Nutrition and Mortality Survey Final report

Wdai Salih Locality

Garsila Udminstrative Unit

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Conducted by: international Medical Corps

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Abbreviations

ARI	Acute Respiratory Infection
CI	Confidence Interval
CMR	Crude Mortality Rate
CMAM	Community Management of Acute Malnutrition
ENA	Emergency Nutrition Assessment
EPI	Extended Programme of Immunisation
GAM	Global Acute Malnutrition
HAC	Humanitarian Aid Commission
IDP	Internally Displaced Person
IYCF	Infant and Young Child Feeding practice
SMoH	State Ministry of Health
MUAC	Mid Upper Arm Circumference
NCHS	National Centre for Health Statistics
OCHA	UN Office for the Coordination of Humanitarian Affairs
OTP	Out-patient Therapeutic Programme
SAM	Severe Acute Malnutrition
IC	Inpatient Care
SMART	Standardize Monitoring and Assessment in Relief and Transitions
IBSFP	Integrated blanket Supplementary Feeding Programme
U5MR	Under 5's Mortality Rate
WFP	World Food Programme
WHM	World Health Organization
WHZ	Weight for Height in Z-score

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Executive Summary

IMC supported by ECHO has conducted nutrition and mortality survey in garsila administrative unit in collaboration with SMoH and HAC from 25/11 – 2/12/2014. The main objective of the survey was to assess the magnitude of acute malnutrition and the prevalence of common causes of morbidity in under-five children (6-59 months) in Garsilla, Wadi Saleh Locality in Central Darfur and generate recommendations that can help IMC and other stakeholders on the future programming. The methodology used for the survey was two stage random cluster sampling methodology following stages of a standardized monitoring and assessment in Relief and Transition (SMART according to national nutrition survey guidelines SUDAN. ENA for smart software was used for the 1st stage of selection (selection of clusters), and random selection for the second stage (selection of households). Thirty clusters were selected and 1061 households have been selected in the secondary sampling stage .Anthropometric, household, IYCF, Mortality, immunization coverage and vitamin A supplementation component of the survey data collects from interviewed HHs. (GAM) during the survey period in garsila administrative unit was 12.4% (10.0 - 15.4 95% C.I.), based on WHO 2006 standards. According to the classification of severity of ’malnutrition, the estimated prevalence of acute malnutrition is classified as serious.

The prevalence of Severe Acute Malnutrition (SAM) reported at 2.3 % (1.5 - 3.5 95% C.I.).

Morbidity: The overall morbidity rate found among under-five children assessed is (43.1.9%) (356). ARI (16.7%), other diarrheal diseases (6.9%), and fever (13.1%) were the main causes

Immunization coverage and vitamin A supplementation:

Measles, Penta, Rota2 and Polio coverage were assessed from the child’s immunization card or by recall of mothers/caretakers. Vitamin A supplementation was assessed by demonstrating Vitamin A capsule to the mother or caretaker. The findings of the survey shown the immunization coverage for measles (by card and recall) is 76% (n=623), Penta 45.8 %(n=374), Rota2 44.9% (n= 368) and the supplementation coverage for vitamin A is 76.5 %(n=627) received Vit A during the the recall period. This entire are lower comparing to the WHO recommended coverage levels. However, vaccination card retention is low 44.4 %(immunization of measles by card).

Mortality: Retrospective mortality data over the 90 days period prior to the survey was collected in all sampled households with 6616 individual and the survey found CMR is 0.58 (0.46-1.00 95% CI) deaths/10,000/day) and under- five mortality rate is 1.53 (0.62-3.75 95% CI) deaths/ day) are below the emergency threshold levels.

