

NUTRITION ASSESSMENT

GAROWE AND GALKAYO IDP POPULATIONS



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United Nations Children's Fund (UNICEF)
Ministry of Health and Labour (MOHL)**

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Abbreviations and Acronyms

ARI	Acute Respiratory Infections
FAO	Food and Agriculture Organisation
FSAU	Food Security Analysis Unit
GAM	Global Acute Malnutrition
HAZ	Height- for- Age Z scores
HDDS	Household Dietary Diversity Score
HFA	Height for Age
IDP	Internally Displaced Person
KM	Kilo Metres
MCH	Maternal and Child Health
MOH	Ministry of Health
MUAC	Mid Upper Arm Circumference
NGOs	Non-Governmental Organisations
PWA	Post War Average
LEZ	Livelihood Economic Zones
LNGO	Local Non-Governmental Organisation
INGO	International Non-Governmental Organisation
NIDs	National Immunisation Days
OR	Odds Ratio
RR	Relative Risk
SSS	Somalia Support Secretariat
SMART	Standardised Monitoring & Assessment of Relief and Transitions
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commission of Refugees
VAD	Vitamin A Deficiency
UNICEF	United Nations Children's Fund
WAZ	Weight for Age Z Scores
WFP	World Food Programme
WHO	World Health Organisation
WHZ	Weight for Height Z scores

Acknowledgements

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Special thanks goes to the mothers, caregivers, leaders and the community as a whole in IDP camps for their cooperation, time and for providing information individually and in focus group discussions that helped the survey team to get a better understanding of the nutrition situation in the camps.

Executive Summary

In May 2008, FSAU and partners conducted exhaustive nutrition surveys among the IDP population in Garowe and Galkayo towns. The main objective of the survey was to determine the level of wasting among the children aged 6-59 months, monitoring against the previous assessments and to analyze the possible factors contributing to acute malnutrition. A summary of the results from both assessments is documented below.

Garowe

Garowe town is the capital of Puntland; it is host to IDPs mainly from south Somalia, who have fled civil strife and food insecurity. There are six IDP settlements¹ in Garowe town; however the living conditions and environmental sanitation in these settlements is very poor, predisposing IDPs to disease and malnutrition. Most IDPs have limited job opportunities with the few relying on casual employment and petty trade for livelihoods that attract very low income. The lack of an established livelihood system and generally limited access to basic needs and services including food, clothing, shelter, water, sanitation and health contribute to malnutrition, ill health and food insecurity among the IDP population. This is the first nutrition survey to be conducted amongst the IDP population in Garowe town.

A total of 323 children from 170 households were assessed, and a total of 281 households assessed for mortality. The results indicate a global acute malnutrition (GAM weight for height <-2 Z score or oedema) rate of **22.6%** and severe acute malnutrition rate, SAM, (Weight for height <-3 or oedema) of **1.5%**. This indicates a **Very Critical** nutrition situation based on WHO classification. Based on NCHS reference standards, the stunting and underweight rates reported were 28.5% and 41.8% respectively. One confirmed case of oedema (**0.3%**) was reported. The 90 days retrospective crude and under five mortality rates was estimated at **0.38** and **0.31** deaths per 10,000 per day respectively, both at acceptable levels according to the WHO classification. The reported causes of death were diarrhoea, birth complications and accidents (physical injuries). Among the children assessed in Garowe IDP settlements, children aged 30-59 months of age were more likely to be acutely malnourished than children from other age groups. It was noted that a slightly higher proportion of boys (23%) were acutely malnourished compared to the girls (22.4%), however there was no statistical difference between the two groups. The prevalence of chronic malnutrition (stunting) also reflected the same situation, with a slightly higher proportion of boys (29.8%) being chronically malnourished as compared to the girls (26.8%), both classified as Serious (WHO).

The percentage of children who had suffered from one or more communicable childhood diseases in the two weeks prior to the assessment was 59.1%. The percentage of children reported to have suffered from diarrhoea in the two weeks prior to the assessment was 41.8%, while 37.5% had suffered from ARI. The reported malaria (febrile illness) reported was 13% among the Garowe IDPs, however, the rapid diagnostic tests (RDT) for malaria confirmed a prevalence of 5.5%. High morbidity rates can be attributed to the lack of quality health services and poor sanitation in the settlements. An abysmal 7.1% of the households had access to toilet facilities, while the remaining proportion of the households used an open field. Access to safe water in Garowe IDP settlements is a challenge, with only 12.9% of the households having access to clean drinking water. Garowe IDP settlements have received minimal interventions.

In Garowe, a large proportion of the households (81.8%) consumed more than four food groups in the preceding 24 hours. However, in Garowe none of the children from the assessed households were fed the recommended five times a day, with majority (73.6%) being fed 2-3 times a day, Breastfeeding practices were also poor, with only 35.8% of the children aged 6-29 months breastfeeding.

Galkayo

Galkayo town is the capital of Mudug region, Puntland, and is a flourishing trade town which links central regions to the north of the country. Due to the relative peace and business opportunities, Galkayo town continues to play host to many internally displaced persons fleeing from the central and southern parts of Somalia and Ethiopia. There are seven IDP settlements in ²Galkayo town in which living conditions and environmental sanitation are poor, predisposing IDPs to disease and poor personal hygiene, as clean water is not provided. In May 2007, in Galkayo a nutritional survey recorded a global acute malnutrition rate (GAM weight for height <-2 Z score or oedema) of 21.9% and severe acute malnutrition (SAM; weight for height <-3 Z score or oedema) rate of 2.2%, classified as a **Very Critical** nutrition situation (FSAU Integrated Nutrition Analysis). This information together with recommended action to address the contributing factors to malnutrition was disseminated by FSAU directly to partners through coordination meetings and FSAU publications (Nutrition Update July/August 2007).

¹ Waabari, Isku-raran, Dalaxiis, Riiga, Camay, Shyasin

² Bulbously, BuloElay, Buloajuran, Shimbiraley, Wershadda Gellelyda, Tawaka and Sinay

In May 2008 nutrition assessment among the Galkayo IDP settlements, a total of 1029 children from 549 households were assessed. A total of 687 households were assessed for mortality. The results indicate a global acute malnutrition (GAM weight for height <-2 Z score or oedema) rate of **21.1%** and severe acute malnutrition rate (SAM weight or height <-3 or oedema) of **2.2%**. This indicates a **Very Critical** nutrition situation (WHO). Based on NCHS reference standards, the stunting and underweight rates reported were 41.7% and 54.8% respectively. Five confirmed cases of oedema (**0.5%**) were reported. The 90 day retrospective crude and under five mortality rates were estimated at **0.41** and **0.66** deaths/10,000/day respectively, both are at acceptable levels according to the WHO classification. The main causes of death reported were due to diarrhoea, accidents (physical injuries), birth complications, malaria and unconfirmed anaemia. No improvement in the nutrition situation has been noted from the previous assessment, conducted exactly the same time last year, the nutritional situation still remains as **Very Critical**.

The percentage of children who had suffered from one or more communicable childhood diseases in the two weeks prior to the assessment was 50.5%. The proportion of children that had suffered from diarrhoea, ARI and febrile illness was 30.9%, 20.9% and 23.6% respectively. Although still wanting 74.8% of the households in Galkayo IDP settlements had access to sanitation facilities. In Galkayo IDP settlements, a large proportion of the households (76.5%) had access to safe water. Galkayo IDP settlements have received various interventions from different partners focusing on health, sanitation, water and food programmes.

Among the children assessed in Galkayo IDP settlements, there was no statistical difference in malnutrition between the sexes in the study group, however it was noted that a higher proportion of boys were likely to be acutely malnourished as compared to the girls, this is consistent with previous studies conducted in the country, and this trend still requires further investigation. The proportion of acutely malnourished children was highest in children aged less than 29 months. Among the urban populations, there is usually a wide variety of foods, this helps in increasing the dietary diversity in the IDP settlements assuming that the food is accessible to the population. In Galkayo 54.8% of the households consumed more than four food groups in the preceding 24 hours, with only 14.5% of the children fed the recommended five times a day, with the larger proportion of the children (42.2%) being fed 2-3 times a day. Only 49.7% of the children aged 6-29 months were breastfeeding during the time of the assessment.

