RAPID SMART SURVEY FINAL REPORT

EAST POKOT SUB-COUNTY

BARINGO COUNTY

JULY 2017

Acknowledgment

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Abbreviations & Acronym

BPHS: Basic Package of Health Services

CHMT   County Health Management Team

CI: Confidence Interval

CNO: County Nutrition Officer

CSI: Coping Strategy Index

DEFF: Design Effect

ENA: Emergency Nutrition Assessment

FGD: Focus Group Discussion

GAM: Global Acute Malnutrition

HAZ: Weight-for-Age Z score

HH: Household

HiNi: High Impact Nutrition Intervention

KII: Key Informant Interview

MAM: Moderate Acute Malnutrition

MoH: Ministry of Health

MUAC: Mid Upper Arm Circumference

NDMA: National Draught Management Authority

NGO: Non-Governmental Organization

NIWG   Nutrition Information Working Group

NSO: Nutrition Support Officer

PPS: Probability Proportional to Population Size

SAM: Severe Acute Malnutrition

SCHMT: Sub-County Health Management Team

SMART: Standardized Monitoring and Assessment in Relief and Transition

UN: United Nations

UNICEF: United Nation Children Fund

WHO: World Health Organization

WAZ: Weight-for-Age Z score

WASH: Water, Sanitation and Hygiene

WFA: Weight-for-Age

WHZ: Weight-for-Height Z score

Executive summary

East Pokot is one of the six Sub-Counties in Baringo County, others are Baringo Central, Mogotio, Baringo North, Koibatek, and Baringo South (Marigat). It borders Turkana East to the North, Marakwet to the West, Laikipia and Samburu Districts to the East, and Marigat to the South.

East Pokot covers on average an area of 4524.8 square kilometers and has an estimated population of 159,404 people and about 28,693 children under five years (projection from 2009 population census).

It has two livelihood zones namely Agro-Pastoral (Churo division) and Pastoral (Kolowa, Tangulbei, Akoret, Mondi, Ngoron, Nginyang divisions). Over time the sub-county has been experiencing poor health and nutrition outcomes. These could be attributed to house hold food insecurity as a result of recurrent drought and insecurity. This survey was done as part of surveillance in order to establish the prevailing nutrition status in the sub-county.

The survey results show that the nutrition situation in East Pokot Sub-County is at emergency level having deteriorated from a GAP of 23.3% in January 2017 to 25.2% in July 2017. An urgent action needs to be employed to reverse malnutrition levels in the sub-County. June 2017 drought early warning bulletin showed an alarm phase but worsening in both pastoral livelihood zone and agro-pastoral livelihood zone of East Pokot Sub-county. The June 2017 VCI shows East Pokot sub-county was below normal rage and deteriorating. Pasture and browsers were diminishing and livestock were accessing pasture from their dry zone areas. Several aggravating factors like diminishing pastures and tribal conflicts in the sub county were high. The short rains report 2017 (SRA) further explained that Households were currently consuming one to two meals in the Pastoral and Agro Pastoral livelihood zones. Preparedness activities are recommended to improve community resilience building.

A sample of 25 clusters by 10 household was selected for the surveillance methodology and this was expected to be enough for representation and achieve the required precision based on Rapid Smart guideline. The survey adopted a 2 stage sampling technique. Stage one involved a list of the villages and their population. A probability proportion to size sampling method was

used to select the villages which were the cluster. Stage two involved the sampled villages where a list of all households with children between 6 and 59 months was drawn for each village where10 households were sampled using simple random sampling.

The main objective of this rapid smart survey was to get rapid estimates of malnutrition among the children aged 6- 59 months old and women of reproductive age 15-49 years in East pokot sub-county. The specific objectives were:

1. To determine the prevalence of acute malnutrition among children aged 6-59 month

2. Estimate prevalence of malnutrition of women 15- 49 years using MUAC measurements

3. To determine the morbidity rates amongst children U5 years over a two week recall period.

Summary of Survey Findings

Anthropometric indicators		
Indicators	**January 2017**	**July 2017**
Global Acute Malnutrition (<-2 Z-score)	(112)23.3 % (19.2 - 28.1 95% C.I.)	(83) 25.2 % (19.7 - 31.7 95% C.I.)
Severe Acute malnutrition (<-3 Z-score)	(19) 4.0 % (2.4 - 6.5 95% C.I.)	(19) 5.8 % (3.4 - 9.7 95% C.I.)
Prevalence of Global Underweight (<-2 Z-score)	(199) 41.5 % (35.2 - 48.1 95% C.I.)	(147) 44.5 % (37.4 - 51.9 95% C.I.)
Prevalence of global malnutrition (< 125 mm and/or oedema)	(19) 3.9 % (2.4 - 6.4 95% C.I.)	(36) 10.8 % (6.9 - 16.5 95% C.I.)
Prevalence of Global Stunting (<-2 Z-score)	(171) 36.5 % (31.1 - 42.2 95% C.I.)	(133) 41.2 % (34.1 - 48.6 95% C.I.)
Immunization		
Zinc Supplementation	36.7%	60%
Child Morbidity		
Sickness two weeks prior to survey	43.8%	46%
Acute Respiratory Infection	52.6%	50%

Fever	44.1%	27%
Watery diarrhea	22.3%	19%
Bloody diarrhoea	0.9%	0%
Seek assistance	71%	66%
Maternal nutrition		
Maternal MUAC <21cm	6.7%	12%
Maternal MUAC <21cm for PLW	6.4%	10%

CHAPTER ONE: INTRODUCTION

1.1 Geographic description of the survey area

East pokot sub-county is Baringo County. It borders Turkana East to the North, Marakwet county and Baringo North sub-county to the West, Laikipia and Samburu county to the East, and Marigat sub-county to the South. It covers an average area of 4524.8Km and is sub-divided into seven (7) administrative divisions with estimated population of 163,549 people and about 29,439 children U5 years (projection from 2009 population census).

East Pokot has two livelihood zones, Pastoral (Kolowa, Tangulbei, Akoret, Mondi, Ngoron, Nginyang divisions) and Agro-Pastoral (Churo division).