Household and IYCF:

Early imitation of breastfeeding in this survey was 88.5% of care givers put the first breast within first hour, exclusively breastfeeding practiced by 22.7% which is low.nitroducing food or drink other than breast milk after six month practiced by 40.3% ,

84.4 %(913) of households reported male head of household, main source of drinking water in rainy season in this survey (36.7%) of household reported surface water , 511(47.2%) of interviewed households used iodized salt,

:Recommendations

- Strengthen the current CMAM program during and until next harvest and include all malnourished children to the program.
- Strengthen the health education awareness on promotion of improved hygiene practices to reduce the high incidence of diseases.
- Priority should be given to behavioral change among mothers/caregivers to ensure optimal breast feeding practices are adopted.
- Kitchen gardens should be promoted to improve the availability of vegetables, focusing on early maturing crops and fruits and initiative generation income

1- Introduction .

The humanitarian crisis in Darfur continues to affect the health and nutrition status of internally displaced population (IDPs) and the host communities. In these communities, the prevalence of acute malnutrition and common communicable diseases such as diarrheal diseases,, and acute respiratory infections are the common causes of morbidity.

To respond to the nutrition needs of the conflict affected populations and other vulnerable groups, International Medical Corps (IMC) has been implementing the Community-based Management of Acute Malnutrition program, based on international guidelines, in Garsilla since June 2012. The primary data from IMC's nutrition program has indicated that the death, defaulter and recovery rates among children with malnutrition enrolled in the CMAM intervention lies within the normal threshold of the Sphere standards. However, the real magnitude of acute malnutrition in the communities of Garsilla areas of operation is not clearly known. A community based survey in the marginalized communities of Garsilla has not been done in the last 5 years. Cognizant of these facts, IMC in collaboration with the SMOH and UNICEF, IMC has conducted a community based nutrition survey in Wadi Saleh locality, Garsilla Administrative Unit. The results of the survey are crucial to i) see the magnitude of malnutrition in the community; ii) to evaluate the effect of IMC's nutrition intervention in the area; and iii) serve as a baseline for further evaluation of the impact of our interventions.

2- Survey Objective

Overall objective

To assess the magnitude of acute malnutrition and the prevalence of common causes of morbidity in under-five children (6-59 months) in Garsilla, Wadi Saleh Locality, Central Darfur.

Specific objectives

1. To screen for acute malnutrition for children aged 6-59 months.
2. To examine child feeding practices and their effect on child malnutrition in the community.
3. To estimate vaccination coverage and Vitamin A supplementation.
4. To collect basic information on drinking water source, water accessibility and availability, and hygiene practices within the community.
5. To estimate immunization coverage in the area

3- Methodology .

Two stage random cluster sampling methodology was used following stages of a standardized monitoring and assessment in Relief and Transition (SMART according to national nutrition survey guidelines SUDAN. ENA for smart software was used for the 1st stage of selection (selection of clusters), and random selection for the second stage (selection of households). Clusters were assigned from the list areas according to the population. The probability of cluster selection was proportion to population size in each village/camp. The second level of sampling (selection of households) was done randomly through “spinning pencil method” in the center of cluster to select the first household to be surveyed. A total of 30 clusters with minimum of around 30 households per cluster were required to provide valid estimates of the prevalence of malnutrition with at least 95% of confidence. Weight-for-height was used throughout the survey as the anthropometric indicator for nutritional status. Information on population for the retrospective mortality survey was collected from all households selected in the survey. If a child was found to be absent at the time of the data collection, the team write full address of child to return later to find the child; however, no children were found to be absent during the survey. The target group for the study was 1061 households and the sample universe was the entire population of garsila administrative unit. For the anthropometric survey, the target was children aged between 6 and 59 months (65-110 cm in height), while the breastfeeding survey targeted children aged between 0 and 23 months. At each household the Nutrition and Food Security survey questionnaires were administered to the mother or main care-giver while anthropometric measurements were taken on all children 6 to 59 months old available in the household and 820 child aged from 6- 59 month were finally selected for analysis.

3.1 Questionnaire, training and supervision

Data collection

Four sets of questionnaires were used during this survey (child/anthropometric questionnaires, mortality questionnaires, IYCF questionnaires and household questionnaires. All of the questionnaires were translated in to Arabic the local language, and tested in the field before use in data collection.

