INTEGRATED SMART SURVEY
ISIOLO COUNTY
KENYA
FEBRUARY 2016

Integrated SMART survey report

Isiolo, KENYA

Report compiled by (Ministry of Health, Agriculture, Water, Livestock, NDMA among other partners) with technical support from ACF

ACKNOWLEDGEMENT

The survey was made success due to coordinated effort by various partners. The ministry of health acknowledges the following partners due to their contribution in the entire survey process;

- Government ministries including; Ministry of Health (MOH) led by the County Nutrition Officer, the Ministry of Agriculture and National Drought Management Authority (NDMA) for taking lead in the entire exercise and their active role in data collection supervision.
- Development partners including; World Vision, Caritas, Anglican Development Services, APHIA IMARISHA, ActionAID International, Centre for rights and awareness (CREAW) and World Food Programme (WFP) for their logistical support
- The survey enumerators for their effortless commitment and hard work in undertaking quality data collection.
- The entire Isiolo County community (leaders and household respondents) for collaboration in making the survey exercise a success by giving consent, information required and allowing their children's anthropometric measurements to be taken
- UNICEF Kenya Country Office for financial support.
- ACF Kenya mission staffs for their technical, administrative and logistical support in planning, coordination, and management of data collection throughout the survey process.

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ABBREVIATIONS

ACF	Action against Hunger
BCC	Behavior Change Communication
BCG	Bacillus Calmette–Guérin
CI	Confidence Interval
CLTS	Community Led Total Sanitation
CNO	County Nutrition Officer
FFA	Food for Assets
GAM	Global Acute Malnutrition
GFD	General Food Distribution
HFA	Height-for-Age
HHs	Households
HINI	High Impact Nutrition Interventions
IMAM	Integrated Management of Acute Malnutrition
IPs	Implementing partners
LVIA	Lay Volunteers International Program
MOA	Ministry of Agriculture
MOH	Ministry of Health
MOW	Ministry of Water
MUAC	Mid Upper Arm Circumference
NDMA	National Drought Management Authority
NIWG	Nutrition Information working group
OPV	Oral Polio Vaccine
PPS	Probability Proportional to Population Size
SAM	Severe Acute Malnutrition
SFP	Supplementary Feeding Program
UNICEF	United Nations Children's Fund
WFA	Weight for Age
WFH	Weight-for-Height
WFP	World Food Program
WHO	World Health Organizations

EXECUTIVE SUMMARY

Isiolo County lies in the pastoral North East cluster covering an estimated area of 25,000 square kilometers. Isiolo County has four main livelihood zones namely Casual and Waged Labour Pastoral All Species, Pastoral Cattle and Goats and Agro Pastoral livelihood zones comprising of 32, 15, 35 and 15 percent of the population respectively.[1] The nutrition survey was conducted between 25th January 2016 to 3rd February, 2016. The Standardized Monitoring and Assessment in Relief and Transitions (SMART) methodology was employed during the anthropometric survey in planning, training, data collection and analysis. Other data sets including data on nutrition, health, Water, Sanitation and Hygiene (WaSH), and food security were also collected during the survey.

OBJECTIVES

The overall objective of the survey was to estimate the prevalence of acute malnutrition amongst children aged 6-59 months. The specific objectives were:

- To determine the prevalence of under nutrition in children aged 6-59 months
- To determine the coverage for measles and Oral Polio Vaccines (OPV type 1 and 3), Vitamin A supplementation in children aged 6-59 months and Micro-nutrient Supplementation in children aged 6-23 months
- To determine maternal nutritional status based on MUAC measurements
- To estimate coverage of iron / folic acid supplementation during pregnancy in women of reproductive age;
- To collect information on possible underlying causes of malnutrition such as household food security, water, sanitation, and hygiene practices
- To build the capacity of the Ministry of Health staff and National Drought Management Authority field monitors on SMART survey methodology and use of electronic based data collection techniques (ODK)

METHODOLOGY

The survey was implemented in the entire Isiolo County using the Standardized Monitoring and Assessment in Relief and Transitions (SMART) methodology planning, implementation and reporting. The standard national SMART survey questionnaire was created on phone tablets and data collected using open data kit (ODK) technology and stored on Kobo Toolbox server. Emergency nutrition assessment (ENA) software version 2011 updated on July 9th 2015 was used to calculate the sample size based on various parameters producing a sample size of 502 household. Two stages cluster sampling was used with the first stage involving selection of 36 villages/clusters using probability proportionate to size (PPS) while the second stage involved selection of 14 households using simple random sampling. Two villages in Kipsing and Burat locations (one from each location) were removed from the sampling frame due to security issues.

SUMMARY OF KEY FINDINGS

A total of 496 children aged between 6-59 months from 502 households were assessed. The overall data quality for anthropometric measurement was 5% indicating excellent. 2 children were excluded from analysis of acute malnutrition having weight for height z-scores out of range. The survey established a GAM prevalence of 12.3% (9.6-15.8 95% CI) and SAM prevalence of 1.2% (0.4- 3.4 95% CI). This was a slight decrease in acute malnutrition though not significantly different compared to 2015 GAM and SAM prevalence of 13.2% (10.8-16.0 95% CI) and 1.7% (1.0-3.0 95% CI) respectively (P value of 0.647 and 0.524 for GAM and SAM respectively). Villages with high malnutrition were Longaman, Manyatta Malle, Darajani, Goda 'B', Kula, Badana and Manyatta Duba. Stunting prevalence was at 21.6% (18.0-25.6 95% CI) while underweight prevalence was at 19.5% (15.2-24.7 95%

[1] NDMA livelihood classification for Isiolo County

CI). From the sample size 44.9% of the children were reported to be ill 2 weeks prior to the survey. The main illnesses were acute respiratory infections (64.7%), Malaria/fever (42.9%) and watery diarrhea (25%). Majority of the caregivers (82.3%) sought health assistance when their children were sick with public health services being the most sought (77.3%). Vitamin A supplementation relatively improved compared to the previous year attributed to mop up campaigns during the Malezi bora months in May and November 2015. Immunization of measles especially the second dose at 18 months also improved from 32% in 2015 to 55% in 2016.

The rate of open defecation slightly declined from 35% to 32.2%. However, latrine coverage is still low at 67.3%. The food consumption score slightly improved compared to 2015 owing to good performance of October-December short rains. 90.2% of households were classified as having good food consumption while 2% were classified as having poor food consumption. The coping strategies also showed that the household were taking less coping strategies compared to 2015 with a reduction in total weighted coping strategies index from 20.28 in 2015 to 16.85 in 2016. Table 1 highlights the summary of key results from the survey.

Table 1: Summary of Results, Isiolo County; February 2014 to February 2016[2]

		Integrated nutrition survey[3]		
INDEX	INDICATOR	February 2014 (SMART)	February 2015 (SMART)	February 2016 (SMART)
WHZ[4]-scores	Global Acute Malnutrition Weight for height <-2 z and/or oedema	11.5% (8.7-15.2)	13.2% (10.8-16.0)	12.3% (9.6-15.8)
	Severe Acute Malnutrition Weight for height <-3 z and/or oedema	1.0% (0.4-2.3)	1.7% (1.0- 3.0)	1.2% (0.4- 3.4)
HAZ[5]-scores	Stunting (<-2 z-score)	23.2% (19.5-27.3)	18.1% (14.3-22.6)	21.6% (18.0-25.6)
	Severe stunting (<-3 z-score)	4.8% (3.1-7.6)	4.5% (2.8- 7.3)	5.0% (3.3- 7.4)
WAZ[6]-scores	Underweight (<-2 z-score)	21.1% (17.1-25.7)	16.3% (13.1-20.1)	19.5% (15.2-24.7)
	Severe underweight (<-3 z-score)	3.4% (2.0-5.8)	1.7% (0.9- 3.2)	3.0% (1.8- 5.1)
MUAC[7]	Global Acute Malnutrition MUAC <125 mm and/or oedema	3.4 % (1.9-5.9)	3.5% (2.2- 5.4)	3.8% (2.3- 6.4)
	Severe Acute Malnutrition MUAC <115 mm and/or oedema	0.6 % (0.2-1.9)	0.3% (0.1- 1.4)	0.4% (0.1- 1.6)
Measles immunization coverage	9 Months by card	62.2%	63.5%	69.0%
	18 Months by card	18.9%	32%	55%
Vitamin A coverage	6-11 months ; At least once	95.5%	58.6%	69.9%
	12-59 months; once	27.5%	30.6%	24.6%
	12- 59 months; at least twice	70.4%	58.4%	70.8%
Micronutrient	Coverage of MNP	-	43.2%	51.8%

[2]Statistics for anthropometry are as per WHO 2006 Index
[3]Results presented in brackets are expressed with 95.0% confidence interval (CI)
[4] Weight for height Z scores
[5] Height for age Z scores
[6] Weight for age Z scores
[7]Mid upper arm circumference

	Consumption of MNPs		-	50.9%	66%
	Main barriers		-	Awareness (51.8%)	Awareness (75%)
Morbidity Patterns for 6-59 months	Ill in the last 2 weeks		-	34.7%	44.9%
	Type of illness	Fever with chills like malaria	48.6%	25%	42.9%
		ARI/Cough	50.2%	58%	64.7%
		Watery diarrhea	12.6%	16.3%	25%
Maternal Nutritional status by MUAC	Pregnant and Lactating women<210MM		6.4%	7.5%	8.3%
	All women (15-49)years <210MM		6%	7%	6.3%
IFAS intake	Over 90 days during pregnancy		-	3.1%	1.3%
WaSH	Water sources	protected sources	69.5%	73.3%	67.7%
	Distance to main source	≤ 500M	63.1%	67.3%	73.3
		>500M-≤2km	17.5%	18.8%	17.5
		>2km	19.5%	13.9%	9.2%
	Hand Washing Behaviors	four critical times	60.4%	51.7%	12.5%
	Latrine coverage	Latrine ownership	34%	35.8%	33.27%
Food Security and Livelihood	Food Consumption Score (FCS)	Poor	2%	4.4%	2%
		Borderline	7.8%	4.8%	7.8%
		Good	90.2%	89.8%	90.2%
	Coping strategy index (CPI)	Borrow food	4.8	5.1	4.08
		Restrict consumption for children to eat	7.2	7.59	5.55
		Total weighted coping strategy score	20.7	20.28	16.85

SUMMARY RECOMMENDATIONS

The recommendation were developed by the county nutrition technical forum (CNTF) and county steering group (CSG) involving government ministries, development partners. The recommendations were made after reviewing the previous survey recommendations implementation status, gaps and opportunities (table 2)