Figure 1: East Pokot sub-county Livelihood Zones
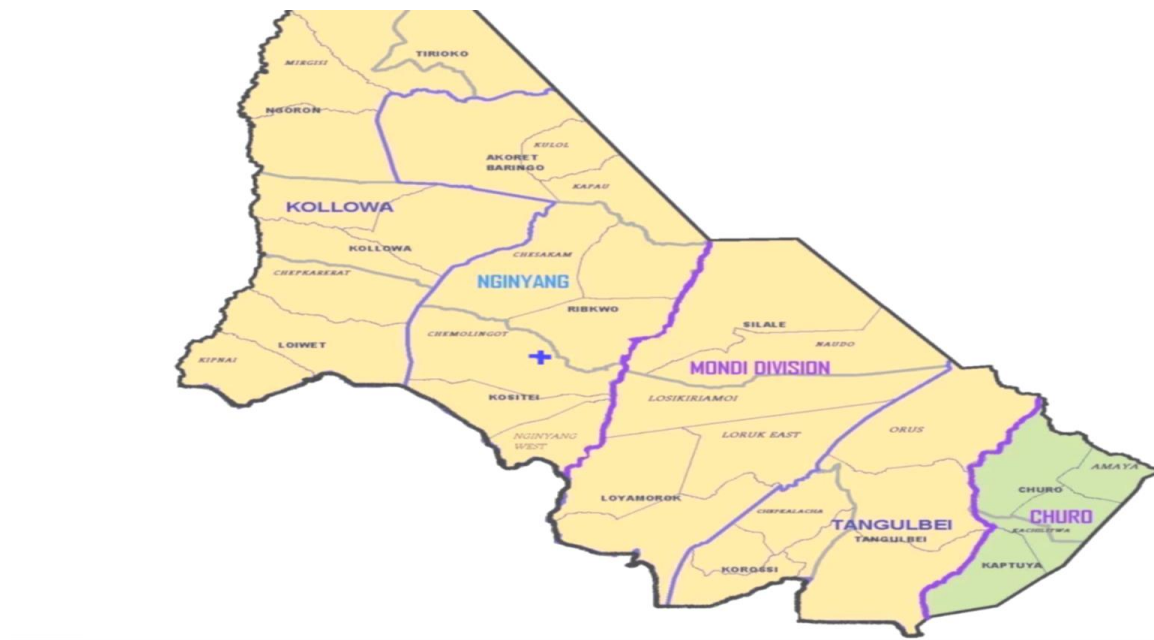
Legend	Livelihood zone
	Pastoral
	Agro-Pastoral

1.2 Health and Nutrition situation

Early warning bulletin by National Drought Management Authority for the month of June 2017 classified the two livelihood zones in alarm phase with worsening trends. Vegetation Cover Index values for East Pokot sub-county was 34 which is below normal ranges indicating moderate drought. Water levels in water pans were also below normal at (10%-30%).

The early warning bulletin indicated that the percentage of under-five children at risk of malnutrition in the month of June was 24.6% which was above long term average by 45%. The high rate could be as a result of high food commodity prices and heightened movements due to insecurity and emergency of IDP zones.

Most health facilities in East Pokot were closed due to insecurity from mid-February 2017. Efforts put by the leadership of the County Department of Health services both at the county and sub-county level and implementing partners to restore normalcy did not bear much fruits. During the survey month all government health facilities were closed due to country wide nurses' strike.

1.3 Justification

SMART survey done in January 2017 indicated emergency GAM levels of 23.3% (19.2-28.1 95% CI) with no significant improvement from 23.0 % (18.6 - 28.0 95%, July 2017. There were several aggravating factors like diminishing pastures and tribal conflicts in the sub county. The sub county has been ranked as the poorest in rains performance in the last two rains assessments by KFSSG. The rapid smart survey was to provide a progress update on the current emergency nutrition interventions in East Pokot and the findings will inform future programming. The findings will also feed into Long Rains Assessment report of July 2017.

1.4 Survey Objectives

The main objective of the rapid smart survey is to get rapid estimates of malnutrition among the children aged 6- 59 months old and women of reproductive age 15-49 years in East Pokot sub-county.

The specific objectives include**:**

1. To determine the prevalence of acute malnutrition among children aged 6-59 month

2. Estimate prevalence of malnutrition of women 15- 49 years using MUAC measurements

3. To determine the morbidity rates amongst children U5 years over a two week recall period.

Table 1. Survey Timelines

Activity	Date
Validation of the methodology_ online	17th July 2017
Mobilizing the survey team	14th- 17th July 2017
Training survey team	18th -20th July 2017
Data collection	21th -22th July 2017
Data analysis and preliminary report generation	23th July 2017
County validation	25th July 2017
Validation by NIWG	26th July 2017
Final report writing	25th August 2017

CHAPTER TWO: METHODOLOGY

2.1. Survey Area

The target geographical area was East Pokot Sub County which is one of the six Sub counties in Baringo County.

2.2. Sample size

A total of 250 households were sampled based on Rapid Smart guideline which indicate where the proportion of children <5years is above 15%, 25 clusters each composed of 10 households are adequate; in this case the proportion of children under five in East Pokot sub-county is 18% which is above 15% . Hence a sample of 25 clusters by 10 household was selected for the surveillance methodology and this was expected to be enough for representation and achieve the required precision.

2.3. Survey Design

This was a cross-sectional descriptive nutrition SMART survey for children aged 6-59 months and women of reproductive age (15-49 years). A semi structured questionnaires in built in the Open Data Kit (ODK) software were used to collect anthropometric data and two-week retrospective morbidity data.

The survey adopted a 2 stage sampling technique. Stage one involved a list of the villages and their population. A probability proportion to size sampling method was used to select the villages which were the cluster. Stage two involved the sampled villages where a list of all households with children between 6 and 59 months was drawn for each village where10 households were sampled using simple random sampling.

2.4. Organization of the Survey

2.4.1. Survey Team Composition

The survey had eight teams each composed of three members each (1 team leader and 2 survey enumerators). At each cluster the team was joined by a village guide who was known to the village members. Each team visited 10 households per cluster and administered the questionnaire to each. Seven teams visited one and half cluster per day while the eighth team

visited two clusters per day. All children aged 6-59 months were measured in the 10 households.

2.4.2. Survey Team Training and supervision

Survey enumerators were trained for three days with emphasis on survey objective, anthropometric measurements, morbidity interviews, familiarization with the questionnaire by reviewing the purpose for each question; recording of data using ODK software and field procedures, measurements. Possible problematic situations that might arise during the survey were described and solutions for them given. Standardization test was done with 10 children of different ages but within 6-59 months rage and passed by all participants. A technical team composed of WVK, KRCS, UNICEF NSO and Baringo county department of health services trained and supervised the team from training to data collection.

2.4.3. Data Collection and field work

Data collection was done in two days starting on 21st - 22nd July 2017 under the supervision of 3 SCHMT members, the CNC, NSO; two WVK staffs i.e. the nutrition program manager and nutrition project manager and KRCS nutrition manager. During data collection, all the field procedures were followed to select eligible households, identify children for anthropometric measurement as well as the respondents for the interviews.

Survey teams first reported to the area chief or sub-chief for the respective selected clusters/villages; they then updated the list of households and were then assigned a village guide. Using table of random numbers or ODK, households to be visited were randomly selected. Village guide then took teams around the village to the selected households.

