

**NUTRITION SURVEY REPORT
GALKAIO DISTRICT
MUDUG REGION
SOMALIA**

1. Acknowledgment

UNICEF wishes to thank the: Ministry of Social Affairs (MOSA), Governor of Mudug Region and the Galkaio Mayor for facilitating the fieldwork amidst security threats and for participating in discussions of the preliminary survey results in Galkaio town.

UNICEF is grateful to all enumerators and supervisors who provided invaluable inputs and participated in the survey and to Food Security Assessment Unit (FSAU) staff for providing contextual information relating to food security and participation in planning the survey, training field staff, supervising data collection, analysing and interpreting the results.

The data could not have been obtained without the cooperation and support of the communities surveyed especially the mothers and caregivers that took time off their busy schedules to respond to the interviewers.

The comments of some members of the Nutrition Working Group in Nairobi on the draft summary report are also gratefully acknowledged.

Bossaso, 15 May 2003

2. Executive summary

UNICEF, in collaboration with MOSA and FSAU, conducted a nutrition survey in Galkaio town on 26 March – 2 April 2003. Beside the main objective of assessing the nutrition status of the Galkaio under five children using weight for height measurements, the survey also sought to determine potential risk factors associated with malnutrition, household characteristics and coverage of measles, Polio National Immunisation Days (NIDs) and vitamin A supplementation. The main findings were as follows.

Household and general population characteristics

Of the 523 households interviewed, 81% are male headed; the median household size is 5 persons. Over three-quarter of the population are residents/resident returnees. Majority of the non-residents originated from the South Central zones of Somalia and migrated mainly because of insecurity (68%) or economic reasons (32%).

It appears that the population relies entirely on purchases for their food source with their source of income, for such purchases, being mainly (71%) from small/casual businesses. Poor terms of trade due to poor livestock condition may have limited access to food. Coping mechanism during hardship is largely from borrowing and remittances/gifts.

The food security situation improved to the normal seasonal norm, also improved following the rains that fell normally in April through the first week of May 2003. The positive changes in the Addun and Hawd food economy zones of improved milk production had a ripple effect in the urban food economy zone where milk availability increased and could be bought or bartered with cereal. Trade in both staples and non-staples improved, together with increased access to food for all wealth groups including the poor. There is also flexibility within the total household income to accommodate expenses on non-staples such as veterinary drugs.

Water and environmental sanitation

For drinking water, the population relies mainly on tankers/truck vendors (86%) and open bore wells (12%). Most families (96%) have pit latrines that are mostly used and clean.

The current rain water ameliorated the expenditure pattern – there is decreased purchase of water from boreholes and the savings used to cover the increased price for staple food.

Nutrition status, feeding practices and risk factors analysis

Nutrition status analysis, using EpiInfo software, of the eligible 923 children, 65-110 cm, suggests severe and global acute malnutrition rates of 2.3% and 8.3% weight-for-height (W/H) Z-Scores respectively. According to WHO classification (1995), the prevalence of 8.3% for global acute malnutrition depicts a poor nutrition situation. Additionally, severe malnutrition rates are too high compared to the normal acceptable rate of 0.5%.

More than two thirds of the 6-23 months old children are not breastfed. Half of the children stop breastfeeding by the time they are six months old with majority (95%) of same children given complementary feeds during the first six months meant for exclusive breastfeeding. Additionally, persistence of breastfeeding practices is poor with only about 13% of the children breastfeeding beyond 12 months of life. However, three quarters of the children are fed 4 or more times in a day.

Analysis of potential risk factors indicates existence of significant statistical association with global malnutrition for household head sex and Acute Respiratory tract Infection (ARI). Children with males as head of households were significantly less likely (RR 0.59) to be acutely malnourished (perhaps

reflected women's relatively limited access to resources) whilst those with history of ARI 2 weeks prior to the survey had a 1.6-fold increase in risk of being acutely malnourished.

Health seeking behaviour, morbidity and immunisation

Almost all (99%) families seek assistance when their child(ren) fall sick. Private clinic/pharmacy (78%) is a preferred choice for consultation as opposed to public health facilities (21%). Acute respiratory infection (9%) is the leading cause of morbidity.

Among the 12-23 months cohort, only 18% had received measles immunisation based on card verification only and 56% by card or history. Two thirds of infants eligible for measles immunisation had not yet received their shots as at the time of the survey.

During the Polio NIDs first round conducted on 16-18 February 2003, about three-quarter of the 6-59 months children population received the polio dose. However, preliminary Polio NIDs results suggest 87% coverage. Of those who missed out during the 2003 NIDs first round, 41% reported that the polio team did not visit whilst one quarter of caretakers rejected antigen saying either "vaccine unsafe or not important".

Survey results indicate 75% vitamin A supplementation coverage during the preceding 6 months to the survey.

Conclusions and Recommendations

Recorded severe and global acute malnutrition rates of 2.3% and 8.3% W/H Z-Scores respectively are not significantly different from last year's (23 March – 1 April) survey results of 2.1 and 8.2% rates. Nor are they unusual for Somalia, although they are higher than global norms. However, Galkaio remains a vulnerable food security area since the population relies entirely on purchases for their food source and income for such purchases coming mostly from small/casual business. The report reviews the factors causing and controlling the nutrition situation in Galkaio and concludes that the prevailing equilibrium may therefore easily be destabilised by potential insecurity and "shocks" such as the current livestock ban and limited remittances/gifts.

There is still need to intensify health and nutrition education activities at household level targeting mothers, fathers and other caregivers to address care concerns. The main areas of focus are promoting exclusive breastfeeding, appropriate young child feeding, diet diversification, and improvement in household hygiene and health care practices.