Table 2: Summary of possible recommendations from survey findings

FINDINGS	WAY FORWARD	ACTION BY
GAM 12.3%	Strengthen Linkages • Map out other partners with capacity on health and nutrition related interventions and advocate for coordinated efforts • Promote effective communication between Sub-County nutrition officers and WFP and other partners when targeting beneficiaries for GFD/FFA • Seek partners to support vulnerable households with vouchers /Grants	The CNC and SCNOs with support from IPs (Implementing Partners)
	Develop a County Outreach Strategy that will assist in Coordination between partners supporting outreach	County Director of health and the CNC

	activities in the hard to reach areas	
	Scale up nutrition Education to avoid relapse after recovery • Adopt mother care group model for Social Behavior Change Communication	CNC, SCNOs and IPs
	Scale up of IMAM programs in the facilities that do not have (Currently 8 out of 46)	CNC, IPs
Vitamin A coverage 6-11 months once at 69.9%, 12-59 months more than once at 70.8%	Train Health care workers on Vitamin A logistics • Proper beneficiary targeting, documentation and reporting	CNC/IPs/SCNOs
	VAS Sensitization with the aim to create demand and increase coverage in the community through • Sensitization of ECDE Teachers on VAS • Sensitization of the CHCs/CHVs on VAS • Targeting the hard to reach areas through outreaches	CNC/ScNOs/ScPHOs/IPs
Maternal Nutrition	Involvement of male partners in child care practices through adoption of Behavior Change Strategies like adoption of the Mother Care Group model	CNC and IPs
WASH • Low latrine coverage (68%) • Low rate of water treatment (19.9%)	• Promote adoption of behavior change strategies like Community Led Total Sanitation (CLTS) • Target children as change agents in hygiene practices like hand washing	CPHO and IPs (CCM/LVIA)
	• Promote awareness on the importance of water treatment • Provision of water treatment kits such as chujios and treatment agents such as pur, aqua tab etc	CPHO and SCPHOs, IPs (CCM/LVIA/ etc)
Food security and livelihoods	Improve community resilience through promotion of Income Generating Activities and/or small scale farming; • Kitchen gardening • Vertical/Storey farming Recipe development using locally available food and food preparation demos targeting mother care groups to promote dietary diversity	MoA/CNC/IPs (WVI,Carritas)
	Promote production of drought resistant crops in the Agro-pastoral areas; Isiolo Central and areas along Ewaso Nyiro	Ministry of agriculture and IPs

1.0 INTRODUCTION

1.1 Background Information

Isiolo County is classified as arid and semi-arid lands of Kenya, located in the Pastoral North East cluster covering a surface area of 25, 336 square Kilometers (km^2) with an estimated population of 143,294[8]. It consists of three Sub Counties namely Isiolo, Garbatulla and Merti. The county is characterized by recurrent droughts, hot and dry climate with low and erratic rainfall patterns. There four main livelihood zones in the county namely Casual and Waged Labour Pastoral All Species, Pastoral Cattle and Goats and Agro Pastoral livelihood zones comprising 32, 15, 35 and 15 percent of the population respectively as shown in Figure 1[9].

Isiolo has two rainfall season; long (Mid-March to May) and short rain (October-December) season. The communities depend much on the latter than the former. The seasonal calendar also characterizes dry season into short (January-Mid March) and long (June to mid-October) dry season as seen in figure 2.

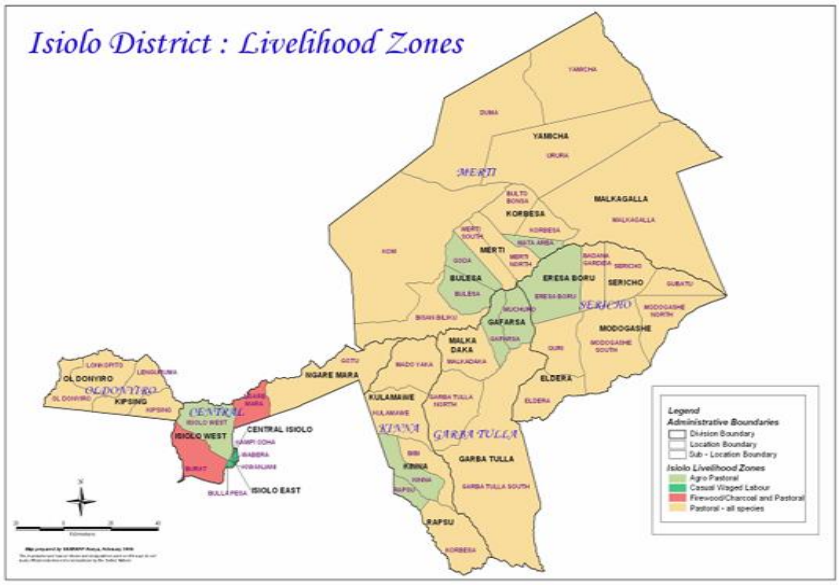

Figure 1: A map of Isiolo County livelihood zones

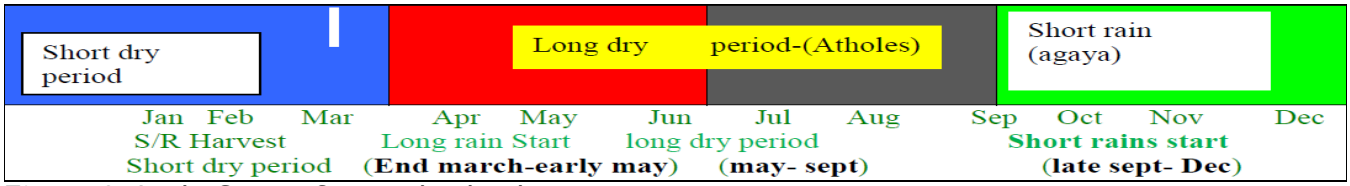

Figure 2: Isiolo County Seasonal calendar

The integrated SMART survey conducted in February 2015 unveiled a serious Global Acute Malnutrition (GAM) prevalence of 13.2% (10.8-16.0 95% CI) and Severe Acute Malnutrition (SAM) prevalence of 1.7%(1.0- 3.0 95% CI). The National Drought Management Authority (NDMA) early warning indicators for Isiolo County showed a worsening trend from May to October 2015. The situation started improving on November due to the positive impact of enhanced rainfall on the household food availability. Rainfall amount and distribution was better in agro pastoral areas, but poor in Merti, Bassa, Malkagalla and Oldonyiro[10]. The February 2016 integrated nutrition SMART survey was conducted in the county to further monitor the food security nutrition situation

1.2 Objectives of the Survey

The main objective of the survey was to estimate the prevalence of acute malnutrition amongst children aged (6-59) months in Isiolo County. The specific objectives were:

[8] KNBS 2009 Population Census report

[9] Isiolo County Long rain Assessment report, August 2015

[10] Isiolo County Drought Early Warning Bulletin for November 2015

1. To determine the prevalence of under nutrition in children aged 6-59 months.
2. To determine the immunization coverage for measles, Oral Polio Vaccines (OPV type 1 and 3), and vitamin A supplementation in children aged 6-59 months.
3. To assess MNP coverage and consumption in children aged 6-23 months
4. To determine maternal nutritional status based on Mid Upper Arm Circumference (MUAC) measurements.
5. To estimate coverage of iron / folic acid supplementation during pregnancy in women of reproductive age.
6. To collect information on possible underlying causes of malnutrition such as household food security, water, sanitation, and hygiene practices.
7. To build the capacity of the county ministries, development partners in survey methodology and mobile phone based data collection techniques.

2.0 SURVEY METHODOLOGY

2.1 Type of Survey

The integrated health and nutrition survey was a cross sectional survey undertaken in Isiolo County in January /February, 2016 using the SMART methodology. Secondary information review of various existing surveillance data to include; NDMA monthly bulletins, Health Information System (DHIS) and previous assessments was undertaken prior to the survey. The SMART methodology was employed during the anthropometric survey in planning, training, data collection and analysis. Other information that relates to malnutrition such as immunization, deworming, supplementation, morbidity, water sanitation and hygiene practices and food security were also collected.

2.2 Sampling Procedures

Two stage cluster sampling was used with the first stage involving selection of clusters in the county and the second stage involving selection of households in a cluster. ENA for SMART software was used to select a sample size of 502 households and 479 children as shown in table 3. This was then used to determine the number of clusters based on the number of household which could be comfortably achieved per team per day (502/14 = 35.8 $\simeq$ 36). Two villages in Kipsing and Burat locations (one from each location) were removed from the sampling frame due to security issues (owing to cattle rustling) and the 36 clusters were selected based on probability proportionate to size (PPS).

Table 3: Sampling Methodology for Anthropometric Survey

Data entered in ENA for SMART	Anthropometric survey	Rationale
Estimated prevalence	10.8%	➢ From contextual data (DHIS, NDMA EWS) showing an improving trend
±Desired precision	2.9%	➢ The higher the malnutrition rates the lower the precision; ➢ In order to meet the set objectives
Design effect	1.1	➢ Obtained from nutrition SMART survey 2015 results; to cater for heterogeneity within the County
Average household size	6	➢ From previous survey
Proportion of under-five	18.4%	➢ From previous survey, DHIS

Non-response rate	4.0%	➢ Based on previous assessments, ongoing community mobilization is expected to create awareness of upcoming assessment
Households	**502**	
Children	**479**	

The villages constituted the primary sampling units while the households constituted the basic sampling units. 14 households per cluster were selected through simple random sampling from an updated list of households.

2.3 Training Framework
The entire training took four days from 25th to 28th February 2016 with standardization test and pilot test being part of the training package. The survey teams were taken through; introduction to SMART survey, survey objectives, sampling, mobile based data collection tool (Open data Kit), anthropometric measurements, interviewing techniques, field procedures and data quality assurance.

2.4 Survey Teams and Supervision
The survey team was composed of 6 team leaders and 18 enumerators eventually forming 6 teams. The team leaders were obtained from relevant county government ministries. 5 NDMA field monitors and 13 community members used in the previous surveys were considered for enumerators positions. The coordination and supervision of the entire process was led by the County Nutrition Officer under technical support from development partners' staff. Data quality assurance process was maintained by observing the following steps:

- Validation of the survey planning and methodology at the Nutrition information working group
- Survey team training in adherence to SMART standards to including undertaking of both standardization and pilot test
- Daily support and supervision of teams at the cluster level
- Daily feedback session through plausibility and questionnaire checks
- Continuous daily data monitoring and primary analysis of all datasets on the servers

2.5 Case Definitions and Inclusion Criteria
Primary data was gathered from the sampled villages to make inferences with regard to the survey objectives for a period of 6 days.
Anthropometric data was collected from all eligible children aged 6-59 months. The children were targeted with the following information

- **Age**: The child's immunization card, birth certificate or birth notification were the primary source for this information. In the absence of these documents, a local calendar of events developed from discussions with community members, enumerators and key informants. Age calculation chart was used for ease of identifying age in months (see Annex).
- **Child's Sex:** This was recorded as either '**m**' for male or '**f**' for female.
- **Weight:** A seca[11]digital weighing scale was used to measure the children's weight. Theelectronic scales were calibrated on daily basis using a standard weight to confirm measurements and any faulty scales were replaced. In order to enhance accuracy and hence quality, of emphasis was placement of weight scale to a hard flat surface,

[11]Electronic SECA scale manufactured by Secagmbh& co.kg. Hammer Steindamm 9-25.22089 Hamburg. Germany.

minimal or no movement of the child and accurate recording of measurements to the nearest 0.1kg

- **Height:** Recumbent length was taken for children less than 2 years of age while those children above 2 years of age were measured standing up. A height board was used to measure length/height. Of emphasis was ideal placement of cursor as per instructions on height measurements (SMART/IMAM[12] guidelines) ensuring minimal or no movement of the child and maintaining height readings at eye level to the nearest 0.1cm.
- **MUAC:** Mid Upper Arm Circumference was measured on the left arm, at the middle point between the tip of the elbow and the tip shoulder bone while the arm is at right-angle, then followed MUAC measurements of the arm while it is relaxed and hanging by the body's side. MUAC was measured to the nearest mm. In the event of a disability on the left arm or a left-handed child, the right arm was used. Of emphasis during the exercise was correct identification of mid-point and correct tension upon placement of MUAC tape on arm.
  Maternal MUAC tapes were used to measure MUAC in women of reproductive age.
- **Bilateral Oedema:** This was assessed by the application of moderate thumb pressure for at least 3 seconds on both feet. If a depression formed on both feet upon pressure application, then presence of bilateral oedema was confirmed.
- **Measles vaccination:** The child's vaccination card was used as a source of verification. In circumstances where this was not available, the caregiver was probed to determine whether the child had been immunized against measles or not (done subcutaneously on the right upper arm). All children with confirmed immunization (by date) on the vaccination card, the status were recorded as "1" (Card) otherwise as "3" (Not immunized). Oral confirmation from the caregiver without proof of card was recorded as "2" (Recall). Children between 9 to 18 months or greater were used to determine coverage of this in the final analysis.
- **Oral Polio Vaccine (OPV) 1 (**1st dose at 6 weeks) **and OPV3** (3rd dose at 14 weeks) was calculated for all children aged 6-59 months.