The chronic poor nutrition situation, in both the IDP settlements can mainly be attributed to lack of adequate access to proper sanitation, poor child care practices and high morbidity. In all the settlements, despite the fact that there was no statistical relationship between acute malnutrition and morbidity, especially diarrhoea, it is vital to note that morbidity is a major risk factor for malnutrition among the children assessed. This is demonstrated by the fact that the over half the acutely malnourished children in both settlements had suffered from one or more communicable disease in the two weeks prior to the assessment. Therefore there is 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. Households that do not have access to sanitation facilities are more likely to be predisposed to diarrhoeal diseases, which consequently affect the nutritional and health status of individuals. 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 household's 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. Acute malnutrition rates in both Garowe and Galkayo can mainly be attributed to poor child care and feeding practices, including early introduction to complimentary foods, low breastfeeding in younger children, low immunization and vitamin supplementation coverage, lack of adequate health care and high morbidity, especially diarrhoea. Among the urban populations, there is usually a wide variety of foods, this helps in increasing the dietary diversity in the IDP settlements assuming that the food is accessible to the population.

Summary of Assessment Findings

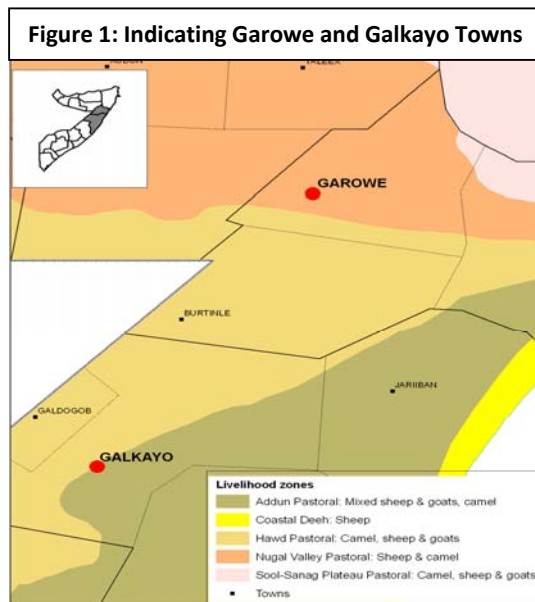
Table 1: Summary of Survey Findings in Garowe and Galkayo Protracted IDPs

Indicator	Garowe IDPs		Galkayo IDPs	
	N	%	N	%
Total number of households surveyed	170	100	549	100
Mean household size	4.9	±1.79	5.5	±2.07
Total number of children assessed	323	100	1029	100
Child Sex:				
Males	181	56.0	514	50.0
Females	142	44.0	515	50.0
Global Acute Malnutrition GAM (WHZ<-2 or oedema)	73	22.6	219	21.3
Severe Acute Malnutrition SAM (WHZ<-3 or oedema)	5	1.5	23	2.2
Oedema	1	0.3	5	0.5
Global Acute Malnutrition (WHO Anthro 2005)	64	19.8	236	22.9
Severe Acute Malnutrition (WHO Anthro 2005)	18	5.6	60	5.8
Global Acute Malnutrition (WHM<80% or oedema)	46	14.2	152	14.8
Severe Acute Malnutrition (WHM<70% or oedema)	2	0.6	9	0.9
Proportion of stunted children (HAZ<-2)	92	28.5	429	41.7
Proportion of underweight children (WAZ<-2)	135	41.8	564	54.8
Total children acutely malnourished (MUAC< 12.5cm or oedema (Gar N=285 Gal N=864)	28	9.8	70	8.1
Children severely malnourished (MUAC< 11.0cm or oedema (Gar N=285 Gal N=864)	2	0.7	9	1.0
Total women acutely malnourished (MUAC <18.0 cm) (Gar N=165 Gal N=537)	2	1.6	12	2.9
Total preg. women acutely malnourished (MUAC <23.0 cm) (Gar N=38 Gal N=124)	15	39.5	27	21.8
Proportion of children with Diarrhoea in 2 weeks prior to assessment	135	41.8	318	30.9
Proportion of children with ARI within two weeks prior to assessment	121	37.5	215	20.9
Children with suspected malaria in 2 weeks prior to assessment	42	13.0	243	23.6
Suspected measles within one month prior to assessment (Gar N=305 Gal N=980)	6	2.0	48	4.9
Children (9-59 months) immunized against measles (Gar N=305 Gal N=980)	6	2.0	304	31
Children who have ever received polio vaccine	300	92.9	926	90
Children who received vitamin A supplementation in last 6 months	7	2.2	630	61.2
Maternal Tetanus Immunization				
Proportion of households who consumed ≤3 food groups	34	20	254	46.3
Proportion of households who consumed ≥4 food groups	136	80	295	53.7
Proportion of children 6-24 months who are breastfeeding (Gar N=106 Gal N=344)	38	35.8	171	49.7
Under five Death Rate (U5DR) as deaths/10,000/ day	0.31 (0.26-0.87)		0.66 (0.27-1.06)	
Crude Death Rate (CDR) as deaths/10,000/ day (N=882)	0.38 (0.05-0.71)		0.41 (0.19-0.63)	

1.0 Introduction

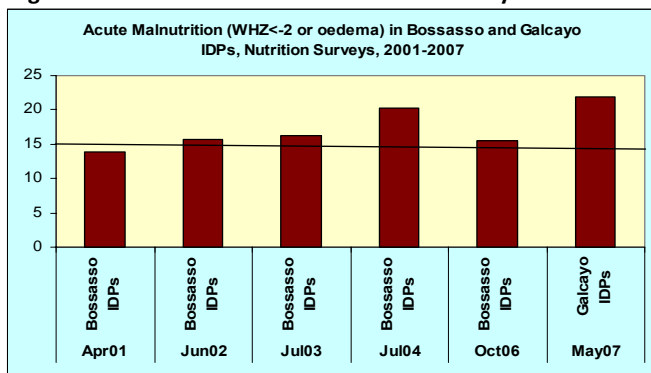
1.1 Historical Context

Garowe town is the capital town in the north east region of Somali. Garowe is host to IDPs mainly from south Somalia, who have fled civil strife and food insecurity. There are six IDP settlements³ in Garowe town; however the living conditions and environmental sanitation in these settlements is very poor, predisposing IDPs to disease and malnutrition. Galkayo town is the capital of Mudug region; it is a flourishing trade town which links central regions to the north of the country. Galkayo town continues to host several internally displaced persons fleeing from the central and southern parts of Somalia and Ethiopia because of civil strife and food insecurity. There are seven IDP settlements in⁴ Galkayo town in which there are poor living conditions and environmental sanitation, predisposing IDPs to disease and poor personal hygiene, as clean water is not provided. The lack of an established livelihood system and general limited access to basic needs and services including food, clothing, shelter, water, sanitation and health contribute to malnutrition, ill health and food insecurity among the IDP population.



1.2 Nutrition Situation

Figure 2: Trends of Acute Malnutrition in Galkayo and Bossaso



Critical levels of malnutrition have persisted in the Galkayo and Bossaso IDP camps for a long time, as mentioned (See figure 2.) The persistent grave nutrition situation is mainly attributed to food insecurity, high morbidity due to poor living conditions and poor child feeding practices. These acute malnutrition levels are critical and are of higher magnitude than rural livelihoods in the same region. The levels have persisted in the IDP camps in the NEZ since year 2000. The reasons for elevated acute malnutrition rates in the Galkayo and Bossaso IDP camps as compared to the other livelihoods in the north east region is mainly

attributed to food insecurity, as the IDPs mainly depend on casual labour that pays low wages, and do not benefit from the remittance system common in most other livelihood systems in Somalia, high morbidity and poor sanitation. Casual employment and petty trading remain the main source of livelihood among IDP in Galkayo and Garowe town. Therefore the majority of the IDPs have to purchase their food locally. The activities undertaken by men include market services as porters, market vending, as well as providing unskilled or semiskilled labour on construction sites. A significant number of women engage in garbage collection, petty trading, sorting/grading of frankincense or are employed as house help.