Going by the measles immunisation coverage, there is still plenty of room for improvement of EPI coverage. One such opportunity is the ongoing EPI acceleration activities that target the five major Puntland towns of Bossaso, Gardo, Garowe, Burtinle and Galkaio.

Table 1: Summary statistics, children 6-59 months (n=923)

	<i>n</i>	<i>(%)</i>
Global acute malnutrition	77	(8.3)
Severe acute malnutrition	21	(2.3)
Diarrhoea past 2 weeks	70	(7.6)
ARI past 2 weeks	86	*(9.3)
Malaria past 2 weeks	52	(5.6)
Measles past 1 month	13	(1.4)
<i>Measles immunisation – card and/or history:</i>		
9-11 months (n=39)	13	(33.3)
12-23 months (n=221)	124	(56.1)
9-59 months (n=838)	427	(69.3)
<i>OPV:</i>		
Last OPV dose – 1 st round NIDs, (16-18 February 2003)	681	(73.8)
Received at least 3 doses (in 2002)	284	(30.8)
Vitamin A supplementation (past 6 months)	696	(75.4)
<i>Are you breastfeeding child (n=345):</i>		
Yes	96	(27.8)
No	239	(69.2)
Never	10	(2.9)
<i>Age when child stopped breastfeeding (n=237):</i>		
0-6 months	138	(58.2)
7-11 months	68	(28.7)
12 months or more	31	(13.1)
<i>Weaning age (n=335):</i>		
0-6 months	317	(94.6)
7 months or more	18	(5.4)
<i>Feeding frequency (n=345):</i>		
Once	0	0
2 times	1	(0.3)
3 times	82	(23.8)
4 or more times	262	(75.9)

* Significant statistical association with acute malnutrition

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1. Background

Galkaio, the capital of Mudug region, lies 750 km south of Bossaso. Galkaio district comprises of three food economy zones; 25% of the population falls within the Addun pastoral food economy zone and depends on mixed shoats and camel for their livelihood; 50% of the population falls within the Hawd pastoral food economy zone and depend on camel and shoats for a livelihood; 25% of the population falls within the urban food economy zone. The town has an estimated population of 70,000 inhabitants that is believed to be increasing with the influx of returnees and displaced people. The populated area covers about 5.9 km² with the greatest density found adjacent to the main north-south road and airport road. Galkaio is divided into four main sections: Israac, Garsoor, Hormar in the northern part with an estimated population of 45,000; and Wadajir in the southern part. The demarcation line – green line – runs through the town and divides the town to two autonomous parts: North and South Galkaio.

Located at an intersection crossroad area, Galkaio is a thriving trade town. Goods from the Bossaso port in the north, Berbera in the northwest, agricultural products from the south and livestock from Haud (zone 5) area of Ethiopia all find their way and exchange hands in Galkaio. Although there are two different local administrations in the north and south of the town, the collaboration of the two administrations enables local people, mainly women, cross the green line in pursuit of trade.

1.1 Food security context

In the last three years, two major shocks – livestock ban and inflation – adversely affected the economy and negatively impacted on economic activities and people's sources of livelihood in Puntland. The less privileged members of the community such as the Internally Displaced Persons (IDPs), poor urban groups and poor pastoral residents were the hardest hit. Recurrent rain failures in the region have also contributed to depletion of resources weakening coping mechanisms in the process.

Since people normally depend on imported cereals mainly maize, pasta and rice, inflation coupled by limited foreign exchange flow and reduced remittances, following the 11 September 2001 incident, has pushed prices of these basic items upwards. With limited social and community support, the IDPs and poor urban people are likely to be adversely affected.

1.2 Health context

Galkaio has a 70-bed Regional Hospital that receives support from MSF-H. Adjacent to the hospital is the UNICEF supported Galkaio MCH/OPD that offers a range of MCH/OPD services. A private hospital, the Galkaio Medical Centre is under construction and is planned to offer specialised treatment when completed. Numerous private pharmacies/clinics frequently by the community are available in the town.

1.3 Water context

Galkaio experiences erratic rainfall that varies between 33-448 mm per year with rare downpours exceeding 150 mm in a single hour. Water with high mineral and nitrate levels (the presence of nitrates is a pollution indicator) is drawn from numerous shallow wells around the town.

There are three functional bore holes that tanker trucks and donkey carts fetch water from:

- Halaboqat – situated some 6 km north of the town and drilled by the Chinese in 1979
- GTZ1 – situated 1.75 km north of the town, and drilled by GTZ in 1982 and
- Cir Jiffa – situated 700 m from the town center. Halaboqat is used extensively for livestock watering.

Since 1994, UNICEF has installed approximately 43 hand pump wells. Water levels in most of these wells have since receded rendering them non-functional. A new water system implemented by UNICEF, the Galkaio water project, was at its final stages of completion as at the time of the survey. The system to be composed of bore wells, reticulated system and public kiosks will, when functional, markedly improve the Galkaio water quality and quantity.

2. Survey objectives

- To assess the nutrition status of the Galkaio under five children using weight for height measurements
- To determine potential risk factors associated with malnutrition
- To determine household characteristics of study population
- To determine immunisation – measles and Polio NIDs – and vitamin A supplementation coverage of study population

3. Survey methodology

3.1 Study population and survey design

Due to relative insecurity in south Galkaio, a cross-sectional survey that targeted the 3 north Galkaio sections of Israac, Garsoor and Hormar sub-divided into 20 smallest units/sub-sections was carried out. A two-stage cluster sampling methodology was used to randomly select 30 clusters and corresponding households.