Age: If documents such as vaccination cards or birth certificates were available, these were used to determine the age of children. Team leaders were trained in how to assess age accurately using a local seasonal calendar for use when documentation was not available. When age was not clear, only children with height between 65cm and 110cm (proxy 6 to 59 .months) were included for anthropometric measurements

Weight: A 25 kg salter scale was used. Weight was recorded to the nearest 100g. Scales were calibrated every morning with a known weight and adjusted to 0 with measuring pants before each weighing.

Height/Length: Children were measured using standard UNICEF height boards Children less than 87cm were measured lying down (length) while those 87cm and above were measured .height). All height/length measurements were taken to the nearest 0.1cm.

Oedema: All data collectors were trained to determine the presence of nutritional oedema (retention of fluid). Oedema was diagnosed by applying a medium thumb pressure on the upper side of both feet for three seconds. Oedema was diagnosed if a bilateral depression remained on both feet after the pressure was released. Any child identified with oedema .was referred to an OTP site

MUAC: Mid-upper arm circumference (MUAC) is an effective predictor of risk of mortality. It is measured on the upper left arm and recorded to the nearest mm using a MUAC tape. Any child with a MUAC <115mm or 115-124mm and not registered in the relevant OTP or .SFP programs were immediately referred

Vaccination Status: Data on immunization for Penta, Rota2, Polio and measles was collected to estimate their coverage these vaccinations confirmed by vaccination card or .verbal response from mothers.

Vitamin A Supplementation: Mother's or caretakers recall were used to confirm vitamin A

Supplementation. They were shown a sample of vitamin A capsule and asked if the child/mother had received it in the past 6 months prior to the survey for the children and with six week after delivery for care givers..

Retrospective morbidity of children: Caretakers were asked about any incidence of illness during the 2 week period prior to the survey. The team probed to confirm the nature of the illness, the relative seriousness of the illness (diarrhea=3 or more loose motions per day, cough/difficulty breathing=rapid short or fast breaths, and persistent cough)

Mortality data: The mortality questionnaire captured the probable cause of death as determined by verbal autopsy by the household respondent from the previous 90-day period. It also collected information on household composition, household members (under .5 and above 5), births and deaths in the 3 months prior to the survey

3.2 Training and supervision

A total of 24 data collectors were recruited and trained for data collection. The recruitment .considers previous experience as well as knowledge of anthropometric measurements

Training was conducted over three days on the survey objectives, methodology, how to measure and record anthropometric information, basic nutrition and use of nutritional indices, household selection procedures, signs and symptoms of malnutrition, data collection and basic interview skills.

3.3Data analysis.

EpiInfo 3.5.1 window statistical software and ENA for SMART 2011 software were used to .analyze the survey data

The anthropometric data were imported to ENA 2011. Data quality checks were done using the new plausibility check. Other information was analyzed using Epi info software. Confidence intervals were calculated using the complex sampling mode of the software. The data were extracted from the PDA in to excel sheet. From excel data were transferred in to the respective software for analysis.

Based on the new SMART ENA 2011 software SMART flags were excluded from the final analysis automatically. A SMART flag means z scores of +/- 3 SD of WHZ from the observed WHZ mean. Based on these criteria a total number of children analyzed is 820.

4- Results

4.1 Anthropometric results

Age and sex distribution

The Overall sex ratio of boys and girls is 1.1. Statistical tests show that for the overall sex ratio boys and girls are equally represented.

Table 1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	73	53.7	63	46.3	136	16.6	1.2
18-29	100	49.5	102	50.5	202	24.6	1.0
30-41	120	53.3	105	46.7	225	27.4	1.1

42-53	89	51.4	84	48.6	173	21.1	1.1
54-59	39	46.4	45	53.6	84	10.2	0.9
Total	421	51.3	399	48.7	820	100.0	1.1

