" returnees to Somaliland from camps in Ethiopia have selected Hargeisa as their chosen destination. Several returnee settlement areas have sprung up on the outskirts of Hargeisa during the 1990s and have grown considerably since UNHCR began its voluntary repatriation programs in 1997. Many have been settled in permanent settlement areas in Sheikh Nur, and Mohammed Mooge. Most are still in temporary settlements in five different areas (State House, Ayaha, Stadium, Aw Aden and Daami) and a lot more are unaccounted for scattered in different sites within the municipality, and the number of those moving to these temporary structures is increasing due to lack of rent in for the town houses. Three nutrition surveys by UNICEF/FSAU and partners in 2001, 2003 and 2005 conducted within these settlements showed poor health, sanitation, dwelling, economic and food security conditions indicated serious but stable levels of global acute malnutrition (10% WHZ<-2 or oedema).

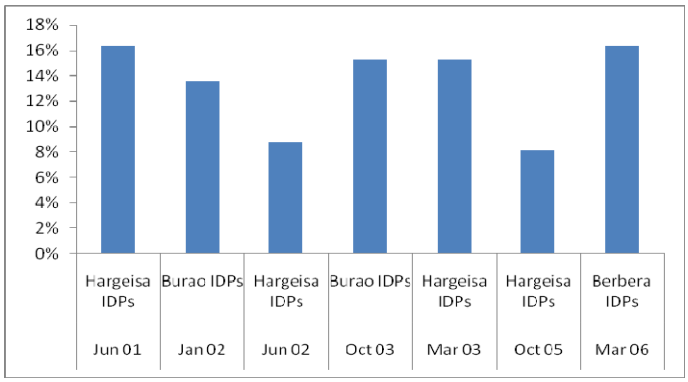
Burao town in Burao District is the biggest urban town in Togdheer region, in Somaliland, and is the second largest city after Hargeisa, in terms of population. The weather in Burao, much like other inland towns in Somaliland, is warm and dry year round. The average daytime temperatures during the summer months of June-August can rise to 35°C (95°F), with low of 25°C (77°F) at night. The weather is cooler the rest of the year and is 27°C (80°F) during the day and 14°C (57°F) at night time. The city's limited rainfall usually comes in December and May. Burao's central location contributes to the economic activity of the town. Goods travelling to the south, central and eastern Somalia all depart from the outer skirts of the town. It is this economic growth that has created the potential for employment/income opportunities thus attracting returnees and internally displaced persons, who are in search of a livelihood. The town hosts four main returnee/IDP settlements namely, Kosaar, Aden Suleiman, Yiroowe and Ali Hussein. The majority of the settlement inhabitants of over two thousand are returnees and displaced people from south Somalia and Ethiopia and although some have been in the area for over ten years, new arrivals from Ethiopia continue to join these informal settlements. In Burao, the problem of displacement started in 1988 when war broke between Somali National Movement (SNM) and the defunct Somalia government, which led to massive displacement of the people to Ethiopia. In January 1991 a civil war erupted between power struggle groups within the sub clans of Burao, which once again paved the way to further displacement of the people of Burao to the neighbouring areas including Ethiopia. After reconciliation between the various groups, another civil war later started in March 1993 up to December 1996. A peace agreement was reached between the government and the opposition whose stronghold was Burao town. The peace encouraged the people to return home mainly from Ethiopia either spontaneously or through the implementation of the voluntary repatriation programme by UNHCR since February 1997. The continued unrest in South and central Somalia has also led to the emergence of the resettlement camps in Burao. Two nutrition surveys by FSAU and partners in 2003 and 2005 conducted within these settlements indicated critical levels of global acute malnutrition (15-19.9% WHZ<-2 or oedema).

Berbera is one of the five districts in Sahil region. Berbera town is the capital of the region and serves as the main entry

port for imported commodities to Somaliland and of late to Ethiopia. The imports include non-food items (like clothes, soaps, fuel, equipment, machinery, non-food household items etc) and food items (mainly rice, wheat flour, cooking oil, sugar, milk powder and pasta). It also serves as the main export facility for livestock to the Gulf States. There are two main ecological systems in Sahil, namely the coastal (*Guban)* and the mountainous belts (*oogo)*. Significant variations in the weather patterns occur in these ecological zones leading to movements of population within the region in some periods of the year. The coastal belt is usually cold between the months of November and January while May to September is normally characterized by adverse hot and windy weather conditions. Thus, there is normally population movement from the coastal belt to cool mountainous areas in May and return in August. The main livelihoods in Berbera district are urban and pastoral. Following the prolonged livestock ban, which was lifted in 2002, urban population has gradually increased and emerged as the major livelihood. Fishing activities are also undertaken along the beaches of the Gulf of Aden. The residents of Berbera town depend on Berbera port related activities as the main source of livelihood. Small scale trading and other related port activities are, therefore, by far the main sources of income. Berbera continues to attract a large number of populations not only from the region but also from different parts of Somaliland largely in search of employment opportunities at the port. Thus, the town remains the biggest economic base in the region. The economic activities in Berbera include porting, employment in both government sectors and expanding private businesses, transportation of animals to the port as well as domestic work in individual houses. Small scale trading and remittance also contributes as income sources to the community of the town. Fishing also plays a significant role as source of livelihood for some people not only in Berbera town but also in other coastal villages. The fish is mainly sold to the restaurants in Hargeisa. The latest nutritional assessment was carried out in March 2006, and revealed a global acute malnutrition rate of 16.3% (WHZ<-2) and severe acute malnutrition 2.2%, (WHZ<-3), higher than the typical levels estimated in the surrounding settled population but consistent with levels seen in other displaced and urban poor groups.

1.2 Assessment Justification

Figure 4: NWZ IDP Trends in Global Acute Malnutrition (-2 Z score WHZ) 2001-2006



FSAU and partners continue to undertake nutrition surveillance activities in the north west regions of Somalia and beyond, these include rapid assessments, health facility surveillance and nutrition surveys to determine the nutritional status of the populations. An update of the nutrition situation was proved through a rapid MUAC assessments of over 3000 children in addition to visit visits to MCH facilities during the Gu assessments of July 2007, however the data collected excluded the nutrition information of the IDPs. The previous nutrition assessments carried out among the IDPs in Hargeisa, Berbera and Burao was done in 2005/2006. Since then, humanitarian and development interventions have been implemented in the settlements by MOHL, UNICEF, WFP, UNHCR, WHO, NRC and DRC in Hargeisa and Burao. Subsequently, there was a need to evaluate any change in the health and nutrition situation of the returnees/IDPs compared to the situations during the previous year, to assess the current magnitude of acute malnutrition and food insecurity among the protracted IDP/ returnees population and in addition to validate the data obtained from facility-based surveillance and qualitative information collected by FSAU and partners.

Assessment Objectives

1. To estimate the prevalence of acute malnutrition and nutritional oedema among children aged 6-59 months or with height/length of 65-109.9cm.
2. To identify underlying causes of acute malnutrition in children in the area of assessment.
3. To estimate the prevalence of some common diseases (measles, diarrhoea, malaria, and ARI) in the area of assessment.
4. To estimate the dietary diversity status of the population in the study areas.
5. To estimate measles and polio vaccination and Vitamin A supplementation coverage among children in the areas of assessment.
6. To estimate the crude and under-five mortality rates in the areas of assessment.
7. To determine the malaria prevalence in the area by using rapid diagnostic testing kits in the study area.
8. To trial the Lot Quality Assurance Sampling Methodology (LQAS) along side the standard 30x30 cluster sampling and compare results of both methods to test its feasibility for use in future assessments.

2.0 Methodology

Three cross-sectional studies were concurrently conducted in the population of Hargeisa, Burao and Berbera protracted IDP settlements. Both qualitative and quantitative data collection techniques were used. Quantitative data was collected through a standard household questionnaire for nutrition assessments in Somalia (see appendix 2). Retrospective mortality data for 90 days prior to the assessments and Rapid Diagnostic Test (RDT) for malaria was also collected among the study households using the standard questionnaires (see appendix 3). Quantitative data collected included household characteristics; child anthropometry, morbidity; vitamin A supplementation, measles and polio immunization coverage; dietary diversity; malaria related data, water and sanitation. Qualitative data was collected through focus group discussions and key informant interviews to provide further understanding of possible factors influencing nutritional status.

In Hargeisa, two-stage cluster (30 by 30) sampling methodology was used to select 30 children aged 6-59 months and height/length of 65-109.9 cm from each of the 30 clusters in the study area, while in Burao and Berbera, exhaustive studies were carried out, ensuring that all the children within the study area were assessed. A list of all settlements[1] within Hargeisa study area with their respective population estimates formed a sampling frame that was used to construct cumulative population figures for the assessment area from which 30 clusters were randomly drawn. Retrospective mortality data was collected from 30 households in each cluster from each livelihood including even those that did not have children aged 6-59 months. In Hargeisa, the Lot Quality Assurance Sampling Methodology was tested alongside the standard 30x30 cluster sampling. The same sampling frame was used, although instead of selecting 30 clusters, 33 clusters were selected and 6 children assessed in every cluster as opposed to the usual 30 children per cluster. The same questionnaire tools were used and the same data collected, however, mortality data was not collected due to the small sample size. A brief report is available in appendix 1 of this document. In Burao and Berbera all houses within the area with children aged 6-59 months and height/length of 65-109.9 cm were assessed.

A four-day training of enumerators and supervisors was conducted in Hargeisa, the training focused on methods of collecting quality data and covered interview techniques, sampling procedure, inclusion and exclusion criteria, sources and reduction of errors, taking of measurements (height, weight and MUAC), undertaking malaria RDTs, standardisation of questions in the questionnaire, levels of precision required in measurements, diagnosis of oedema and measles, verification of deaths within households, handling of equipment, and the general courtesy during the assessment. The training stressed the importance of quality data collection and used the Nutrisurvey Quality Checks software to demonstrate quality data collection checks.

Standardization of measurement and pre-testing of the questionnaire and equipment were carried out in one of the new IDP camps in Hargeisa, which was not part of the sampling frame. Quality of data was also ensured through (i) monitoring of fieldwork by coordination team, (ii) crosschecking of filled questionnaires on daily basis and recording of observations and confirmation of measles, severe malnutrition and death cases by supervisors. (iii) daily review was undertaken with the teams to address any difficulties encountered, (iv) progress evaluation was carried out according to the time schedule and progress reports shared with partners on regular basis, (v) continuous data cleaning and plausibility checks (vi) monitoring accuracy of equipment (weighing scales) by regularly measuring objects of known weights and (vii) continuous reinforcement of good practices.

All measurements were clearly stated by both the enumerators reading and recording them to reduce errors during recording. Data quality was also checked using the Nutrisurvey plausibility check, see appendix for details. Household and child data was entered, processed (including cleaning) and analysed using EPI6 software. Mortality data was entered and crude and < 5 child mortality rates generated in Nutrisurvey software.