Questionnaires (see annex 3) were administered to 523 household heads and nutrition status systematically assessed for 923 eligible 6-59 months old children in each household/family grouping. Mothers and caretakers were interviewed as to whether their eligible children had: suffered from diarrhoea, ARI and malaria in the 2 weeks prior to the survey; contracted measles in past one month; received vitamin A supplementation in past 6 months; and measles and polio immunisation status. Those with children less than 23 months were interviewed on their feeding practices.

3.2 Methods

From the 20 sub-sections listed with their population estimates, 30 clusters were randomly selected: cluster interval calculated using estimated population; a random number, within cluster interval range, chosen to determine first cluster; and successive clusters determined by adding value of cluster interval to the randomly chosen number (see annex 1).

During second stage sampling in respective clusters, the teams guided by team leaders and supervisors identified the centre and spun a pencil to determine the direction to take. Households in determined direction were identified, given numbers (written on a piece of paper), and the first household randomly picked. From first household with child aged 6-59 months, same direction was followed to successive households, always turning to the right hand direction on reaching end of cluster, until details of at least 30 children were gathered. Where caretaker or child was absent an appointment was made for a later visit by the team.

The assessment of nutritional status was based on simple anthropometric data and limited only to eligible children. Weight-for-height was the indicator of choice. Diarrhoea was defined as watery stool passed at least three times a day; ARI defined as a child having fever and cough; whilst measles defined as a child with fever and rash and cough, running nose or red eyes.

3.3 Measuring technique and recording

Weight

For weighting purposes, 25-kg salter hanging spring scales were used. The scale was adjusted to zero with the weighting pants attached to the hook, child freed of heavy clothing, the weighting pants put on and child suspended from the weighting scales by the handles of the pants. Weight was read to the nearest 0.1 kg with scale at eye level.

Height

Children up to 2 years (23 months or 85 cm) of age were measured on a horizontal measuring board and the length read to the nearest 0.1 cm. Those over 2 years of age (or over 85 cm) were measured standing on a horizontal surface against a vertical measuring device and height read to the nearest 0.1 cm.

Age

An attempt at determination of age was based on recall using a local traditional calendar/events (see annex 2) and estimates recorded in months. However, with the choice of nutrition indicator being weight-for-height, approximate age was useful in cross tabulation analysis.

Oedema

Was diagnosed by moderate thumb pressure applied to the back of both feet or ankles for about 3 seconds. This was recorded only for children who had such thumb impression signs remaining for some time on both feet.

3.4 Training and supervision

A 3-day training session for seven teams – each composed of 2 enumerators and 1 team leader – was conducted prior to the survey on 26-28 March. Plenary session included defining the role and tasks of each member of a survey team, selection of the first and subsequent households in pre-identified clusters as in the sampling frame, interviewing techniques, completion and coding of the survey form, and carrying out anthropometric measurements.

Demonstration of and practice in using questionnaires and measuring heights and weights of children was done followed by a field practical session in one section of the town. Here, team members organised survey activities, carried out survey procedures and field-tested the questionnaires. The teams later reconvened, after fieldwork, for feedback and standardisation of procedures.

4. Data processing and analysis

EpiInfo 6 software was used for data processing and analysis. Data for household and child(ren) were entered in two separate files with household numbers as the unique identifier. A questionnaire (.qes) file, with dummy variables, was first created followed by data file (created out of the .qes file) and a CHECK file for interactive checking. The CHECKs set up included must-enter, legal values, range, conditional jumps and programme check.

Depending on the length of the digits anticipated, missing variable, where applicable, were coded as 9/99/999 and excluded (recode 9/99/999=.) during analysis. With CHECK in place, to ensure good quality of data, 2 independent persons did double data entry. Validation on the two data files thus obtained was carried out and discrepancies between the 2 files noted. Relevant corrections, using the corresponding questionnaires, were made and data edited. Subsequent validation confirmed elimination of all the discrepancies in the 2 files.

With a clean data set, the EPINUT programme was used to determine the W/H Z-scores. For ease of data analysis, an analysis programme (.pgm) was written that RELATED household and child files to produce relevant tabulations and associations with nutrition indicators and cut off points as in the table below.

Table 2: Nutrition status indicators and cut off points

Nutritional status	W/H Z-Score	W/H % of MEDIAN
Severe acute malnutrition	< -3 or oedema	< 70% or oedema
Moderate acute malnutrition	Between -3 and < -2	between 70% and < 80%
Global acute malnutrition	< -2 or oedema	< 80% or oedema

5. Findings and interpretation of results

5.1 Description of the study population

Of the 523 households interviewed, the majority (81%) are male headed; the median household size is 5 (interquartile range 4-7). Over three-quarter of the population are residents/resident returnees; less than one fifth (17%) internally displaced and refugees forming only 4% of the population. Most of the non-residents originated from the South and Central zones of Somalia and migrated mainly because of insecurity (68%) or economic reasons (32%). Table 3 gives details of the household characteristics.