Figure 1 Population age and sex pyramid

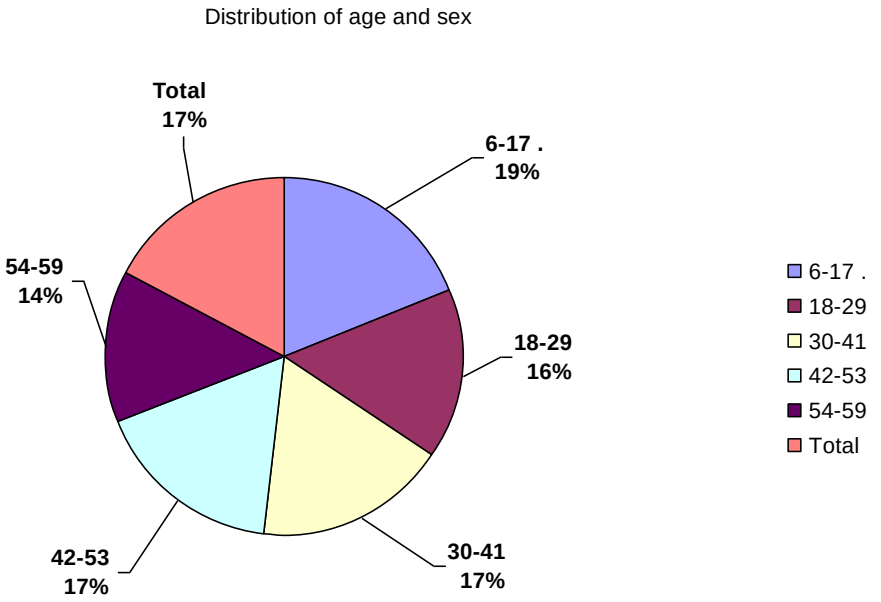

Table 2: Prevalence of Acute Malnutrition based on Weight for Height Z – score

Prevalence of Malnutrition	All n = 820	Boys n = 421	Girls n = 399
Prevalence of global malnutrition **(<-2 z-score and/or oedema)**	(102) 12.4 % (10.0 - 15.4 95% C.I.)	(54) 12.8 % (9.7 - 16.8 95% C.I.)	(48) 12.0 % (8.8 - 16.3 95% C.I.)
Prevalence of moderate malnutrition **(<-2 z-score and >=-3 z-score, no oedema)**	(83) 10.1 % (8.0 - 12.7 95% C.I.)	(45) 10.7 % (7.7 - 14.7 95% C.I.)	(38) 9.5 % (6.6 - 13.6 95% C.I.)
Prevalence of severe malnutrition **(<-3 z-score and/or oedema)**	(19) 2.3 % (1.5 - 3.5 95% C.I.)	(9) 2.1 % (1.2 - 3.7 95% C.I.)	(10) 2.5 % (1.4 - 4.6 95% C.I.)