In May 2007, in Galkayo a nutritional survey recorded a global acute malnutrition rate (GAM weight for height <-2 Z score or oedema) of 21.9% while the severe acute malnutrition (SAM weight for height <-3 Z score or oedema) was 2.2%, classified as a **Very Critical** situation (WHO). A total of 687 households were assessed for mortality. Among the Galkayo IDPs, the results indicate a global acute malnutrition (GAM weight for height <-2 Z score or oedema) rate of **21.1%** and severe acute malnutrition rate (SAM weight or height <-3 or oedema) of **2.2%**. This indicates a **Very Critical** nutrition situation based on WHO classification. In May 2008, FSAU and partner agencies conducted a nutrition survey among the IDP population in Garowe, this is the first nutrition survey to be conducted amongst the IDP population in the urban town, and therefore will serve as baseline information. The main objective of the survey was to determine the level of wasting among the children aged 6-59 months, and to analyze possible factors contributing to acute malnutrition. The

³ Waabari, Isku-raran, Dalaxiis, Riiga, Camay, Shyasin

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assessment was exhaustive, with a total of 323 children and 170 households assessed. A total of 281 households were assessed for mortality. The results indicate a global acute malnutrition (GAM weight for height <-2 Z score or oedema) rate of **22.6%** and severe acute malnutrition rate, SAM, (Weight for height <-3 or oedema) of **1.5%**. This indicates a **Very Critical** nutrition situation based on WHO classification. Based on NCHS reference, the stunting and underweight rates reported were 28.5% and 41.8% respectively. One confirmed case of oedema (0.3%) was reported. The 90 days retrospective crude and under five mortality rates was estimated at **0.38** and **0.31** deaths per 10,000 per day respectively and are both at acceptable levels according to the WHO classification. The reported causes of death were diarrhoea, birth complications and accidents

1.3 Health context

There are two MCH/OPD centres, one public hospital and several private clinics and pharmacies in Galkayo town. UNICEF supports the MCH centre with essential drugs and EPI supplies. Although the MCH centre located at the centre of the town serves the town population, including the IDPs with essential health services including EPI, MCH/OPD, the utilization rate of these services by the IDPs was relatively low. The poor sanitation is the main contributory factor of the diarrhoeal diseases in the settlements in Galkayo and Garowe.

1.4 Water and Sanitation context

In Galkayo town, the main sources of water are from Berkads, shallow wells and four bore-holes supported by private companies and SRCS. Water from these wells is sold at a low price and provides income generation to the community. For the IDP camps the main source of water is from shallow wells. The sanitation status in the IDP camps has been poor due to continuous dumping of solid wastes and human excreta in the open grounds. There is no allocated land for the disposal of refuse in the town with the result of the IDP population usually dumping the garbage in the camps grounds. In Garowe town, the main source of water for the households is from surface run off and shallow wells. Poor sanitation remains a challenge in Garowe IDP settlements.

1.5 Assessment Justification

Critical levels of acute malnutrition have persisted among the Galkayo protracted IDP camps for a long time. The most recent assessment conducted by FSAU in May 2007 recorded a global acute malnutrition rate of **21.9%**. IDP populations mainly rely on petty trade and casual labour for their livelihood. The unstable livelihood system makes them vulnerable to acute malnutrition. It was therefore important to assess the nutrition situation after a series of livelihood disruptions. It was also essential to ascertain the nutritional status of the Garowe IDPs, residing in analogous conditions; this is the first nutrition survey being conducted among the Garowe IDPs. The aim of the survey was to determine the nutritional status of children between 6-59 months. The survey also sought to establish factors influencing the nutrition status and to provide recommendations for interventions based on the findings

Objectives of the Study:

The specific objectives of the assessments were;

1. To estimate the level of acute malnutrition and nutritional oedema among children aged 6-59 months.
2. To estimate the level of acute malnutrition among adult women aged 15-49 years in Galkayo and Garowe IDP settlements.
3. To identify factors likely to have influenced acute malnutrition in young children in the Galkayo and Garowe IDP settlements.
4. To estimate the prevalence of some common diseases (measles, diarrhoea, malaria, and ARI) in the Galkayo and Garowe IDP settlements.
5. To estimate the dietary diversity of the IDP population in Galkayo and Garowe settlements.
6. To estimate measles and polio vaccination and vitamin A supplementation coverage among children in Galkayo and Garowe IDP settlements.
7. To estimate the crude and under-five mortality rates in Galkayo and Garowe IDP settlements.

2.0 Methodology

Two cross-sectional studies were conducted concurrently in the population of Garowe and Galkayo 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 1). 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 2 and 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 Garowe and Galkayo IDP settlements, exhaustive assessments were conducted ensuring that all children aged 6-59 months in the study area, were assessed. Retrospective mortality data was collected from all the households including those that did not have children aged 6-59 months.

A four-day training of enumerators and supervisors was conducted in Garowe and also in Galkayo towns. 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 IDP camps in both towns. 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.

3. Assessment results

3.1 Household Characteristics of Study Population

Characteristics	Garowe		Galkayo	
	N	%	N	%
Total Households	170	100	549	100
Total number of children assessed	323	100	1029	100
Sex of Children Assessed				
Male	181	56.0	514	50.0
Female	142	44.0	515	50.0
Household size (Mean):	4.88	±1.79	5.53	±2.07
Mean No of Under fives	2.05	±0.78	2.1	±0.91
Sex of Household Head:				
Male	147	86.5	411	74.9
Female	23	13.5	138	25.1
Household residential status:				
Resident	3	1.8	2	0.4
IDP < 6 months	37	21.8	115	20.9
IDP > 6 months	130	76.5	432	78.7
Households Hosting recent IDPs				
Yes	13	7.6	55	10
No	157	92.4	494	90
Mean No. of IDPs hosted per HH	1.77	±1.67	1.87	±0.98
Household's main source of Income				
Animal and Animal Product Sales	-	-	3	0.5
Crop Sales	1	0.6	4	0.7
Trade	-	-	4	0.7
Casual Labour	161	94.7	522	95.1
Salaried/Wage Employment	-	-	3	0.5
Remittances/ Gifts	1	0.6	8	1.5
Others	7	4.1	5	0.9

The nutrition assessments covered a total of 170 households in Garowe and 549 households in Galkayo IDP settlements. The mean household size was 4.9 (±1.79) and 5.5(±2.07) in Garowe and Galkayo IDPs respectively. The total number of children assessed was 323 and 1029 in Garowe and Galkayo respectively. The mean number of under five children per household was 2.05(±0.78) and 2.1 (±0.91) in Garowe and Galkayo IDP settlements respectively. The detailed results of the household characteristics of the study population are presented in the table 2.

The results showed that a bigger proportion of the households were male headed, 86.5% and 74.9% in Garowe and Galkayo IDP settlements respectively. The results also indicate that a small proportion (<10%) of protracted IDPs in both Garowe and Galkayo IDP settlements towns were hosting recently displaced IDPs, mainly from South and Central Somalia. The households hosted a mean number of 1.7 and 1.8 persons in Garowe and Galkayo IDP settlements respectively. The household's main source of income in both assessments in Garowe and Galkayo was through casual labour, very few of the households reported receiving remittances/gifts in both

Garowe and Galkayo IDP settlements. From the qualitative data collected, households from both assessments reported reduced job opportunities in the area, this is a major concern given the increase in food prices in the local markets.

3.2 Access to Water, Sanitation and Health Facilities

Characteristics	Garowe		Galkayo	
	N	%	N	%
Basic Hygiene				
Yes	112	65.9	411	74.9
No	58	34.1	138	25.1
Type of toilet used				
VIP Latrine	3	1.8	155	28.2
Latrine	9	5.3	256	46.6
Bush	158	92.9	138	25.1
Reason for no access to toilet				
Lack of resources	158	100	103	74.6
No need	0	0	32	23.2
Distance b/w latrine and water source				
1-30m	9	5.3	58	10.6
30m	10	5.9	161	29.3
N/A	151	88.8	330	60.1
Number sharing same toilet facility				
One	4	33.3	62	27.2
2-9	6	50.0	102	44.7
10 or more	2	16.7	64	28.1

The sanitation and health facilities in both Garowe and Galkayo IDP settlements were inadequate compared to the need of the households in the areas. Majority (87.1%) of the households assessed in Garowe IDP settlements did not have access to clean drinking water, on the contrary only 23.5% of the households from Galkayo IDP settlements did not have access to clean drinking water.