Each day after data collection, all the teams were able to submit the data electronically. The technical team managed the Data Centre. The team downloaded the survey data, did plausibility and gave feedback to the field supervisors and teams.

2.4.4. Quality assurance
•   Daily Plausibility check for data quality

•   Giving daily feedback and updates to teams based on quality checks

•   Teams supervision/ follow up while in the field

- Use of ODK and recording of Geo points

2.4.5. Data Processing & Analysis

Anthropometric data entry and processing was done using the ENA for SMART software 9th July, 2015 where the World Health Organization Growth Standards (WHO-GS) data cleaning and flagging procedures were used to identify outliers which enabled data cleaning as well as exclusion of discordant measurements from anthropometric analysis. The SMART/ENA software generated weight-for-height, height-for-age and weight-for-age Z scores to classify them into various nutritional status categories using WHO standards and cut-off points. Additional analyses for frequencies, descriptive, correlations, cross– tabulations and regressions were conducted using Excel and SPSS version 20.0. Indices were expressed both in terms of z scores that represent the difference between observed weight and median weight of the reference population expressed in standard deviation. The result of this survey was compared to WHO standard cut-off points.

2.5. Preliminary Results and Final Report

Preliminary findings were submitted to County Nutrition Technical Forum (CNTF) and County Steering Group (CSG) at the County and (NIWG) at the National levels after completion of the survey fieldwork. The information shared in the preliminary report included the prevalence of global acute malnutrition as well as the prevalence of moderate and severe acute malnutrition, vaccination and other relevant information.

CHAPTER THREE: SURVEY RESULTS

3.1. Household demographics

A total of 333 children under five years were reached in 250 households against a planned target of 200 children.

Table 2: Household demographics

	Target as per Survey Plan	No. Reached
Clusters	25	25
Households	250	333

Total HH Members	1500	1459

Residency and marital Status of the Respondents

99% of the respondents were residents while 1% was IDPs, a deviation from January 2017 SMART survey where 100% were residents. This shows the impact of East Pokot insecurity.

Figure 2: Respondents marital status
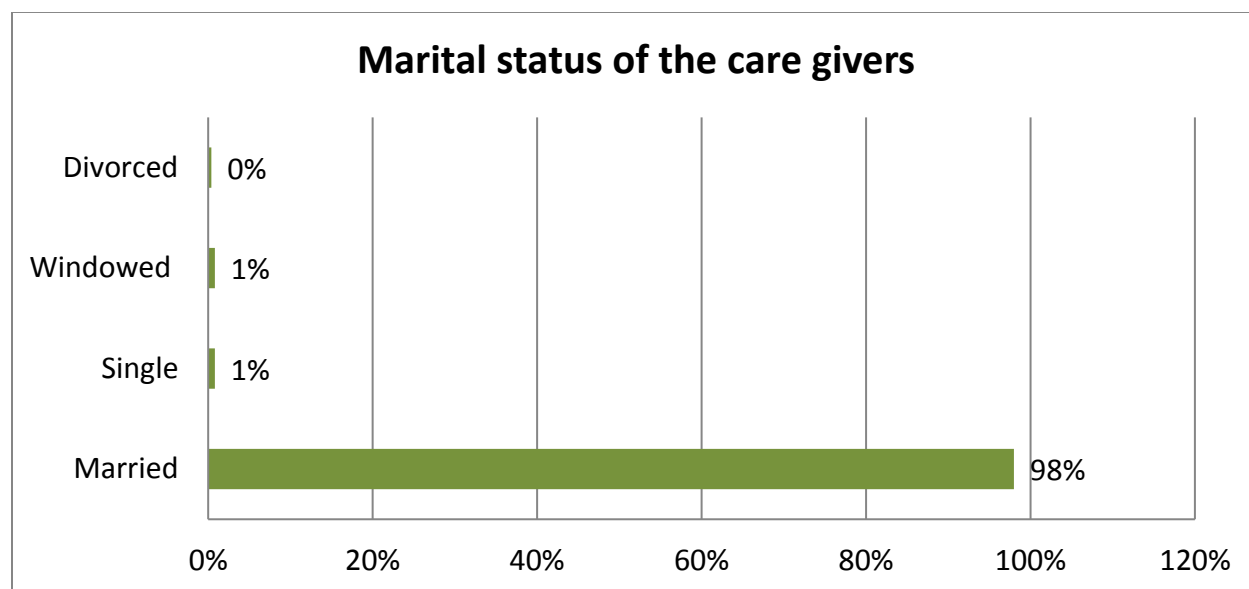
Majority of the respondents were married an indication of stable families in the sub-county.

Main Occupation of Household Head and Source of household income

Majority of respondents (66.0%) were livestock herders, followed by petty traders while 8.8% owned their own farms. As expected, the main sources of income for the households interviewed were sale of livestock at 48.8%, petty trading at 23.6% and sale of livestock products at 10.4%.

Figure 3: household head main occupation

Main occupation of the households

Chart showing: Livestock herding: N=165, %=66.0; Own farm labour: N=22, %=8.8; Employed(salaried): N=8, %=3.2; Wage labour(casual): N=17, %=6.8; Petty trade: N=35, %=14.0; Merchant/trader: N=2, %=0.8; Firewood/charcoal: N=1, %=0.4
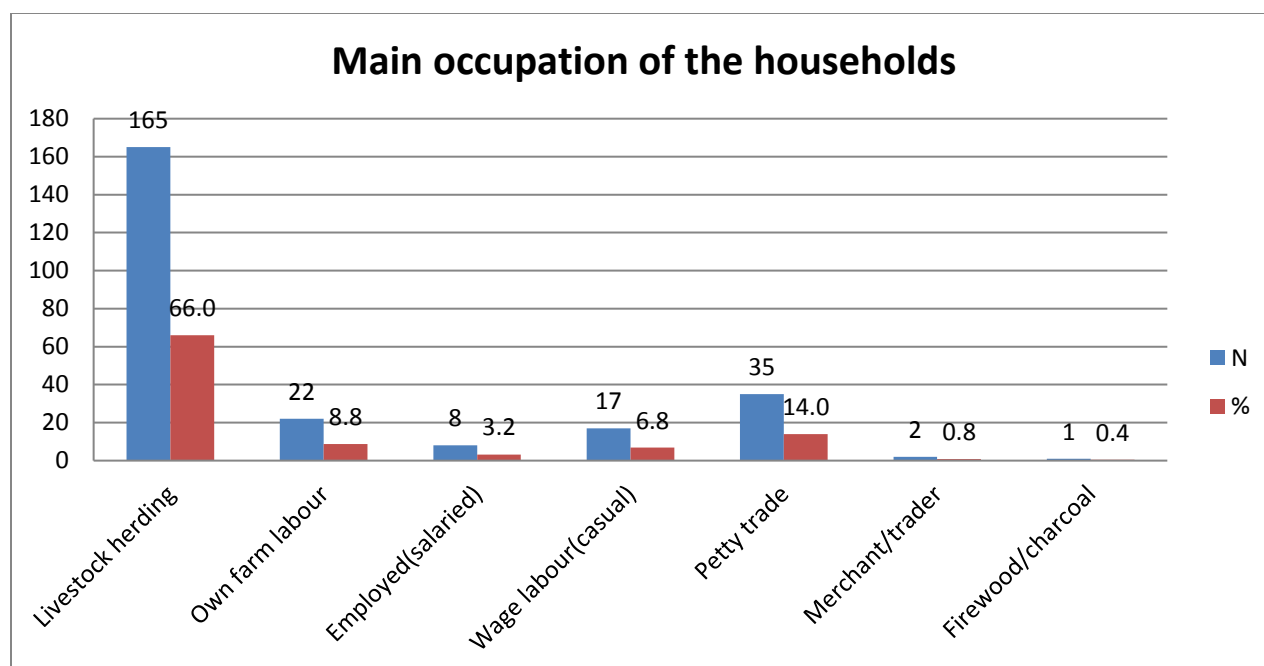
3.2 Nutritional Status of Under-Five Children