Other relevant information about the eligible child was also gathered as follows:

- **De-worming:** Determined by whether the child had received drugs for intestinal worms in the past one year. This was recorded as "0" for No, "1" for Yes by card, ''2'' for Yes by recall and ''3'' for Do not know.
- **Vitamin A coverage**: This was determined by the number of times the eligible child had received vitamin A in the past year. The response received (number of times) was probed (to determine where health-facility/outreach sites or elsewhere and the number of times recorded in the card) and eventually recorded on the anthropometric questionnaire.
- **Micronutrient powders**: The eligible children for this information were 6-23 months. The respondent was asked whether the child was enrolled in the program; recorded in the questionnaire as "0" for No and "1" for Yes. Those who said no were probed for reasons as to why not enrolled. Those enrolled were probed on adherence
- **Morbidity:** This was gathered over a two week recall period by interviewing/probing the mothers/caretakers of the target child and eventually determined based on the respondent's recall. This information was however not verified by a clinician.
- **Other data sets**: the Household questionnaire was used to gather data on other variables related to HINI indicators, WaSH (Water Sanitation and Hygiene) and FSL (Food Security and Livelihood).

[12] Integrated Management of Acute Malnutrition

Other data sets: The household questionnaire was used to gather data on health related variables, HINI[13] Indicators, water availability and accessibility, sanitation and hygiene practices, food sources, dietary diversity and coping strategies.

2.6 Data Entry and Analysis

The survey adopted mobile technology in data collection and submission. The standard SMART questionnaire form was develop on ODK build and downloaded on ODK collect for Android operating system application software on phone tablets. The teams could send data to the configured servers where it could be retrieved and analyzed. Anthropometric data was analyzed using ENA for SMART software January 2015 version (Updated on 7th July 2015) while all other data sets were entered and analyzed using Microsoft Excel.

2.7 Indicators, Guidelines and Formulas Used In Acute Malnutrition

Weight for height (WFH) index

This was estimated from a combination of the weight for height (WFH) index values (and/or oedema) and by sex based on WHO standards 2006. This index was expressed in WFH indices in Z-scores, according to WHO 2006 reference standards.

Z-Score:

- Severe acute malnutrition is defined by WFH < -3 SD and/or existing bilateral oedema,
- 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.

Mid upper arm circumference (MUAC)

MUAC analysis was also undertaken to determine the nutrition status of sampled children and women of reproductive age (15-49 years). The following MUAC criteria were applied.

Table 4: Children Under 5years and PLWS MUAC Cut-offs

MUAC Guideline	Interpretation
Children 6-59 months	
MUAC <115mm and/or bilateral Oedema	Severe acute malnutrition
MUAC >=115mm and <125mm *(no bilateral oedema)*	Moderate acute malnutrition
MUAC >=125mm and <135mm *(no bilateral Oedema)*	Risk of malnutrition
MUAC > 135mm (no bilateral Oedema)	Adequate nutritional status
Women of Reproductive Age (15-49 years)	
MUAC <21-23cm	At Risk of malnutrition
MUAC <21cm	Maternal Acute Malnutrition

2.8 Referrals

During the survey, all severe and moderately malnourished children as per MUAC and Weight-for-Height cut offs were referred to the nearby health facilities. Pregnant and lactating women with MUAC <21cm were also referred.

[13] High Impact Nutrition Interventions

3.0 SURVEY FINDINGS

3.1 General Characteristics of Study Population and Households

A total of 502 randomly selected household were assessed during the survey. Livestock herding was the main source of income followed by casual labour and the least common being merchant/trader as shown in table 5.

Table 5: Main source of income

Source of income	Frequencies	Percentage of Total
Livestock herding	164	32.7%
Waged labour (Casual)	138	27.5%
Employed (salaried)	57	11.4%
Petty trade	48	9.6%
Firewood/charcoal	36	7.1%
Others (pension, spiritual leader, business)	28	5.6%
Own farm labour	20	3.9%
Merchant/trader	11	2.2%

Assessment of 890 children aged between 3 and 18 years showed that majority (84.6%) were enrolled in school with a boy girl school enrolment ratio of 1.17:1. Poverty (21.2%), ignorance (17.5%), perception that the child is still young (12.4%), early marriages (8%) and absence of school nearby (6.6%) were given as the main reasons for children not enrolled in schools. Literacy levels were low with majority of the adults (51.7%) having no education as shown in figure 3. Majority of these were women with women to men illiteracy ratio of 1:1.52.

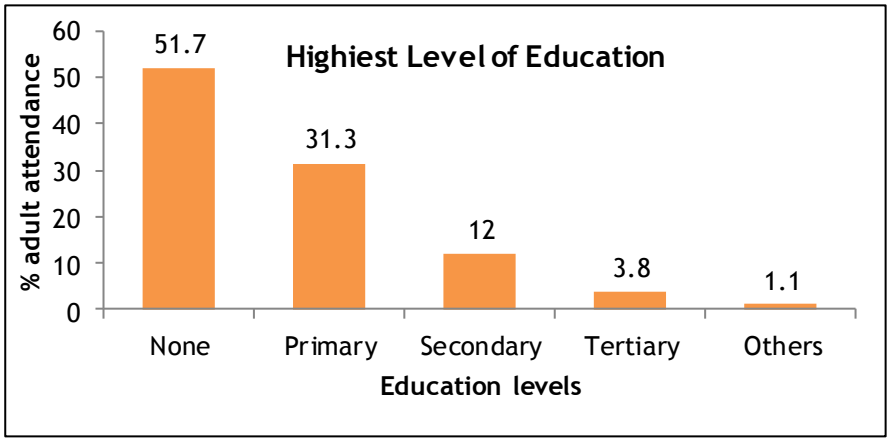

Figure 3: Level of education among adults

3.2 ANTHROPOMENTRY

3.2.1 Distribution by Age and Sex

The survey assessed nutritional status of 496 children aged between 6-59 months. 264 boys and 232 girls were assessed with boys to girl ratio of 1:1 as shown in table 6. The P values for age distribution and sex ratio were 0.07 and 0.151 respectively indicating no sampling bias.

Table 6: Distribution by age and sex

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl

6-17	62	58.5	44	41.5	106	21.4	1.4
18-29	76	53.5	66	46.5	142	28.6	1.2
30-41	61	48.8	64	51.2	125	25.2	1.0
42-53	42	48.8	44	51.2	86	17.3	1.0
54-59	23	62.2	14	37.8	37	7.5	1.6
Total	264	53.2	232	46.8	496	100.0	1.1

3.2.2 Nutritional Status of Children 6-59 Months

3.2.2.1 Prevalence of global acute malnutrition based on Weight-for -Height Z score

Anthropometric data of 494 children were included in the final analysis of acute malnutrition based on weight for height. 2 children were excluded as their z score were out of range. The survey established a global acute malnutrition (GAM) prevalence of 12.3% (9.6-15.8 95% CI) and a severe acute malnutrition (SAM) prevalence of 1.2% (0.4- 3.4 95% CI) as shown in table 7.

Table 7: Prevalence of global acute malnutrition based on Weight-for -Height Z score (and/or oedema) and by sex

	All n = 494	**Boys** n = 262	**Girls** n = 232	**P value (Boys vs Girls)**
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(61) 12.3 % (9.6 - 15.8 95% C.I.)	(36) 13.7 % (10.3 - 18.1 95% C.I.)	(25) 10.8 % (7.5 - 15.2 95% C.I.)	0.283
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(55) 11.1 % (8.4 - 14.6 95% C.I.)	(32) 12.2 % (8.8 - 16.7 95% C.I.)	(23) 9.9 % (6.8 - 14.3 95% C.I.)	0.386
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(6) 1.2 % (0.4 - 3.4 95% C.I.)	(4) 1.5 % (0.6 - 4.0 95% C.I.)	(2) 0.9 % (0.2 - 3.5 95% C.I.)	0.528

This was a slight observed decline compared to 2015 GAM and SAM prevalence of 13.2% (10.8-16.0 95% CI) and 1.7% (1.0- 3.0 95% CI) respectively though not statistically significant with P value of 0.647 and 0.542 for GAM and SAM respectively. Clusters with high prevalence of malnutrition were Longaman, Manyatta Malle and, Darajani (Isiolo Central Sub County), Goda 'B', Kula, Badana and Manyatta Duba (Merti Sub County). Majority of this areas received depressed rainfall during the start of October to December short rains. Majority of this areas received depressed rainfall during the start of October to December short rains[14]. Boys were more malnourished than girls (though not significantly with p value at 0.248). This could be due to gender issues such as older boys going out to look after livestock thereby missing some meals and engaging in coping strategies such as eating wild fruits.

[14] Isiolo County Drought Early Warning Bulletin for November 2015

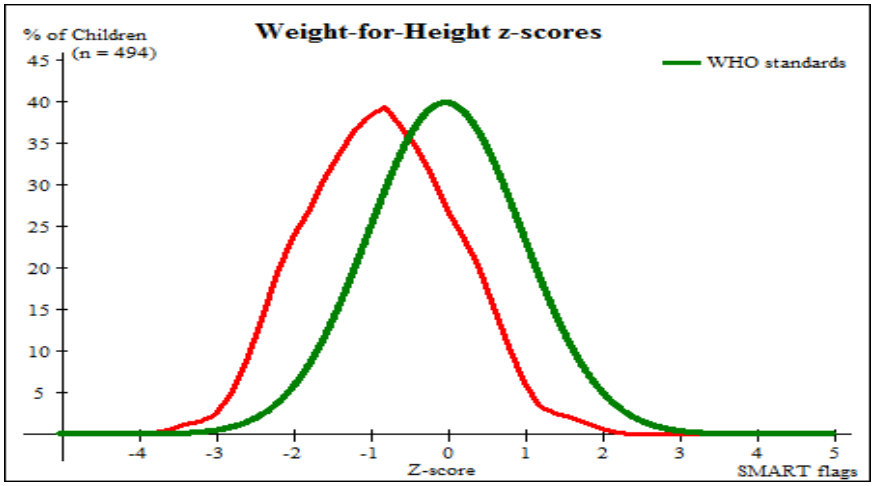

Figure 4: Frequency of distribution of WFH

The Gaussian curve (Figure 4) indicates that the sample curve has deviated to the left of the reference population with a mean and standard deviation based on WHZ at -0.86 and ±0.95 respectively.

Table 8: 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	105	0	0.0	8	7.6	97	92.4	0	0.0
18-29	141	3	2.1	13	9.2	125	88.7	0	0.0
30-41	125	1	0.8	13	10.4	111	88.8	0	0.0
42-53	86	2	2.3	13	15.1	71	82.6	0	0.0
54-59	37	0	0.0	8	21.6	29	78.4	0	0.0
Total	494	6	1.2	55	11.1	433	87.7	0	0.0

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

There was no Oedema cases identified during the survey however, six children were classified as marasmic from Bula kati, Manyatta Kula, Darajani and Kambi ya Juu villages as shown in table 9. All these cases were from Isiolo Sub County (Oldonyiro).