The main source of drinking water in the Garowe IDP settlements was surface water (72.4%), followed by water from wells (18.8%). In Galkayo, a larger proportion (76%) of the household's main source of water was from tap water, while 16% was from surface water. In Garowe settlement, the main reason given for lack of access to safe drinking water is because a large proportion (87.2%) of the households can not afford to purchase clean drinking water, while in Galkayo, the main reason for lack of access to water is non availability (49.6%). In Garowe only 9.4% of the

households treated their drinking water at the source or during storage, while in Galkayo at least half (50.5%) of the households treated their drinking water. The main method of water treatment was chlorination, in Garowe 87.5% of the households that treated their water (N=16) used chlorination, while in Galkayo 91.3% also used chlorination as a method of treating drinking water before consumption. In both Garowe (55.9%) and Galkayo (71.9%) IDP settlements, households

took less than thirty minutes to fetch water, while the remaining proportion took less than an hour. A large proportion of the households, Garowe (75.3%) and Galkayo (70.5%) had only 1-2 containers for the storage of water in the house, and stored in closed containers.

Characteristics	Garowe		Galkayo	
	N	%	N	%
Source of domestic water				
Tap/Piped	11	6.5	387	70.5
Tanker Truck	3	1.8	9	1.6
Tube Well	28	16.5	32	5.8
Spring	3	1.8	7	1.3
Roof Top	6	3.5	1	0.2
Surface Water	119	70.0	113	20.6
Source of Drinking Water				
Tap Water	14	8.2	417	76
Tanker Truck	1	0.6	6	1.1
Tube Well	32	18.8	38	6.9
Surface Water	123	72.4	88	16.0
Have access to safe water				
Yes	22	12.9	420	76.5
No	148	87.1	129	23.5
Reliable Water Supply				
Reliable Supply	87	51.2	386	70.3
Seasonal Supply	14	8.2	70	12.8
Occasional Problem	67	39.4	65	11.8
Frequent Problem	2	1.2	28	5.1
Water treated at Source				
Yes	16	9.4	277	50.5
No	154	90.6	272	49.5
Method of Treatment				
Boiling	2	12.5	20	7.2
Chlorination	14	87.5	253	91.3
Mean Time to water point				
<30 minutes	95	55.9	395	71.9
30-60 minutes	74	43.5	139	25.3
1-2 hours	1	0.6	15	2.7
No. Of Storage Containers				
1-2	128	75.3	387	70.5
3-4	41	24.1	141	25.7
4-5	1	0.6	20	3.6
>5			1	0.2

About a third of the households in Garowe (65.9%) and Galkayo (74.9%) practiced basic hygiene which included washing of hands after visiting the toilet, before eating, feeding the baby, cooking, after eating, after visiting the toilet and changing the baby. In Garowe settlements, there were no toilet facilities with 92.9% of the households using an open area; the households cited lack of resources as the major constraint in accessing proper toilet facilities. Fifty percent of the households shared the toilet facilities between 2-9 people, while 33% of the households did not share the toilet facilities, and only 16.7% of the households shared the toilet among ten households.

In Galkayo IDP settlements, 28% of the households used VIP latrines, 46% used latrines, while 25.1% used open area. Forty four percent of the households shared toilets between 2-9 households, while only 27.2% used one toilet, and the remaining percentage shared one toilet with over 10 households. The use of open bush ground for faecal disposal, coupled with consumption of water from opens sources poses a risk of contamination of drinking water, a predisposing factor to diarrhoeal infections and acute malnutrition.

In Garowe settlement, a high proportion of the households (72.4%) of the households did not use any washing agent for cleaning, with only 23.5% of the households using soap. In Galkayo IDP assessments, half (51%) of the households used washing agents during cleaning, 26% used ash, while 19.5% used soap. The remaining proportions (<5%) used shampoo and plant extracts as cleaning agents.

3.3 Household Food Security

3.3.1 Food Consumption

Figure 3: Consumption of Food Groups in Garowe IDPs

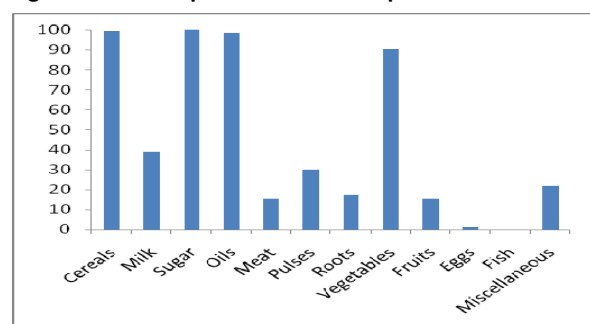
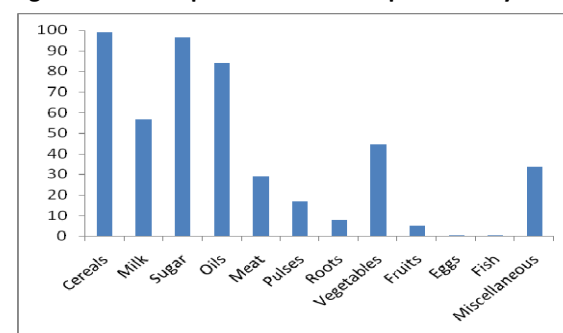


Figure 4: Consumption of Food Groups in Galkayo IDPs



As illustrated in figure 3 and 4 cereals provided the bulk of the food in the household diet. Cereal based diets were consumed by all the assessed households in both studies. In Garowe and Galkayo, other foods mostly consumed by the households include sugar, oil, and milk (see table 2.5). A relatively lower proportion (<10%) of the households consumed the following food groups meat, pulses, roots, vegetables, fruits and eggs in both study areas. According to the qualitative

data collected, high food prices and inadequate supply of regular food commodities have led households to consume less preferred foods. The preferred cereals consumed in the study population was mainly wheat flour, and rice, but now due to increased prices and availability, maize and sorghum are the main cereals being consumed.

Characteristics	Garowe		Galkayo	
	N	%	N	%
<i>Main source of food</i>				
Purchasing	170	100	543	98.9
Gifts from friend			1	0.2
Bartering			1	0.2
Borrowed			3	0.5
<i>Main source of cereals</i>				
Purchasing	169	99.4	539	98.2
Gifts			1	0.2
Food aid			2	0.4
Bartered				
Borrowed			2	0.4
N/Applicable	1	0.6	5	0.9
<i>Main source of milk</i>				
Own production			3	0.5
Purchasing	66	38.8	301	54.8
Gifts			1	0.2
Borrowed			8	1.5
N/Applicable	104	61.2	236	43.0
<i>Number of meals taken/day</i>				
One	64	37.6	175	31.9
Two	103	60.6	255	46.4
Three	3	1.8	119	21.7

As expected, in both Garowe (100%) and Galkayo (98.9%) IDP settlements, the main source of food was through purchases. In Galkayo, the remaining proportion of the households (<2%) relied on gifts from friends and bartering as a source of food. The main source of cereals in both study areas was through purchasing (99%). The main source of milk for the households was through purchase. In Garowe, 38.8% of the households consumed milk, while in Galkayo, 54.8% of the households consumed milk, the remaining proportion of the households in both assessments were not able to access milk because they could not afford it. About 60.6% and 46.4% of the households in Garowe and Galkayo IDP settlements respectively were consuming two meals a day. In Garowe, only 1.8% of the households were consuming three meals a day, while in Galkayo 21.7% of the households were consuming three meals a day. In Garowe (37.6%) and Galkayo (31.9%) a high proportion of the households were consuming only one meal a day. According to key informants, there has been a reduction in the number and portions of meals consumed due to high food prices and reduced availability income opportunities.