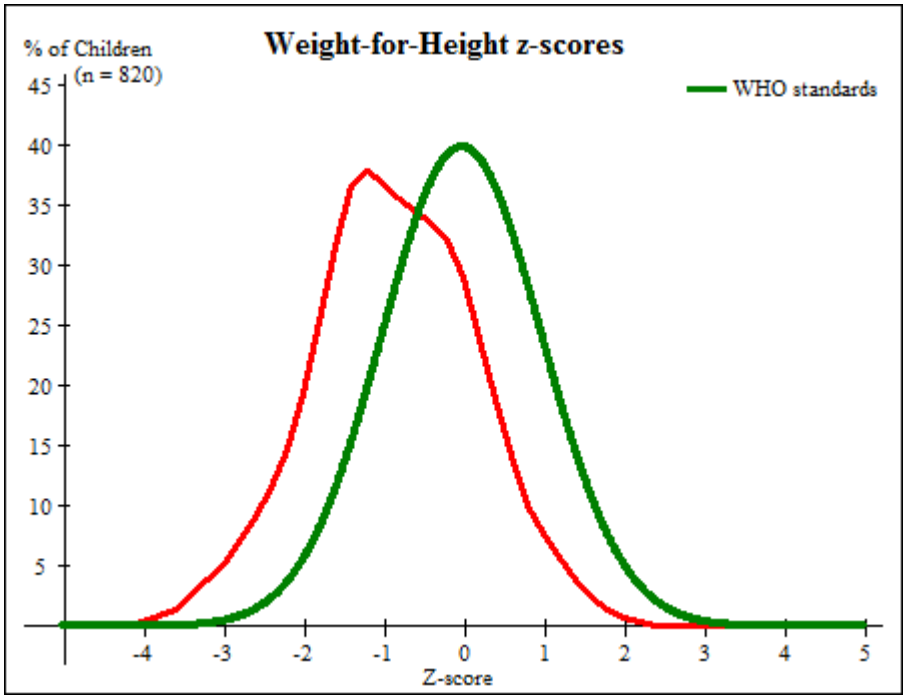

Table 3: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	136	6	4.4	11	8.1	119	87.5	0	0.0
18-29	202	2	1.0	16	7.9	184	91.1	0	0.0
30-41	225	4	1.8	20	8.9	201	89.3	0	0.0
42-53	173	5	2.9	19	11.0	149	86.1	0	0.0
54-59	84	2	2.4	17	20.2	65	77.4	0	0.0
Total	820	19	2.3	83	10.1	718	87.6	0	0.0

4-1.2 Distribution of Acute Malnutrition and Oedema

Table.4: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 19 (2.3 %)	Not severely malnourished No. 801 (97.7 %)

4.1.3 MUAC Distribution

MUAC has a stronger association with risk of mortality than WFH among children between six and five years of age. Direct comparisons of prevalence data based on WFH and MUAC are not recommended, as they are two different criteria and select different groups the survey result shows that based on MUAC GAM is 4.3% (2.7- 6.6 95% CI), MAM is 3.4% (2.1- 5.5 95% CI) and SAM is 0.9% (0.3- 2.1 95% CI),

Mid upper Arm circumference (MUAC) analysis, children 6-59 months (N=819)

Table 5:

Status	Number of children	Percentage
Prevalence of global malnutrition (< 125 mm)	35	4.3 % (2.7- 6.6 95% CI.)
Severe acute malnutrition (MUAC < 115mm)	7	0.9%(0.3- 2.1 95% CI)
Moderate acute malnutrition (MUAC >=115 to <125mm)	28	3.4% (2.1- 5.5 95% CI),
Normal/well nourished (MUAC>135mm)	749	93.5%
Total	819	100%

4.1.4 under weight

Table 6: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 820	**Boys** n = 421	**Girls** n = 399
Prevalence of underweight **(<-2 z-score)**	(204) 24.9 % (20.5 - 29.8 95% C.I.)	(113) 26.8 % (22.1 - 32.1 95% C.I.)	(91) 22.8 % (17.1 - 29.7 95% C.I.)
Prevalence of moderate underweight	(161) 19.6 %	(89) 21.1 %	(72) 18.0 %

(<-2 z-score and >=-3 z-score)	(16.3 - 23.5 95% C.I.)	(16.9 - 26.1 95% C.I.)	(13.7 - 23.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(43) 5.2 % (3.7 - 7.4 95% C.I.)	(24) 5.7 % (3.9 - 8.4 95% C.I.)	(19) 4.8 % (2.7 - 8.1 95% C.I.)

Table 7: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		**Moderate underweight (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	136	14	10.3	26	19.1	96	70.6	0	0.0
18-29	202	16	7.9	50	24.8	136	67.3	0	0.0
30-41	225	8	3.6	39	17.3	178	79.1	0	0.0
42-53	173	4	2.3	31	17.9	138	79.8	0	0.0
54-59	84	1	1.2	15	17.9	68	81.0	0	0.0
Total	820	43	5.2	161	19.6	616	75.1	0	0.0

4.1.5 Chronic malnutrition

Table 8: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 820	**Boys** n = 421	**Girls** n = 399
Prevalence of stunting (<-2 z-score)	(286) 34.9 % (29.4 - 40.8 95% C.I.)	(149) 35.4 % (29.6 - 41.6 95% C.I.)	(137) 34.3 % (27.6 - 41.8 95% C.I.)
Prevalence of moderate stunting	(168) 20.5 %	(82) 19.5 %	(86) 21.6 %

(<-2 z-score and >=-3 z-score)	(17.6 - 23.7 95% C.I.)	(15.8 - 23.7 95% C.I.)	(17.3 - 26.5 95% C.I.)
Prevalence of severe stunting **(<-3 z-score)**	(118) 14.4 % (10.8 - 18.9 95% C.I.)	(67) 15.9 % (11.7 - 21.3 95% C.I.)	(51) 12.8 % (8.4 - 19.1 95% C.I.)