[1] Ayhaya(A and B), Mohammed Mooge, Shiekh Nur, Stadium, Daami and State House

3 Assessment Results

3.1 Household Characteristics of Study Population

In Hargeisa, where the standard 30x30 cluster sampling was used a total of 504 households were assessed, while in Burao and Berbera where exhaustive assessments were carried out, the total households were 184 and 173 respectively. In Hargeisa, Burao and Berbera, the mean household size was 7.0 (± 2.8), 7.0 (± 2.7) and 7.3 (± 2.4) respectively.

Table 2: Summary of Household Characteristics of Study Households

	Hargeisa		Burao		Berbera	
Characteristics	**N**	**%**	**N**	**%**	**N**	**%**
Total number of HHs assessed	504	100	184	100	173	100
Household Size	7.0	(± 2.8)	7.02	(± 2.7)	7.3	(± 2.4)
Number of Under fives	905	100	292	100	313	100
Mean No. of ≤ 5	1.8	± 0.8	1.6	± 0.7	1.9	± 0.9
Duration of Stay:						
< 3 months	14	2.6	10	5.5	6	3.6
4-12 months	15	3.0	10	5.5	14	8.3
1-2 years	48	9.5	14	7.7	42	24.9
> 2 years	427	84.9	148	81.3	107	63.3
Origin:	(N=504)		(N=182)		(N=169)	
Somaliland	184	36.5	110	60.4	134	79.3
Southern Somalia	8	1.5	9	4.9	21	12.4
Ethiopia	296	58.7	59	32.4	14	8.3
Other	16	3.17	4	2.2		
Reason for Migration	(N=504)		(N=182)		(N=169)	
Returning home	350	69.4	70	38.5	4	2.4
Civil Insecurity	12	2.4	62	34.1	19	11.2
Seeking employment	72	14.2	9	4.9	103	60.9
Food Shortage/Insecurity	50	9.9	10	5.5	41	24.3
Pasture/Water Shortage	5	0.9	18	9.9	0	0

The mean number of under fives in the households in all the assessments was 1.7 (±0.8). Most of the IDP households in Burao (60.4%) and Berbera (70.3%) migrated from within Somaliland, whilst in Hargeisa, over half (58.7%) of the IDP households were from Ethiopia. The main reasons for migration was IDPs returning home (Hargeisa 69.4% and Buaro 38.5%) and seeking employment (Berbera 60.9%) as illustrated in table 4.

Berbera town serves as a port with a potential of offering employment opportunities, hence the main reason for migration of households into this town was to seek employment, which was different compared to Hargeisa and Burao, where the main reason for migration was households returning home from Ethiopia. Most of the IDPs and vulnerable groups in all the areas had resided in their current location for more than two years (Hargeisa 84.9%, Burao 81.3% and Berbera 63.3%).

Table 3: Distribution of Households by Main Sources of Income

Main Source of Income	Hargeisa (N=905)		Burao (N=184)		Berbera (N=173)	
	N	**%**	**N**	**%**	**N**	**%**
Animal and Animal Products	25	5.0	0	0	0	0
Trade	379	75.3	25	13.7	26	15.4
Casual Labour	19	3.8	127	69.8	120	71.0
Salaried/Wage employment	3	0.6	16	8.8	10	5.9
Remittances	70	13.9	1	0.5	0	0
	6	1.2	13	7.1	13	7.7

Generally the main source of livelihood in the towns was petty trade and casual labour. In Burao (69.8%) and Berbera (71.0%) the main source of income was casual labour, while in Hargeisa trade (75.3%), was the main source of income.

Very few of the households in all the IDP settlements relied on animal and animal product sales and salaried/waged employment as a source of income. In Hargeisa a low percentage of the households (5.0%) sold animals and animal products for an income, in Burao and Berbera there were no IDP households that traded animals or animal products. The remaining proportions of the households relied on remittances and gifts from well wishers as their source of income as illustrated in table 5.

3.2 Characteristics of Assessed Children

In Hargeisa, a total of 907, children aged 6 – 59 months were assessed and 292 and 313 in Burao and Berbera respectively in all the assessments. In all groups the sex ratio of boys to girls was 0.9 in Hargeisa, 1.01 in Burao and 1.05 in Berbera. All were within the acceptable range of 0.8 to 1.2 according to CDC/WHO indicating a non biased sample selection. The sampled children indicated a typical distribution according to age group with the 54 – 59 months category reporting the lowest (10.1% in Hargeisa, 8.6% in Burao and 7.0% in Berbera) proportion. As illustrated in figure 6, the age distribution is typical for a normal population indicating that there was no bias in the selection of children.

Figure 5: Distribution of Children according to Sex

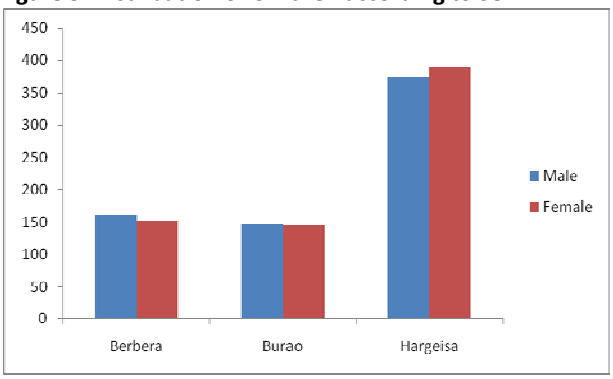
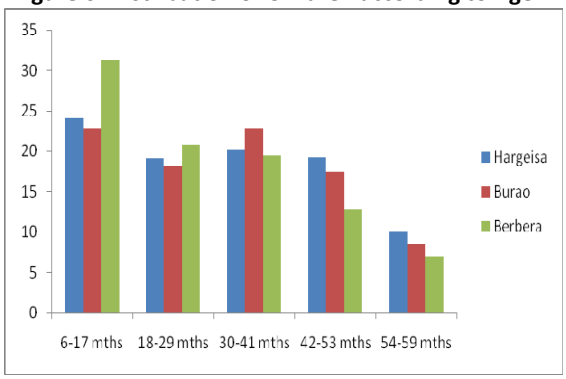


Figure 6: Distribution of Children according to Age



3.3 Nutritional status of assessed children using anthropometry

Table 4: Summary of Global Acute malnutrition and Severe Acute Malnutrition

	Hargeisa		Burao		Berbera	
Malnutrition Rates	**No**	**%**	**No**	**%**	**No**	**%**
GAM (<-2 Z score or oedema)	93	10.3% (8.4-12.2)	46	15.8	50	16.0
SAM (<-3 Z score or oedema)	11	1.2% (0.6 -1.9)	4	1.4	2	0.6

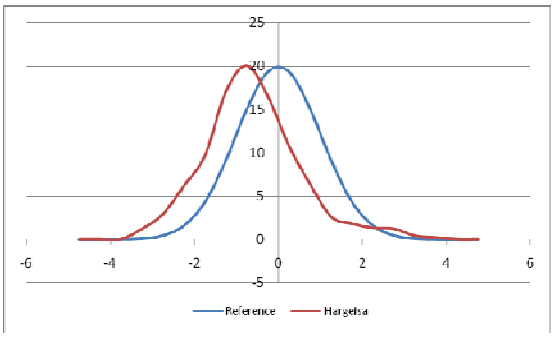
Using weight for height indicator, the global acute malnutrition (WFH <-2 Z scores or oedema) was 10.3% (CI: 8.4-12.2) among the Hargeisa IDP population, 15.8% in Burao and 16.0% in Berbera. Severe acute malnutrition (WFH <-3 Z scores or oedema) was 1.2% (CI: 0.6-1.9) 1.4% in Burao and 0.6% in Berbera. There was no oedema cases reported in all the three settlements. The results indicate a serious nutrition situation in all the three IDP settlements, according to WHO classification. In Hargeisa, the results are on the borderline, of the alert thresholds, while for Berbera, the results are serious. In comparison to the previous nutritional assessments conducted in the all the three IDP settlements, the situation shows a slight deterioration in the last year.

Table 5: Distribution of children by nutritional status (WHZ-score or oedema) and child sex

Sex	**Hargeisa**				**Burao**				**Berbera**			
	SAM (WH<-3Z)		**GAM (WH<-2Z)**		**SAM (WH<-3Z)**		**GAM (WH<-2Z)**		**SAM (WH<-3Z)**		**GAM (WH<-2Z)**	
	N	%	N	%	N	%	N	%	N	%	N	%
Male	6	1.4 0.4-2.4	48	11.2 8.0-14.4	3	2.0	30	20.4	1	0.6	30	18.6
Female	5	0.8 0.1-1.6	45	9.5 7.3-11.6	1	0.7	16	11	1	0.7	20	13.2

In Hargeisa, 11.2% of the boys were acutely malnourished, 20% in Burao and 18.6% in Berbera, compared to girls Hargeisa (9.5%), Burao (11%) and Berbera (13.2%). In all the three settlements, a higher proportion of boys were acutely malnourished compared to the girls. There was a significant statistical difference in acute malnutrition between the sexes in Burao, the boys were more malnourished than the girls (P=0.03). There was no oedema cases reported in any of the settlements. The mean WHZ was -0.58 in Hargeisa, -0.78 in Burao and -0.85 in Berbera. The standard deviation of WHZ for all three study groups was within the expected range of 0.8 to 1.2 indicating that there were no substantial random errors in the measurements.

Figure 7: Distribution of Weight for Height Z Scores



As shown on figure 7, the distribution of the weight-for-height Z scores were skewed towards the left indicating a poorer nutrition situation according to international (WHO) standards. The Skewness of WHZ score for Hargeisa was -0.61, all these measurements was within the acceptable range of plus or minus one. The observed skewness in all the study groups indicates that there was a symmetrical distribution of the curve around the mean as observed in normal distributions. All age group categories reported some level of acute malnutrition with the younger children indicating slightly higher proportions of acutely malnourished children. Table 6 below illustrates the distribution of malnutrition rates by age:

Table 6: Distribution of Acute Malnutrition by Age

Age groups	Hargeisa				Burao				Berbera			
	SAM (WH<-3Z)		GAM (WH<-2Z)		SAM (WH<-3Z)		GAM (WH<-2Z)		SAM (WH<-3Z)		GAM (WH<-2Z)	
	N	%	N	%	N	%	N	%	N	%	N	%
6- 17 mths	3	1.3	32	14.6 (10.33 - 18.89)	2	3.0	9	13.4	1	1.0	14	14.3
18-29 mths	2	1.1	15	8.6 (4.20 - 13.14)	1	1.9	7	13.2	5	7.7	14	21.5
30-41 mths	0	0	10	5.2 (2.11 - 8.40)	1	1.5	7	10.4	0	0	5	8.2
42-53 mths	3	1.7	16	9.14 (5.38 - 12.90)	0	0	13	25.5	5	12.5	10	25
54-59 mths	3	3.2	15	16.3 (8.3 - 24.12)	0	0	6	24.0	0	0	4	18.2

The children aged 6-29 months in Hargeisa were more likely to be acutely malnourished, compared to the other children in the 30-59 months age groups (RR= 1.6, P=<0.05), as illustrated in table 8. The children aged 54-59 months were also almost three times (RR=2.9) more likely to be severely malnourished compared to their younger counterparts. Malnutrition in children aged 6-29 months could mainly be attributed to diarrhoea and child care practices, while the main reason for acute malnutrition in their older counterparts 30-59 months is more likely to be related to food access and availability as older children are more affected by the overall household food security given they eat the same number of meals and from the same pot as the adults, therefore possibly indicating a compromised household food security situation. In Burao and Berbera the children below 30 months and the children between 42 and 59 moths of age were the most affected by acute malnutrition. In all the towns, it was noted that the children between the ages of 30-53 months were the least malnourished and had the least number of severe malnutrition cases.