Table 3: Household characteristics

	<i>n</i>	<i>(%)</i>
<i>Sex – Household head (n=523):</i>		
Male	425	(81.3)
Female	98	(18.7)
<i>Household size:</i>		
- interquartile range	5	4-7
<i>Household residence status (n=523):</i>		
Resident	400	(76.5)
Resident returnee	12	(2.3)
Internally displaced	88	(16.8)
Refugee	23	(4.4)
<i>Place of origin (n=123):</i>		
South and Central Zone	90	(73.2)
Ethiopia	22	(17.9)
Kenya	3	(2.4)
North West Zone	3	(2.4)
Others – Bari/ Mudug	5	(4.1)
<i>Date of arrival (n=123):</i>		
2002	9	(7.3)
2001	23	(18.7)
2000	20	(16.3)
1999	22	(17.9)
1998	17	(13.8)
Before 1998	32	(26.0)
<i>Reason for movement (n=123):</i>		
Insecurity	83	(67.5)
Lack of jobs	39	(31.7)
Water shortage	1	(0.8)

5.2 Food, income sources and coping strategies

Data suggests that the population rely entirely on purchases for their food source with their source of income, for such purchases, spread across casual work (43%), business/small business (30%), salaried employment (13%) and remittances/gifts (10%). Coping mechanism during hardship is mainly from borrowing (85%), begging (18%) and remittances/gifts (9%).

Table 4: Food, income and coping strategy

	<i>n</i>	(%)
<i>Main food source (n=523):</i>		
Own animal products	1	(0.2)
Wild foods collection	2	(0.4)
Purchases	520	(99.4)
<i>Main source of income (n=523):</i>		
Business	76	(14.6)
Small business	82	(15.7)
Causal work	223	(42.6)
Salaried employment	69	(13.2)
Sale of animals and/or products	4	(0.8)
Begging	15	(2.9)
Remittances/gifts	54	(10.3)
<i>Coping strategy:</i>		
Remittances/gifts (<i>n=523</i>)	47	(9.0)
Livestock sale (<i>n=523</i>)	5	(1.0)
Splitting of family (<i>n=523</i>)	13	(2.5)
Begging (<i>n=523</i>)	18	(3.4)
Borrowing (<i>n=523</i>)	442	(84.5)

5.3 Water and Environmental sanitation

For drinking water, the population relies mainly on tankers/truck vendors (86%) and open bore wells (12%). Most families (96%) have pit latrines that are mostly used and clean.

Table 5: Water and sanitation

	<i>n</i>	(%)
<i>Main source of drinking water (n=523):</i>		
Borehole	8	(1.5)
Open wells	61	(11.7)
Protected wells	5	(1.0)
Tap/piped water	1	(0.2)
Tanker/truck vendors	448	(85.7)
<i>Sanitation facility (n=523):</i>		
Pit latrine	504	(96.4)
Flush toilets	5	(1.0)
Bush/open grounds	14	(2.7)
<i>Observe (n=504):</i>		
Used and clean	416	(82.5)
Unused	5	(1.0)
Used and dirty	83	(16.5)

5.4 Analysis of nutrition data

5.4.1 Distribution

Table 6: Distribution according to age and sex

	Boys		Girls		Total	
	n	(%)	n	(%)	n	(%)
6-11 months	59	(47.6)	65	(52.4)	124	(13.4)
12-23 months	108	(48.9)	113	(51.1)	221	(23.9)
24-35 months	102	(49.3)	105	(50.7)	207	(22.4)
36-47 months	88	(52.7)	79	(47.3)	167	(18.1)
48-59 months	86	(42.2)	118	(57.8)	204	(22.1)
Total	443	(48)	480	(52)	923	(100)

	Boys		Girls		Total	
	n	(%)	n	(%)	n	(%)
6-23 months	167	(48.4)	178	(51.6)	345	(37.4)
24-59 months	276	(47.8)	302	(52.2)	578	(62.6)
Total	443	(48)	480	(52)	923	(100)

Table 7: Distribution according to sex and nutritional status (weight/height index in Z score or oedema)

	Severe < -3 + oedema		Moderate -3 ≤ z < -2		Normal ≥ -2		Oedema	
	n	(%)	n	(%)	n	(%)	n	(%)
Male	11	(2.5)	27	(6.1)	405	(91.4)	1	(0.2)
Female	10	(2.1)	29	(6.0)	441	(91.9)	1	(0.2)
Total	21	(2.3)	56	(6.1)	846	(91.7)	2	(0.2)

	GaM < -2 + oedema		Normal ≥ -2		Total	
	n	(%)	n	(%)	n	(%)
Male	38	(8.6)	405	(91.4)	443	(48)
Female	39	(8.1)	441	(91.9)	480	(52)
Total	77	(8.3)	846	(91.7)	923	(100)

Analysis suggests no association between sex and global acute malnutrition (RR=1.06; p=0.897)

Table 8: Distribution according to age and nutritional status (weight/height index in Z score or oedema)

	Severe < -3 + oedema		Moderate -3 ≤ z < -2		Normal ≥ -2		Oedema	
	n	(%)	n	(%)	n	(%)	n	(%)
6-11 months	2	(1.6)	7	(5.6)	115	(92.7)	0	0
12-23 months	10	(4.5)	13	(5.9)	198	(89.6)	0	0
24-35 months	3	(1.4)	9	(4.3)	195	(94.2)	1	(0.5)
36-47 months	1	(0.6)	8	(4.8)	158	(94.6)	0	0
48-59 months	5	(2.5)	19	(9.3)	180	(88.2)	1	(0.5)
Total	21	(2.3)	56	(6.1)	846	(91.7)	2	(0.2)

	Severe < -3 + oedema		Moderate -3 ≤ z < -2		Normal ≥ -2		Oedema	
	n	(%)	n	(%)	n	(%)	n	(%)
6-23 months	12	(3.5)	20	(5.8)	313	(90.7)	0	0
24-59 months	9	(1.6)	36	(6.2)	533	(92.2)	2	(0.3)
Total	21	(2.3)	56	(6.1)	846	(91.7)	2	(0.2)