Table 9: 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. 6 (1.2 %)	Not severely Malnourished No. 490 (98.8 %)

3.2.2.3 Prevalence of Acute Malnutrition by MUAC

Middle upper arm circumference (MUAC) is used for rapid detection and referral of children with acute malnutrition. The survey unveiled a GAM prevalence of 3.8% (2.3- 6.4 95% CI) and SAM prevalence of 0.4% (0.1- 1.6 95% CI) based on MUAC as shown in table 10.

Table 10: Prevalence of acute malnutrition based on MUAC cut offs (and/or Oedema) and by sex expressed with 95% CI

	All n = 496	**Boys** n = 264	**Girls** n = 232	**P Value (Boys Vs Girls)**
Prevalence of global malnutrition (< 125 mm and/or oedema)	(19) 3.8 % (2.3 - 6.4 95% C.I.)	(8) 3.0 % (1.6 - 5.7 95% C.I.)	(11) 4.7 % (2.4 - 9.1 95% C.I.)	0.346
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(17) 3.4 % (2.1 - 5.6 95% C.I.)	(7) 2.7 % (1.3 - 5.2 95% C.I.)	(10) 4.3 % (2.2 - 8.1 95% C.I.)	0.350
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.4 % (0.1 - 1.6 95% C.I.)	(1) 0.4 % (0.0 - 2.9 95% C.I.)	(1) 0.4 % (0.1 - 3.3 95% C.I.)	1

3.2.2.4 Prevalence of underweight by Weight-for-age (WFA) Z-scores

Underweight is a proximate indicator of both acute and chronic malnutrition based on weight for age Z-scores (WAZ). The prevalence of underweight was 19.5% (15.2-24.7 95% CI) while the prevalence of severe underweight was 3.0% (1.8- 5.1 95% CI) as shown in table 11.

Table 11: Prevalence of underweight based on weight-for-age z-scores by sex results expressed with 95% CI

	All n = 492	**Boys** n = 263	**Girls** n = 229	**P value (Boys vs Girls)**
Prevalence of underweight (<-2 z-score)	(96) 19.5 % (15.2 - 24.7 95% C.I.)	(53) 20.2 % (14.7 - 27.0 95% C.I.)	(43) 18.8 % (13.3 - 25.8 95% C.I.)	0.748
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(81) 16.5 % (12.4 - 21.5 95% C.I.)	(45) 17.1 % (12.3 - 23.3 95% C.I.)	(36) 15.7 % (10.5 - 22.9 95% C.I.)	0.730
Prevalence of severe underweight (<-3 z-score)	(15) 3.0 % (1.8 - 5.1 95% C.I.)	(8) 3.0 % (1.5 - 6.2 95% C.I.)	(7) 3.1 % (1.5 - 6.1 95% C.I.)	0.947

3.2.2.5 Prevalence of stunting based on height-for-age z-scores

Stunting is an indicator used to access chronic malnutrition by comparing child's height to standard height of children in the same age. The survey results indicated a stunting prevalence of 21.6% (18.0-25.6 95% CI) with severe stunting at 5.0% (3.3- 7.4 95% CI). The results were not significantly different compared 2015 with a p value of 0.214.

Table 12: Prevalence of stunting, height-for-age z-scores and by sex results expressed with 95% CI

	All n = 482	Boys n = 258	Girls n = 224	P-values (Boys Vs Girls)
Prevalence of stunting (<-2 z-score)	(104) 21.6 % (18.0 - 25.6 95% C.I.)	(61) 23.6 % (18.1 - 30.2 95% C.I.)	(43) 19.2 % (14.7 - 24.7 95% C.I.)	0.258
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(80) 16.6 % (13.8 - 19.8 95% C.I.)	(47) 18.2 % (14.1 - 23.2 95% C.I.)	(33) 14.7 % (10.3 - 20.6 95% C.I.)	0.301
Prevalence of severe stunting (<-3 z-score)	(24) 5.0 % (3.3 - 7.4 95% C.I.)	(14) 5.4 % (3.4 - 8.6 95% C.I.)	(10) 4.5 % (2.4 - 8.3 95% C.I.)	0.626

Further analysis was done on stunting per age category as shown in table 13. The analysis shows that children aged between 18 and 29 months were the most stunted. This could be attributed to poor complementary feeding and owing to the fact that breastfeeding usually stops during this age.

Table 13: 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 (months)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	103	1	1.0	14	13.6	88	85.4
18-29	137	17	12.4	28	20.4	92	67.2
30-41	122	4	3.3	20	16.4	98	80.3
42-53	83	2	2.4	11	13.3	70	84.3
54-59	37	0	0.0	7	18.9	30	81.1
Total	482	24	5.0	80	16.6	378	78.4

3.3 Child Immunization, Vitamin A Supplementation and Deworming

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine[15]. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease. Immunization is designed to protect infants and children early in life, when they are most vulnerable and before they are exposed to potentially life-threatening diseases. In Kenya, the ministry of health through the division of vaccines and immunization supports scales up of immunization through Expanded Programme on Immunization (EPI) vaccination service delivery, supply management, awareness campaigns through mass media and advocacy.

Bacillus Calmette–Guérin (BCG) vaccination against tuberculosis coverage verified by presence of scar in the lower left arm was at 92.2%. Oral Polio vaccine 1 (OPV 1) coverage was 74.9% by card and 25.1% by recall while Oral polio vaccine 3 was at 72.9% and 24.60% by card and recall respectively. Measles at 9 months was at 69.2% and 26.7% by card and recall respectively. The second measles vaccine at 18 months was at 55% and 26.5% by card and recall respectively. This was a noted increase compared to 2015 where measles at 18 month vaccine coverage by card was at 32% and could be attributed to increased outreach and campaigns.

[15] WHO definition

The world health organization estimates that 250 million preschool children are vitamin A deficient with the bulk of them in developing countries particularly in Sub Saharan Africa and Asia. Improving the vitamin A status of these children through supplementation enhances their resistance to disease and can reduce mortality from all causes by approximately 23%. Guaranteeing high supplementation coverage is therefore critical, not only to eliminating vitamin A deficiency as a public-health problem, but also as a central element of the child survival agenda[16]. The county vitamin A coverage improved compared to 2015 but still below the national target coverage of 80% as shown in table 14. This improvement was attributed to Malezi bora campaigns done in May and November 2015.

The deworming rates for children 12-59 months dewormed once increased to 70.4% compared to 41.7% reported in SMART 2015. The rate of children 6-59 months deworming at least twice increased from 28.1 % in 2015 SMART to 37.9 in % 2016. This was attributed to stocks availability, increased sensitization for routine deworming, increased ECDE sensitization and enhanced Malezi Bora campaigns.

Table 14: Vitamin A supplementation and Deworming

	Age group	Coverage 2015	Coverage 2016
Vitamin A supplementation	6-11 months once	58.6%	69.9%
	12-59 months once	30.6%	24.6%
	12-59 more than once	58.4%	70.8%
Deworming	12-59 months once	70.4%	41.7%
	12-59 At least twice	28.1%	37.9%

3.4 Micronutrient powders (MNP) among children 6-23 months

Home fortification with micronutrient powder (MNP) has been shown to be a low-cost, feasible, and effective approach to address micronutrient deficiencies.

3.4.1 Coverage of MNP program

Through support from the World Food Program (WFP), The Ministry of Health (MOH) and Action Against Hunger (ACF), as the implementing partner, have been implementing the micronutrient powders supplementation program through home fortification in Isiolo County since July 2014. The program targeted children aged between 6 and 23 months. The delivery point for the MNPs has been the health facility and outreach sites but towards the end of the project the low uptake necessitated a change of approach with CHWs actioned to issue the MNPs to beneficiaries who were due and had not collected from the health facility. The survey assessed 199 children aged 6-23 months where 51.8% (n=103) were found to have been enrolled in the program. From those not enrolled into the program (N=96), lack of awareness about the program was cited as the greatest barrier at 75%. The rest cited discouragement, distance, illness and child being enrolled in a feeding program as contributing to them not enrolling their children to the program as shown in figure 5.

[16] Vitamin A Supplementation: A decade of progress © The United Nations Children's Fund (UNICEF), 2007

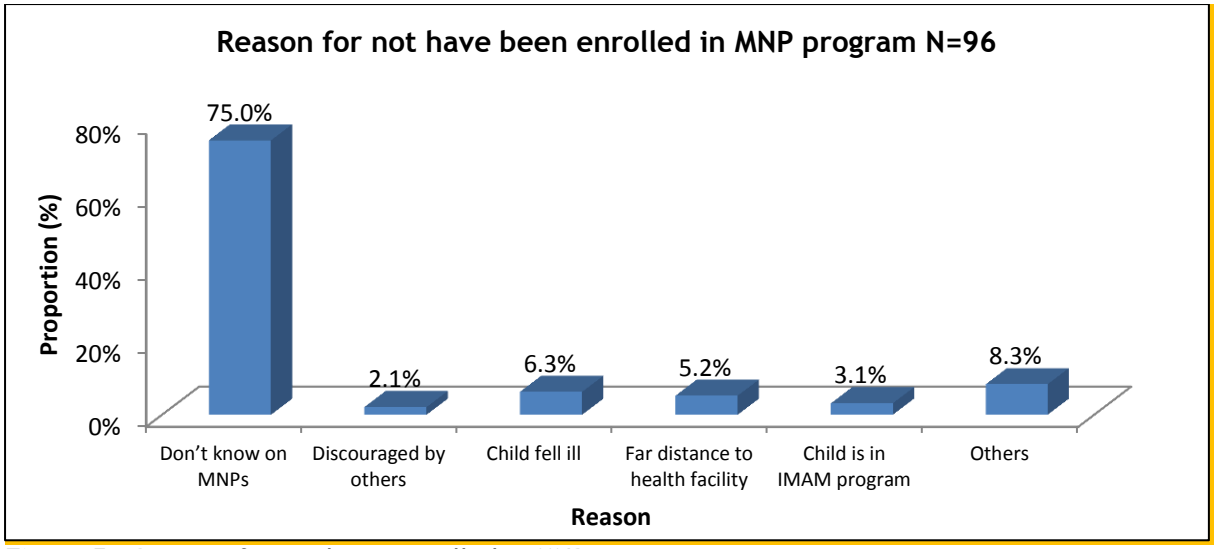

Figure 5: Reasons for not being enrolled in MNP program

3.5 Child morbidity

3.5.1 Incidence of disease among children 6-59 months

Diseases increases susceptibility to malnutrition among children which in reverse contributes to reduced immunity hence worsening the disease. The survey assessed disease incidences 2 weeks prior to the survey. Findings from the survey indicated that 44.9% of the children had different illnesses as shown n figure 6. The slight increase in ARI/Coughs, malaria and diarrhea is attributed to the enhanced rains that were experienced during the short rains towards the end of 2015 that compromised hygiene and sanitation amongst majority of the community members.