333 children under five years were used for analysis of which 50.8% were boys and 49.2% were girls. The overall sex ratio boys to girls were 1.0 which was within recommendation. Skewedness WHZ and STD deviation was zero an indication of unbiased sampling. The overall data quality was excellent. See annex.

Distribution of age and sex of the sample

Table 3: Distribution of age and sex of the sample

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl
6-17	43	52.4	39	47.6	82	24.6	1.1
18-29	42	50.0	42	50.0	84	25.2	1.0
30-41	38	52.1	35	47.9	73	21.9	1.1
42-53	32	48.5	34	51.5	66	19.8	0.9
54-59	14	50.0	14	50.0	28	8.4	1.0
Total	169	50.8	164	49.2	333	100.0	1.0

Age verification

Age verification for this survey was done using mother child booklets or health cards, birth certificate, birth notification or baptism card. In instances where the respondent did not have these documents, a calendar of event earlier jointly developed with the survey team was used to help the mother/care giver recall the birth date.

3.2.1 Prevalence of Acute Malnutrition

The Global Acute Malnutrition (GAM) is the index which is used to measure the level of wasting in any given population. In this survey, GAM was defined as the proportion of children with a z-score of less than -2 z-scores weight-for-height and/or presence of bilateral oedema. Severe Acute Malnutrition (SAM) was defined as the proportion of children with a z-score of less than -3 z-score and/or presence of oedema. Also, using the mid-upper arm circumference (MUAC), GAM was defined as the proportion of children with a MUAC of less than 125 mm and/or presence of oedema while SAM was defined as the proportion of children with a MUAC of less than 115 mm and/or presence of oedema.

Malnutrition by Z-Score: WHO (2006) Standard

- Severe acute malnutrition is defined by WFH < -3 SD and/or existing bilateral oedema on the lower limbs.
- Moderate acute malnutrition is defined by WFH < -2 SD and >-3 SD and no oedema
- Global acute malnutrition is defined by WFH < -2 SD and/or existing bilateral oedema

Malnutrition by MUAC

- Severe malnutrition is defined by MUAC<115 mm and/or presence of bilateral oedema
- Moderate malnutrition is defined by MUAC < 125 mm and ≥115 mm and no oedema
- Global acute malnutrition is defined by MUAC <125 mm and/or existing bilateral oedema.

Anthropometric data analysis

The Index of Dispersion (ID) indicates the degree to which the cases are aggregated into certain clusters. In our case the ID was above 1 and P value between 0.05 and 0.95 hence the cases appear to be randomly distributed among the clusters.

Prevalence of Acute malnutrition by sex

Table 4: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 329	Boys n = 167	Girls n = 162
Prevalence of global malnutrition **(<-2 z-score and/or oedema)**	(83) 25.2 % (19.7 - 31.7 95% C.I.)	(50) 29.9 % (22.6 - 38.4 95% C.I.)	(33) 20.4 % (13.3 - 29.8 95% C.I.)
Prevalence of moderate malnutrition **(<-2 z-score and >=-3 z-score, no oedema)**	(64) 19.5 % (15.1 - 24.7 95% C.I.)	(35) 21.0 % (15.0 - 28.5 95% C.I.)	(29) 17.9 % (11.8 - 26.2 95% C.I.)
Prevalence of severe malnutrition **(<-3 z-score and/or oedema)**	(19) 5.8 % (3.4 - 9.7 95% C.I.)	(15) 9.0 % (5.1 - 15.3 95% C.I.)	(4) 2.5 % (0.7 - 8.1 95% C.I.)

The anthropometric results are based on WHO standards 2006. The prevalence of Global Acute Malnutrition (GAM) was 25.2 % (19.7 - 31.7 95% C.I.) and the prevalence of Severe Acute malnutrition (SAM) was 5.8 % (3.4 - 9.7 95% C.I.). The prevalence of oedema is 0.9 %.

The figure below compares the distribution of weight for height for the surveyed children 6-59 months with the WHO standard curve (reference children). The curve considerably drift to the left with a mean of -1.34 (SD±1.01) an indication of under nutrition in comparison to reference population.

Figure 4: Gaussian Curve for Weight for Height Z – score for children 6-59 months
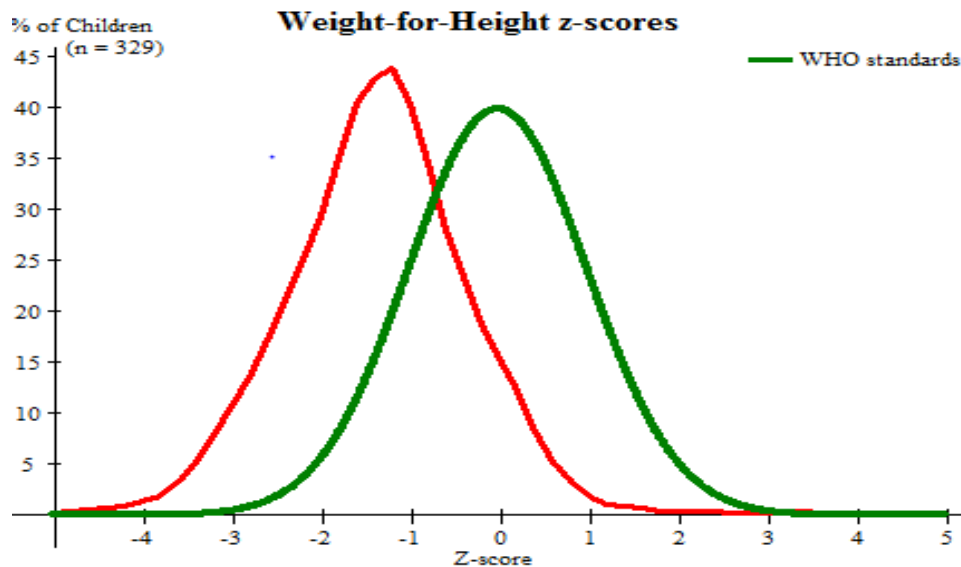
This is attributed mainly to the lack of food and water due to failed long rains in March, April and May 2017, tribal conflicts in the sub-county and the neighboring sub-counting leading to disrupted markets and displacement of communities.