3.3.2 Dietary Diversity

Characteristic	Garowe		Galkayo	
	N	%	N	%
Food Groups Consumed N= 255				
<i>No of food groups consumed</i>				
Cereals	169	99.4	544	99.1
Milk	66	38.8	312	56.8
Sugar	170	100	529	96.4
Oils	168	98.8	460	83.8
Meat	26	15.3	159	29.0
Pulses	51	30.0	93	16.9
Roots	29	17.1	42	7.7
Vegetables	154	90.6	244	44.4
Fruits	26	15.3	27	4.9
Eggs	2	1.2	3	0.5
Fish	0	0	2	0.4
Miscellaneous ⁵	37	21.8	184	33.5
<i>No. Having Diversified Diet</i>				
1-3 food groups	34	20.0	254	46.3
≥ 4 food groups	136	80.0	295	53.7
Mean HDDS	5.2 ± 1.07		4.7 ± 1.41	

Further analysis of the food consumed in the preceding 24 hours indicated a mean dietary diversity score of 5.2(± 1.07) and 4.7(± 1.41) in Garowe and Galkayo IDP settlements. In both Garowe (53.7%) and Galkayo (80.0%) IDP settlements, a higher proportion of the households consumed more than four food groups a day; this demonstrates that the households were consuming a diversified diet. Table 6 summarizes the food group consumption for both assessments. According to the previous nutrition assessment in Galkayo conducted in May 2007, whereby the average HDDS was 6.43 (±1.6), it is important to note that the HDDS has reduced, indicating a deterioration in household food security.

⁵ Includes foods such as spices, chocolates, sweets, beverages etc

3.4 Child feeding, Morbidity, Immunization and Health Seeking Behaviour

Characteristics	Garowe		Galkayo	
	N	%	N	%
Incidence of major child illnesses				
Child fell sick two weeks prior to assessment	191	59.1	520	50.5
Proportion of children with diarrhoea 2 wks prior to assessment	135	41.8	318	30.9
Proportion of children with ARI within 2 wks prior to assessment	121	37.5	215	20.9
Children with febrile illness in 2 wks prior to assessment	42	13.0	243	23.6
Health Services Sought				
No Assistance Sought	67	35.8	222	36.2
Own Medication	-	-	31	5.0
Traditional Healer	-	-	9	1.5
Private clinic	103	53.4	100	16.3
Public Health facility	21	10.9	252	41.0
Suspected measles within one month prior to assessment (N=466)	6	2.0	48	4.9
<i>Immunization Coverage</i>				
Children (9-59 months) immunised against measles (N=466)	6	2.0	304	31.0
Children who have ever received polio vaccine	300	92.9	926	90.0
Children who received vitamin A supplementation in last 6 months	7	2.2	630	61.2

High morbidity rates 59.1% and 50.5% in Garowe and Galkayo IDP settlements respectively were reported among the children under five years. In Garowe IDP settlement (35.8%) and Galkayo (36.2%) of the children reported to have fallen ill did not seek medical attention. The remaining proportion of children in both Garowe and Galkayo settlements visited either a private or public health facility for treatment, as illustrated in table 2.6 The main diseases reported were diarrhoea, acute respiratory illness (ARI), suspected malaria

(febrile/fever) and suspected measles⁶. Diarrhoea and ARI were the most reported illnesses, among the children in the households in Garowe 41.8% and 37.5% respectively. Among the households in the Galkayo IDP settlements, 30.9% of the children suffered from diarrhoea, while 20.9% suffered from ARI two weeks prior to the assessment. The suspected reported measles cases one month prior to the assessment were 2.0% among the under five children in the Garowe IDP population, and 4.9% among the under five children in Galkayo IDP population. The children with febrile illness in the two weeks prior to the assessment was 13.0% and 23.6% among the under five children in Garowe and Galkayo IDP settlements respectively. However, the Rapid diagnostic tests (RDTS) conducted for malaria reported a total prevalence of 5.5% and 4.2% for *Plasmodium falciparum*. Immunization status for measles and vitamin A supplementation in both Garowe and Galkayo IDP settlements was well below recommended standards⁷ see table 7 above. Measles immunization in both Garowe and Galkayo IDP settlements was higher with <90% of the children in the IDP settlements vaccinated against measles. Although there was no statistical association, acute between malnutrition and morbidity in the study, it is equally significant to note that 63% and 55.7% of the acutely malnourished children in Garowe and Galkayo IDP settlements were also reported to have fallen ill 2 weeks prior to the assessment. There was no statistical association between acute malnutrition and diarrhoea among the children in the study, however the link between diarrhoea, morbidity and acute malnutrition has been well documented from previous assessments in the region and their relationship can not be ignored.

3.4.1 Child Feeding Practices

Characteristic	Garowe		Galkayo	
	N	%	N	%
Breastfeeding N=166	38	35.8	171	49.7
Breastfeeding frequency				
2 times or less	2	5.3	15	8.8
3-6 times	26	68.4	65	38.0
On demand	10	26.3	91	53.2
Breastfeeding Duration				
Less than 6 months	31	45.6	70	40.5
6-11 months	27	39.7	59	34.1
12-18 months	6	8.8	37	21.4
≥18 months	1	1.5	7	4.0
Never breastfeed	3	4.4	-	-
Introduction of Complimentary food				
0-3 months	92	86.8	287	83.4
4-5 months	13	12.3	36	10.5

⁶ 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

⁷ Sphere 2004 recommend 95% immunization coverage

6 months	1	0.9	16	4.7
7 months or more	0	0	5	1.5
Complimentary feeding frequency				
Once	26	24.5	51	14.8
2-3 times	78	73.6	145	42.2
4 times	2	1.9	98	28.5
5 or more times	0	0	50	14.5

Poor feeding practices persist in both IDP settlements, like in other parts of Somalia and are below standard. About 35.8% and 49.7% of the children aged 6-24 months in Garowe and Galkayo IDP population respectively had stopped

breastfeeding at the time of the assessment. Additionally, majority (>95%) of the children were introduced to complimentary food too early before the recommended age of 6 months in both Garowe and Galkayo settlements. In Garowe, none of the children were fed the recommended five times a day, while in Galkayo IDP settlement, 14.5% of the children were fed the recommended five times a day. In Garowe IDP settlement a larger proportion 73.6% were fed 2-3 times a day, while 42.2% of the children in Galkayo IDP settlements were fed 2-3 times a day. The analysis of distribution of levels of acute malnutrition between the different age groups did not show a significant difference in the likelihood of acute malnutrition between the breastfeeding age groups and older children. Poor breastfeeding practices do not only deny the children the multiple nutritive and health benefits associated with breast milk but also expose them to malnutrition, morbidity and even death.

3.5 Nutrition Status

Characteristic	Garowe		Galkayo	
	N	%	N	%
Global Acute Malnutrition (WHZ<-2 or oedema)	73	22.6	219	21.3
Severe Acute Malnutrition (WHZ<-3 or oedema)	5	1.5	23	2.2
GAM estimates by WHO Anthro (2005)	64	19.8	236	22.9
SAM estimates by WHO Anthro (2005)	18	5.6	60	5.8
Global Acute Malnutrition (WHM<80% or oedema)	46	14.2	152	14.8
Severe Acute Malnutrition (WHM<70% or oedema)	2	0.6	9	0.9
Proportion of stunted children (HAZ<-2)	92	28.5	429	41.7
Proportion of underweight children (WAZ<-2)	135	41.8	564	54.8

A total of 323 children in Garowe IDP settlements and 1029 children aged 6-59 months in Galkayo IDP settlements were assessed. The results show **very critical** nutrition levels according to WHO classification among both Garowe and Galkayo IDP population, with a GAM rate of **22.6%** and SAM rate of **1.5%** among the Garowe IDP population while the Galkayo IDP population reported a GAM rate of **21.3%** and SAM rate of **2.2%**. When estimated using WHO Anthro (2005)

reference standards, more or less similar GAM rates and almost double relative SAM rates were reported. Based on WHO Anthro the rates reported were GAM rates of **19.8%** and **22.9%** in Garowe and Galkayo IDP population respectively, while the SAM rates were 5.6% and 5.8% in Garowe and Galkayo IDPs population respectively. A summary of the findings for the acute malnutrition rates is given in table 2.8. The current results indicate a stable but **Very Critical** nutrition situation. The table also indicates the GAM rate and SAM rates as percent of the median (WHM). The proportion of children stunted in the study among the Garowe IDP population was 28.5% therefore classifying the chronic malnutrition situation as serious, while, among the IDP population in Galkayo the stunting rate reported was 41.7% consequently classifying the chronic malnutrition situation as very critical. Very high prevalence of underweight (WAZ<-2) among the assessed children was noted 41.8% in Garowe and 54.8% in Galkayo.