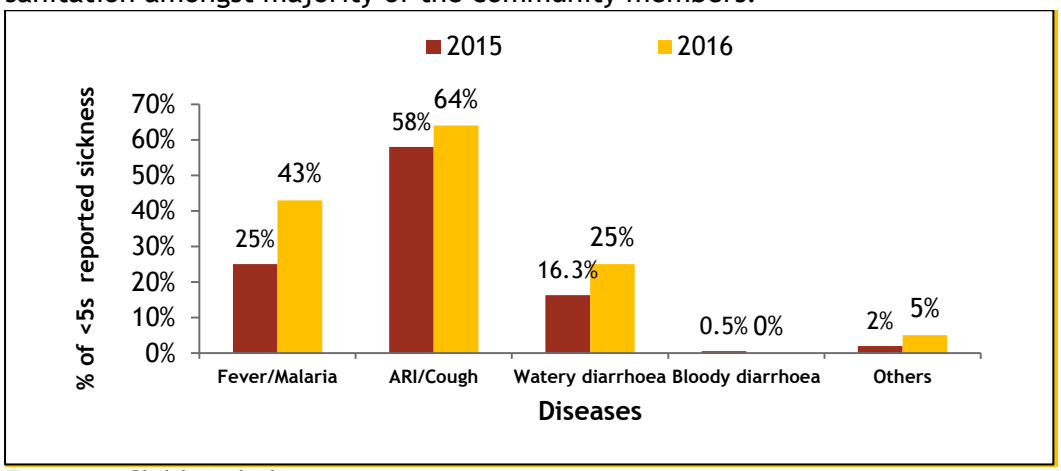

Figure 6: Child Morbidity

3.5.2 Health Seeking Behavior

Survey findings reveals 82.6% of caregivers from the sampled households (N=185) sought health assistance when their children were ill with majority 95.6 %(N=177) seeking from appropriate healthcare (public, private and mobile clinics). 77.3% of caregivers sought care from public clinics, private clinics accounted for (17.8%). Others were faith based clinics (3.2%), shops (1.1%) and mobile clinics (0.5%).

3.5.3 Therapeutic Zinc supplementation in treatment of watery Diarrhea

Watery diarrhea is one of the leading causes of child mortality. The ministry of health advocates for prompt treatment of diarrhea with oral rehydration salts and zinc supplements to enhance child survival. 69.6% of children with diarrhea (N=56) were supplemented with therapeutic zinc; an increase compared to 56.7% coverage in 2015.

3.6 Maternal Health and Nutrition

Maternal health is defined as the wellbeing of a woman during pregnancy, childbirth and 42 days after delivery. Maternal nutrition was assessed for all women of reproductive age (15-49 years) based on MUAC. A total of 483 women were within the reproductive age. Out of these, 5.8% were pregnant, 43.5% lactating and 50.7% neither pregnant nor lactating.

3.6.1 Iron folate supplementation during pregnancy

Iron folic acid supplementation (IFAS) during pregnancy helps in preventing maternal anemia and improving the overall birth outcomes. The survey assessed consumption of iron folic acid supplements during pregnancy for women with children less than 2 years. 78.3% of women aged 15-49 years (N=210) consumed IFAS in their last pregnancy. Only a small proportion (1.3%) took the supplements for over 90 days as shown in figure 7.

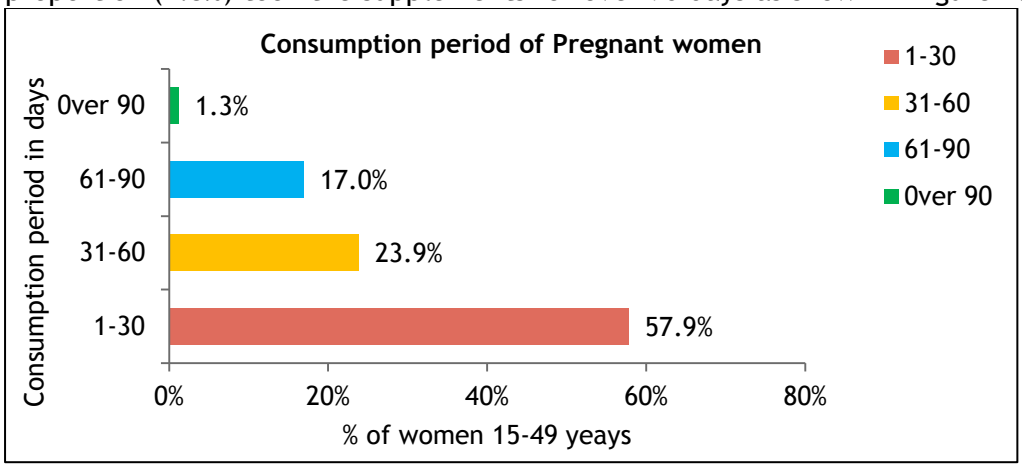

Figure 7: Consumption period of iron folic acid supplementation

3.6.2 Maternal nutrition status based on Mid Upper Arm Circumference (MUAC)

All girls and women aged between 15-49 years were assessed for their nutrition status based on MUAC. 8.3% of pregnant and lactating women were malnourished compared to 7.5% in 2015. The poor nutrition status could be attributed to gender factors such as gender inequalities, women workload including household chores and following livestock during migration resulting into inadequate food intake during the prolonged long dry season in 2015. 6.3% of all women 15-49years were malnourished compared to 7.0% in 2015 as shown in figure 8.

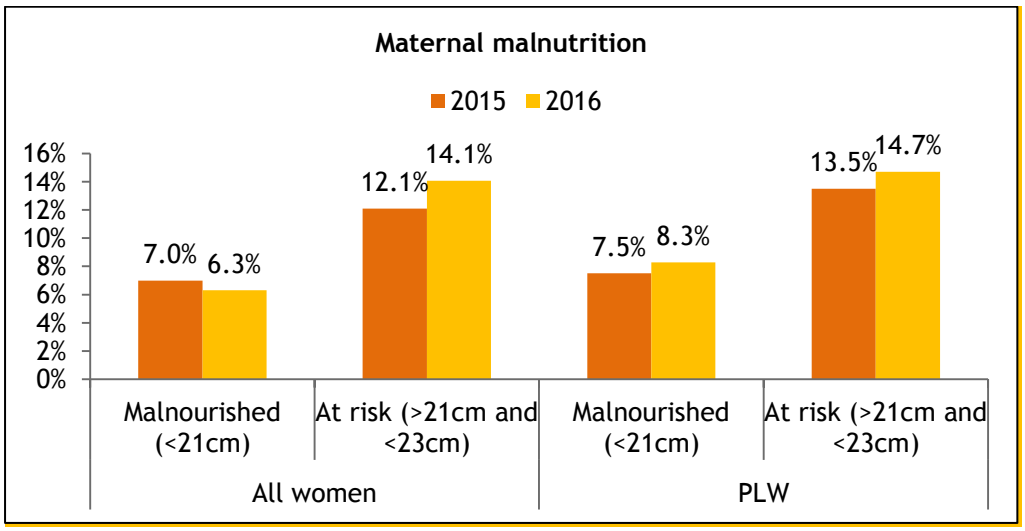

Figure 8: Malnutrition by MUAC for Women of reproductive age and PLWs

3.7 Water Sanitation and Hygiene (WaSH)

3.7.1 Water

Isiolo County receives bimodal rainfall with the short rains being the main season. The onset of the short rains was slightly late in the 1stdekad of November compared to the normal third week of October across the livelihood zones. Generally, the county received above 90 percent of normal rains except the northern parts of Merti which received 50-75 percent of normal rains[17]. The survey revealed that 62.7% of the households sourced their drinking water from piped water systems (protected source) compared to 73.3% in 2015.This could be attributed to enhanced rainfall and availability of water in rivers, earth pans and unprotected springs providing a nearer option for households than a community piped water point. Household obtaining drinking water from unprotected shallow well increased from 9.9 percent in 2015 to 18.8%. Other sources of household water included; rivers, water tracking, Earth Pan Dam, *lagas* at 9.2, 5.6, 3.8 and 3.9 percent respectively. Water trucking by the county government and partners was done in some parts of Oldonyiro which had experience acute water shortage due to depressed rainfall. 19.9% of households using unsafe water treated their drinking water mainly through boiling and use of chemicals. The average household distance to water source reduced compared to 2015 as shown in figure 9.

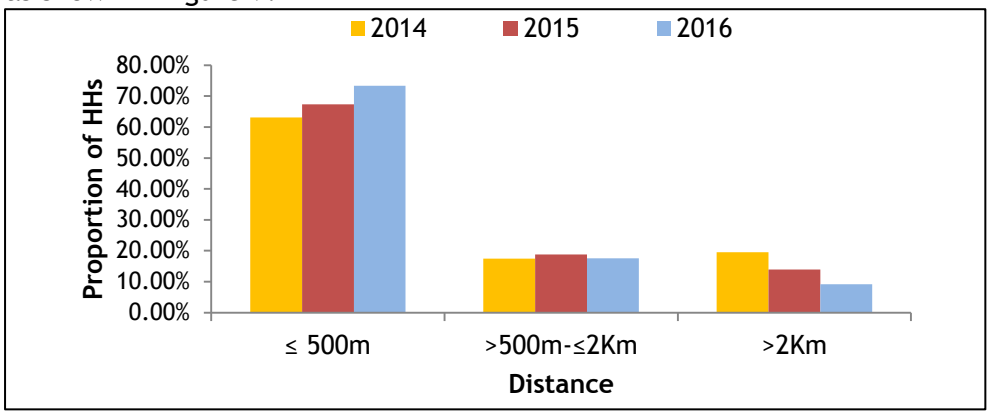

Figure 9: Trend in distance to water source

Per capita water consumption revealed that majority of the households (93.6%) consumed more than 20litres per day. Other consumed between 15 and 20 Litres (7.6%) while the least consumed than 15litres (0.8%). Isiolo Sub-county was the most water deficit sub-county with 89.1% consuming over 201itres per day. Households in Garbatula and Merti water consumption above 20Litres per day were 100 and 91.7 percent respectively. The NDMA bulletin showed that areas in Oldonyiro had received depressed rainfall prior to the enhanced rainfall.

3.7.3 Hygiene Practices

Optimal hygiene practices such as proper storage of water and handwashing reduce the risk of food and water borne diseases through contamination. The consequences for children are severe, as high occurrences of diarrhoea, skin disease, respiratory illnesses such as pneumonia, intestinal and other waterborne and excreta-related diseases cast a shadow over child health and in many cases, result in death[18]. 87.9% of the household stored their water in closed containers while the rest (12.1%) stored in open containers. 91.4% of the caregivers were aware of handwashing practices and washed their hand in

[17] Isiolo County Short Rains Report, February 2016
[18] water , sanitation and hygiene, UNICEF Cambodia

various critical times as shown in figure 10. Only 12.5% of households washed their hands in all the four critical times with 52.8% using soap when washing their hands. The proportion of households who washed their hands after visiting the toilet and before eating remained the same, while the proportion of those who washed their hands before handling food and after taking the child to the toilet reduced. The reduction was attributed to a possibility of little emphasis on the two critical areas.