	GaM < -2 + oedema		Normal ≥ -2		Total	
	n	(%)	n	(%)	n	(%)
6-11 months	9	(7.3)	115	(92.7)	124	(13.4)
12-23 months	23	(10.4)	198	(89.6)	221	(23.9)
24-35 months	12	(5.8)	195	(94.2)	207	(22.4)
36-47 months	9	(5.4)	158	(94.6)	167	(18.1)
48-59 months	24	(11.8)	180	(88.2)	204	(22.1)
Total	77	(8.3)	846	(91.7)	923	(100)

	GaM < -2 + oedema		Normal ≥ -2		Total	
	n	(%)	n	(%)	n	(%)
6-23 months	32	(9.3)	313	(90.7)	345	(37.4)
24-59 months	45	(7.8)	533	(92.2)	578	(62.6)
Total	77	(8.3)	846	(91.7)	923	(100)

Analysis suggests no significant association between age group and global acute malnutrition (RR=1.19; p=0.503)

5.4.2 Indicators

Table 9: Indicators – proportions and confidence interval

	Proportion (%)	95% Confidence Interval (%)
Oedema	2 (0.2)	
Global acute malnutrition	77 (8.3)	(6.7 – 10.4%)
Severe acute malnutrition	21 (2.3)	(1.4 – 3.5%)

5.4.3 Interpretive analysis

Table 10: Distribution according to age and nutritional status – proportions and confidence interval

	Global acute malnutrition	
	Proportion (%)	95% Confidence Interval (%)
6-23 months	32 (9.3)	(6.5 – 13%)
24-59 months	45 (7.8)	(5.8 – 10.4%)

	Severe acute malnutrition	
	Proportion (%)	95% Confidence Interval (%)
6-23 months	12 (3.5)	(1.9 – 6.2%)
24-59 months	9 (1.6)	(0.8 – 3%)

5.5 Health and morbidity

Almost all (99%) families seek assistance when their child(ren) fall sick. Private clinic/pharmacy (78%) is a preferred choice for consultation as opposed to public health facilities (21%). Acute respiratory infection (9%) is a leading cause of morbidity (Table 12).

Table 11: Health seeking behaviour

	<i>n</i>	(%)
<i>Seek assistance when child sick (n=523):</i>		
Yes	520	(99.4)
No (n=3):	3	(0.6)
Recite <i>Quran</i>	3	(100)
<i>Where (n=520):</i>		
Traditional healer	4	(0.8)
Private clinic/pharmacy	407	(78.3)
Public health facility	109	(21)

Table 12: Morbidity

	<i>n</i>	(%)
Diarrhoea	70	(7.6)
ARI	86	(9.3)
Malaria	52	(5.6)
Measles in last one month	13	(1.4)

5.6 Immunisation

5.6.1 Measles

Among the 12-23 months cohort, only 18% had received measles immunisation based on card verification only and 56% by card or history. Two thirds of infants eligible for measles immunisation had not yet received their shots as at the time of the survey.

Table 13: Measles coverage

	No (%) received immunisation 9- 11 months (n=39)	No (%) received immunisation 12-23 months (n=221)	No (%) received immunisation 9-59 months (n=838)
Yes – with card	7 (17.9)	40 (18.1)	134 (16)
Yes – with history/without card	6 (15.4)	84 (38)	447 (53.3)
No	26 (66.7)	97 (43.9)	257 (30.7)

5.6.2 NIDs and Vitamin A supplementation

In 2002, 4 rounds of polio sub-immunisation activities (Spring and Fall NIDs) were conducted in Puntland. Survey results suggest that only 17% of the 6-59 months old Galkaio population received all the intended 4 doses with similar proportion (17%) receiving none of the 4 polio doses. However, the summary preliminary 2002 Galkaio district report indicate a coverage of between 86-110% for each of the 4 rounds of polio sub-immunisation.

Table 14: OPV and vitamin A supplementation coverage

	n	(%)
<i>No of times OPV received in 2002 (n=923):</i>		
Once	98	(10.6)
2 times	225	(24.4)
3 times	284	(30.8)
4 times	158	(17.1)
None	158	(17.1)
<i>OPV received in NIDs February 2003 round 1 (n=923):</i>	681	(73.8)
<i>Reason for missing OPV (n=242):</i>		
Team did not come	67	(41.2)
Child not at home	44	(18.2)
Child sleeping	6	(2.5)
Child sick	10	(4.1)
Vaccine unsafe	46	(19.0)
OPV not important	36	(14.9)
<i>Vitamin A supplementation coverage (n=923):</i>	696	(75.4)

During the Polio NIDs first round conducted on 16-18 February 2003:

- About three-quarter of the 6-59 months children population received the polio dose. However, preliminary Polio NIDs results suggest 87% coverage
- No association exist between sex and receipt of same dose of polio antigen (p=0.423): both boys and girls had the same opportunity of being immunised against polio
- Of those who missed out during the 2003 NIDs first round, 41% reported that the polio team did not visit whilst one quarter of caretakers rejected antigen saying either “vaccine unsafe or not important”.

Survey results suggest 75% vitamin A supplementation coverage during the preceding 6 months to the survey.

5.7 Feeding practices

More than two thirds of the 6-23 months old children are not breastfed. Half of the children stop breastfeeding by the time they are six months old with majority (95%) of same children given complementary feeds during the first six months meant for exclusive breastfeeding. However, three quarters of the children are fed 4 or more times in a day.