Table 9: Prevalence of stunting by age based on height-for-age z-scores

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	136	18	13.2	34	25.0	84	61.8
18-29	202	51	25.2	61	30.2	90	44.6
30-41	225	31	13.8	45	20.0	149	66.2
42-53	173	13	7.5	19	11.0	141	81.5
54-59	84	5	6.0	9	10.7	70	83.3
Total	820	118	14.4	168	20.5	534	65.1

4.2 Immunizations and Vitamin A Coverage

Measles vaccination coverage was assessed among children 9-59 months by checking the vaccination card. If the card was not available mothers were asked if the child received measles vaccination or not, Vitamin A supplementation was assessed for 6 months period prior to the survey date by displaying a vitamin A capsule to the mothers or caretakers and confirming if the child had consumed capsules and Penta ,Rota2 and Polio coverage .

Vaccination coverage

Table 10

	Number	**%**
Measles by Card(9-59 months) N= 783	368	44.4
Measles by recall (9-59 months) n= 783	259	31.6
Polio campaign n= 820	622	83.2
Penta n= 820	374	45.8

Rota 2 n= 820	368	44.9
Vitamin A supplementation	627	76.5

4.3 Morbidity

The survey found that about 353 (43.1%) of children aged 6-59 months has been ill during the 2 weeks prior survey. ARI was the most common illness reported 136 (38.5%). The second common illness reported is malaria/fever 110 (31.2%). the third common illness reported is diarrhea 55 (15.6%).

Prevalence of Illness

Prevalence reported	Number	% of children
	353	43.1

Illness	Number	% of Illness
Fever/Malaria	110	31.2
ARI	136	38.5
Diarrhea	55	15.6
Eye infection	28	7.9
Bloody syools	5	1.4
Others (specify)	19	5.4
Total	353	100

4.4 Mortality

Retrospective mortality rate (90 days prior to interview)

Mortality Rates using Sudan National Nutrition Survey Guidelines

	Recall period (Days)	# of Deaths	# of population alive on the date of the survey	Mortality rate
Crude MR	90 days	40	6616	.58 (95%CI: 0.46-1.00)
U5 MR	90 days	20	1475	1.53 (95%CI: 0.62-3.75)

Both CMR and U5MR were below SPHERE standards or emergency threshold

Program Coverage:

Program	Total	%
SFP	31	3.8%

OTP	3	0.4%
SC/TFC	1	0.1

4.5 house hold Food Security and IYCF Practices
Infant and young child feeding practice:

Only 14 (5%) of respondents reported have not ever breastfed their children after birth and 264(95%) have been breast after birth.

Initiation of breastfeeding Out of 278 care givers 246(88.5) put the breast within the first hour after birth, 17 (6.1%) of care givers put the breast within the first day (2^{nd} – 24 hours) and only 7(2.5%) of care givers reported put the breast after first 24 hours after birth.

40.3% (112) of respondents reported introducing food or drink other than breast milk to their children after reaching six month , 37 %(103) of respondents reported introducing food to their children before reaching six month and 63(22.7%) were reported not applicable – exclusive breastfeeding .

During this survey care givers asked whether their children currently breastfeed or no 251(90%) reported currently breastfeeding and 27(10%) not breastfeeding currently

Age stopped breastfeeding

Age in months	Frequency	%
18	4	
1	4	
19	2	
13	2	
5	2	
2	2	

And 10,12,15,16,17,20,21,3,7,8 and 9 months of age reported once .