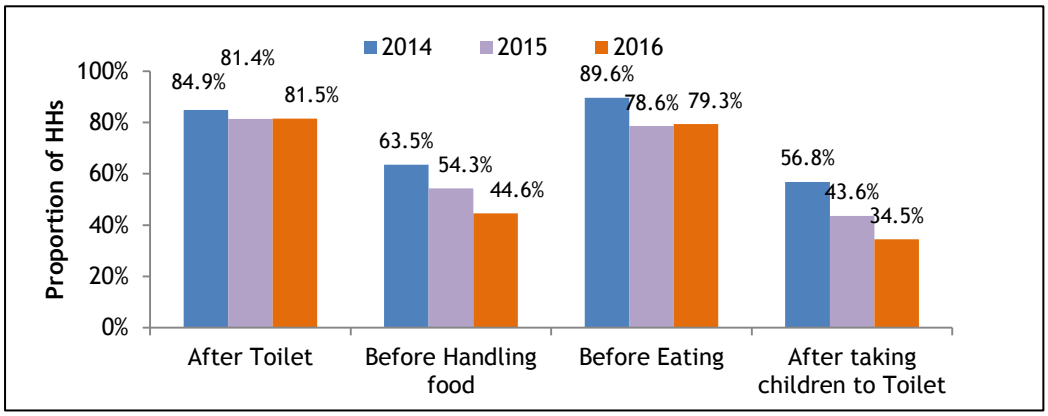

Figure 10: Critical Hand washing Times

3.7.3 Sanitation Practices

Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater. Poor sanitation is one of the leading causes of child illnesses such as respiratory infections and diarrhea and improving sanitation is known to have a significant beneficial impact on health of the community. Open defecation was at 32.1%, a slight decline from 35% in 2015 as highlighted in table 15. The decline could be attributed to continued public health promotion by the department of public health in collaboration with a number of partners supporting water, sanitation and hygiene promotion in the county such as CCM, Caritas Isiolo and World Vision Kenya.

Table 15: Point of human waste disposal

Point of human waste disposal	SMART survey 2015	SMART survey 2016
Open defecation	35%	32.1%
Share latrine	29%	34.7%
Own latrine	35.80%	33.3%

3.8 Food Security and Livelihoods

3.8.1 Food security Information

The February Short Rains Assessment (SRA) results categorizes the county Integrated Phase Classification (IPC) phase 2 which is an improvement compared to August where some parts of the county were classified under IPC Phase 3.The main factor affecting the food security is the cumulative effect of previous poor rainfall performances. Other factors affecting food security are low terms of trade (ToT) and deteriorating pastures. Resource based conflicts occurring within the county and with neighboring counties are restricting movements of livestock and as a result affecting access to pasture especially in Kinna division. There was also limited access to markets which affected household's access to food commodities. The prevalence of households with poor and borderline food consumption provides essential information on people's current diets and is helpful in

deciding the most appropriate type and scale of food security intervention as well as the right target group for the assistance[19].

3.8.2 Household dietary diversity

Household dietary diversity was assessed based on 24 hours recall. Majority of households had poor dietary diversity with high consumption of low nutrient dense foods. The least consumed food includes fish, organ meat, eggs and fruits as shown in figure 11. Factors hindering consumption include: cultural barriers/food taboos that limit consumption of certain foods, limited purchasing power and unavailability in the market.

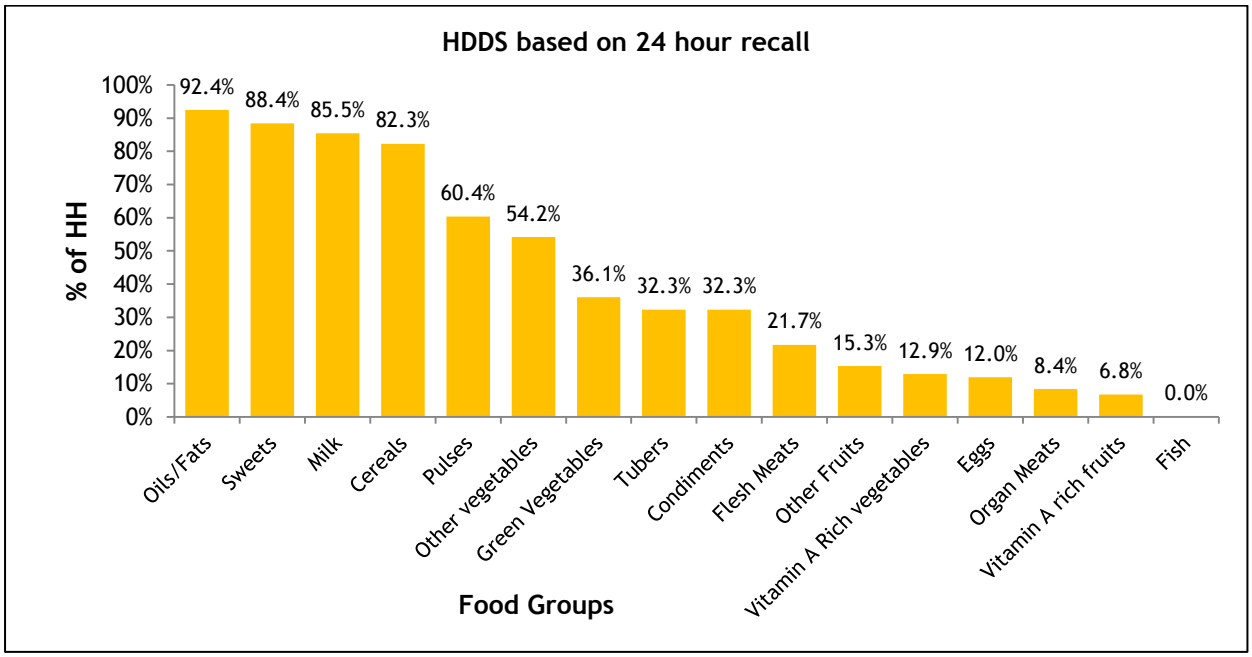

Figure 11: Household dietary diversity based on 24 hours recall

Further analysis was done for dietary diversity tercile based on 24 hours recall. This showed that majority of households (61.4%) were in high dietary diversity tercile as shown in table 16. Milk was consumed by household in all terciles due to increased production attributed to enhanced rainfall that improved the conditions of pasture and browse and water availability.

Table 16: Food groups consumed by >50% of households by dietary diversity tercile (24 hour recall)

Lowest dietary diversity (=< 3 food groups) 9.6%	Medium dietary diversity (4 and 5 food groups) 29.1%	High dietary diversity (=> 6 food groups) 61.4%
Milk	Cereals	Cereals
Sweets	Milk	Green leafy vegetables
	Fats/oils	Other vegetables
	Sweets	Pulses
		Milk
		Oils/fats
		Sweets

[19] Food Consumption Score Nutritional Analysis (FCS-N) Guidelines, August 2015

Vitamin A rich food were least consumed as shown in figure12 with average consumption of 1.2 days per week. Iron rich foods were consumed on average of 4 days per week.

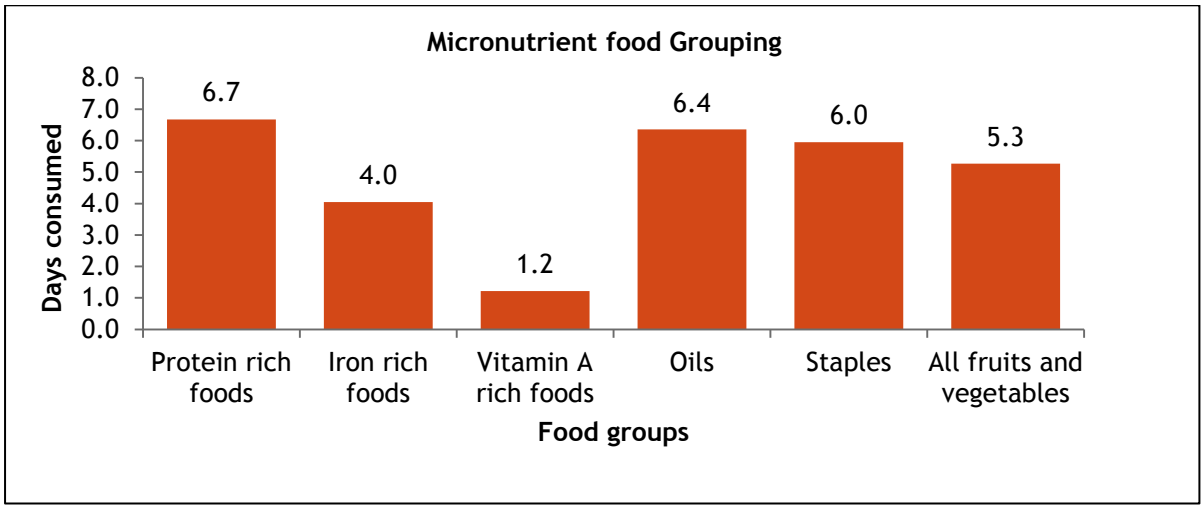

Figure 12: Micronutrient food grouping

3.8.4 Food Consumption Score

Food consumption score (FCS) is a proxy indicator of household food security based on consumption of a particular food and its relative nutrition importance. The FCS was based on 7 days recall and revealed that 90.2% and 2.0% of the households were within good and poor consumption score respectively as shown in table 18. This was an improvement compared to February 2015 and could be attributed to enhanced October to December short rains.

Table 17: Food Consumption Score

Main Threshold	Nomenclature	2014 Findings	2015 Findings N=504
0-21	Poor food consumption score	**2.0%**	(n=21) **4.4%**
21.5-35	Borderline food consumption score	**7.8%**	(n=29) **5.8%**
>35.5	Good food consumption score	**90.2%**	(n=453) **89.8%**

3.8.5 Coping Strategy Index

The coping strategy index assesses how a household copes in times of food shortage or lack of food. Household were assessed based on five strategies which were then weighted based on their severity. 33.3% of all household assessed (N=502) reported to have taken one or more of the coping strategy. Compared to 2015, there was improvement on the score for the most severe strategies and the overall weighted score as shown in table 18.

Table 18: Coping Strategy Index

Coping strategy	% of HH (N=502)	Frequency score (0-7)	Severity score (1-3)	2016 *weighted score*	2015 *weighted score*
Rely on less preferred & less expensive food	28.8% (n=145)	2.37	1	**2.37**	**2.63**
Borrow food	25.6% (n=129)	2.04	2	**4.08**	**5.1**
Limit portion sizes	30% (n=151)	2.41	1	**2.41**	**2.44**

Restrict consumption of food by adults for young children to eat	25.6% (n=129)	1.85	3	**5.55**	**7.59**
Reduced number of meals	29.8% (n=150)	2.44	1	**2.44**	**2.47**
Total weighted coping strategy score				**16.85**	**20.23**

4.0 CONCLUSION

The prevalence of acute malnutrition in Isiolo County is still at a serious level based on WHO classification. GAM prevalence stands at 12.3% (9.6-15.8 95% CI) while SAM prevalence stands at 1.2% (0.4- 3.4 95% CI). Areas with high malnutrition that needs close monitoring includes Longaman, Manyatta Malle, and Darajani (Isiolo Sub County), Goda 'B', Kula, Badana and Manyatta Duba (Merti Sub County). Compared to 2015 GAM prevalence of 13.2 % (10.8-16.0 95% C.I) and SAM prevalence of 1.7 % (1.0 - 3.0 95% C.I), there was an observed decline though not statistically significant with p value at 0.647 and 0.542 respectively. The serious level of acute malnutrition can be attributed to;

- High incidences of child illness with 44.9% of children reported to be ill 2 weeks prior to the survey
- Immunization that enhances child immunity still low with only BCG coverage (92.1%) reaching the national target of 80%. Supplementation of vitamin A though improved compared to 2015 is still below the national target of 80%.
- The poor maternal health and nutrition status with 6.3% and 8.5% of pregnant and lactating women and of women within the reproductive age being malnourished respectively.
- Poor hygiene with only 12.5% of the caregivers washing their hands in all four critical times (before cooking, before eating, after toilet and after taking the child to the toilet/changing the child's nappies).
- Poor sanitation with 32.1% of the household still practicing open defecation
- Poor dietary diversity with many household consuming less of the most nutrient dense food.
- Household food insecurity with 33.2% of the household practicing one or more of the coping strategy.