Overall prevalence of GAM and SAM compared to previous years' survey findings

The graph below shows the trend of malnutrition in East Pokot over year; an indication nutrition situation in the sub-county has been deteriorating over time.

Figure 5: Overall prevalence of GAM and SAM compared to previous years' survey findings

Malnutrion Trend in East Pokot

━━━ GAM ━━━ SAM

21.1 18.4 23 23.3 25.2

3 3 3.5 4 5.8

| 2014 | 2015 | 2016 | Jan-17 | Jul-17 |
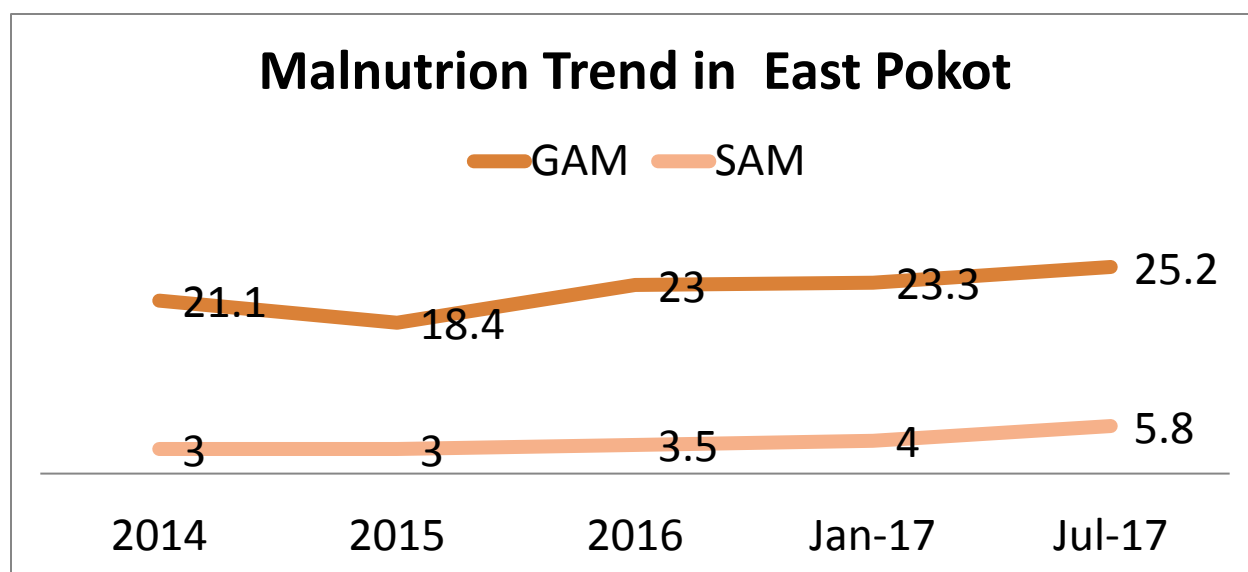
Prevalence of acute malnutrition by age

The prevalence of acute malnutrition by age shows moderate malnutrition is fairly distributed over age though SAM is higher in the middle ages 18-53 months with a pick in 30-41 months where two cases of Oedema were detected. This might be due to declining care as the mother concentrate to the young child considering close birth spacing in the sub-county.

Table 5: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	81	1	1.2	14	17.3	65	80.2	1	1.2
18-29	81	4	4.9	10	12.3	67	82.7	0	0.0

30-41	72	6	8.3	12	16.7	52	72.2	2	2.8
42-53	66	4	6.1	16	24.2	46	69.7	0	0.0
54-59	28	1	3.6	12	42.9	15	53.6	0	0.0
Total	328	16	4.9	64	19.5	245	74.7	3	0.9

Distribution of acute malnutrition and oedema based on weight-for-height z-scores

Three cases of oedema were detected in the survey indicating 0.9% oedema prevalence a deviation from earlier surveys where no oedema cases were detected.

Table 6: 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. 3 (0.9 %)
Oedema absent	Marasmic No. 17 (5.1 %)	Not severely malnourished No. 312 (94.0 %)

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

The table below shows boys had higher prevalence of malnutrition by MUAC compared to girls which is in agreement with WHZ. This has been consistent in the previous surveys. However this is more in younger children than older children unlike in WHZ where malnutrition is in the middle ages. MUAC is an indicator of mortality and the survey results portrays are serious levels of malnutrition.

Table 7: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 334	Boys n = 170	Girls n = 164
Prevalence of global malnutrition (< 125 mm and/or oedema)	(36) 10.8 % (6.9 - 16.5 95% C.I.)	(21) 12.4 % (7.3 - 20.2 95% C.I.)	(15) 9.1 % (5.2 - 15.7 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(27) 8.1 % (4.9 - 13.2 95% C.I.)	(15) 8.8 % (4.6 - 16.4 95% C.I.)	(12) 7.3 % (4.2 - 12.3 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(9) 2.7 % (1.4 - 5.3 95% C.I.)	(6) 3.5 % (1.4 - 8.5 95% C.I.)	(3) 1.8 % (0.6 - 5.7 95% C.I.)

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

From the table below, malnutrition by MUAC decreased with age where age group 6-17 months were the most malnourished and age group 54-59 month were the least malnourished.

Table 8: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age	Tota	No.	%	No.	%	No.	%	No.	%

(mo)	no.								
6-17	82	4	4.9	12	14.6	66	80.5	1	1.2
18-29	84	1	1.2	5	6.0	78	92.9	0	0.0
30-41	73	1	1.4	7	9.6	65	89.0	2	2.7
42-53	66	0	0.0	2	3.0	64	97.0	0	0.0
54-59	28	0	0.0	1	3.6	27	96.4	0	0.0
Total	333	6	1.8	27	8.1	300	90.1	3	0.9

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

Unlike the other forms of malnutrition a lower prevalence of underweight (44.5%) is shown in this survey compared to January smart survey (50.0%) tough the CI are overlapping. However this is far much higher than the Baringo county levels of 20% and National levels of 11% (KDHS, 2014).