From the total of 278 child the care givers reported 0nly one (0.4) drinked from a bottle with a nipple

How many times did your child eat mashed, pureed, solid or semi-solid foods since this time yesterday:

Times	Frequency	Percentage
1	**33**	**11.9**
2	**56**	**20.1**
3	**59**	**21.2**

4	**24**	**8.6**
5	**2**	**0.7**
6	**2**	**0.7**
0	**102**	**36.8**
Total	**176**	**100**

Since this time yesterday did this child eat or drink food or drinks made from any of the following things? :

Eat or Drink	Yes	Percentage	N0	Percentage
Botatos	**16**	**5.8**	**262**	**94.2**
Ceeds	**159**	**57.2**	**119**	**42.8**
Drinks	**65**	**23.4**	**213**	**76.6**
Fruits /Vegatables	**51**	**18.3**	**227**	**81.7**
Gazar	**11**	**4**	**267**	**96**
Milk	**85**	**30.6**	**193**	**69.4**
Milk /Powder	**30**	**10.8**	**248**	**89.2**
Nisha	**61**	**21.9**	**217**	**78.1**
Oils	**252**	**54.7**	**126**	**45.3**
Proteins	**91**	**32.7**	**187**	**67.3**
Water	**210**	**75.5**	**68**	**24.5**
	1031		**2127**	

Household

Average household size is 6.2 individual and 84.4 %(913) of households reported male head of household and the remaining 15.6 %(69) female head of household.

384 (35.6%) of respondent reported the education level of head of household they don't know, 353(32.7%) reported head of households illiterate and 151(14%) reported education level of household is primary. average liters of water consumed per/HH/day is 66 liters.

395 (36.7%) of the respondents reported in rainy seasons their main source of water is surface water/hafia and in dry seasons 411(38.3%) of the respondent reported their main source of water is protected well.

506 (47%) of respondents usual defecate in open area, 370(34.4%) used household latrine for their usual defecation.

for fifol supplementation 539(49.8%) of care givers reported no received during their last pregnancy , 185(17.1%) of care givers reported take fifol for 1-3 months during their last pregnancy ,171(15.8%) of care takers reported received fifol during their last pregnancy for 4-6 months.

820 (75.9%) of care givers reported they did not received vitamin A after birth of last child ,219 (20.3%) of mothers received vitamin A after birth of last child and few of them did not know whether they received or not this about 41(3.8%).

511(47.2%) of interviewed households used iodized salt, 300(27.7%) of households reported do not know, 227 (21%) of households reported they never heard iodized salt and fewer 44(4.1%) know iodized salt but not use it.

About half 532(49.2%) of respondents reported the adults ate 2 times and 482(44.5%) reported the adults ate 3 times in last 24 hours.

5- **Discussion and Conclusions**

The prevalence of GAM and SAM among the surveyed population was estimated at 12.4% (10.0 - 15.4 95% C.I.) and 2.3 % (1.5 - 3.5 95% C.I.) higher than S3M result which is 11.31 respectively this GAM is classified as 'critical' with other factors illness reported. Statistically show that there is significant difference

Overall sex ratio: p = 0.442 (boys and girls equally represented)
Overall age distribution: p = 0.000 (significant difference)
Overall age distribution for boys: p = 0.004 (significant difference)
Overall age distribution for girls: p = 0.005 (significant difference)
Overall sex/age distribution: p = 0.000 (significant difference

Crude Mortality Rate (CMR) and U5 Mortality Rate (U5MR) in this survey were 0.58 (0.46-1.0) (95% CI) and 1.53 (0.62-3.75) (95% CI) deaths/10,000/day respectively. Both are indicating slightly to normal.

The survey founds optimal vaccination coverage which reflects the efforts by MoH and partners. Measles vaccination coverage verified by card was estimated at 44.4% which needs to improve the vaccination retention. Both the card and mother's recall estimated measles coverage at 76% low . Vitamin A supplementation in the last 6 months was estimated at 76.5% which shows low coverage both MOH and partners have to increase this percentage.