5.0 RECOMMENDATIONS

The recommendation were developed by the county nutrition technical forum (CNTF) and county steering group (CSG) involving government ministries and development partners. The recommendations were made after reviewing the previous survey recommendations for the implementation status, gaps and opportunities. Table 19 shows the recommendations developed in details

Table 19: Key recommendations developed

Findings	causes	Way forward	The how	Means of verification	Action by	By when
GAM 12.3%	Low coverage of outreach activities in hard to reach areas	Strengthen coordination among both nutrition specific and sensitive actors including Health, Water, Agriculture, education among others)	▪ MOH to be involved in Operations meetings with Action Aid and WFP when doing targeting for FFA and GFD ▪ County to develop clear communication channels for such meetings for targeting to include all partners ▪ Do mapping for all partners and high priority areas working in resilience programming and explore opportunities for linkages ▪ Linkage of IMAM beneficiaries to livelihood interventions projects implemented by various partners ▪ Identify partners who have support for outreaches and ensure that the outreaches are integrated ▪ Lobby for inclusion of Nutrition in the Beyond Zero committee.	Activity Minutes Updated 4W Matrix indicating Who What Where When Reports County Outreach Strategy document List of priority sites	The CNC to take lead with support from SCNOs and IPs County Director of health	30th March 2016
	Poor case finding due to weak community-facility linkage	Strengthen linkage with Tier1 (community level) and the health facilities	▪ Strengthen referral system at the health facility level and reporting by CHVs at the community level. ▪ Strengthen defaulter tracing mechanism with continuous follow up by the CHVs	Activity Reports	CNC Community Strategy focal persons CHEWs	June 2016
	Inadequate knowledge on the causes of malnutrition	Increase community awareness on Causes of Malnutrition and management through diverse channels to create demand	• Conduct community dialogues and action days • Scale up nutrition at the community and health facility • Adopt mother care group model for Social Behavior Change Communication	Activity reports	CNC Health facility in-charges	June 2016

Vitamin A coverage of 70.8%	Poor Vitamin A documentation hence missed opportunity for reporting	Strengthen Vitamin A documentation and reporting.	▪ Train Health care workers and CHWs on Vitamin A logistics ▪ Follow up of health workers and supplementation at the health facility level during OJT and JSS ▪ Support accurate beneficiary targeting, documentation and reporting	Activity Reports	CNC with support from the SCNOs and IPs	February 2016 Continuous
	Low Vitamin A uptake	Increase Vitamin A uptake at the community level through different avenues	▪ Sensitization of ECDE staff on Vitamin A supplementation. ▪ Institutionalize Vitamin A supplementation at the ECDE ▪ Support to door to door Vitamin A supplementation during calendar days i.e. Malezi Bora	Activity Reports	CNC with support from the SCNOs, Ministry of Education Director	April 2016 Continuous
Micro-nutrient powders (MNPs)	Low enrollment of children in MNP program	Increase enrollment into the program and utilization of MNPs	▪ Advocate for more MNP stock through KEMSA supply chain system ▪ Social Mobilization ▪ Barrier analysis on factors that hinders the uptake of MNPs and development to Social and Behaviour Change Communication to address the barriers	Activity Reports SMART Survey Reports	NSO, CNC with support from IPs	Continuous
Maternal Nutrition	Low uptake of IFAS	Increase uptake of IFAs for at least 90 days	▪ Train Health workers on IFAS ▪ Continuous community sensitization on IFAs during dialogues, health education sessions and MtMSG meetings.	Activity Reports	CNC with support from SCNOs and IPs	February 2016 Continuous
		Strengthen Behavior change and communication targeting maternal health and women workload	▪ Sensitize Community members on the importance of male involvement in MIYCN ▪ Sensitize mothers and community members on the importance of 4 ANC visits	Activity Reports	CNC with SCNOs advocacy focal person	Continuous
WASH Low latrine coverage (68.0%) Low rate of water treatment	Open defecation (32.1%)	Increase latrine coverage from 45% to 60%	▪ Promote adoption of behavior change strategies that promote latrine use ▪ Triggers Community Led Total Sanitation (CLTS)	Reports	County PHO and IPs	Dec 2017
	Low level of handwashing (12.5% in all critical times)	Improve handwashing to more than 40% in all the critical times by Dec 2017	▪ Promote hygiene practices through mothers forms (mother care groups and other women groups)	Reports	County PHO and IPs	Dec 2017
	Low rate of water	Strengthen water	▪ Health education to community members on	Activity reports	County Public	December

(19.9%)	treatment	treatment mechanisms at the community level through diverse avenues and promotion of safe drinking water	importance of safe water through barazas and MtMSG meetings ▪ Promote use of water treatment kits such as *chujios* and treatment agents such as *pur*, aqua tab etcthrough social marketing based approaches ▪ Target children as change agents in hygiene practices like hand washing in school		Health Officer and IPs	2016
Food security and livelihoods	Poor dietary diversity attributed to poor household food insecurity	Improve food security and reduce poverty through promotion of utilization of indigenous food Increase food production Linkage with actors in livelihood SBCC on consumption of locally available foods	▪ Train mothers support groups on preparation, preservations, value additions and utilization of underutilized foods (indigenous foods, fish etc.) ▪ Recipe development using locally available food and food preparation demos targeting mother care groups to promote dietary diversity ▪ Hold trainings and demos on appropriate technologies (home gardening's and rearing small livestock and small scale irrigation. ▪ Promote production of drought resistant crops ▪ Support to irrigation along the Ewaso Nyiro ▪ Promote production and utilization of tradition high value crops e.g. orange fleshed sweet potato, sorghum, cassava etc.	Reports	MOA/CNC/IPS/WVI/CARITAS	December 2016
	Inadequate linkage of the community with nutrition sensitive interventions attributed to poor partnership collaboration	Partnership collaboration linkages and networking amongst the various agencies Promote multi-sectoral approach in addressing undernutrition	▪ Holding management meetings with technical working group ▪ Holding stakeholder forums ▪ Holding field days and demonstrations	Reports Minutes For a proceedings and MOUs	MOA/CNC/IPS/WVI/CARITAS	

6.0 APPENDICES

6.1 Sampled Clusters

Table 20: List of Sampled clusters

Geographical unit	Population size	Cluster
Bulla Waso	832	1
Bulla Mbao	1013	2
Bulla kati	862	3
Kulamawe	7041	RC,4
Kampi Ya Juu	4166	5
Olla Jarole	1195	6
Taqwa	530	7
Olla Adhe	498	8
Mutunyi	360	9
Akadeli	330	10
Shambani	1087	11
Mwangaza/Kiwanjani 'B"	555	12
Tuluroba	5006	RC,13
Chechelesi 'B'	203	14
Ngaremara	586	15
Kisile	413	16
Chumvi Yale	442	17
Labarisherik	1036	18
Parkuruk	614	19
Longaman	316	20
Lemorijo	298	21
M.Malle	340	22
Muchuro North	223	23
Koropu/Town Center B	507	RC
Latta	237	24
Odha	630	25
Darajani	625	26
Taqwa	426	27
Harotu	545	28
Didimtu	304	29
Sericho North	583	30
Manyatta Mosque	442	31
Goda 'B'	414	32
Kula	139	33
Badana	540	34
Town 'A'	850	RC
Taqwa 2	900	35
Manyatta Duba	650	36

6.2 Age calculation chart

Table 21 Age Calculation Chart

Date	Child Month		Date	Child Month
Feb-11	59		Dec-13	25
Mar-11	58		Jan-14	24
Apr-11	57		Feb-14	23
May-11	56		Mar-14	22
Jun-11	55		Apr-14	21
Jul-11	54		May-14	20
Aug-11	53		Jun-14	19
Sep-11	52		Jul-14	18
Oct-11	51		Aug-14	17
Nov-11	50		Sep-14	16
Dec-11	49		Oct-14	15

Jan-12	48		Nov-14	14
Feb-12	47		Dec-14	13
Mar-12	46		Jan-15	12
Apr-12	45		Feb-15	11
May-12	44		Mar-15	10
Jun-12	43		Apr-15	9
Jul-12	42		May-15	8
Aug-12	41		Jun-15	7
Sep-12	40		Jul-15	6
Oct-12	39		Aug-15	5
Nov-12	38		Sep-15	4
Dec-12	37		Oct-15	3
Jan-13	36		Nov-15	2
Feb-13	35		Dec-15	1
Mar-13	34		Jan-16	0
Apr-13	33			
May-13	32			
Jun-13	31			
Jul-13	30			
Aug-13	29			
Sep-13	28			
Oct-13	27			
Nov-13	26			

6.3 Standardization Test Results

Table 22: Standardization test results

	subjects	result	R value	Bias
Weight				
Supervisor	10	TEM good	R value good	
Enumerator 1	10	TEM acceptable	R value good	Bias good
Enumerator 2	10	TEM acceptable	R value good	Bias good
Enumerator 3	10	TEM good	R value good	Bias good
Enumerator 4	10	TEM good	R value good	Bias good
Enumerator 5	10	TEM good	R value good	Bias good
Enumerator 6	10	TEM good	R value good	Bias good
Enumerator 7	10	TEM good	R value good	Bias good
Enumerator 8	10	TEM good	R value good	Bias good
Enumerator 9	10	TEM good	R value good	Bias good
Enumerator 10	10	TEM good	R value good	Bias good
Enumerator 11	10	TEM good	R value good	Bias good
Enumerator 12	10	TEM good	R value good	Bias acceptable
Enumerator 13	10	TEM good	R value good	Bias good
Enumerator 14	10	TEM good	R value good	Bias good
Enumerator 15	10	TEM good	R value good	Bias good
Enumerator 16	10	TEM good	R value good	Bias good
Enumerator 17	10	TEM good	R value good	Bias good
Enumerator 18	10	TEM good	R value good	Bias reject

Height				
Supervisor	10	TEM good	R value good	
Enumerator 1	10	TEM good	R value good	Bias poor
Enumerator 2	10	TEM good	R value good	Bias poor
Enumerator 3	10	TEM reject	R value reject	Bias good
Enumerator 4	10	TEM reject	R value reject	Bias good
Enumerator 5	10	TEM good	R value good	Bias poor
Enumerator 6	10	TEM good	R value good	Bias poor
Enumerator 7	10	TEM good	R value good	Bias acceptable
Enumerator 8	10	TEM good	R value good	Bias acceptable
Enumerator 9	10	TEM good	R value good	Bias poor
Enumerator 10	10	TEM good	R value good	Bias poor
Enumerator 11	10	TEM good	R value good	Bias poor
Enumerator 12	10	TEM good	R value good	Bias poor
Enumerator 13	10	TEM good	R value good	Bias acceptable
Enumerator 14	10	TEM good	R value good	Bias acceptable
Enumerator 15	10	TEM good	R value good	Bias acceptable
Enumerator 16	10	TEM good	R value good	Bias acceptable
Enumerator 17	10	TEM good	R value good	Bias reject
Enumerator 18	10	TEM good	R value good	Bias reject
MUAC				
Supervisor	10	TEM good	R value good	
Enumerator 1	10	TEM reject	R value reject	Bias good
Enumerator 2	10	TEM reject	R value reject	Bias good
Enumerator 3	10	TEM good	R value good	Bias acceptable
Enumerator 4	10	TEM good	R value good	Bias acceptable
Enumerator 5	10	TEM reject	R value acceptable	Bias poor
Enumerator 6	10	TEM reject	R value acceptable	Bias poor
Enumerator 7	10	TEM reject	R value acceptable	Bias good
Enumerator 8	10	TEM good	R value good	Bias acceptable
Enumerator 9	10	TEM reject	R value poor	Bias good
Enumerator 10	10	TEM reject	R value reject	Bias good
Enumerator 11	10	TEM poor	R value acceptable	Bias acceptable
Enumerator 12	10	TEM good	R value acceptable	Bias good
Enumerator 13	10	TEM good	R value good	Bias poor
Enumerator 14	10	TEM good	R value good	Bias reject
Enumerator 15	10	TEM good	R value good	Bias good
Enumerator 16	10	TEM good	R value good	Bias good
Enumerator 17	10	TEM good	R value good	Bias good
Enumerator 18	10	TEM good	R value acceptable	Bias good