Table 9: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 330	Boys n = 166	Girls n = 164
Prevalence of underweight (<-2 z-score)	(147) 44.5 % (37.4 - 51.9 95% C.I.)	(80) 48.2 % (37.4 - 59.1 95% C.I.)	(67) 40.9 % (33.3 - 48.9 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(98) 29.7 % (25.1 - 34.7 95% C.I.)	(54) 32.5 % (24.9 - 41.2 95% C.I.)	(44) 26.8 % (21.0 - 33.6 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(49) 14.8 % (10.1 - 21.3 95% C.I.)	(26) 15.7 % (10.4 - 22.9 95% C.I.)	(23) 14.0 % (8.5 - 22.3 95% C.I.)

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

Severe underweight like WHZ is more prevalent in the middle ages.

Table 10: Prevalence of underweight by age, based on weight-for-age z-scores

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	80	5	6.3	21	26.3	54	67.5	1	1.3
18-29	84	10	11.9	22	26.2	52	61.9	0	0.0
30-41	71	14	19.7	19	26.8	38	53.5	2	2.8
42-53	66	13	19.7	24	36.4	29	43.9	0	0.0
54-59	28	7	25.0	11	39.3	10	35.7	0	0.0
Total	329	49	14.9	97	29.5	183	55.6	3	0.9

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

A higher prevalence of stunting was found in the July survey (41.2%) than in January survey (36.5%) though the CI is overlapping. Compared to Baringo county levels of 29% (KDHS, 2014), this is quite high level. Again boys are more stunted than girls a consistent trend with other forms of malnutrition. These indicate a serious level of malnutrition based on WHO classification.

Table 11: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 323	Boys n = 165	Girls n = 158
Prevalence of stunting	(133) 41.2 %	(73) 44.2 %	(60) 38.0 %

(<-2 z-score)	(34.1 - 48.6 95% C.I.)	(35.3 - 53.6 95% C.I.)	(29.9 - 46.8 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(89) 27.6 % (22.5 - 33.3 95% C.I.)	(52) 31.5 % (25.0 - 38.8 95% C.I.)	(37) 23.4 % (17.6 - 30.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(44) 13.6 % (9.1 - 19.9 95% C.I.)	(21) 12.7 % (7.9 - 20.0 95% C.I.)	(23) 14.6 % (8.7 - 23.3 95% C.I.)

The figure below depicts distribution of HFA of surveyed children 6-59 months in comparison to reference children. There is a considerable drift to the left implying that the surveyed children were stunted in comparison to WHO standard curve with a mean± SD of -1.66±1.32.

Figure 5: Height for age z - score
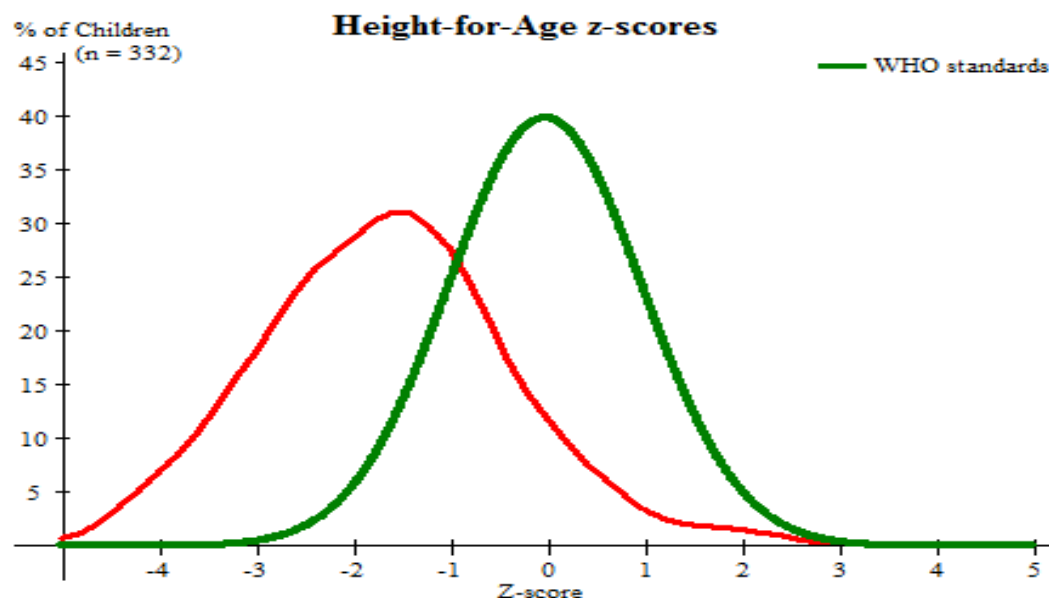
Prevalence of stunting by age based on height-for-age z-scores

In East Pokot children in the age group 30-41 are leading in severe stunting followed by 18-29 while 6-17 months age group is the least stunted.

Table 12: Prevalence of stunting by age based on height-for-age z-scores

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	80	7	8.8	21	26.3	52	65.0
18-29	77	12	15.6	20	26.0	45	58.4
30-41	72	13	18.1	20	27.8	39	54.2
42-53	65	8	12.3	19	29.2	38	58.5
54-59	28	4	14.3	8	28.6	16	57.1
Total	322	44	13.7	88	27.3	190	59.0

Table 13: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	326	-1.36±0.94	1.52	5	3
Weight-for-Age	330	-1.85±1.09	1.67	3	1
Height-for-Age	323	-1.71±1.18	1.68	2	9

* contains for WHZ and WAZ the children with oedema.

3.3 Access and utilization of health and nutrition services

Data was collected on children aged 6-59 morbidity to assess occurrence of common childhood illnesses. 46% (153 out of 334) of children in the Survey Area, were reported to have been ill two weeks prior to survey compared to 43.8% (211) in January 2017 survey. There was no reported diseases outbreak during the recall weeks.

Table 14: 6-59 Children morbidity

Child Morbidity in two weeks prior to survey (N=334)	No. of children	Percentage
Prevalence of reported illness (6-59 months)	153	46%
Symptom breakdown in children reported ill (N=153):		
Malaria(Fever with chills	60	27%
ARI/Cough	112	50%
Watery Diarrhoea	42	19%
Bloody diarrhea	1	0%
Others – vomiting	10	4%

Table 15: Health seeking behavior

	Where the care giver sought treatment(N=94)	Number	Percentage (%)
1	Traditional healer	1	1.1
2	Community health worker	0	0.0
3	Private clinic/ pharmacy	6	6.4
4	Shop/kiosk	11	11.7
5	Public clinic	62	66.0
6	Mobile clinic	5	5.3
7	Relative or friend	0	0.0
8	Local herbs	2	2.1
9	NGO/FBO	4	4.3
88	Other ()	3	3.2

Despite an ongoing nurse's strike over the recall period, 66% of the caregivers sought treatment at public clinics. This is because the public was not charged money when they went for the treatment. Some few care givers sought treatment from traditional healers and others gave local herbs to their sick children which is not appropriate.