Table 7: Prevalence of Acute Malnutrition using WFH percentage of median categories

Nutrition status categories	*Hargeisa*						*Burao*						*Berbera*					
	Males		Females		Total		Males		Females		Total		Males		Females		Total	
	n	%	n	%	n	%(CI)	n	%	n	%	n	%	n	%	n	%	n	%
GAM (WFH<80% or oedema)	30	7.0	30	6.6	60	6.6 (5.0-8.3)	17	11.6	8	5.5	25	8.6	18	11.2	14	9.2	32	10.2
SAM (WFH<70% or oedema)	0	0	1	0.2	1	0.1 (0-0.3)	0	0	1	0.7	1	0.3	1	0.6	1	0.7	2	0.6

The global acute malnutrition among children aged 6 – 59 months using weight for height <80% of median or presence of oedema was 6.6% (5.0-8.3), 8.6% and 10.2% in Hargeisa, Burao and Berbera respectively. The severe acute malnutrition <70% of median or presence of oedema was 0.1% (0-0.3), 0.3% and 0.6% in Hargeisa, Burao and Berbera respectively.

Table 8: Prevalence of chronic malnutrition based on (HAZ <-2 Z scores) and (WAZ <-2 Z scores)

Nutrition status categories	*Hargeisa*						*Burao*						*Berbera*					
	Males		Females		Total		Males		Females		Total		Males		Females		Total	
	n	%	n	%	n	%(CI)	n	%	n	%	n	%	n	%	n	%	n	%
Total chronic malnutrition (HFA<-2)	99	23	92	19.3	191	21.1 18.05-24.06	24	16.3	20	13.8	44	15.1	40	24.8	23	15.1	63	20.1
Underweight (WAZ<-2)	96	22.3	80	16.8	176	19.2 15.9-22.68	36	24.5	27	18.6	63	21.6	58	36	35	23	93	29.7

The prevalence of chronic malnutrition defined as height for age <-2 Z score was 21.1% (18.05 -24.06) in Hargeisa, 15.1% in Burao and 20.1% in Berbera, all these levels were well above the threshold of (WHO). The prevalence of underweight malnutrition defined as weight for age <-2 Z score was 19.2% (15.9 - 22.68) in Hargeisa, 21.6% in Burao and 29.7% in Berbera. In Berbera IDP settlement, the boys were more stunted than the girls (RR=1.31and P= 0.03), and were also more underweight than the girls (RR=1.33 and P=0.012). Berbera IDP settlements recorded the highest rates of acute, chronic and underweight malnutrition amongst all the IDP settlements.

Table 9: Nutrition status of Children (12-59 months) by MUAC

	Hargeisa (N=799)		Burao (N=255)	
Malnutrition Rates	**No**	**%**	**No**	**%**
Severe (MUAC <11 cm/ oedema)	2	0.3	0	0
Moderate (11≤MUAC<12.5 cm)	24	3.0	19	7.5
Total (MUAC <12.5 cm or oedema)	26	3.3	19	7.5
At risk (MUAC 12.5- <13.5 cm)	82	10.3	36	14.1
Normal (MUAC >=13.5 cm)	675	84.5	191	74.9

Mid upper arm circumference (MUAC) measurements for children aged 12-59 months, was recorded for children in Hargeisa and Burao. Data was also collected for Berbera but during the data collection, activity, the measurements on the MUAC tapes were wiped out due to the extremely high temperatures in the area. Therefore the data for Berbera is not accurate and will not be reported.

A higher proportion 7.5% of the children in Burao were identified as severely and moderately malnourished while 3.3% was the total prevalence of acute malnutrition for the children in Hargeisa based on MUAC. In Burao, there were no cases of children with MUAC measurement <11cm, or severely malnourished. In Hargeisa, two children were identified. Hargeisa had the highest proportion of children with normal MUAC measurement of >13.5 (84.5%), followed by Burao (74.9%).

3.4 Access to Water and Sanitation Facilities

Table 10: Distribution of Households Main Sources of Income

	Hargeisa		Burao		Berbera	
	N	%	N	%	N	%
Access to Safe Protected drinking Water	426	84.9	165	90.7	148	87.6
Access to Sanitation Facility (toilet or latrine)	344	68.4	127	55	114	67.5

In all the settlements more than 80% of the households had access to clean water for domestic use. This is relative high proportion of a population that access water compared to other areas in Somalia; however it is important to note that about 20% of the population still do not have access to safe or protected water. Slightly over half of the population in all the settlements had access to sanitation facilities. The lack of safe and protected water and the poor sanitation in sections of the settlements predisposes members to water borne diseases.

3.5 Health Seeking Behaviour

Table 11:Health seeking behaviour

	Hargeisa (N=907)		Burao (N=292)		Berbera (N=313)	
	N	**%**	**N**	**%**	**N**	**%**
Child fell sick?						
Yes	244	26.9	71	24.3	83	26.5
No	663	73.1	221	75.7	230	73.5

	N=244		N=71		N=83	
Where assistance was sought						
No assistance sought	49	21.8	18	25.4	5	6.0
Own Medication	11	4.9	1	1.4	6	7.2
Traditional healer	9	4.0	3	4.2	0	0
Private Clinic	123	54.7	10	14.1	31	37.3
Public health facility	33	14.7	39	54.9	41	49.4

In all the settlements about a quarter of the children reportedly fell sick in he two weeks prior to the study (Hargeisa 27%, Burao 24% and Berbera 26%). In Hargeisa, over half of the sick children were treated in private clinics (54.7%), while 21.8% of the children sought no assistance at all, the remaining percentage of children were treated in public health facility, by traditional healers and through self medication.

Figure 8: Child Suffering with Skin Disease in Berbera

In Burao, slightly over half the sick children were treated in public health facilities (54.9%), while 25.4% of the children did not seek any medical assistance. In Berbera half (49.4%) of the sick children were treated in public health facilities, while the remaining were mainly treated in private clinics (37.3%), a small percentage self medicated, while the rest sought no assistance at all. In Berbera, many adults and children reported skin diseases; this was mainly reported to be due to the hot temperatures in the area, this is illustrated in figure 8. Women and children were the ones mostly affected by the skin diseases. Many individuals migrate at this time to cooler areas because of the hot temperatures in the towns.

3.6 Morbidity, measles immunisation, polio vaccination and vitamin A supplementation

3.6.1 Morbidity and Health Programs Coverage

Overall, at least about a quarter of the children had suffered from one or more communicable childhood diseases during the two weeks prior to the assessment. As shown in table 14, diarrhoea and ARI, were the main diseases affecting the children.

Table 12: Morbidity, measles immunisation, polio vaccination and vitamin A supplementation

Incidence of major child illnesses	Hargeisa (N=907)		Burao (N=292)		Berbera (N=313)	
	n	%	n	%	n	%
Proportion of children with diarrhoea in 2 weeks prior to assessment	143	15.8 (11.8-19.7)	37	12.7	51	16.3
Proportion of children with ARI within 2 weeks prior to assessment	139	15.4 (11.3-19.4)	28	9.6	40	12.8
Children with febrile illness in 2 weeks prior to assessment	27	3.0 (0.9-1.2)	30	10.3	9	2.9
Suspected measles within one month prior to assessment	19	2.2 (0.8-3.6)	3	1.1	2	0.7
Immunization Coverage						
Children (9-59 months) immunised against measles	498	58.3 (52.3-64.5)	179	61.3	246	78.6
Children who have ever received polio vaccine	809	89.4 (86.5-92.5)	176	63.1	152	52.4
Children who received vitamin A supplementation in last 6 months	551	60.9 (53.6-68.2)	264	90.4	290	92.7

The prevalence of measles and malaria in all the children in the study was relatively low. The outbreak of acute watery diarrhoea in Somaliland since January 2007 affected all the IDP settlements. Measles immunization coverage for eligible children (9 – 59 months old) was 58.3%, 61.3% and 78.6% in Hargeisa, Burao and Berbera respectively, based on mothers recall. Vitamin A supplementation in the past 6 months was 60.9% 90.4% and 92.7% in Hargeisa, Burao and Berbera respectively. Coverage for Burao and Berbera was close to the recommended standard of 95% level (Sphere 2004, in addition, none of the household reported cases of night blindness. It is important to note that during the time of the assessment, there was an on going polio campaign in Berbera, the percentage of children that were immunized against polio was 89.4% in Hargeisa, 63.1% in Burao and 52.4% in Berbera, this fell below the recommended standards, however it would be expected to rise following the completion of the campaign.

3.6.2 RDT Testing Results and report

FSAU periodically conduct nutritional surveys in different part of Somalia. During surveys, the teams collect data on some important malaria indicators and a sample from target population on RDTs for malaria to estimate prevalence of positive cases for *Plasmodium Falciparum*. Three IDP settlements were surveyed in Somaliland recently and malaria data analysed by Merlin Technical Coordinator revealed the following:

Table 13: Results of RDT testing for Malaria in the study sites

Location	Sample Size	Male/Female Ratio	RDT Positivity (%)	ITNs Usage (%)	% Treated for Malaria past 2 weeks (Fever History %)
Berbera	313	0.89	0	1.6	5.8 (8.9)
Burao	295	0.74	0	4.4	3.1(7.5)
Hargeisa	1518	0.63	0.5	3.5	0.6 (3.3)

Most of surveyed localities appeared to be quite low endemic for malaria. Those positive for malaria were given on the spot SP – AS treatment, according to the national treatment guidelines. Survey results also suggested fewer individuals among symptomatic cases treated for malaria; this indicates the medical practitioners being highly selective in attributing fevers or other symptoms to malaria. Used RDT devices were kept and brought to Nairobi for cross checking. Cross checking results showed that diagnosis made by the survey team was accurate. The used devices were disposed off (incinerated) under strict supervision.

3.7 Feeding practices

In Hargeisa, 45.1% of the children aged 6-24 months were breastfeeding, while in Burao the proportion of children breastfeeding was 36.2%, the highest proportion was in Berbera with 57.9% of the children breastfeeding. In all the study areas, majority of the children were breastfed on demand (Hargeisa 87.5%, Burao 65.8% and in Berbera 82.1%). In Hargeisa and Burao, majority of the children stopped breastfeeding between <18 months of age , while in Berbera, majority of the children stopped at between 6-11 months, very few children above 18 months were breastfed in all sites, also very low proportion of the children were never breastfed at all.

