GARISSA COUNTY MIYCN KAP SURVEY REPORT

March 2016

ACKNOWLEGEMENT

Garissa County MIYCN Knowledge Attitude and Practice survey was made successful through the contribution of a number of partners. The survey was led by the County Department of Health.

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LIST OF ABBREVIATIONS

ANC	Ante natal Care
BFCI	Baby Friendly Community Initiative
CHVs	Community Health Volunteers
CNAP	County Nutrition Action Plan
DoN	Division of Nutrition
EBF	Exclusive breastfeeding
ECDE	Early Childhood Development Education
FeFo	Iron and Folic acid
FGD	Focus Group Discussion
IFAS	Iron Folic Acid Supplements/Supplementation
IMC	International Medical Corps
IYCF	Infant and young child feeding
KAP	Knowledge Attitudes and Practices
KDHS	Kenya Demographic and Health Survey
KII	Key informant Interviews
MAD	Minimum Acceptable Diet
MDD	Minimum Dietary Diversity
MIYCN	Maternal Infant and Child Nutrition
MMF	Minimum Meal Frequency
MN	Micronutrients
MNPs	Micronutrients Powders
MoH	Ministry of Health
MUAC	Mid Upper Arm Circumference
sIgA	Secretory Immunoglobulin A

SPSS	Statistical Package for Social Sciences
TBA	Traditional Birth Attendant
UNICEF	United Nation Children Fund
WASH	Water Hygiene and Sanitation
WDD	Women Dietary Diversity
WHO	World Health Organization
WRA	Women of reproductive age

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EXECUTIVE SUMMARY

Garissa County government in collaboration with International Medical Corps (IMC) supported by the United Nation Children Fund (UNICEF) and the European Union (EU) carried out a Maternal Infant and Young Child (MIYCN) KAP survey in Garissa County in March 2016. The survey provides a picture of the performance of key MIYCN indicators in the County. The survey was carried out in all 7 sub counties of Garissa. Garissa County is located in North Eastern region of Kenya and Covers an area of 44, 175.5 km square. Garissa County has a population of 817, 696 people amongst them 107, 625 are children under the age of five years.

The surveys provide a baseline data on Maternal Infant and Young Child Nutrition (MIYCN) indicators and in-depth understanding of the factors that are contributing to the existing situation. The baseline will also form a basis in which future MIYCN indicators will be measured. The results of this study will also be used in development of social behavior and communication strategy whose aim is to improve community's knowledge, attitude and behavior towards infant and young child feeding. The main objective of the study was to assess knowledge attitudes and practices among caregivers and communities in Garissa County.

The survey was a cross-sectional study that applied both quantitative and qualitative approaches. The study population included all the children less than 24 months and women of reproductive age (15 to 49 years) in Garissa County. Two stage cluster sampling was used for sampling villages and households during the survey. Villages were used as clusters during the 1st stage sampling. During this stage, clusters were selected randomly based on Proportion to population size principle. All 7[1] key IYCF indicators were used for sample size calculation as guided by 2010 CARE IYCN assessment guidelines. A minimum sample size of **820** children (less than 24 months) was required. A total of 48 clusters were sampled. In each of the sampled cluster 18 households were sampled translating to 864 children. Simple random sampling was used to sample households in the second stage sampling. All households with children under 2 were used as sampling frame in the second stage sampling. With assistance from the village elders, every household with a child under 2 years was listed to come up with a sampling frame.

Qualitative data was collected using key informant interviews and Focus group discussions. A total of 12 focus group discussions were successfully completed. Each FGD composed of 10 to 15 participants. Key information was obtained from people with nutrition and health knowledge such as the County nutritionist, health workers, county and sub county nursing officer, nutrition program officers and health facility staff. Key informants were purposively selected. A total of 6 key informant interviews were done. Data collection was done by 8 teams for 6 days. A separate team was tasked to do focus group discussions. Each team consisted of a team leader and 2 members. Data collection took place in all the sampled villages and selected key informants for 6 days (including the FGDs). Data entry was done co-currently with data collection. This was done by a team of 4 data entry clerks. Data was entered and analyzed using SPSS version 20. IYCN indicators were analyzed based on WHO 2010 protocols. Table 1 below summarizes the key survey findings