Figure 5: Distribution Curve (WHZ <-2) Garowe

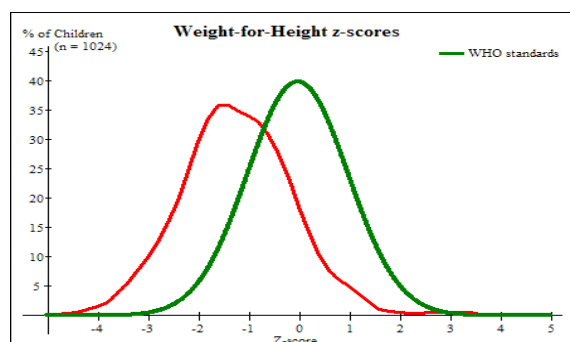
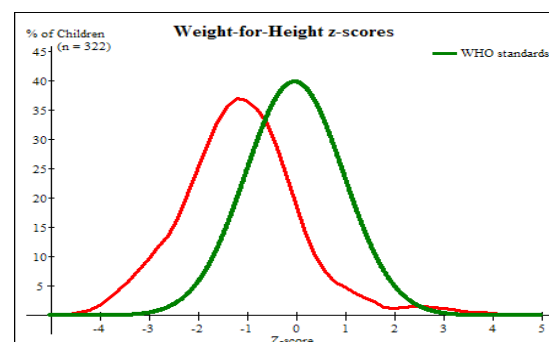


Figure 6: Distribution Curve (WHZ <-2) Galkayo



The distribution of the weight-for-height scores in the assessment was skewed towards the left depicting a poorer nutrition situation according to international (WHO) standards (Fig 5 and 6). A summary of the Nutrisurvey quality checks for the assessments is given in appendix 6 they indicate that the data collected in both assessments is of good quality.

Nutrition Status	Garowe				Galkayo			
	Males		Females		Males		Females	
	N	%	N	%	N	%	N	%
GAM (WHZ<-2 /oedema)	43	23.8	30	21.1	115	22.4	104	20.2
SAM (WHZ<-3 /oedema)	4	2.2	1	0.7	13	2.5	10	1.9

Results of acute malnutrition among the surveyed population in both the study areas using weight for height <-2 Z score or presence of oedema, did not show any statistical difference between the two sexes. However a slightly higher proportion of acutely malnourished children compromised of boys rather than the girls. Among the children assessed in Garowe IDP settlements, 23.8% of the total boys in the sample size were acutely malnourished, compared to the 21.1% of the total girls in the sample size were identified as malnourished, while in Galkayo 22.4% of the total boys in the sample size were acutely malnourished, compared to the 20.2% of the total girls in the sample size were identified as acutely malnourished. Nevertheless reasons as to why boys were more likely to be acutely malnourished need further investigations as in this study there were no direct issues noted.

Age Group	Garowe		Galkayo	
	N	%	N	%
6-17	14	19.2	69	31.5
18-29	20	27.4	61	27.9
30-41	20	27.4	43	19.6
42-53	10	13.7	27	12.3
54-59	9	12.3	19	8.7

Analysis of distribution of acute malnutrition between the different age groups did not show any major differences in both assessments. Children aged above 54 months recorded the lowest proportion of acutely malnourished children in both Garowe (12.3%) and Galkayo (8.7%) nutrition assessments, while children aged 18-29 months in both assessments recorded the highest proportion of malnourished children. Further analysis from both assessments did not show any significance statistical difference in risks of acute malnutrition between the

children in the breastfeeding age bracket of 6-24 months and those aged 25-29 months, indicating that the two age groups had equal risks to malnutrition.

3.5.1 Acute Malnutrition using MUAC

Characteristics	Garowe		Galkayo	
	N	%	N	%
Child MUAC N= 439				
GAM (MUAC< 12.5 cm or oedema)	28	9.8	70	8.1
SAM (MUAC< 11.0 cm or oedema)	2	0.7	9	1.0

Based on MUAC measurements, acute malnutrition rates were lower in both assessments than the rates recorded by WHZ and consistent with past assessments which have indicated lower rates of acute malnutrition when using MUAC. In Garowe IDP settlement, the children aged 12-59 months recorded a acute malnutrition rate of 9.8% (MUAC< 12.5 cm or oedema), a similar rate was recorded among the children in Galkayo IDP settlements, where they recorded a rate of 8.1% (MUAC< 12.5 cm or oedema) acute malnutrition.

Adult Women MUAC	Garowe		Galkayo	
	N	%	N	%
Total pregnant acutely malnourished women (MUAC< 23.0 cm)	15	39.5	27	21.8
Total non pregnant malnourished women (MUAC≤ 18.5 cm)	2	1.6	12	2.9

Among the assessed women; high malnutrition rates were recorded among the pregnant women (MUAC< 23.0 cm) at 39.5% and 21.8% in Garowe and Galkayo IDP populations respectively. In contrast, significantly lower rates were recorded among the non pregnant women (MUAC≤ 18.5 cm) in Garowe (1.6%) and Galkayo (2.9%). Pregnancy raises physiological and nutritional demands of women making them vulnerable to malnutrition. High rates of acute malnutrition were recorded among the non pregnant

women.

3.6 RDT Malaria Tests

Characteristics	N	%	N	%
Households that had a net	6	3.5	129	23.5
Proportion of persons positive	28	5.5	60	4.2
Proportion of persons negative	478	94.5	1367	95.8
Invalid Test Results	-	-	-	-
Reported Cases of Fever	138	27.3	25.3	17.7
Proportion of persons slept under net	13	33.3	235	93.6
Proportion of persons treated for Malaria	24	4.7	11	0.8

In Garowe, only 3.5% of the households had mosquito nets, while in Galkayo, 23.5% of the households had nets. About 33% of the total population that had mosquito nets in Garowe slept under a mosquito net, while in Galkayo 93.6% of the total population that had mosquito nets slept under a mosquito net. From the rapid malaria tests that were conducted in the households by qualified nurses that accompanied the enumerators, the confirmed malaria cases were low in both assessments, with Garowe IDP population recording 5.5% prevalence, and Galkayo recording 4.2% prevalence of

malaria. However 27.3% and 17.7% of the assessed population in Garowe and Galkayo respectively had reported to have suffered from fever in the two days prior to the assessment. In Garowe, 4.7% of the respondents were treated for malaria; while in Galkayo 0.8% of the respondents were treated for malaria.

3.7 Mortality

In Garowe IDP settlements, a total of four deaths were reported, while in Galkayo IDP settlements, a total of 30 deaths were reported in the assessed households, within a 90 day recall period prior to the assessment. The crude and U5 mortality rates reported in Garowe were estimated at 0.38 and 0.31 deaths per 10,000/per day respectively. In Galkayo, the crude and U5 mortality rates reported were estimated at 0.41 and 0.66 per 10,000/per day. Diarrhoeal diseases, ARI, unconfirmed anaemia, birth related complications (poor birth outcome), accidents, suspected measles and malaria were the reported causes of mortality in both the assessments. The main causes of mortality for children aged below 5 years were diarrhoea and ARI.

4. Discussion

4.1 Nutrition status in Protracted IDP Settlements of Garowe and Galkayo

4.1.1 Garowe

The GAM rate among the Garowe IDPs was 22.6%, and SAM rate was 1.5%. This indicates a **Very Critical** nutrition situation. This is the first nutrition assessment to be conducted among the IDP population in the area, and given the alarming nutrition situation, it will be crucial to ensure that the nutrition situation of the population is closely monitored. It was noted that a slightly higher proportion of boys (23.8%) were acutely malnourished compared to the girls (22.4%), however, there was no statistical difference between the two groups. The prevalence of chronic malnutrition also reflected the same situation, with a slightly higher proportion of boys (29.8 %) being acutely malnourished as compared to the girls (26.8%). Malnutrition among the age groups indicated that the highest proportions of acutely malnourished children were aged between 30-59 months of age. Although there was no statistical association between acute malnutrition and morbidity, it is imperative to note that a high proportion of the acutely malnourished children had suffered one or more communicable diseases in the two weeks prior to the assessment, 63% of the malnourished children were reported to have suffered from one or more communicable diseases two weeks before the assessment. The morbidity rate among the assessed children was appalling, at 59.1%, indicating that more than half of the children had suffered from a disease in the two weeks prior to the assessment. The rate of diarrhoea reported among the children was very high 41.8%, diarrhoea and malnutrition are directly related as demonstrated in previous assessments conducted, and diarrhoea has a negative impact on the health and nutrition status of a child. Other risk factors such as low immunization and vitamin supplementation further aggravate the vulnerable nutrition situation of the population. Further, 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. Inappropriate child care practices and lack of proper adequate health services due to limited access also attributed to the poor malnutrition rates, it is also concerning to note the low vaccination status, low vaccination status is also a risk factor to a compromised nutrition status.