Table 15: Feeding practices (children, 6-23 months)

	<i>n</i>	<i>(%)</i>
<i>Are you breastfeeding child (n=345):</i>		
Yes	96	(27.8)
No	239	(69.2)
Never	10	(2.9)
<i>Age when child stopped breastfeeding (n=237):</i>		
0-6 months	138	(58.2)
7-11 months	68	(28.7)
12 months or more	31	(13.1)
<i>Weaning age (n=335):</i>		
0-6 months	317	(94.6)
7 months or more	18	(5.4)
<i>Feeding frequency (n=345):</i>		
Once	0	0
2 times	1	(0.3)
3 times	82	(23.8)
4 or more times	262	(75.9)

5.8 Analysis of potential risk factors

Analysis of potential risk factors (see Table 16) indicate existence of significant statistical association with global acute malnutrition for household head sex and ARI:

- Children with males as head of households were significantly less likely (RR 0.59) to be acutely malnourished whilst
- Children with history of ARI 2 weeks prior to the survey had a 1.6-fold increase in risk of being acutely malnourished

Table 16: Description of risk factors and results of bivariate analysis with respect to prevalence of global acute malnutrition

Exposure variable	n	(%)	Crude RR	95% CI	p-value
Household head sex:					
Male	55	(7.3)	0.56	0.35-0.89	0.021
Female	22	(13.1)			
Child sex:					
Male	38	(8.6)	1.06	0.69-1.62	0.897
Female	39	(8.1)			
Age group:					
6-23	32	(9.3)	1.19	0.77-1.84	0.503
24-59	45	(7.8)			
Diarrhoea:					
Yes	8	(11.4)	1.41	0.71-2.82	0.455
No	69	(8.1)			
ARI:					
Yes	14	(16.3)	2.16	1.27-3.69	0.009
No	63	(7.5)			
Malaria:					
Yes	4	(7.7)	0.92	0.35-2.41	0.559
No	73	(8.4)			
Measles:					
Yes	1	(7.7)	0.92	0.14-6.13	0.703
No	76	(8.4)			
Vitamin A:					
Yes	59	(8.5)	1.07	0.64-1.77	0.904
No	18	(7.9)			
Weaning age:					
0-6 months	28	(8.8)	0.79	0.21-3.08	0.924
7 months or more	2	(11.1)			

There exists no evidence of significant statistical association with global acute malnutrition for child sex, age group, diarrhoea, malaria, measles, vitamin A supplementation and weaning age.

Similarly, chi-square test of association shows no evidence of significant association with global acute malnutrition for section ($p= 0.125$), household residence status ($p= 0.350$), breastfeeding (0.276), age at which breastfeeding stopped ($p= 0.165$), and feeding frequency ($p= 0.738$).

Further analysis shows no significant difference between means of household size of acutely malnourished and that of normal children (t-test: $p=0.989$).

5.9 Discussion of Findings

The global acute malnutrition for Galkaio district has been found to be 8.3% (95% confidence interval of 6.7-10.4%) and the severe acute malnutrition rate at 2.3% (95% confidence interval at 1.4 – 3.5%). Vitamin A supplementation coverage has been found to be 75%, and 69.3% for measles vaccination coverage.

According to WHO classification (1995), this prevalence depicts a poor nutrition situation (this situation may further be classified as poor - serious since the confidence interval spills over the 10.0-14.9% category). Despite this prevalence which may not be unusual according to the situation in Somalia, the rates for severe malnutrition are high compared to the global normal acceptable rate of 0.5%.

This may be attributed to factors mentioned below:

- The general child feeding practices are poor, with about 95% of all children having been introduced to non-breast milk before the age of six months. Additionally, persistence of breastfeeding practices is poor with only about 13% of the children breastfeeding beyond 12 months of life ... about 58% were stopped from breastfeeding by the age of six months and 29% between 7-11 months. Even with the introduction of complementary feed at six months, persistence of breastfeeding is recommended until the child is at least two years. Absolute reliance by 58% of children aged six months, on non-breast food (with this figure increasing to about 87% by the end of 11 months), could have pre-disposed children to inadequate food both in terms of quantity and quality, and contributed to poor nutrition status.
- Analysis of potential risk factors indicates existence of significant statistical association with global acute malnutrition for household head sex and ARI. Children with males as head of households were significantly less likely (RR 0.59) to be acutely malnourished. This association could be attributed to limited access to resources, by women. Additionally, children with a history of ARI, two weeks prior to the survey had a 1.6-fold increase in risk of being acutely malnourished. Morbidity rates were significant, with 9.3% of children having suffered from ARI, 8% from diarrhea, 6% from malaria in the last two weeks prior to the survey. Measles immunization coverage of 69.1% contribution to poor nutrition status could have been minimal as only 1% of the children had suffered from measles bouts in the one month prior to the survey.
- Access to safer water from three functional boreholes was limited to 86% of the population who could afford to make the purchase through water trucking system (and the

use of donkey carts). Unfortunately, 12% of the population consumed water from open shallow wells, which have high mineral and nitrate levels. They may therefore have been exposed to diseases and subsequently to poor nutrition status.

- Access to camel milk has remained low due to the poor conception rate (40-50%) in the GU season of 2002. Additionally, livestock sales have remained at a minimum due to poor body condition, maintaining the current poor terms of trade (in which the average of 1 shoat is exchanged for 15 kg of rice).
- Insecurity in other parts of Somalia (mainly SCZ and Ethiopia,) continues to be the main reason for people (23.5%) to settle in Galkaio district. Other reasons included lack of jobs and water shortage. It is possible that some of the immigrants, together with members of the poor wealth groups engage in untenable coping strategies (begging, 3%, gifts and remittances, 10%) to access income and /or food, and being unable to meet food needs become vulnerable to malnutrition. These activities may also have diverted resources from providing care and stimulation to the child.