Table 14: Children feeding practices

Children aged 6-24 months	Hargeisa (N=337)		Burao (N=105)		Berbera (N=145)	
	N	%	N	%	N	%
Is child breastfeeding?						
Yes	152	45.1 (39.3-50)	38	36.2	84	57.9
No	185	54.9 (49.4-60.3)	67	63.8	61	42.1
Breastfeeding frequency						
≤ 2 times	6	3.9 (0.6-7.26)	1	2.6	2	2.4
3-6 times	13	8.6 (3.67-13.42)	12	31.6.	13	15.4
On demand	133	87.5(81.85-93.14)	25	65.8	69	82.1
Duration of breastfeeding						
< 6 months	40	21.1 (14.15-27.95)	6	9.0	18	29.5
6 - 11 months	66	34.7 (27.16-42.31)	29	43.3	26	42.6
12 – 18 months	69	36.3 (27.50-45.12)	28	41.8	16	26.2
> 18 months	11	5.8 (2.05-9.52)	3	4.5	1	1.6
Never	4	2.1 (0.27-3.93)	1	1.5	0	0
Introduction of Complementary feeding						
≤ 3 months	29	42.02(22.59-61.45)	61	58.1	119	82.1
4 – 5 months	12	17.391 (9.32-25.46)	33	31.4	18	12.4
6 months	15	21.73(10.39-33.08)	9	8.6	8	5.5
7 or more months	13	18.84(9.62-28.05)	2	1.9	0	0
Feeding frequency						
1-4 times	43	66.15(46.52-85.77)	71	67.6	79	54.5
≥ 5 times	22	33.84(14.22-53.47)	34	32.4	66	45.5

In Hargeisa, almost half of the children (42.02%) were introduced to complementary foods at the age of 3 months and below. In Burao over half the children (58.1%) of the children ≤ 3 months were introduced to complementary foods, while in Berbera the proportion of children ≤ 3 months introduced to complementary foods was high at 82.1%.

In Berbera only 5.5% of the children were introduced to complementary foods at the recommended age of six months, majority of the children were introduced earlier. In Burao the percentage of children introduced to complimentary feeding at the age of 6 months was also very low, with only 8.6% of

the children being introduced at the right time. In Hargeisa just about a quarter of the children were introduced to complementary feeding at 6 months of age. However, in Berbera IDP settlement, the children reported the highest feeding frequency, with about half (54.5%) of the children being fed 1-4 times a day. In Hargeisa 66.1% and in Burao 67.6% of the children were fed less than four times a day. Nonetheless, this is below the recommended standard (Facts for Life, 2002) that requires children below the age of five years to be fed not less than five times a day.

3.7.1 Dietary Diversity

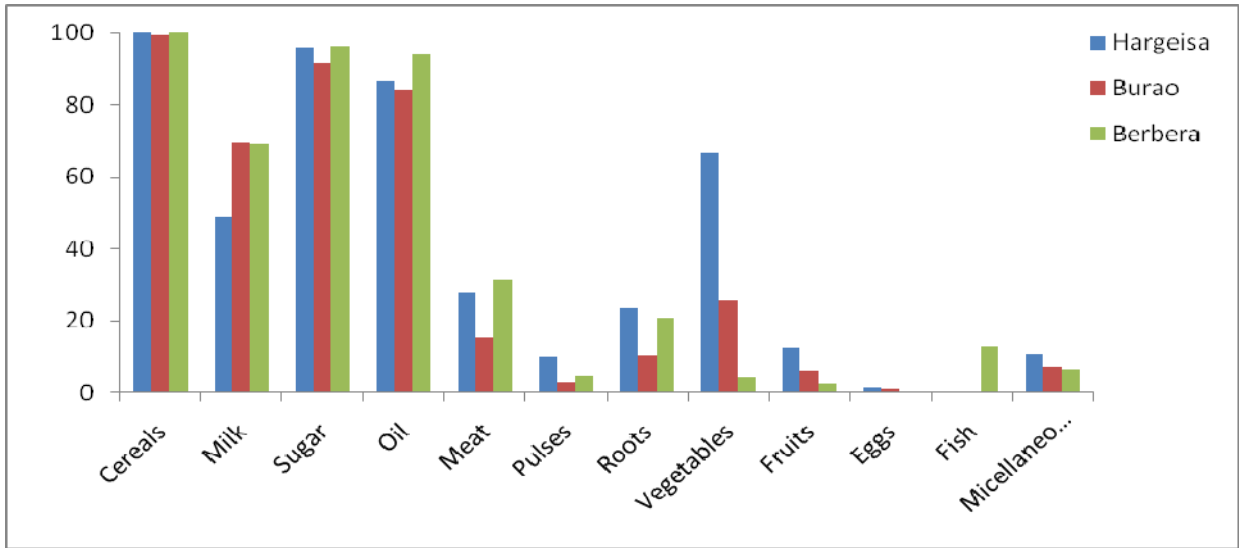
Table 15: Distribution of dietary diversity among households

No of food groups consumed	Hargeisa		Burao		Berbera	
	N	%	N		N	%
1 food groups	1	0.2	2	1.1	1	0.6
2 food groups	16	3.2	9	4.9	1	0.6
3 food groups	79	15.8	41	22.5	43	25.4
4 food groups	151	30.2	74	40.7	71	42
5 food groups	96	19.2	33	18.1	22	13
6 food groups	64	12.8	17	9.3	17	10.1
7 food groups	60	12.0	4	2.2	10	5.9
8 food groups	24	4.8	2	1.1	3	1.8
9 food groups	8	1.6	0	0	1	0.6
10 food groups	1	0.2	0	0	0	0
No. Having Diversified Diet						
1-3 food groups	96	19.1	52	28.6	45	26.6
≥ 4 food groups	407	80.9	130	71.4	124	73.4
Mean HDDS	4.8 ± 1.68		4.1 ±1.2		4.3 ± 1.3	

The main source of food in Hargeisa (75.3%), Burao (75.8%) and Berbera (77.5%) was through purchase. The other sources of food were through gifts and a very small percentage through own production.

In all the IDP settlements, a significant proportion of the households consumed a diversified[2] diet in the past twenty four hours prior to the assessment, by consuming at least 4 food groups in a day. The mean household diversity score is illustrated in the table for all the IDP settlements, Hargeisa had the highest HDDS of 4.8 (SD=1.68), while Burao had the least with 4.1 (SD=1.2), the number of food groups consumed ranged from one to ten.

Figure 9: Main Foods consumed groups consumed in Hargeisa, Burao and Berbera



The main foods consumed in all the settlements were cereal, sugar, oil and milk (<70%). The least consumed foods were fish (only consumed in Berbera (<20%), eggs, pulses and fruits. Figure 8 indicates the consumption of the major food groups in the all the settlement camps (Hargeisa, Burao and Berbera). As illustrated in the figure 9, consumption of fish is very low, in Hargeisa and in Burao, fish was not consumed at all. In Berbera where fish was readily available it was noted that the consumption was low, therefore there is a need to promote the consumption of fish as a good source of nutrients.

[2] A household was considered to have consumed a diversified diet when four or more food groups were consumed.

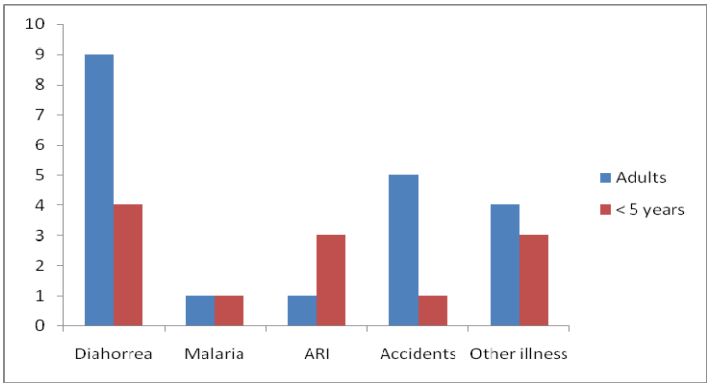
3.8 Mortality rates in Hargeisa IDP Settlements

Table 16: Mortality Rates in Hargeisa IDP Settlements

	Hargeisa
Total households assessed	913
Under five Mortality Rate /10,000/day	1.42 (0.68 – 2.17)
Crude Mortality Rate /10,000/day	0.90 (0.55 -1.25)

A total of 913 households were assessed for mortality indicator with a recall period of 90 days prior to the assessment. The data was entered and analysed by the Nutrisurvey software. The results were as presented in table 18: The under five and crude mortality rates indicate an alert situation according to the international standards (WHO classification).

Figure 10: Main causes of Mortality in Adults and Children < 5years



The reported main causes of mortality in <5 was diarrhoea and ARI, while the main reported causes of mortality in adults was diarrhoea, accidents and other illnesses (heart disease, liver problems and diabetes). Diarrhoea is a major cause of concern in the IDP settlements and the inhabitants are exposed mainly due to the lack of adequate and quality sanitation facilities in the settlements.

The main reported cause of mortality in adults and children < 5 years is illustrated in figure 9. The other illnesses that were reported causes of death in adults included liver complications and heart attack.

In Burao and Berbera, the mortality data was collected but not analyzed, as the sample size was too small (Burao 292 households and Berbera 313 households). The main cause of death in these settlements was reported to be diarrhoea and ARI in children and diarrhoea and accidents in adults, similar to Hargeisa IDP settlements.

6.0 Discussion

6.1 Nutrition status in Protracted IDP Settlements of Hargeisa, Burao and Berbera

6.1.1 Hargeisa

The GAM rate in Hargeisa was 10.3% (CI: 8.4-12.2), and a SAM of 1.2% (CI: 0.6-1.9), although these levels are just on the borderline, since the GAM is ≥10% this indicates a serious nutrition situation. In the previous assessment that was conducted amongst the IDP population in the same area, in 2005, the GAM rate was recorded at 7.6%, this indicates a slight decline in the nutritional status. It was noted that a higher proportion of boys were acutely malnourished as compared to the girls (Boys 11.2% and Girls 9.5%). The prevalence of chronic malnutrition also reflected the same situation, with a higher proportion of boys (23%) being chronically malnourished or stunted compared to girls (19.3%). Malnutrition also varied with age in the Hargeisa IDP settlements, the proportion of acutely malnourished children was highest among children aged 54-59 months (16.3%) and children aged 6-17 months (14.6%). The children aged 54-59 months were also two times more (RR=2.9) likely to be acutely malnourished as compared to their younger counterparts. The somewhat higher level of acute malnutrition in older age groups also suggests that household food insecurity has a strong overall influence in the level of acute malnutrition in the region, as they depend entirely on the meals that are served for the family. The rates of acute malnutrition in the younger children may be attributed to poor feeding practices, with introduction of complementary foods early and low breastfeeding. They were also affected by diarrhoea which has a direct impact on health and nutrition status. The morbidity in Hargeisa was also high, with 15.8% of the children reporting diarrhoea in the last two weeks prior to the assessment, Hargeisa IDP settlements also recorded low immunization coverage, and all these have a direct influence on the heath and nutrition situation of the population. Inappropriate child care practices and lack of proper adequate health services due to limited access also attributed to the poor malnutrition rates.