4.1.2 Galkayo

The GAM rate was 21.1%, and SAM rate was 2.2%, indicating a **Very Critical** and persistent nutrition situation. In the previous assessment that was conducted amongst the IDP population in the same area, in 2007, the GAM rate was recorded at 21.9%, showing a very critical nutritional situation. In Galkayo, there was no statistical difference in malnutrition between the sexes in the study group, however, a larger proportion of boys were acutely malnourished as compared to the girls. The prevalence of chronic malnutrition (HFA <-2Z score) also demonstrated itself in the same way,

with boys (43.4%) being slightly more chronically malnourished than girls (40.0%). Levels of acute malnutrition varied with age, the proportion of acutely malnourished children was highest in children aged less than 29 months. This was mainly attributed to feeding practices, including early introduction to complementary foods, low breastfeeding in younger children and lack of adequate health care and morbidity, especially diarrhoea, which was high at 30.9%. Morbidity rates among the Galkayo IDP population were high at 50.5%. Of the total proportion of acutely malnourished children, 55.7% of them had suffered from one or more communicable diseases in the two weeks prior to the assessment. Health seeking behaviour remains a challenge, as 36.2% 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.

5. Conclusions and Recommendations

The nutrition situation in the protracted IDP settlements of Garowe and Galkayo is **Very Critical** (GAM >20%). In Garowe, the GAM rate was 22.6%, while in Galkayo it was 21.1%, no improvement has been noted from the previous nutrition assessment conducted at the same time last year in 2007. The poor nutrition situation in the settlements is mainly attributed to high morbidity, low uptake of health related interventions and inappropriate feeding and care practices; in addition, poor sanitation and increased food prices and hyperinflation further contribute to the poor nutrition situation in the IDP settlements. During discussions with partners, it was highlighted that interventions being undertaken in Galkayo include selective feeding programmes health programmes and water and sanitation, however it maybe necessary to scale up these interventions to ensure that the nutrition situation in the area improves. Conversely in Garowe, no interventions have so far been undertaken by the government or partners. It is therefore crucial for government and partner agencies to begin to undertake interventions in the settlements to ensure that the nutrition and health situation improves. 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 household 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 focusing 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:

QNO:

NUTRITION ASSESSMENT HOUSEHOLD QUESTIONNAIRE, 2008

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

Q1-8 Characteristics of Household

Q1. Household size⁸? _____

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

Q3. Sex of household head⁹? 1=Male 2=Female

Q4a Are you hosting any recently (in the last 6 months) internally displaced persons? 1= Yes 2= No Q4b If yes, Number of persons _____

Q5a Does household have mosquito net? _____ 1= Yes 2= No Q5b. If yes, ask to see the net: _____ 1= GFSOM label 2=Other type 3= Not seen

Q6. What is the household's main source of income? 1= Animal & animal product sales 2= Crop sales/Farming 3= Trade 4= Casual labour
5= Salaried/wage employment 6= Remittances/gifts/zakat 7= Others, specify _____

Q7-15 Feeding and immunization status of children aged 6 – 59 months (or 65 – 109.9 cm) in the household.

⁸ Number of persons who live together and eat from the same pot at the time of assessment

⁹ 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.

First Name	Q7 Age (months) <i>(if child is more than 24 months old, skip to Q13)</i>	Q8 (If 6-24 months) Are you breastfeeding ¹⁰ the child? <i>(if no, skip to Q10)</i> 1=Yes 2= No	Q9 (If 6-24 months) If breast feeding, how many times/day? 1=2 times or less 2=3-6 3=On demand	Q10 (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= \geq 18 months 5= Never breastfed	Q11 (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.	Q12 (If 6-24 months) How many times do you feed the child in a day <i>(besides breast milk)</i> ? 1= 1 time 2=2-3 times 3=-4 times 4= 5 or more times	Q 13 Has child been provided with Vitamin A in the last 6 months? <i>(show sample)</i> 1=Yes 2= No	Q14 (If \geq9 months old) Has child ever been vaccinated against measles? 1=Yes 2= No	Q15 Has the child ever been given polio vaccine orally? 1=Yes 2= No
1									
2									
3									
4									

¹⁰Child having received breast milk either directly from the mothers or wet nurse breast within the last 12 hours

Q16-27 Anthropometry and morbidity for children aged 6 – 59 months or (65 – 109.9cm) in the household

First Name <i>Follow same order as per table on page 1</i>	Age (months)	Q16 Sex 1=Male 2=Female	Q17 Oedema 1=yes 2= No	Q18 Height (cm) <i>To the nearest one tenth)</i>	Q19 Weight (kg) <i>To the nearest one tenth)</i>	Q20 MUAC (cm) <i>(Only if >11 months) <i>To the nearest one tenth)</i></i>	Q21 Diarrhoea ¹¹ in last two weeks 1= Yes 2= No	Q22 Serious ARI ¹² in the last two weeks 1=Yes 2= No	Q23 Febrile illness/ suspected Malaria ¹³ in the last two weeks 1=Yes 2= No	Q24 <i>(If ≥9 month)</i> Suspected Measles ¹⁴ in last one month 1=Yes 2= No	Q25 Did child sleep under a mosquito net last night? 1=Yes 2= No	Q26 Where did you seek healthcare assistance when child was sick? <i>(If yes in Q21 – 24)</i> 1=No assistance sought 2=Own medication 3=Traditional healer 4=Private clinic/ Pharmacy 5= Public health facility	Q27 Which of the following programs has the child benefited from? 1= SFP 2= TFC 3= OTP/CTC 4= Other 5= None
1													
2													
3													
4													

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

Sno	Name	Age (years)	Received Tetanus vaccine? 1= Yes 2= No	MUAC (cm)	Physiological status 1=Pregnant 2= Non pregnant	Illness in last 14 days? If yes, what illness?	Codes for adult illnesses
1	Mother:						2= None 1= ARI

¹¹ Diarrhoea is defined for a child having three or more loose or watery stools per day

¹² ARI asked as oof wareen or wareento. The three signs asked for are cough, rapid breathing and fever

¹³ Suspected malaria/acute febrile illness: - the three signs to be looked for are periodic chills/shivering, fever, sweating and sometimes a coma

¹⁴ 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

2=Diarrhoreal
 3=Malaria/febrile
 4=Joint 5=Urinal
 6=Organ 7=Anaemia
 8= Reproductive 9=Other, specify

Q 29 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 2= 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)?
1. Cereals and cereal products (e.g. maize, spaghetti, rice, caanjera, bread)?		
2. Milk and milk products (e.g. goat/camel/ fermented milk, milk powder)?		
3. Sugar and honey?		
4. Oils/fats (e.g. cooking fat or oil, butter, ghee, margarine)?		
5. Meat, poultry, offal (e.g. goat/camel meat, beef; chicken or their products)?		
6. Pulses/legumes, nuts (e.g. beans, lentils, green grams, cowpeas; peanut)?		
7. Roots and tubers (e.g. potatoes, arrowroot)?		
8. Vegetables (e.g. green or leafy vegetables, tomatoes, carrots, onions)?		
9. Fruits (e.g. water melons, mangoes, grapes, bananas, lemon)?		
10. Eggs?		
11. Fish and sea foods (e.g. fried/boiled/roasted fish, lobsters)?		
12. Miscellaneous (e.g. spices, chocolates, sweets, beverages, etc)?		
Q30 In general what is the <u>main</u> source of staple food in the household? (*Use codes in 29 above) _____		
Q31 Total number of food groups consumed in the household: _____		

Q32 How many meals¹⁵ has the household had in the last 24 hours (from this time yesterday to now)? 1= One 2=Two 3= Three

Q33-38 Access to water (quality and quantity)