The factors mentioned below may well have controlled further deterioration of the nutrition status.

- 75% of the survey children were fed four or more times or more a day. Frequent feeding is in line with recommended child care practice for children above six months of age, and this ensured a steady supply of the required nutrients.
- Galkaio has a 70-bed Regional Hospital that receives support from MSF-H. Adjacent to the hospital is Galkaio MCH/OPD that is supported by UNICEF, and offers a range of MCH/OPD services. There are also several functioning, private pharmacies/clinics available in the town. All these provide significant access to health services by the Galkaio town dwellers. A high proportion of care-takers (99.4%) seek assistance from these health institutions (but mainly the private clinic/pharmacy) when children fall sick. This may have helped control morbidity and deaths, including those related to malnutrition. Nevertheless, the survey did not provide information on how promptly the health services are sought.
- Fecal disposal within the survey section of the town was mainly confined to pit latrines and flush toilets (97.4%). Only 2.7% of the population disposed of fecal matter in the bush or open grounds. Additionally, 82.5% of those with latrines/flush toilets used and kept them clean, with only 16.5% using but not cleaning up. This high coverage of latrine used controlled contamination of open wells (which provide water to 12% of the population) and hence reduced the risk of water borne diseases which would otherwise have adversely affected nutrition status.
- Following the rains that fell normally in April through the first week of May 2003, pasture condition improved and water availability increased. The boreholes are resting as different pastoralist wealth groups get access to free rain water. These conditions have positively impacted on the food security situation which is currently consistent with seasonal norm. The positive changes in the Addun and Hawd food economy zones had a ripple effect in the urban food economy zone: there is increased availability of milk mainly from shoats which is battered for cereal or sold Galkaio town. Additionally, trade in both

staples and non-staples has improved, and so has access to food for all wealth groups including the poor. The currently rain water has ameliorated the expenditure pattern – there is decreased purchase of water from boreholes and the savings used to cover the increased price for staple food. There is also flexibility within the total household income to accommodate expenses on non-staples such as veterinary drugs.

6. Conclusion and Recommendations

Recorded severe and global acute malnutrition rates of 2.3% and 8.3% W/H Z-Scores respectively are not significantly different from last year's (23 March – 1 April) survey results of 2.1 and 8.2% rates. However, Galkaio remains a vulnerable food security area since the population relies entirely on purchases for their food source and income for such purchases coming mostly from small/casual business. Prevailing equilibrium may therefore easily be destabilised by potential insecurity and “shocks” such as the current livestock ban and limited remittances/gifts.

There is still need to intensify health and nutrition education activities at household level targeting mothers, fathers and other caregivers to address care concerns. The main areas of focus are promoting exclusive breastfeeding, appropriate young child feeding, diet diversification, and improvement in household hygiene and health care practices.

Going by the measles immunisation coverage, there is still plenty of room for improvement of EPI coverage. One such opportunity is the ongoing EPI acceleration activities that target the five major Puntland towns of Bossaso, Gardo, Garowe, Burtinle and Galkaio.

7. Annexes

Annex 1: Population estimates

<i>Subsection</i>	<i>Pop</i>	<i>6-59m pop</i>	<i>Cumulative</i>		<i>Clusters</i>
Isaac-1	6,075	1,215	1,215	103; 402; 701; 1,000	4
Isaac-2	4,560	912	2,127	1,299; 1,598; 1,897	3
Garsoor-3	3,930	786	2,913	2,196; 2495; 2,794	3
Garsoor-4	3,825	765	3,678	3,093; 3,392	2
Isaac-5	3,060	612	4,290	3,691; 3,390; 4,289	3
Garsoor-6	2,865	573	4,863	4,588	1
Isaac-7	2,475	495	5,358	4,887; 5,186	2
Isaac-8	2,400	480	5,838	5,485; 5,784	2
Hormar-9	2,280	456	6,294	6,083	1
Garsoor-10	2,265	453	6,747	6,382; 6,681	2
Isaac-11	2,250	450	7,197	6,980	1
Isaac-12	1,620	324	7,521	7,279	1
Hormar-13	1,560	312	7,833	7,578	1
Hormar-14	1,275	255	8,088	7,877	1
Isaac-15	1,200	240	8,328	8,176	1
Garsoor-16	960	192	8,520	8,475	1
Garsoor-17	795	159	8,679	-	0
Garsoor-18	600	120	8,799	8,774	1
Garsoor-19	465	93	8,892	-	0
Hormar- 20	315	63	8,955	-	0
Total	44,775	8,955			30

Sampling interval: 299 (8,955/30)