The mortality rates of the population remained stable at alert. The crude mortality rate was 0.90/10000/per day, while the ≤ 5 crude mortality rate was 1.42/10000/per day, indicating an alert situation. The main reported cause of death was diarrhoea in both adults and children.

In Hargeisa, settlements, the on going nutrition and health interventions being done mainly by UNICEF, include OTP sites in Jamalaye, Shiekh Noor, Kenya MCH, with a SFC to start in Jamalaye supported by SRCS and WFP that will include take home family rations.

6.1.2 Burao

The total GAM rate in Burao was 15.8%, and SAM was 1.4%, also indicating a serious persistent nutrition situation. In the previous assessment that was conducted amongst the IDP population in the same area, in 2006, the GAM rate was recorded at 15.0%%, showing a poor but stable nutritional status trend. In Burao, there was a significant difference in malnutrition between the sexes in the study group. The boys were more malnourished than the girls (P=0.03). There was no oedema cases reported. The prevalence of chronic malnutrition also reflected the same situation, with boys (16.3%) being more chronically (Total chronic malnutrition HFA <-2Z score) malnourished than girls (13.8%). Malnutrition varied with age, the proportion of malnourished children was highest in children aged >42 months and <29 months. This was consistent with the other IDP settlements of Hargeisa and Berbera, and could be attributed to the same factors, mainly: feeding practices, including early introduction to complementary foods, low breastfeeding in younger children and lack of adequate health care and morbidity, especially diahorrea (12.7%). Health seeking behaviour remains a challenge, as 25.4% of the children who fell sick did not seek any medical attention at all; this increases the risk of poor health and nutrition status among the children.

In Burao, the interventions being undertaken include deworming being done by UNICEF,WHO and MOHL. UNICEF with SRCS and WFP are yet to set up 2 SFC which will include a family take home ration for the affected children.

6.1.3 Berbera

The total GAM rate in Berbera was 16.0%, and SAM was 0.6%, indicating a serious nutrition situation. In the previous assessment that was conducted amongst the IDP population in the same area, in 2006, the GAM rate was recorded at 16.8%, reflecting no change in the nutritional status trend. Also in Berbera, there was a significant difference rates of acute malnutrition between the sexes; the boys (18.6%) were more likely to be acutely malnourished than the girls (13.2%). There were no oedema cases reported. Similarly, the prevalence of chronic malnutrition also reflected the same situation, with a higher prevalence of chronic malnutrition reported in boys (24.8%) being more chronically malnourished than girls (15.1%). Prevalence of acute malnutrition varied with age, the proportion of acutely malnourished children was highest in children aged >42 months and <29 months. Once again this was consistent in all the IDP settlements. These rates were mainly attributed to the same factors; feeding practices, lack of adequate health care, and increased rates of morbidity. Diarrhoea was a major concern in Berbera, and the diarrhoea rates showed a direct significance with the GAM rates. Diarrhoea was reported at 16.3%, the highest in all the IDP settlements, Berbera also reported the highest GAM

rate amongst the three settlements.

In Berbera, the interventions being undertaken include chlorination of water triggred by AWD outbreak in the area in October), community sensitization on appropriate water and sanitation practices; this was done by local authorities, LNGOs and UNICEF. There is also a diarrhoea treatment centre in Berbera hospital and initiative of WHO and MOHL.

7.0 Conclusions and Recommendations

The nutrition situation in all the protracted IDP settlements is serious. In Hargeisa, the GAM rate was 10.3%, this was a deterioration in the nutrition status from the latest assessment in 2005 that recorded a GAM rate of 7.6%. The deterioration in nutrition situation may be attributed to the poor health and sanitation in the settlements. In Burao and Berbera the nutrition situation remained serious, with GAM rates of ≥ 15%, there was no improvement form the previous nutrition situation reported from the latest assessments conducted in 2005/2006. The mortality rates for both adults and under 5's were within the acceptable levels. Morbidity, low uptake of health related interventions and inappropriate care practices are among the factors contributing to malnutrition in the area. During discussions with partners, it was highlighted that majority of the interventions being undertaken by partners and the government began in February and in May this year, and therefore the impact of the interventions may not be felt as the assessments were conducted in September the same year.

Following discussions held after sharing the results with partners and detailed data analysis, the following recommendations were made:

1) Expanding delivery of basic health services including intensifying EPI services/linking vitamin A supplementation with polio vaccination programmes, as in the case in Berbera town where there was an on going polio campaign. It is also imperative to encourage the population to visit the health facilities by ensuring that the health services offered are reasonably priced so that they can access the services.
2) Improve water quality for household level consumption through establishment of water purification systems/encourage the population to boil drinking water to prevent water borne diseases, and promote improved sanitation and hygiene practices in the settlements.
3) Rehabilitation of acutely malnourished children and women through the existing health care centres.
4) School feeding for school age children given the higher prevalence in the older children highlighted a possible food shortage at the households level, this would not only assist in preventing malnutrition but would also improve the enrolment and attendance of children in the schools.
5) Intensify health & nutrition education focussing on care practices and micronutrient issues.
6) Promote the availability of micronutrient rich foods at household level through improving dietary diversification and consumption of fortified foods. Fish consumption should also be promoted as it is a readily available nutritious food. FSAU had recently distributed to health centres and partners media materials including posters, recipe books and DVDs illustrating the importance of fish and its preparation in Somaliland. It would be relevant to follow up on the impact of these products.
7) Continued monitoring of the nutritional and food security situation.

8.0 APPENDICES

Appendix 1: Report on Hargeisa protracted IDPs Nutrition assessment findings using the Lot Quality Assurance Sampling Method in comparison to the 30x30 Cluster sampling Methodology

Background

Lot Quality Assurance Sampling (LQAS) is a method of sampling derived from the manufacturing industry for assessing quality of lots (or batches) of products. Originally, the LQAS method was developed in the 1920s as a quality control technique for industrially produced goods, but by the 1980s its sampling concepts were recognized as having universal applications, and is now being used all over the world to assess coverage in communities with programs in maternal and child health, family planning and HIV/AIDS; to assess the quality of health workers performance and even to assess disease prevalence. It is based in the principle that inspection of a small, representative sample of a lot will allow for the acceptance or rejection of the entire lot with high probability, should the number of defective goods in that sample exceed a predetermined allowable number. In health systems, a lot most often consists of a supervision area (community or health facility catchments' area) and the production unit is the set of health workers in that area. The purpose of using LQAS in this setting is to: determine whether a specific supervision area has reached the predetermined coverage target as well as comparing the performance of difference supervision areas.

A global review (covering a total of 805 LQAS surveys) on the use of lot quality assurance sampling (LQAS) surveys to assess aspects of health care including service delivery, health behaviour and disease burden was carried out by WHO in 2006. LQAS surveys were found to be a practical field method increasingly applied in the assessment of preventative and curative health services, and can be used to measure variation in behaviour change when collected recurrently at multiple time points. The use of the LQAS method in various health sectors has thus spread worldwide, with greatest uptake in Africa and in America. The greatest numbers of LQAS surveys have been used to assess risk factors for HIV/AIDS and sexually transmitted infections, although substantial numbers have also been conducted to assess immunization coverage, growth and nutrition, and post-disaster health status of communities. The LQAS surveying technique can provide insight in these areas into understanding the relationships between various investments in social, human, and physical capital, and into the effectiveness of differing health strategies in achieving behavioural outcomes.

More recently adaptation of LQAS principles in estimating the prevalence of Global Acute Malnutrition has been explored. In emergency settings, governments and humanitarian organizations need reliable and timely data about the nutritional status of the population. The sampling method traditionally used to assess the prevalence of malnutrition in emergencies is a 30 x 30 cluster survey. This method provides statistically reliable results if implemented correctly, but with a sample size requirement of 900, can be time-consuming and expensive to carry out. FANTA has been exploring the use of Lot Quality Assurance Sampling (LQAS) as a rapid and cost-effective alternative for assessment of the prevalence of acute malnutrition. A study by FANTA, Catholic Relief Services (CRS), and Ohio State University (OSU)[3], field-tested the use of the LQAS designs in an emergency setting in Ethiopia. The study concluded that LQAS designs provide statistically appropriate alternatives to the more time-consuming 30X30 cluster survey though additional field testing is necessary.

The benefits of LQAS are that the binomial outcome at lot level allows for smaller sample sizes while still informing decision makers of individual defective lots, and proportions thereof at aggregate level[4]
The characteristics that have made LQAS attractive for use in the health system include;

- A small sample is needed to judge whether a supervision area has reached the predetermined coverage target. This means that data collection does not compete with time for provision of health services.
- LQAS sampling procedures and analyses are relatively simple, which is helpful for supervisors and health workers who need management tools that can be easily understood and applied.
- The results provide supervisors with a decisive judgment about action based on a predetermined hypothesis. It allows for hypothesis testing of an indicator against threshold prevalence levels (e.g. for GAM above 10% is serious nutrition level).
- LQAS is time saving; less expensive and require less resources than the conventional 30X30 design

It is for these expected benefits that FSAU undertook to pilot and field-test the LQAS methodology among the IDPs in Hargeisa in order to compare the findings with a 30X30 assessment and explore its application in the nutrition surveillance system in Somalia.

[3] *International Journal of Epidemiology*: A Field Test of Three LQAS Designs to Assess the Prevalence of Acute Malnutrition; May 2007.
[4] Hoshaw-Woodard, 2001

Methodology

A 33 by 6 cross-sectional assessment was conducted alongside a 30 by 30 assessment among the protracted displaced populations concentrated in seven sites[5] in Hargeisa town of Somaliland. Two-stage cluster (33 by 6) sampling methodology was used to select 6 children aged 6-59 months and height/length of 65-109.9 cm from each of the 33 clusters. A list of all settlements/villages/towns within each of the seven assessed sites with their respective populations formed a sampling frame and used to construct cumulative population figures for the assessment area from which 33 clusters were randomly drawn using the Nutrisurvey software. The EPI method was used for the second stage sampling of households and children was as outlined in the SSS Nutrition Assessment Guidelines. Quantitative data was collected through a standard household questionnaire for nutrition assessment and included household characteristics; child anthropometry, morbidity; vitamin A supplementation, measles and polio immunization coverage; dietary diversity; and access to water and sanitation. Qualitative data was collected by an interagency team comprising of assessment supervisors and coordinators through focus group discussions and key informant interviews to provide further understanding of possible factors influencing nutritional status.

All eligible children in a sampled household were assessed giving a total of 204 children. Since only 198 children were required for analysis, the six extra children were randomly eliminated at the analysis stage using a table of random numbers. Household and child data was entered, processed (including cleaning) and analysed using EPI6 software.