[1] 2 indicators were removed due to small range of population

Table 1: Summary of Findings

Indicator	Results		
	n	N	Percentage
Early Initiation of Breastfeeding			
Children Ever breastfed	805	842	95.6
Children breastfed within 1 hour after birth	476	799	59.6
Knowledge on Early initiation of breastfeeding	602	836	72.0
Attitude on Early initiation of breastfeeding	734	842	87.2
Introduction to Pre lacteals			
Children given pre lacteals (within the first 3 days	258	842	30.6
Knowledge on giving Pre lacteals (Should a baby be given anything to drink or eat in the first 3 days after birth?)	Yes (223)	842	26.5
	No (616)	842	72.3
Feeding a child on colostrum			
Children fed on colostrum	723	842	85.9
Exclusive Breastfeeding and Continued breastfeeding			
Children currently breastfed	669	842	79.5
Children 0 to 5 m exclusively breastfed	119	274	43.4
Children 0 to 23 months breastfed on demand	574	842	68.2
Continued breastfeeding to 1 year (12-15m)	105	143	73.4
Continued breastfeeding to 2 years (20 to 23 m)	29	94	30.9
Knowledge on EBF (Caregivers who know a child should be exclusively breastfed for 6 months)	570	842	67.7
Attitude on EBF (Caregivers who believes that a child should be exclusively breastfed for 6 months)	631	842	74.9
Introduction to solid, semisolid and soft foods			
Children 6 to 8 months introduced to solid, semisolid and soft foods	36	112	32.1
Knowledge on introduction to solid, semisolid and soft foods (Care givers who knows a child should be introduce to solid, semisolid and soft foods in between 6 to 8 months)	508	842	60.3
Bottle-feeding			
Children fed using a container	612	842	72.4
Bottle fed children	315	842	37.3
IYCN Support			
Caregivers provided with information on how to feed their children	403	842	47.9
Main sources of information on IYCN	Mothers/Mother in law (262)	403	65.0

	Health worker (82)	403	20.3
Child Dietary intake			
Minimum Dietary Diversity	130	568	22.9
Minimum Meal Frequency	160	568	28.2
Minimum Acceptable Diet	42	568	7.4
Consumption of iron rich/iron fortified foods	186	568	32.4
Micronutrients Supplementation			
Children 6 to 23 months who received MNPs in the past 6 months	52	568	9.2
Main source among children who received MNPs in the past 6 months	Health facilities (43)	52	82.7
Ante-natal Care (During previous pregnancy)			
Women who attended ANC clinic during their previous pregnancy	604	842	71.7
Women who attended ANC clinics during the 1st trimester	136	604	23.2
Women who attended at least 4 ANC clinics	254	604	43.4
Women who received information on IFAS	636	842	75.5
Women supplemented with combined iron and folic acid tablets	400	842	47.5
Women who consumed at least 90 tablets of combined iron and folic acid during their previous pregnancy	5	842	0.6
Women who consumed 270 tablets of combined iron and folic acid during their previous pregnancy	0	842	0
Women who delivered under the care of skilled birth attendant during their previous delivery	389	835	46.6
Maternal Nutrition			
Average number of food groups consumed by WRA			3.9[2]
• Pregnant and lactating women with MUAC below 21cm	• 17	• 716	• 2.2
Children aged 6 to 23 Nutrition status			
Severely malnourished children (MUAC< 11.5cm)	4	568	0.8
Moderately malnourished children (MUAC ≥ 11.5 cm and < 12.5 cm	19	568	3.7

[2] Not percentage but absolute number

The results of the survey revealed the following key gaps

- Low EBF rates
- High bottle-feeding rates
- Low iron folic acid Consumption among pregnant women
- Low minimum acceptable diets
- High numbers of Home deliveries
- Low MNP intake
- Lack of adequate education and support to the caregivers
- Little knowledge in MNP administration

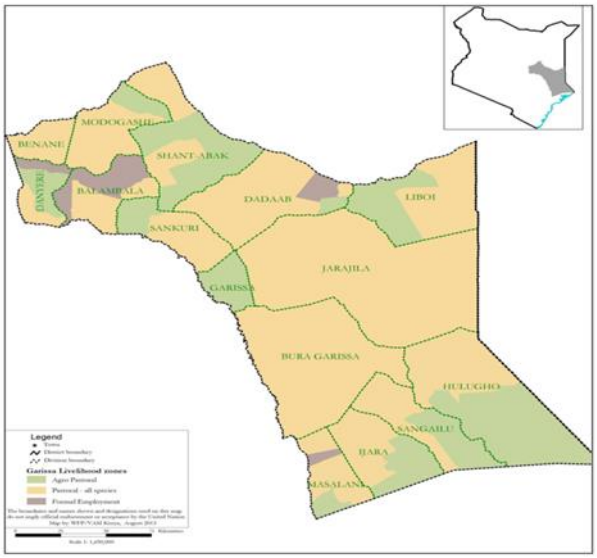
To address the identified gaps; the following actions were recommended.