6.4 Survey Quality

Table 23: Overall survey quality

Criteria	Score	Interpretation
Missing/flagged data	0.00% **(0)**	Excellent
Overall sex ratio	P=0.151 **(0)**	Excellent
Overall age distribution	P=0.07 **(2)**	Excellent
Digit Preference weight	3 **(0)**	Excellent
Digit preference height	8 **(2)**	Good
Digit preference MUAC	4 **(0)**	Excellent
Standard deviation WHZ	0.95 **(0)**	Excellent
Skewness WHZ	0.07 **(0)**	Excellent
Kurtosis WHZ	-0.30 **(1)**	Good
Poisson distribution WHZ	P=0.305 **(0)**	Excellent
Overall score WHZ	**5%**	Excellent

6.5 Smart Survey Questionnaire

1.IDENTIFICATION **1.1 Data Collector_____ 1.2 Team Leader_____ 1.3 Survey date (dd/mm/yy)----------**								
1.4 County	1.5 Sub-county Sub-county	1.6 Division	1.7 Location	1.8Sub-Location	1.9 Village	1.10 Cluster No	1.11 HH No	1.12 Team No.

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)** YRS	MTH	**Childs age verified by** 1=Health card 2=Birth certificate/ notification 3=Baptism card 4=Recall	**Sex** 1= Male 2= Female	**If 3 yrs and under 18 Is child enrolled in school?** 1 = Yes 2 = No (If yes go to 2.8; If no go to 2.7)	**Main Reason for not attending School (Enter one code from list)** 1=chronic Sickness 2=Weather (rain, floods, storms) 3=Family laborresponsibilities 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	**What is the highest level of education attained?(level completed) From 5yrs and above** 1 = pre primary 2= Primary 3=Secondary 4=Tertiary 5= None 6=others(specify)	**If the household owns mosquito net/s, who slept under the mosquito net last night? (***Probe- enter all responses mentioned (Use 1 if "Yes" 2 if "No and 3 if not applicable)*

							12=Married 13=others (specify)…….….		
< 5 YRS	1								
	2								
	3								
	4								
>5 TO 18 YRS	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
ADULT	13**(HH)**								
	14)								
	15								
	16								

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

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. 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*

3.1 CHILD ANTHROPOMETRY

*(**Please** fill in **ALL REQUIRED** details below. Kindly maintain the same child number as part 2)*

A Child No.	B	C	D	E	F	G	H	I	J	K	L	3.2	3.3
	what is the relationship of the respondent with the child/children 1=Mother2=Father 3=Sibling 4=Grandmother 5=Other (specify)	SEX F/m	Exact Birth Date	Age in months	Weight (KG) XX.X	Height (CM) XX.X	Edema Y= Yes N= No	MUAC (cm) XX.X	Has your child (NAME) been ill in the past two weeks? <u>If No, please skip part K and proceed to 3.4)</u> 1.Yes 2. No	If YES, what type of illness (multiple responses possible) 1 = Fever with chills like malaria 2 = ARI /Cough 3 = Watery diarrhoea 4 = Bloody diarrhoea 5 = Other (specify) *See case definitions below*	If the child **<u>had watery diarrhoea</u>** in the last TWO (2) WEEKS, did the child get THERAPEUTIC zinc supplementation? *Show sample and probe further for this component check the remaining drugs(confirm from mother child booklet)* 1 = Yes 2 = No 3 = Do not know	**When the child was sick did you seek assistance?** 1.Yes 2. No	**If the response is yes to question # 3.2 where did you seek assistance? (More than one response possible-** 1. Traditional healer 2.Community health worker 3. Private clinic/ pharmacy 4. Shop/kiosk 5. Public clinic 6. Mobile clinic 7. Relative or friend 8. Local herbs 9.NGO/FBO
01													

3.4 Kindly maintain the same child number as part 2and 3.1 above

	A	B	C	D	E	F	G	H	I

Child No.	How many times has child received Vitamin A in the past year? (show sample)	How many times did you receive vitamin A capsules from the facility or out reach	If Vitamin A received how many times verified by **Card?**	How many times has child received drugs for worms in the past year?**(12-59 Months)** *(show Sample)*	Has the child received BCG vaccination? **1 = scar** **2=No scar**	Has child received OPV1 vaccination **1=Yes, Card** **2=Yes, Recall** **3 = No** **4 = Do not know**	Has child received OPV3 vaccination? **1=Yes, Card** **2=Yes, Recall** **3 = No** **4 = Do not know**	Has child received measles vaccination at 9 months *(On the upper right shoulder)?* **1=Yes, Card** **2=Yes, Recall** **3 = No** **4 = Do not know**	Has child received the second measles vaccination (18 to 59 months) *(On the upper right shoulder)?* **1=Yes, Card** **2=Yes, Recall** **3 = No** **4 = Do not know**
01									
02									
03									
04									

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

3.5	**3.6**	**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**	During the pregnancy of the (name of child below 24 months) did you take iron pills, sprinkles with iron, iron syrup or iron-folate tablets? (name that appears in HH register) **1. Yes** **2. No** **3. Don't know** 4. **N/A**	If Yes, for how many days? (approximate the number of days)

	4.0 WATER, SANITATION AND HYGIENE (WaSH)/- *Please ask the respondent and indicate the appropriate number in the space provided*		
4.1	**What is the MAIN source of drinking water for the household <u>NOW</u>?** 1. Piped water system/ borehole/ protected spring/protected shallow wells 2. Unprotected shallow well 3. River/spring 4. Earth pan/dam 5. Earth pan/dam with infiltration well|____| 6. Water trucking /Water vendor 7. Other *(Please specify)*	**4.2 What is the trekking distance to the current main water source?** 1=less than 500m (Less than 15 minutes) 2=more than 500m to less than 2km (15 to 1 hour) 3=more than 2 km (1 – 2 hrs) 4=Other(specify) |____|	
4.2.2 a	**Do you queue for water?** 1. Yes 2. No **(If No skip to question 4.3)**|____|	**4.2.2b. If yes how long?** 1. Less than 30 minutes 2. 30-60 minutes 3. More than 1 hour	|____|
4.3a	**Is anything done to your water before drinking *(Use 1 if YES and 2 if NO)*. if No skip to 4.4** |____|	**4.3b If yes what do you do? (*MULTIPLE RESPONSES POSSIBLE) (Use 1 if YES and 2 if NO)*.** 1. Boiling…… ……|____| 2. Chemicals (*Chlorine,Pur,Waterguard*)…… |____| 3. Traditional herb……..|____| 4. Pot filters…… .|____| **5.** Other (specify_____)…… ….|____|	
4.4	**Where do you store water for drinking?** 1. Open container / Jerri can 2. Closed container / Jerri can|____|	**4.5 How much water did your household use YESTERDAY (excluding for animals)?** *(Ask the question in the number of 20 liter Jerri can and convert to liters & write down the total quantity used in liters)*	**|____|**
4.6	**Do you pay for water?** 1. Yes 2. No **(If No skip to Question 4.7.1)**|____|	**4.6.1 If yes, how much per 20 liters jerrican_____ KSh/20ltrs**	**4.6.2 If paid per month how much** |____|
4.7.1	**Yesterday (within last 24 hours)at what instances did you wash your hands? (MULTIPLE RESPONSE-** (Use 1 if "Yes" and 2 if "No") 1. After toilet…… 2. Before cooking…….. 3. Before eating……. 4. After taking children to the toilet……		|____| |____| |____|

	5. Others…… …….	
4.7.2	**If the caregiver washes her hands, then probe further; what did you use to wash your hands?** 1. Only water 2. Soap and water 3. Soap when I can afford it 4. traditional herb 5. Any other specify |____|	**4.8 Where do members of your household Mainly relieve themselves?** 1. In the bushes, open defecation 2. Neighbor or shared traditional pit/improved latrine |____| 3. Own traditional pit/improved latrine 4. Others Specify

5.0: Food frequency and Household Dietary Diversity

	Did members of your household consume any food from these food groups in the last *7 days?(food must have been cooked/served at the household)* ***1=Yes*** ***0=No***	**If *yes*, mark days the food was consumed in the last 7 days?** **yes=1; no=2**								What was the **main** source of the dominant food item consumed in the HHD? **1.Own production** **2.Purchase** **3.Gifts from friends/families** **4.Food aid** **5.Traded or Bartered** **6.Borrowed** **7.Gathering/wild fruits** **8.Other (specify)**
Type of food*		**D1**	***D 2***	**D 3**	**D 4**	**D 5**	**D 6**	**D 7**	**TOTAL**	
5.1. Cereals and cereal products *(e.g. sorghum, maize, spaghetti, pasta, anjera, bread*)?										
5.2. Vitamin A rich vegetables and tubers: Pumpkins, carrots, orange sweet potatoes										
5.3. White tubers and roots: White potatoes, white yams, cassava, or foods made from roots										
5.4 Dark green leafy vegetables: Dark green leafy vegetables, including wild ones + locally available vitamin A rich leaves such as cassava leaves etc.										
5.5 Other vegetables *(e.g., tomatoes,*										

egg plant, onions)?										
5.6. Vitamin A rich fruits: + other locally available vitamin A rich fruits										
5.7 Other fruits										
5.8 Organ meat (iron rich): Liver, kidney, heart or other organ meats or blood based foods										
5.9. Flesh meats and offals: Meat, poultry, offal *(e.g. goat/camel meat, beef; chicken/poultry)?*										
5.10 Eggs?										
5.11 Fish: Fresh or dries fish or shellfish										
5.12 Pulses/legumes, nuts *(e.g. beans, lentils, green grams, cowpeas)*?										
5.13 Milk and milk products *(e.g. goat/camel/ fermented milk, milk powder)?*										
5.14 Oils/fats *(e.g. cooking fat or oil, butter, ghee, margarine)?*										
5.15 Sweets: Sugar, honey, sweetened soda or sugary foods such as chocolates, sweets or candies										
5.16 Condiments, spices and beverages:										

6. COPING STRATEGIES INDEX		
		Frequency score: Number of days out of the past seven (0 -7).
	In the past 7 DAYS, have there been times when you did not have enough food or money to buy food? If No; END THE INTERVIEW AND THANK THE RESPONDENT **If YES, how often has your household had to:** *(INDICATE THE SCORE IN THE SPACE PROVIDED)*	
1	Rely on less preferred and less expensive foods?	
2	Borrow food, or rely on help from a friend or relative?	
3	Limit portion size at mealtimes?	
4	Restrict consumption by adults in order for small children to eat?	
5	Reduce number of meals eaten in a day?	
	TOTAL HOUSEHOLD SCORE: **END THE INTERVIEW AND THANK THE RESPONDENT**	