Results and Discussion

Table 3: Comparative Analysis of findings using 30X30 and LQAS methodologies

Indicator	Prevalence		95% CI		CI Width		SE		Design Effect	
	30X30	33X6	30X30	33X6	30X30	33X6	30X30	33X6	30X30	33X6
GAM (WHZ)	**10.3**	9.6	8.4 – 12.2	6.1 – 13.1	± 1.9	± 3.5	0.06	0.08	0.91	0.72
GAM (MUAC)	3.3	4.5	1.9 – 4.6	1.3 – 7.8	± 1.4	± 3.2	0.09	0.10	1.22	1.27
Stunting (HAZ)	19.2	19.2	16.3 – 22.2	12.7 – 25.7	± 3.0	± 6.5	0.09	0.10	1.30	1.42
Underweight (WAZ)	18.0	20.7	14.8 – 21.3	15.0 – 26.4	± 3.3	± 5.7	0.06	0.08	1.68	1.02
Diarrhoea	15.3	13.6	11.7 – 19.9	7.9 – 19.4	± 1.8	± 5.8	2.07	2.94	2.91	1.46
ARI	15.4	19.2	11.3 – 19.4	11.9 – 26.5	± 2.3	± 6.3	2.08	3.71	3.00	1.74
Febrile illness	3.0	2.5	1.2 – 4.7	0.5 – 4.6	± 1.4	± 2.1	0.90	1.06	2.53	0.90
Suspected measles	2.2	1.6	0.82 – 3.64	0.0 – 3.9	± 1.3	± 2.3	0.72	1.17	2.03	1.65
Measles immunization	58.3	57.7	52.3 – 64.3	43.6 – 71.8	± 3.4	± 14.1	3.08	7.20	3.33	4.01
Vitamin A supp	60.9	43.4	53.5 – 68.2	33.4 – 53.5	± 3.4	± 10.1	3.74	5.13	5.33	2.12
Polio immunization	89.4	93.9	86.4 – 92.4	88.7 – 99.2	± 2.2	± 5.3	1.53	2.70	2.23	2.53
Dietary diversity	80.9	90.6	76.5 – 85.3	84.1 – 97.0	± 3.8	± 6.5	2.23	3.30	1.63	1.35
Access to safe water	84.7	97.2	75.9 – 93.5	94.2 - 100	± 8.8	± 3.0	4.50	1.55	7.82	0.94
Access to latrine	68.4	74.5	58.2 – 78.6	65.1 – 82.5	± 10.2	± 9.4	5.18	4.73	6.25	1.25

Analysis of the findings from the two assessment designs, indicate similar prevalence estimates of acute malnutrition. Acute malnutrition rate (WHZ<-2 and/or oedema) of 9.6% (CI: 6.1 – 13.1) was reported from the 198 children assessed using the LQAS (33X6) design. Comparable results (confidence limits overlapping) were reported from the conventional 30X30 design with acute malnutrition rates (WHZ<-2 and/or oedema of 10.3% (CI: 8.4 – 12.2). For hypothesis testing against a threshold of below or above GAM of 10%; 19 children were found to be malnourished indicating levels above 10%[6]. Estimates using MUAC measurements reported similar results for acute malnutrition at 3.3% (CI: 1.9 – 4.6) and 4.5% (CI: 1.3 – 7.8) from 30X30 and LQAS designs respectively.

Overall, the 33X6 LQAS design produced more or less similar results to the conventional 30X30 design for both child data

[5] Ayaha; Aw Aden; Sheikh Nur; Daami; Mohamed Mooge; Stadium and State House.

[6] Only 13 malnourished children are required to hypothesize GAM levels of ≤10%.

(malnutrition, morbidity and health programmes coverage) and household data (household dietary diversity; access to water and access to sanitation facility). However, as expected from the smaller sample size from the LQAS design (198 children) than the 30X30 design (905 children assessed), the confidence intervals are generally wider while the standard error is generally higher for the LQAS results (Table 3). Again as expected the design effects were generally lower for LQAS design.

Because it is less resource and time demanding, this method could be adopted in the surveillance system especially to fill information gaps during the seasonal (post *Gu* and post *Deyr*) assessments and in areas with limited accessibility. However, since the acute malnutrition levels were on the borderline and very close to the threshold (GAM≤10%), a second field pilot in another region with typical malnutrition levels of 10 – 14.9% (serious) or 15 – 19.9% (critical) would be recommended before the design can be adopted for acute malnutrition situation categorization (hypothesis testing) and estimation of acute malnutrition levels for nutrition surveillance in Somalia.

Appendix 2: Protracted IDPs Nutrition assessments in Hargeisa, Burao and Berbera questionnaire - September 2007

QNO:

NUTRITION ASSESSMENT HOUSEHOLD QUESTIONNAIRE, 2007

Household Number _____ Date_____ Team Number _____ Cluster Number _____ Cluster Name _____ District: _____

Q1-8 Characteristics of Household

Q1. **Household size[7] ?_____**

Q2. **Number of children less than 5 years (0-59 months)? _____**

Q3. **Sex of household head[8]? 1=Male 2=Female**

Q4. **For how long have you stayed (been resident) in this location? 1=< 3 months 2= 4-12 months 3=1-2 years 4=>2 years**

Q5. **Where did you come from when you came to this location? 1=Within Somaliland 2=Southern Somalia 3= Ethiopia 4=Others, specify _____**

Q6 **Reason for movement: 1= Returning home 2=Civil insecurity/ fighting 3=Seeking jobs 4= Food shortage 5= Food/pasture/water shortage 6= Seasonal/climatic**

Q7a. **Does household have mosquito net? _____ 1= Yes 0= No** Q7b. **If yes, ask to see the net: _____ 1= GFSOM label 2=Other type 3= Not seen**

Q8. **What is the household's main source of income? 1= Animal & animal product sales 2= Trade 3= Casual labour 4= Salaried/wage employment 5= Remittances 6= Destitute (zakat/gifts/begging)**

Q9-17 Feeding and immunization status of children aged 6 – 59 months (or 65 – 109.9 cm) in the household.

First Name	**Q9** **Age** (months) *(**if** child is more than 24 months old, **skip** to **Q15**)*	**Q10** **(If 6-24 months)** Are you breastfeeding[9] the child? *(**if** no, skip to **Q12**)* *1=Yes* *2= No*	**Q11** **(If 6-24 months)** If breast feeding, how many times/day? *1=2 times or less* *2=3-6* *3=On demand*	**Q12** **(If 6-24 months)** If not breast feeding, how old was the child when you stopped breast-feeding? *1= less than 6 months* *2=6-11 months* *3=12 – 18 months* *4=≥18 months* *5= Never breastfed*	**Q13** **(If 6-24 months** At what age was child given water/ foods other than breast milk? *1=0-3 months* *2=4-5 months* *3=6 months* *4=7 months or more.*	**Q14** **(If 6-24 months)** How many times do you feed the child in a day *(besides breast milk)*? *1= 1-4 times* *2= 5 or more times*	**Q 15** Has child been provided with Vitamin A in the last 6 months? *(show sample)* *1=Yes* *2= No*	**Q16** **(If ≥9 months old)** Has child been Vaccinated against measles in the last 6 months? *1=Yes* *2= No*	**Q17** Has the child ever been given polio vaccine orally? *1=Yes* *2= No*
1									
2									
3									
4									

[7] *Number of persons who live together and eat from the same pot at the time of assessment*

[8] *One who controls and makes key decisions on household resources (livestock, assets, income, and food), health and social matters for and on behalf of the household members.*

[9] *Child having received breast milk either directly from the mothers or wet nurse breast within the last 12 hours*

Q18-28 Anthropometry and morbidity for children aged 6 – 59 months or (65 – 109.9cm) in the household

First Name *Follow same order as per table on page 1*	**Q18** **Child Sex** *1=Male* *2=Female*	**Q19** **Oedema** *1=yes* *2= No*	**Q20** **Height (cm)**	**Q21** **Weight (kg)**	**Q22** **MUAC (cm)**	**Q23** Diarrhea[10] in last two weeks *1= Yes* *2= No*	**Q24** Serious ARI[11] in the last two weeks *1=Yes* *2= No*	**Q25** Febrile illness/ suspected Malaria[12] in the last two weeks *1=Yes* *2= No*	**Q26** **(If ≥9 month)** Suspected Measles[13] in last one month *1=Yes* *2= No*	**Q27** Did child sleep under a mosquito net last night? *1=Yes* *2= No*	**Q28** Where did you seek healthcare assistance when child was sick? **(**If yes in ***Q23 – 26)*** *1=No assistance sought* *2=Own medication* *3=Traditional healer* *4=Private clinic/ Pharmacy* *5= Public health facility*
1											
2											
3											
4											

29: Anthropometry (MUAC) for adult women of childbearing age (15-49 years) present at the household

Sno	**Name**	**Age** (years)	**MUAC** (cm)	**Physiological status** *1=Prégnant* *2= Non prégnant*	**Illness in last 14 days?** If yes, what illness?
1	*Mother:*				
2					
3					

Codes** for adult **illnesses	
0= None	1= ARI
2=Diarrhoreal	3=Malaria/febrile
4=Joint	5=Urinal
6=Organ	7=Anaemia
8= Reproductive	9=Other, specify

[10] Diarrhoea is defined for a child having three or more loose or watery stools per day
[11] *ARI asked as oof wareen or wareento. The three signs asked for are cough, rapid breathing and fever*
[12] *Suspected malaria/acute febrile* illness: - the three signs to be looked for are periodic chills/shivering, fever, sweating and sometimes a coma
[13] *Measles (Jadeeco): a child with more than three of these signs– fever and, skin rash, runny nose or red eyes, and/or mouth infection, or chest infection*

Q 30 Food Consumption & Dietary Diversity

Twenty four-hour recall for food consumption in the households: The interviewers should establish whether the previous day and night was usual or normal for the households. If unusual- feasts, funerals or most members absent, then another day should be selected.