Random selection: 103

Annex 2: Puntland traditional calendar

Months	Annual Events	1998	1999	2000	2001	2002	2003
JAN	<i>Mid of Jiilaal</i>		51 Soon fur	39 Soon	27 Sidataal	15 Sidataal	3 Sidataal
FEB	<i>End of Jiilaal</i>		50 Sidataal	38 Sidataal	26 Arafo lid Al Adhaa	14 Arafo (lid Al Adhaa)	2 Arafo
MAR	<i>Start of Gu Season</i>		49 Arafo	37 Arafo	25 Sako	13 Sako	1 Sako
APR	<i>Middle Gu Season</i>		48 Sako	36 Sako	24	12 Safar	
MAY	<i>End of Gu Season</i>	59 Sako	47 Safar	35 Safar	23 Safar	11 Mowliid Rabi Al Awal	
JUNE	<i>Start of Haga Season</i>	58 Safar	46 Mowliid	34 Mowliid	22 Siyaaro	10 Siyaaro Rabi Al Akhir	
JULY	<i>Middle of Haga Season</i>	57 Rabi Al Awal	45 Rabi Al Akhir	33 Rabi Al Akhir	21 Jamaadul Awal	Fighting in Bossaso 9 Jaadul Awal	
AUG	<i>End of Haga Season</i>	56 Rabi Al Akhir	44 Jamaadul Awal	Establishment of Puntland State 32 Jamaadul Awal	20 Jamaadul Akhir	8 Jamaadul Akhir	
SEPT	<i>Start of Deyr Season</i>	55 Jamaaldul Awal	43 Jamaadul Akhir	31 Jamaadul Akhir	19 Sabuux (Rajab)	7 Rajab	
OCT	<i>Middle of Deyr Season</i>	54 Jamaaldul Akhir	42 Rajab	30 Sabuux (Rajab)	18 Soon Dheere (Shacbaan)	6 Soon Dheere (Shacbaan)	
NOV	<i>End of Deyr</i>	53 Rajab Daadkii Koonfur	41 Soon Dheere (Shacbaan)	29 Soon Dheere (Shacbaan)	17 Soon (Ramadan)	5 Soon (Ramadan)	
DEC	<i>Start of Jiilaal</i>	52 Soon Dheere (Shacbaan)	40	28 Soon (Ramadan)	16 Soon fur	4 Soon fur	

Annex 3: Galkaio survey questionnaire

Household No.	Date	Team Number	Cluster Number	Name of supervisor	Section	Subsection
					1: Israac 2: Garsoor 3: Horumar	

Name of household head	Q1 Sex 1= M 2= F	Q2 Household size	Q3 No. of u5s

Q4 Household residence status	Q5 Place of origin (Country/region)	Q6 Date of arrival (year)	Q7 Reason for movement
1 = Resident: Go to No. 8 2 = Resident returnee 3 = Internally displaced 4 = Refugee 5 = Other – specify	1: Ethiopia 2: Kenya 3: South and Central zone 4: Mudug 5: Nugal 6: Bari 7: Somaliland 8: Other	1: 2002 2: 2001 3: 2000 4: 1999 5: 1998 6: Before 1998	1 = Insecurity 2 = Lack of jobs 3 = Food shortage 4 = Water shortage 5 = Other – specify

Q8 Household's main food source?	Q9 Household's main income source	Q10 How does this household survive during food shortages (coping strategies)?	Q11 Main source of drinking water	Q12 Sanitation Facility	Q13 When your child is sick, do you seek assistance?
1 = Animal products from own production 2 = Household crop production 3 = Wild foods collection 4 = Purchases 5 = Others – specify	1 = Business 2 = Small business 3 = Casual work 4 = Salaried employment 5 = Sale of crops 6 = Sales of animals and animal products 7 = Begging 8 = Remittances/Gifts 9 = Others – specify	1= Remittances/Gifts 2= Sale of more livestock 3= Splitting of the family 4= Begging 5= Borrowing 6= Food aid 7= Wild food collection 8= Others – specify	1 = Borehole 2 = Open wells 3 = Protected wells 4 = Berkads 5 = Catchments/pond 6 = Stream/river 7 = Muscid 8 = Tap/piped water 9 = Tanker/truck vendor 10 = Others – specify	1 = Pit latrines: Go to Q12b 2 = Flash toilets 3 = Bush/Open ground Q12b Condition of the facility (Observe) 1 = Used and clean 2 = Unused 3 = Used and dirty 4 = Others – specify	1 = Yes: Go to Q13b 2 = No: Go to Q13c Q13b Where? 1 = Traditional healer 2 = Private clinic/pharmacy 3 = Public health facility 4 = Others – specify Q13c Why? – specify

Serial No	Name	Q14 Sex 1 = M 2 = F	Q15 Age (Months)	Q16 Oedema 1 = Yes 2 = No	Q17 Height (Cm)	Q18 Weight (Kg)

For Q28-31, ask mothers with child(ren) 6-23 months old

Serial No.	Q19 Diarrhoea in last 2 weeks?	Q20 ARI in last 2 weeks?	Q21 Malaria in last 2 weeks?	Q22 Measles in last 1 month?	Q23 Vaccinated against measles?	Q24 Vitamin A provided in the last 6 months?	Q25 Number of times OPV received during 2002 NIDs?	Q26 OPV received in last NIDs round?	Q27 Reason for missing OPV dose(s)?	Q28 Are you B/F child?	Q29 If no, how old was child when you stopped B/F?	Q30 At what age was child given foods other than breast milk?	Q31 How many times in a day do you feed child?
	1 = Yes 2 = No	1 = Yes 2 = No	1 = Yes 2 = No	1 = Yes 2 = No	1 = past 6m (card) 2 = past 6m (recall) 3 = before 6m (card) 4 = before 6m (recall) 5 = None	1 = Yes 2 = No	1 = Once 2 = 2 times 3 = 3 times 4 = 4 times 5 = None	1 = Yes: Go to Q28 2 = No	1 = team didn't come 2 = child not at home Care taker refused because: 3 = child sleeping 4 = child sick 5 = vaccine unsafe 6 = OPV not important 7 = Other -specify	1 = Yes 2 = No 3 = Never: Go to Q31	1 = 0-6m 2 = 7-11m 3 = 12m or more	1 = 0-6m 2 = 7m or more	1 = Once 2 = 2 times 3 = 3 times 4 = 4 or more