Optimal infant and young child feeding practices was observed for early initiation of breast feeding, exclusive breast feeding and initiation of breast feeding. The survey indicated that the initiation of breast feeding immediately or within one hour after birth was 88.5% . However exclusive breast feeding up to 6 months of age was practiced by 40.3% education sessions on IYCF needed for mothers. However mothers introduced complimentary food earlier (prior to the child reaching 6 months) 37%.

The overall morbidity rate found among under-five children was reported to be 43.1%, ARI, malaria and diarrhea had the highest prevalence

6- Recommendations

- Eenhance active case finding and referral to the feeding centre and create awareness of the importance of community participation in detection and referral of malnutrition cases. .
- Improve the micronutrient supplementations including vitamin A among postpartum mothers and periodic mass distribution of micronutrients to children in the surveyed area to sustain and promote the coverage.
- Increase health education activities through the national NGO partner (EGRA) volunteers, nutrition staffs at the feeding centre and through midwifes during antenatal and postnatal follow up to create and enhance awareness on the Vit A supplementation for under5 children and postpartum mothers
- To enhance community awareness about personal and general hygiene practices to decrease transmission of diarrheal diseases

1) The CMAM program of the outreach component part have to be be strengthened by increasing the number of national NGO (EGRA) and EGRA has to assign 1 volunteers in each village or 1-500 population according to the FMOH CMAM protocol to avert the serious malnutrition in.Gasilla
2) Continuing health education to mothers and caretakers to improve the IYCF practices is a first step, but comprehensive behaviour change programming would have a greater impact on improving IYCF practices
3) Establish a mother care group in Garsilla These groups are fostered and facilitated by lead mothers, who provide education, guidance, and support for participants in improving infant and young child feeding practices as well as improving knowledge regarding reproductive health (family planning, ANC, PNC clean delivery, etc.). These innovative groups provide an opportunity for ongoing health and nutrition education with vulnerable populations. Multiple evaluations have indicated that these groups can have a powerful impact on behavior change interventions.

4) Provide non cash incentive for TBAs based on the performance of the TBAs this will increase the postnatal vist at the health facility and in the mean time postpartum mothers receive Vit A
5) Start an EPI outreach session in collaboration with Wadesalehe MOH EPI section to improve over all immunization and in particular measles coverage in collaboration with MOH
6) Continuation of the supplementary feeding programme with more focus put on health / nutrition education and food demonstration activities to further enhance the knowledge of the caretakers on prevention of malnutrition
7) Enhancing routine MUAC screening activities during outreach (home visiting) and referral of all malnourished beneficiaries accordingly

6- Annexes

1. NCHS Results
2. Sampling Frame—Clusters
3. Survey Questionnaires
4. Seasonal Calendar
5. Training Agenda
6. Survey Participants (Teams)

Prevalence of malnutrition by age, based on weight-for-height percentage of the median and oedema (using the NCHS reference)

		Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	136	0	0.0	10	7.4	126	92.6	0	0.0
18-29	202	0	0.0	3	1.5	199	98.5	0	0.0
30-41	225	0	0.0	4	1.8	221	98.2	0	0.0
42-53	173	0	0.0	11	6.4	162	93.6	0	0.0
54-59	84	0	0.0	7	8.3	77	91.7	0	0.0
Total	820	0	0.0	35	4.3	785	95.7	0	0.0

Table 7: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 820	**Boys** n = 421	**Girls** n = 399
Prevalence of underweight (<-2 z-score)	(204) 24.9 % (20.5 - 29.8 95% C.I.)	(113) 26.8 % (22.1 - 32.1 95% C.I.)	(91) 22.8 % (17.1 - 29.7 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(161) 19.6 % (16.3 - 23.5 95% C.I.)	(89) 21.1 % (16.9 - 26.1 95% C.I.)	(72) 18.0 % (13.7 - 23.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(43) 5.2 % (3.7 - 7.4 95% C.I.)	(24) 5.7 % (3.9 - 8.4 95% C.I.)	(19) 4.8 % (2.7 - 8.1 95% C.I.)