Food group consumed: What foods groups did members of the household consume in the past 24 hours (from this time yesterday to now)? Include any snacks consumed.	Did a member of your household consume food from any these food groups in the last 24 hours**?** *1=Yes* *0= No*	**Codes:* 1= Own production 2=Purchases 3=Gifts from friends/ relatives 4=Food aid 5=Bartered 6=Borrowed 7=Gathering/wild 8=Others, specify____ 9=N/A
Type of food		**What is the main source of the dominant food item consumed? (Use codes above)?**
Cereals and cereal products *(e.g. maize, spaghetti, rice, caanjera, bread*)?		
Milk and milk products *(e.g. goat/camel/ fermented milk, milk powder)?*		
Sugar and honey?		
Oils/fats *(e.g. cooking fat or oil, butter, ghee, margarine)?*		
Meat, poultry, offal *(e.g. goat/camel meat, beef; chicken or their products)?*		
Pulses/legumes, nuts *(e.g. beans, lentils, green grams, cowpeas; peanut)*?		
Roots and tubers *(e.g. potatoes, arrowroot)?*		
Vegetables *(e.g. green or leafy vegetables, tomatoes, carrots, onions)?*		
Fruits *(e.g. water melons, mangoes, grapes, bananas, lemon)*?		
Eggs?		
Fish and sea foods *(e.g. fried/boiled/roasted fish, lobsters)?*		
Miscellaneous *(e.g. spices, chocolates, sweets, beverages, etc)?*		

Q31 In general what is the main source of staple food in the household? ***(*Use codes in 30 above)*** **_____**

Q32 Total number of food groups consumed in the household: _____

Q33 How many meals[14] has the household had in the last 24 hours (from this time yesterday to now)? 1= One 2=Two 3= Three

Q34 **Access to safe protected drinking water (tap; borehole or protected well)? 1= Yes 2=No**

Q35 **Access to sanitation facility (toilet or latrine)? 1= Yes 2=No**

Checked by supervisor *(signed)*: **_____**

[14] *A meal refers to food served and eaten at one time (excluding snacks) and includes one of the three commonly known: - breakfast, lunch and supper/dinner*

Appendix 3: Hargeisa Protracted IDPs Mortality questionnaire - September 2007

Household No: _____ Date: _____ Team No: ____ Cluster No: ____ Enumerator's Name: _____

No.	**1**: First Name	**2**: Sex *(1=M; 2=F)*	**3**: Age (yrs)	**4**: Born since **__ / 6/ 2007**	**5**: Arrived since **__ / 6/ 2007**	**6**: Reason for leaving	**7**: Cause of death
a) How many members are present in this household now? List them.							
b) How many members have left this household (out migrants) since **June __, 2007**? List them							
c) Do you have any member of the household who has died since **June __ 2007**? List them							

Codes

Reason for migration

1= Civil Insecurity
2= Food Insecurity
3= Employment
4=Divorce
5=Visiting
6= Hospitalised
7= In boarding school
8= Grazing/herding
9= Other, specify

Cause of death

1= Diarrhoeal diseases
2= ARI
3= Measles
4= Malaria
5= STD/ HIV/AIDS
6= Anaemia
7= Birth complications
8= Accident/ killed/ physical injuries
9= Hunger/starvation
10= Other, specify

Summary*

	Total	**U5**
Current HH Members		
Arrivals during the Recall period		
Number who have left during Recall period		
Births during recall		
Deaths during recall period		

** For Supervisor Only*

Appendix 4: Traditional Calendar of Events IDPs ASSESSMENT, SEP 2007

Year Significant Event		Age in Months	Monthly event specific to that year	Recurring yearly events
2007	**Dec**	N/A	Not Applicable	
	Nov			
	Oct			
	Sept			
	Aug	1		Xagaa
	July	2		Xagaa
	June	3	Holiday- Independence Day from Britain 26th	Gu
	May	4	Holiday - Somaliland becomes independent 18th May	Gu
	Apr	5	Berbera Heavy rains destroys 100 homes	Gu
	Mar	6	Diarrhoea outbreak in Togdheer/Hargeisa	Jilaal
	Feb	7		Jilaal
	Jan	8		Jilaal
2006 **Islamic Courts ICU**	**Dec**	9		Deyr
	Nov	10	Eid alfidri-Ciidal fidri	Deyr
	Oct	11	Ramadan (Idd ul Fitri 24th October)	Deyr
	Sept	12	Bilawgii Ramadaan (Starting of Ramadhan 24th September)	Xagaa
	Aug	13	Shabcaan	Xagaa
	July	14		Xagaa
	June	15	Holiday - Independence Day from Britain 26th	Gu
	May	16	Holiday - Somaliland becomes 18th May	Gu
	Apr	17		Gu
	Mar	18		Jilaal
	Feb	19		Jilaal
	Jan	20		Jilaal
2005 **Severe drought in South Central**	**Dec**	21		Deyr
	Nov	22	IIDDIISOONFUREE LABAAD (Idd ul Fitri November 4th)	Deyr
	Oct	23	Ramadan begins 5th October	Deyr
	Sept	24	Parliamentary Elections In SL	Xagaa
	Aug	25	Shabcaan	Xagaa
	July	26		Xagaa
	June	27	Holiday - Independence Day from Britain 26th	Gu
	May	28	Hargeisa Heavy rains/bridge collapse Holiday - Somaliland becomes independent 18th May	Gu
	Apr	29	MOWLIIDKII UDAMBEEYEE (Month of Prophet Mohamed's birth)	Gu
	Mar	30		Jilaal
	Feb	31		Jilaal
	Jan	32	IIDDII ARAFO (Idd ul Hajj)	Jilaal
2004	**Dec**	33	Tsunami Disaster	Deyr
	Nov	34	IIDDII SOON FUR EE U DAMBEYSAY (Idd ul Fitr – 14th)	Deyr
	Oct	35	BILOWGII RAMAANT U DAMBEYSAY (Starting	Deyr

			of Ramadhan 16th	
	Sept	36		Xagaa
	Aug	37	Shabcaan	Xagaa
	July	38		Xagaa
	June	39	Holiday - Independence Day from Britain 26th	Gu
	May	40	MOWLIIDKII KAL HORE (Month of Prophet Mohamed's birth) Holiday - Somaliland becomes independent Day 18th May	Gu
	Apr	41		Gu
	Mar	42		Jilaal
	Feb	43	IIDDII ARAFO/ XAJKII KAL HORE (Idd ul Hajj)	Jilaal
	Jan	44		Jilaal
2003 **Iraq Invasion/Fighting Begins**	**Dec**	45		Deyr
	Nov	46	(Idd ul Fitr – November 26	Deyr
	Oct	47	Killing of Humanitarian staff by terrorist in Berbera road Ramadan begins Oct. 27	Deyr
	Sept	48		Xagaa
	Aug	49	Shabcaan	Xagaa
	July	50		Xagaa
	June	51	Holiday - Independence Day from Britain 26th	Gu
	May	52	Holiday - Somaliland becomes independent Day 18th May	Gu
	Apr	53	MOWLIIDKII SADDEXAAD/DoorashadiMadaxwaynaha (Election of the president)	Gu
	Mar	54	Iraq Invasion/Fighting	Jilaal
	Feb	55	IDDI ARAFO IYO XAJKII KAL SADDEXAAD (Idd ul Hajj)	Jilaal
	Jan	56		Jilaal
2002	**Dec**	57	Council election In SL (Idd ul Fitr 6th December)	Deyr
	Nov	58	CIIDDII RAMADAAN 3AAD/Doorashadii Golaha Deegaanka (Somaliland Council Election)	Deyr
	Oct	59	CIIDDII RAMADAAN 3AAD/Doorashadii (ramadhan) Golaha Deegaanka (Somaliland Council Election)	Deyr
	Sep	Too old		Xagaa
	Aug	Too old		Xagaa

Appendix 5 : Focus Group Discussion Guide

FOCUS GROUP DISCUSSION GUIDE

Food Consumption and Feeding Practices

1. What is the common staple diet you are likely to find in households currently? *(List the types of foods consumed, their composition and how they are prepared)*

Meal	Foods	Composition	Method of preparation
Breakfast			
Lunch			
Supper			

2. a) For how long (duration) do mothers generally breastfeed their babies in this community?

b) What are the common foods normally given to children below 2 years in this community? How many times per day? (Specify ingredients)

Common foods	Age when introduced	Ingredients	Number of times given
Water			
Sugar solution			
Cows/camel/goat milk			
Semi solid foods(porridge and others)			
Solid foods (caanjera, rice, spaghetti),			

3. At the moment, what meals are given to children 0-2 years and how many times per day? (Specify ingredients)

Common foods	Ingredients	Number of times given
Water		
Cows/camel/goat milk		
Semi solid foods(porridge and others)		
Solid foods (caanjera, rice, spaghetti),		

4. Has there been any change in food consumption (diets) in the last three months? Specify and give reasons for change if any.

_____

_____

5. What constraints do households (women) normally face in providing adequate food for their families?

In terms of:

Effective breast feeding and child feeding	
Food acquisition & preparation	
Food processing, preservation & storage	
Food service and sharing/rations	

6. What would you say is the level of current availability and accessibility of the following foods?

Foods	*Codes:* 1= Absent/none 2= Low 3=medium 4= High	
	Availability	*Accessibility*
Meat		
Goat milk		
Cow milk		
Camel milk		
Spaghetti		

Beans/ peas		
Wheat		
Rice		
Maize		
Sorghum		
Sugar		
Cooking oil		
Potatoes		
Fish		

7. Urban Livelihood

Coping strategy	1= Yes 2=No
Shift to less preferred (low quality, less expensive) foods *(*from *osolo to obo)*?	
Limit the portion/quantity consumed in a meal *(Beekhaamis)*?	
Take fewer numbers of meals in a day?	
Borrow food on credit from the shop/market *(Deyn)*?	
Borrow food on credit from another household *(Aamah)*?	
Restrict consumption of adults in order for small children to eat?	
Rely on food donations from relatives *(Qaraabo)*?	
Rely on food donations from the clan/community *(Kaalmo)*?	
Seek or rely on food aid from humanitarian agencies?	
Send household members to eat elsewhere?	
Beg for food *(Tuugsi/dawarsi)*?	
Skip entire days without eating *(Qadoodi)*?	
Consume spoilt or left-over foods	

8. a) Have there been any population or animal movements in the past 3 months? If yes from where to where?

b) Have there been any reported animal deaths in the village? If yes what was the extent of this problem?

Water, Sanitation and hygiene

What is the main source of water for people in this village?	
Is drinking water treated at point of supplies and/or at point of use?	
What is the average distance to the water point?	
On average how much water is used by each person/day?	
How many people on average share a water point/source?	
How far away is the latrine from the water source for the majority?	
How many people on average share a toilet/latrine facility?	
How are children faeces disposed of?	
Do households have soap for body, utensils and clothes washing?	
How is prepared food stored/kept by most households	

10. Prices of major foods (flour, rice, milk, sugar, etc) and other essential commodities (water, cooking fuel, etc) for the village

Item/material	Price/unit in SSH (Exchange rate- 1US$ = _____SSH)	
	In August 2007	Now (November 2007)

11. What are the main sources of income for most households in order of priority?

……..

……..