Q33a What is the household's main source of drinking water? 1 = Tap/ piped water 2= Tanker truck 3= Tube well/ borehole 4= Spring 5= Bottled water
6= rooftop rainwater 7= Surface water (river, stream, dam, pond, open well; water catchments; berkad, etc)

Q33b What is the household's main source of water for other domestic uses? _____ (Use codes in **Q33a** above)

Q34a Is drinking water drawn from a protected/safe source? 1= Yes 2= No

Q34b If household has no access to safe protected water what is the main reason? 1= Not Available 2= Distance too far 3= Security Concerns 4= Cannot afford

Q34c Do you get a reliable supply of drinking water from this source? 1= Reliable supply 2=Seasonal supply 3= Occasional problems 4= Frequent problems

Q35 Is water treated at the: **a)** source? 1= Yes 2= No **b)** storage level? 1= Yes 2= No

Q35c If treated, what is the method of treatment? 1= Boiling 2= Chlorination 3= straining/filtering 4= Decanting/ letting it stand and settle 5= Other, specify

Q36 Average time taken to and from the nearest water point (including waiting and collecting time) 1= <30 min 2=30 – 60 min 3= 1-2 hrs 4= more than 2 hrs

Q37 Number of water collecting and storage containers of 10-20 litres in the household: 1=1-2 containers 2= 3-4 containers 3=4-5 containers 4= more than 5

Q38 How is water stored in the household? 1= Clean containers with cover 2= Closed plastic containers 3= open buckets/ pans 4= *Ashuun* (with constricted neck/end)

Q39-43 Sanitation and Hygiene (access and quality)

Q39a Type of toilet used by most members of the household 1= Bush/open ground 2= Traditional pit latrine/ Open pit 3= Ventilated Improved pit latrine (VIP) 4= Flush toilets

Q39b If household has no access to sanitation facility, what is the main reason? 1= Pastoral/ frequent movements 2= Lack resources to construct 3= Doesn't see the need

Q40 Distance between latrine and water source (if underground or surface source) 1=1- 30 metres 2=30 metres or more

Q41 How many households share/use the same facility? 1= One 2= 2- 9 3= 10 or more

Q42 What key times do you maintain hygienic hand washing practices 1= before eating 2= before preparing food 3= before feeding the baby 4= after cleaning the baby's bottom 5= after defecation 6 = None /Not applicable

Q43 What substance do you use in your household for washing utensils, hands; body and clothes? 1= Soap/Shampoo 2= Sand 3= Ash 4= Plant extracts 5= None

Checked by supervisor (signed): _____

¹⁵ 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 2: Garowe/Galkayo Protracted IDPs Mortality questionnaire – May 2008

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 __ / 3/ 2008	5: Arrived since __ / 3/ 2008	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 March __, 2008 ? List them							
c) Do you have any member of the household who has died since March __ 2008 ? 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, May 2008

Month	2003	2004	2005	2006	2007	2008
Jan.		57 Sidatal	45 Sidatal	33 Sidatal	21 Sidatal	9 Sidatal
Feb.		56 Arafo lid Al-Ad Haa	44 Arafo lid Al-Ad Haa	32 Arafo	20 Arafo	8 Arafo (PL president visit Allula)
Mar.		55 Sako	43 Dago (Dagalkii Ciraq)	31 Dago	19 Dago (Islan M'med died)	7 Dago (TFG settle in Baidoa)
Apr.		54 Safar	42 Safar	30 Safar	18 Safar	6 Safar
May		53 Mawliid	41 Mawliid (Puntland Reconciliation)	29 Mawliid	17 Mawliid	
Jun.		52 Rabiculakhir	40 Rabiculakhir	28 Rabiculakhir	16 Rabiculakhir	
Jul.		51 Jamadul awal	39 Jamadul awal	27 Jamadul awal	15 Jamadul awal	
Aug.		50 Jamaadul Akhir (Qayadsame fighting)	38 Jamaadul Akhir	26 Jamaadul Akhir (Election of Somalia president)	14 Jamaadul Akhir	
Sep.		49 Sabuux	37 Sabuux	25 Sabuux (Puntlant president election)	13 Sabuux	
Oct.	Soon Dheere (Shacbaan)	48 Soon Dheere (Shacbaan)	36 Soon Dheere (Shacbaan)	24 Soon Dheere (Robkii Barafle)	12 Soon Dheere Ramadaan	
Nov.	59 Election of Jama Ali Jama Soon Dheere (Shacbaan)	47 Shacbaan (Ramadan)	35 Ramadan	23 Ramadan (Beldaje Abdillahi's death)	11 lid el fitr Ramadaan	
Dec.	58 Ramadan	46 Ramadan (Dhudo fighting)	34 Soon fur	22 Soon fur (Badgariir)	10 Soon fur	

Key

	Dirac
	GU'
	Xagaa
	Deyr

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 <i>osolo</i> to <i>obo</i>)?	
Limit the portion/quantity consumed in a meal (<i>Beekhaamis</i>)?	
Take fewer numbers of meals in a day?	
Borrow food on credit from the shop/market (<i>Deyn</i>)?	
Borrow food on credit from another household (<i>Aamah</i>)?	
Restrict consumption of adults in order for small children to eat?	
Rely on food donations from relatives (<i>Qaraabo</i>)?	
Rely on food donations from the clan/community (<i>Kaalmo</i>)?	
Seek or rely on food aid from humanitarian agencies?	
Send household members to eat elsewhere?	
Beg for food (<i>Tuugsi/dawarsi</i>)?	
Skip entire days without eating (<i>Qadoodi</i>)?	
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 – Garowe and Galkayo IDP Assessment

	Garowe	Galkayo
Digit Preference score-Weight	6.00 (acceptable)	4.33 (good)
Digit Preference score-Height	9.11 (acceptable)	7.27 (acceptable)
Age preference	None	25
SD of WHZ	1.03	0.92
Skewness of WHZ	1.18	0.75 (<-1: normal)
Kurtosis of WHZ	3.29(>-2: problem)	1.72
Percent of flags	(2 cases) 0.6%	(2 case) 0.2%
Age groups (6-29)	No bias	No bias
Age Groups(30-59)	No bias	No bias
Sex Ratio (MF)	1.27	1.00

Appendix 7: Team Composition

Team	Name	Category
One	A/lahi Warsame Mohamed	Supervisor
	Hibo Jamac Hashi	Team Leader
	Mohammed Jamac` Noah	Enumerator
	Ahmed Mohammed Tuni	Enumerator
	Ahmed Abdi Hussein	RDT
Two	Fu'ad Hassan Mohamed	Supervisor
	Mohammed Abdi Elmi	Team Leader
	Nasro Jamac Arab	Enumerator
	Abdi Shire Saciid	Enumerator
	Hassan Hussein Ali	RDT
Three	Qassim Hassan Diini	Supervisor
	Faizo Noor Farah	Team Leader
	Ali Warsame Weheliye	Enumerator
	Astur Mohammed Farah	Enumerator
	Sacido Ahmed Barre	RDT
Four	A/karim Hussein Du'ale	Supervisor
	Ahmed Abdullahi Caabi	Team Leader
	Hani Adan Seed	Enumerator
	Aniso Farah Ainab	Enumerator
	Ahmed Abdirizak Mire	RDT
Five	Fadumo Ahmed Hersi	Supervisor
	Ahmed Hassan Diini	Team Leader
	Cubeyd Mohammoud Hassan	Enumerator
	Halimo Ahmed Dhoodi	Enumerator
	Mariam Hussein Ali	RDT
Six	A/karim Hussein Du'ale	Supervisor
	Saciid Abdi Ali	Team Leader
	Faisa Ahmed Mohammed	Enumerator
	Yasiin Gelle Warsame	Enumerator
	Abdifatah Bare Noah	RDT
Seven	Khaliif Abdullahi Noah	Supervisor
	Mohammed Nour Gelle	Team Leader
	Hiddig Abdi Elmi	Enumerator
	Tahiil Dahir Adan	Enumerator
	Sacdiyo Hersi Mohammed	RDT
Eight	Mohammed M. Hassan	Supervisor
	Hassan Ali Cawad	Team Leader
	Raghe Farah Ali	Enumerator
	Saciid Abdullahi Elmi	Enumerator
	Mohammed Ali Shire	RDT
	Mohammed Borle	Assessment coordinator
Louise Masese	Report Writing	

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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