3.4 Zinc supplementation in diarrhea

60%(25) of children with watery diarrhea were reported to have been supplemented with zinc compared to 36.7% in January 2017.Recent studies suggest that administration of zinc along with new low osmolality oral rehydration solutions / salts (ORS), can reduce the duration and severity of diarrheal episodes for up to three months(Indian J Pharmacol. 2011 May-Jun).

3.5 Maternal Nutrition Results

226 women within reproductive age were reached in this survey. Majority (80%) of the women were either lactating or pregnant while 1 was both pregnant and lactating showing high productivity of the women in East Pokot. The graph below shows the situation.

Table 16: maternal malnutrition compared over time

Indicator	N (Jan 2017)	%	N (Jul 2017)	%
MUAC <21.0 cm for all women	18	6.7	28	12
MUAC <21.0 cm for PLW	17	6.4	23	10

Malnutrition in the women was estimated using MUAC. The maternal malnutrition was defined as women whose MUAC measurements were < 21.0cm while those whose MUAC measurements were between 21.0 <23.0cm were classified as at risk of malnutrition; those with MUAC above 23cm were normal.

Among all women irrespective of their physiological status 12% were found to be malnourished while those either pregnant or lactating or both and were malnourished were 10%. The table below shows the details.

Figure 4: Physiological status

Maternal pysiological status
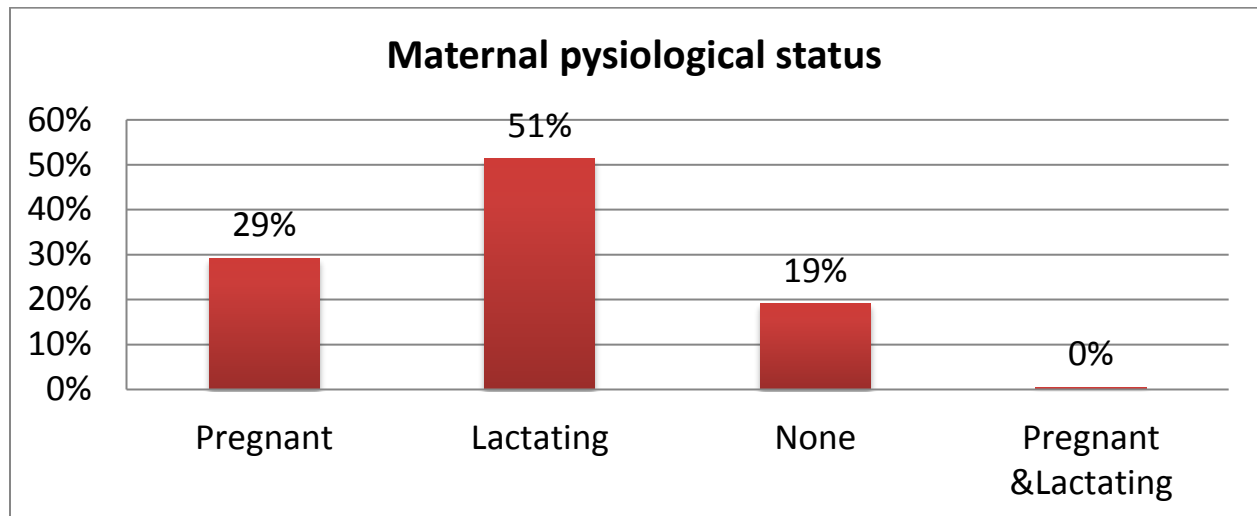
CHAPTER FOUR: CONCLUSIONS

The Global Acute Malnutrition report indicated rates of 25.2% which is very critical as per WHO phase classification. Child morbidity report indicated disease occurrence of 46% with 50% of the cases suffering from Acute Respiratory Infections. Zinc supplementation for diarrhea cases is 60% which is a great improvement from previous surveys.

Malnutrition and infections are intimately related – a malnourished child is more susceptible to disease, and a sick child is more likely to become malnourished. With this in mind there is need to intensify management of malnutrition and treatment of infections. Also multi-sectoral approach should be strengthened in addressing the underlying and basic causes of malnutrition.

CHAPTER FIVE: RECOMMENDATIONS AND PRIORITIES

FINDINGS	RECOMMENDATION	ACTOR (BY WHO)	IMPLEMENTATION TIME LINE
Deteriorating nutrition status GAM 25.2 % SAM 5.8 % Maternal malnutrition P&L 10%	Upscale and intensify integrated health/nutrition outreaches	MOH,KRCS, WVK, UNICEF, NDMA	Immediately
	Activate ECD feeding	MOE, Baringo county government	Sep - Dec 2017
	Activation of stabilization services in Nginyang and Kollowa H/Centers	MOH, WVK, KRCS, UNICEF	By Sep 2017
	Implement BSFP & Integration it with IMAM	MOH, WVK, WFP, KRCS, UNICEF,	August 2017
	Strengthen LMIS and DHIS	MOH, WVK, UNICEF	Starts immediately
	Reactivate monthly Sub-County	MOH, WVK, WFP,	Sep 2017

	NTF	KRCS, UNICEF,	
	Open closed health facilities	CHMT, county security team	August 2017- Jan 2018
	Re-activate surge model and scale up to new health facilities	MOH, WVK, UNICEF	Sep 2017
	Roll out Baby friendly community initiative	MOH, WVK, UNICEF	
Increased morbidity **46%**	Strengthen WASH in schools through integration	MOH, WVK, Fred Hollows, UNICEF, KRCS	Jan 2018
	Open closed health facilities	CHMT, county security team	Sept 2017
	Continued integrated health/nutrition outreaches	MOH,KRCS, WVK, UNICEF, NDMA	August 2017 – Oct.2017
	Carry out mass mosquito nets distribution	MOH, PS-Kenya	Jan 2017
	Procure and distribute water treatment drugs	MOH,KRCS, WVK, UNICEF, NDMA	Jan 2017
	Hire temporally local health workers to bridge the HR Gap	MOH	Sept 2017