……

12. What are the common illnesses in this village among children and adults?

	Illnesses	Possible causes/reasons
Children		
Adults		

13. Find out if there has been any formal support in this village in the last 3 months

Type of support/ programme	Agency	Targeted group (beneficiaries)

Appendix 6 : Nutrisurvey Assessment Quality Checks – Hargeisa, Burao and Berbera

Hargeisa IDP Assessment Nutrisurvey Quality Checks

Anthropometric Indices out of usual range (mean -4.0, mean +4.0):

Line 21: HAZ (3.228), probably age is incorrect
Line 56: HAZ (3.445), probably age is incorrect
Line 311: HAZ (3.381), probably height is incorrect
Line 413: HAZ (3.391), probably age is incorrect
Line 548: HAZ (3.346), probably age is incorrect
Line 796: HAZ (3.224), probably age is incorrect

Age distribution:

Month 6 : ####################
Month 7 : ##############
Month 8 : ####################
Month 9 : ################
Month 10 : ##############
Month 11 : ########################
Month 12 : ############################
Month 13 : ###################
Month 14 : ####################
Month 15 : ##########################
Month 16 : ##########
Month 17 : ##########
Month 18 : ####################
Month 19 : #############
Month 20 : ###############
Month 21 : ##########
Month 22 : ##########
Month 23 : ########################
Month 24 : ##########################
Month 25 : ####################
Month 26 : ###############
Month 27 : ###############
Month 28 : ##########
Month 29 : ##########
Month 30 : ##################
Month 31 : #############
Month 32 : ###################
Month 33 : ############
Month 34 : ##################
Month 35 : ####################
Month 36 : ##############################
Month 37 : ####################
Month 38 : ####################
Month 39 : ##############
Month 40 : ##########
Month 41 : ############
Month 42 : ##########
Month 43 : #########
Month 44 : #######
Month 45 : ############
Month 46 : ###################
Month 47 : ##########################

Month 48 : ################################
Month 49 : ################
Month 50 : ##############
Month 51 : ###########
Month 52 : ##########
Month 53 : #################
Month 54 : ###########
Month 55 : ###########
Month 56 : ############
Month 57 : #################
Month 58 : ###########################
Month 59 : ############################

Digit preference Weight:
Digit .0 : ##
Digit .1 : ##
Digit .2 : ###
Digit .3 : ##
Digit .4 : ###
Digit .5 : ###
Digit .6 : ##################################
Digit .7 : ##
Digit .8 : ###
Digit .9 : ##

Digit preference Height:
Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
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Digit .4 : ###
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Digit .6 : ###
Digit .7 : ############################
Digit .8 : ##############################
Digit .9 : ###################################

Standard deviation of wasting (WHZ < -2):
Standard Deviation SD: 1.129 (The SD should be between 0.85 and 1.10)
Prevalence counted: 10.3%
Prevalence calculated with current SD: 10.9%
Prevalence calculated with a SD of 1: 8.2%

Standard deviation of Stunting (HAZ < -2):
Standard Deviation SD: 1.365 (The SD should be between 1.10 and 1.30)
Prevalence counted: 19.3%
Prevalence calculated with current SD: 19.1%
Prevalence calculated with a SD of 1: 11.6%

Skewness and Kurtosis of WHZ:
Skewness of WHZ: 0.334 => probably skewed (value > 2*(6/n)½)
(Skewness characterizes the degree of asymmetry around the mean, positive skewness indicates a long right tail, negative skewness a long left tail)
Kurtosis of WHZ: 0.077 => probably no kurtosis problem (value < 2*(24/n)½)

(Kurtosis characterizes the relative peakedness or flatness compared with the normal distribution, positive kurtosis indicates a relatively peaked distribution, negative kurtosis incidates a relatively flat distribution)

Poisson distribution of clusters for WHZ:
number of clusters
1 children/cluster with WHZ < -2: ##
2 children/cluster with WHZ < -2: ########
3 children/cluster with WHZ < -2: ##########
4 children/cluster with WHZ < -2: ###
5 children/cluster with WHZ < -2: ####
6 children/cluster with WHZ < -2: #
7 children/cluster with WHZ < -2: #

Burao IDP Assessment Nutrisurvey Quality Checks
Anthropometric Indices out of usual range (mean -4.0, mean +4.0): None

Age distribution:
Month 6 : ######
Month 7 : ###
Month 8 : ####
Month 9 : ########
Month 10 : ######
Month 11 : ##########
Month 12 : #######
Month 13 : ###
Month 14 : #######
Month 15 : ####
Month 16 : ###
Month 17 : ####
Month 18 : #######
Month 19 : ###
Month 20 : ####
Month 21 : #
Month 22 : ###########
Month 23 : ####
Month 24 : ##########
Month 25 : #####
Month 26 : ###########
Month 27 : ####
Month 28 : #####
Month 29 : ##
Month 30 : ###
Month 31 : #####
Month 32 : ####
Month 33 : ##
Month 34 : #####
Month 35 : ##########
Month 36 : ############
Month 37 : ##
Month 38 : ########
Month 39 : ########
Month 40 : #######
Month 41 : ###
Month 42 : #######

Month 43 : ##
Month 44 : #######
Month 45 : #
Month 46 : ##
Month 47 : #####
Month 48 : ##########
Month 49 : ####
Month 50 : #########
Month 51 : #####
Month 52 : ##
Month 53 : #####
Month 54 : ######
Month 55 : ####
Month 56 : ####
Month 57 : ####
Month 58 : #######
Month 59 : ######

Digit preference Weight:

Digit .0 : ##############################
Digit .1 : ##############################
Digit .2 : ###################################
Digit .3 : #############
Digit .4 : ##
Digit .5 : ##########################
Digit .6 : ##
Digit .7 : ##########################
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Digit .9 : ################################

Digit preference Height:

Digit .0 : ##
Digit .1 : ###################################
Digit .2 : ###################################
Digit .3 : ##########################
Digit .4 : ##########################
Digit .5 : ############################
Digit .6 : ####################################
Digit .7 : ##################
Digit .8 : ##########
Digit .9 : ########################

Standard deviation of wasting (WHZ < -2):

Standard Deviation SD: 1.097 (The SD should be between 0.85 and 1.10)
Prevalence counted: 11.3%
Prevalence calculated with current SD: 11.0%
Prevalence calculated with a SD of 1: 9.0%

Standard deviation of Stunting (HAZ < -2):

Standard Deviation SD: 1.245 (The SD should be between 1.10 and 1.30)
Prevalence counted: 13.0%
Prevalence calculated with current SD: 11.0%
Prevalence calculated with a SD of 1: 6.4%

Skewness and Kurtosis of WHZ:

Skewness of WHZ: 0.232 => probably not skewed (value < 2*(6/n)½)

(Skewness characterizes the degree of asymmetry around the mean, positive skewness indicates a long right tail, negative skewness a long left tail)

Kurtosis of WHZ: -0.330 => probably no kurtosis problem (value < 2*(24/n)½)

(Kurtosis characterizes the relative peakedness or flatness compared with the normal distribution, positive kurtosis indicates a relatively peaked distribution, negative kurtosis incidates a relatively flat distribution)

Berbera IDP Assessment Nutrisurvey Quality Checks

Anthropometric Indices out of usual range (mean -4.0, mean +4.0): None

Age distribution:

Month 6 : ####
Month 7 : ####
Month 8 : ################
Month 9 : ##################
Month 10 : #########
Month 11 : ##############
Month 12 : #########
Month 13 : #######
Month 14 : #######
Month 15 : #####
Month 16 : ######
Month 17 : ######
Month 18 : #######
Month 19 : ###
Month 20 : #####
Month 21 : ###
Month 22 : #######
Month 23 : #########
Month 24 : #########
Month 25 : ######
Month 26 : ########
Month 27 : #####
Month 28 : ###
Month 29 : ####
Month 30 : #######
Month 31 : #####
Month 32 : ####
Month 33 : ###
Month 34 : ####
Month 35 : ####
Month 36 : ##############
Month 37 : #######
Month 38 : #########
Month 39 : ######
Month 40 : ###
Month 41 : ###
Month 42 : #######
Month 43 : ##
Month 44 : ######
Month 45 : ###
Month 46 : ##
Month 47 : #####

Month 48 : ########
Month 49 : ##
Month 50 : #####
Month 51 : ####
Month 52 : ####
Month 53 : ##
Month 54 : ####
Month 55 : ######
Month 56 : #####
Month 57 : ###
Month 58 : ####
Month 59 : ##

Digit preference Weight:

Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##
Digit .6 : ##
Digit .7 : ##
Digit .8 : ##
Digit .9 : ##

Digit preference Height:

Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##
Digit .6 : ##
Digit .7 : ##
Digit .8 : ##
Digit .9 : ##

Standard deviation of wasting (WHZ < -2):

Standard Deviation SD: 1.055 (The SD should be between 0.85 and 1.10)
Prevalence counted: 12.8%
Prevalence calculated with current SD: 11.6%
Prevalence calculated with a SD of 1: 10.3%

Standard deviation of Stunting (HAZ < -2):

Standard Deviation SD: 1.236 (The SD should be between 1.10 and 1.30)
Prevalence counted: 14.4%
Prevalence calculated with current SD: 14.5%
Prevalence calculated with a SD of 1: 9.6%

Skewness and Kurtosis of WHZ:

Skewness of WHZ: 0.106 => probably not skewed (value < 2*(6/n)½)
(Skewness characterizes the degree of asymmetry around the mean, positive skewness indicates a long right tail, negative skewness a long left tail)
Kurtosis of WHZ: -0.496 => probably no kurtosis problem (value < 2*(24/n)½)

(Kurtosis characterizes the relative peakedness or flatness compared with the normal distribution, positive kurtosis indicates a relatively peaked distribution, negative kurtosis indicates a relatively flat distribution)

Appendix 7: Team Composition

No.	Team members	IDP Settlement
1	Suheyr Hassan Ahmed	Hargeisa
2	Safia Ali Hussien	
3	Ubeh Farah Osman	
4	Ali Maygaag	
5	Kadhra M Mohamud	
6	Deeqa Xaashu Xandule	
7	Luda M Hussien	
8	Muhumed M Ali	
9	Kahadar Mohamed Omar	
10	Jillo M Qaalib	
11	Nimo Ismail Ibrahim	
12	Ubah M Dualle	
13	Liibaan Ahmed Xassan	
14	Mukhtaar J Kaahil	
15	Nagaad S Kaarsher	
16	Ahmed Mohamed Taami	
17	Fadxima S Warsame	
18	Khadar A Cumar	
19	Deria A Said	
20	Mohamed Hassan Gani	
21	Mubaariq Omar Ahmed	
22	Asha M Hersi	
23	Ibrahim Musse	
24	Hodan A Ahmed	
25	Said Mohamed Awali	
26	Hassan H Ahmed	
27	Adan Haibeh Farah	
28	Asha Osman	
29	Qani Mohamed Jirde	Berbera
30	Ahmed H Kodi	
31	Cawil C Muse	
32	C/Qaada Maed Abdi	
33	Safia Baashe Adan	
34	S Yusuf Maxamad	
35	Shukri C Maxamed	
36	Kaafiya C Maxamud	Burao
37	Madhi Jama Noor	
38	Sahma Hassan Dualle	
39	Farxiya Ahmed Deria	
40	Hawa Ismail Ahmed	
41	Faisal Arab Abdi	
42	Osman Warsame	FSAU
43	Fuad Hassan	FSAU
44	Abdullahi Warsame	FSAU
Coordinators:	1. Tom J. Oguta	FSAU
	2. Louise Masese	FSAU
	3. Mathiuex Joynex	UNICEF

Appendix 8 : Child Referral Form

REFERRAL FORM FOR MALNOURISHED CHILDREN

Name of the village: _____Date:_____

Name of the child:_____ Sex of child: _____

Age of child: _____ Name of caretaker: _____

Child diagnosed with (state the condition): _____

Child referred to: _____

Child referred by: _____

……

REFERRAL FORM FOR MALNOURISHED CHILDREN

Name of the village: _____Date:_____

Name of the child:_____ Sex of child: _____

Age of child: _____ Name of caretaker: _____

Child diagnosed with (state the condition): _____

Child referred to: _____

Child referred by: _____

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