References

1. The SPHERE project (2004), Humanitarian charter and minimum standards in disaster response

2. WHO e- library of evidence of nutrition action (E LENA); zinc supplementation in management of diarrhea

3. Chaitali B. and Vijay T. 2011 May-Jun. Role of zinc in pediatric diarrhea. Indian Journal of Pharmacology.

4. WHO Guideline. 2013. Updates on the management of severe acute malnutrition in infants and children

5. ACF – International. September 2014. GUIDELINES Rapid SMART surveys for Emergencies, Version 1.

APPENDICES

Appendix one: Plausibility check for East Pokot Rapid Smart

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.9 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.784)
Age ratio (6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.153)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (3)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (5)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)

Standard Dev WHZ   Excl   SD   <1.1 <1.15   <1.20   >=1.20

.   And   and   and   or

.   Excl   SD   >0.9 >0.85   >0.80   <=0.80

                        0   5   10   20   **0** (0.94)

Skewness WHZ   Excl   #   <±0.2 <±0.4   <±0.6   >=±0.6

                        0   1   3   5   **0** (-0.04)

Kurtosis WHZ   Excl   #   <±0.2 <±0.4   <±0.6   >=±0.6

                        0   1   3   5   **0** (0.11)

Poisson dist WHZ-2   Excl   p   >0.05 >0.01   >0.001   <=0.001

                        0   1   3   5   **0** (p=0.206)

OVERALL SCORE WHZ =   0-9 10-14   15-24   >25   **0** %

The overall score of this survey is 0 %, this is excellent.

Appendix two: Rapid SMART survey questionnaire

1.IDENTIFICATION		1.1 Data Collector_____		1.2 Team Leader_____					
1.3 Survey date (dd/mm/yy)-------------------------									
1.4	1.5 Sub	1.6	1.7	1.8 Sub-	1.9	1.10 Cluster	1.11 HH	1.12 Team	

2. Household Demographics								
2.1	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.8**	**2.9**
Age Group	**Please give me the names of the persons who usually live in your household.**	**Age (months for children <5yrs and years for over 5's)**	**Child s age verifi ed by** 1=He alth card 2=Bir	**Sex** 1= Male 2= Fem ale	**If 3 yrs and unde r 18 Is child enrol led in**	**Main Reason for not attending School (Enter one code from list)** 1=chronic Sickness 2=Weather (rain, floods, storms) 3=Family labour responsibilities	**What is the highest level of education attained?(l evel complete d) From 5**	**If the household owns mosquito net/s, who slept under the mosquito net last night?** (*Probe-enter all*

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		YRS	M TH	th certificate/ notification 3=Baptism card 4=Recall		school? 1 = Yes 2 = No (If yes go to 2.8; If no go t o 2.7)	4=Working outside home 5=Teacher absenteeism 6=Too poor to buy school items e.t.c 7=Household doesn't see value of schooling 8 =No food in the schools 9 = Migrated/ moved from school area 10=Insecurity 11-No school Near by 12=Married 13=others (specify)……………… …..	yrs and above 1 = pre primary 2= Primary 3=Secondar y 4=Tertiary 5= None 6=others(sp ecify)	responses mentioned(Use 1 if "Yes" 2 if "No and 3 if not applicable)
< 5 YRS	1								
	2								
>5 TO 18 YRS	5								
	6								
	7								
ADULT	13(HH)								

14)						
15						
16						

2.10	**Main Occupation of the Household Head – HH.**	2.12. What is your **main** current source of income
	(enter code from list)	1. =No income
	1=Livestock herding	2. = Sale of livestock
	2=Own farm labour	3. = Sale of livestock products
	3=Employed (salaried)	4. = Sale of crops
	4=Waged labour (Casual)	5. = Petty trading e.g. sale of firewood
	5=Petty trade	6. =Casual labor
	6=Merchant/trader	7. =Permanent job
	7=Firewood/charcoal	8. = Sale of personal assets
	8=Fishing	9. = Remittance
	9=Others (Specify)|____|	10. Other-Specify|____|
2.11	Marital status of the respondent	**2.14.What is the residency status of the household?**
	1. = Married	1. IDP
	2. = Single	2.Refugee
	3. = Widowed	3. Resident |____|
	4. = separated	
	5. =Divorced.	

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| | |__| | |

Fever with Malaria: High temperature with shivering	Cough/ARI: Any episode with severe, persistent cough or difficulty breathing	Watery diarrhoea: Any episode of three or more watery stools per day	Bloody diarrhoea: Any episode of three or more stools with blood per day

3.	4.	5. CHILD HEALTH AND NUTRITION (ONLY FOR CHILDREN 6-59 MONTHS OF AGE; IF N/A SKIP TO SECTION 3.6)

Instructions: *The caregiver of the child should be the main respondent for this section.*

A Chil d No	B	C	D	E	F	G	H	I	J	K	L	M	N	3.2	3.3
	what is the relation ship of the respond ent with the child/chi ldren 1=Mothe r	SEX F/m	Exact Birth Date	Age in mont hs	Weigh t (KG) XX.X	Heigh t (CM) XX.X	Oedem a Y= Yes N= No	MU AC (cm) XX. X	Is your child in any nutriti on progra m 1.Yes 2. No	If yes which nutriti on progra m 1.OTP 2.SFP	Has your child (NAME) been ill in the past two weeks? If No, please skip part M and	If YES, what type of illness (multiple responses possible) 1 = Fever with chills like malaria 2 = ARI	If the child had watery diarrhoea in the last TWO (2) WEEKS, did the child get THERAPEU TIC zinc supplementa	When the child was sick did you seek assistan ce? 1.Yes 2. No	If the response is yes to question # 3.2 where did you seek assistance? (More than one response possible- 1. Traditiona

r								If No, please skip part K and proceed d to L)		proceed to 3.4) 1.Yes 2. No	/Cough 3 = Watery diarrhoea 4 = Bloody diarrhoea 5 = Other (specify) See case definitions below	tion? Show sample and probe further for this component check the remaining drugs(confir m from mother child booklet) 1 = Yes 2 = No 3 = Do not know		healer 2.Community health worker 3. Privat clinic/ pharmacy 4. Shop/kiosk 5.Public clini 6. Mobile clinic 7. Relative o friend 8. Local herbs 9.NGO/FBO
2=Father 3=Sibling 4=Grand mother 5=Other (specify)														
01														
02														
03														

MATERNAL NUTRITION FOR MOTHERS OF REPRODUCTIVE AGE (15-49 YEARS)*(Please insert appropriate number in the box)*			
3.7	3.8	3.9	

Woman ID. **(all ladies in the HH aged 15-49 years from the demographics page)**	What is the mother's / caretaker's physiological status 1. **Pregnant** 2. **Lactating** 3. **None of the above**	Mother/ caretaker's MUAC reading: ____.__**cm**		