- Develop and implement MIYCN communication plan focusing on the key behaviours identified in the KAP survey
- Train health workers on IFAS and MIYCN operational guidelines
- Pilot implementation of Baby Friendly Community Initiative(BFCI) in at least 2 community Units linked to MNH centers of excellence in Garissa County
- Scale up Baby friendly Hospital Initiative(BFHI) at Garissa County Referral hospital
- Finalise and implement the draft complementary feeding action plan
- Train community health volunteers(CHVs) and Community health Assistants(CHAs) from all existing functional community units on nutrition module(with additional focus on IFAS, Vitamin A supplementation, complementary feeding and MNPs)
- Sensitize the County CHS stakeholders (potential facilitators) on community dialogue guidelines and conduct focused community dialogues on IFAS, Vitamin A and MIYCN.
- Print and disseminate MIYCN,IFAS and Vitamin A behavior Change communication materials
- Strengthen the linkage between nutrition specific and sensitive interventions and leverage on the opportunities provided by the ongoing interventions e.g. Integrating MIYCN messages in farmer/pastoral field schools, participating in USAID PREG(Partnership for Resilience and Economic Growth) coordination forums to ensure nutrition specific actions are included in the resilience efforts, Integration nutrition actions in schools especially ECDE.

1.0. INTRODUCTION

1.1. Background

Garissa County is located in the North Eastern region of Kenya and occupies an area of 44,175.5 km^2. The County bonders the Republic of Somalia to the East, Wajir County to the North, Isiolo and Tana River County to the west, Lamu and Tana River County to the South.



Garissa County is divided in to 4 livelihood zones namely pastoral (Majority), agro pastoral, casual/waged labor and formal employment. Further, Garissa County is divided in to 7 sub counties namely; Ijara, Lagdera, Garissa, Fafi, Balambala, Hulugho and Daadab.

Garissa County has a population of 817, 696 people[3]. According to KDHS 2014, the fertility rate in the County is 6.1%. The population of under-five in the County is 107, 625[4] translating to 16.4% of the total population. The prevalence of Global Acute Malnutrition (GAM) was **11.4%** indicative of a 'serious' nutritional situation based on the WHO standards[5].

Figure 1: Garissa County Map

The prevalence of Severe Acute Malnutrition (SAM) of **1.3 %** falling short of emergency levels[6] , while stunting and underweight was at 15.6% 13.1% respectively among the children 6-59 months[7]. Though County specific indicators were not presented, the KDHS (2014) North Eastern region report showed varied performance in terms of MIYCN indicators. Early initiation of breastfeeding was 80.8%, exclusive breastfeeding rate was 61.4%, while minimum acceptable diet was 2.7%. Despite these figures, an IYCF qualitative assessment report (2008) indicates that some mothers secretly give to their babies glucose and water citing reasons such as; mothers weakness after delivery as well as low or no production of breastmilk during the first 2-3 days after delivery. It is a traditional practice to introduce breastmilk on the third day after delivery. The assessment report also cites introduction of pre-lacteals, specifically animal milk as a symbol of father's wealth and as a way of introducing the child to pastoralism. Camel milk is perceived by the community to have therapeutic powers since camels eat medicinal herbs whose effects are transmitted to the milk and eventually to the baby.

Introduction to complementary foods is done as early as within one hour after birth where animal milk is introduced and continues to be given concurrently with breastmilk until up to 2 years or longer without any other foods. There is a common perception among the community living in this area that if

[3] 2009 Census
[4] DHIS estimates
[5] WHO cut off points for wasting using Z scores (<-2 Z scores in populations: <5% acceptable; 5-9% poor; 10-14% serious; >15% critical).
[6] Emergency Level SAM >4%
[7] KDHS2014

children are given solid food earlier than 1 year, their stomachs would, expand the child would become gluttonous and is also likely to develop diarrhea. (UNICEF , KCO, 2008).

1.2. Justification of KAP Survey

International Medical Corps is supporting MoH in implementation of Maternal and Child Nutrition Program in Garissa. Through this program, the county will be supported in development of behavior change and communication strategies that will improve communities' knowledge, altitude, practices and behaviors towards infant and young child feeding. This study therefore provides a baseline data on Maternal Infant and Young Child Nutrition (MIYCN) indicators as well as in-depth understanding of the factors that are contributing to the existing situation. This baseline survey forms a basis in which future MIYCN indicators will be measured.

1.3. Survey Objectives

The overall objective of the survey was to assess the knowledge attitudes, and Practices among caregivers and communities in Garissa County. Specifically the survey aims to;

- Assess the current MIYCN knowledge among the caregivers
- Find out the attitudes attached to the communities and caregivers related to infant and young child nutrition.
- To establish the baseline status for MIYCN indicators in Garissa County
- Assess the current infant and young child nutrition practices in Garissa County.
- Document cultural and traditional practices that enhances or undermines appropriate maternal infant and young children nutrition and health practices in Garissa County
- To determine and recommend effective channels for behavior change communications
- To recommend interventions based on the key gaps identified.

2.0. METHODOLOGY

2.1. Study Design:

Garissa County MIYCN Knowledge Attitude and Practices survey was a cross-sectional study that applied both quantitative and qualitative approaches.

2.2. Quantitative Sampling

2.2.1. Study Population

The study population included all the children less than 24 months in Garissa County. All villages in Garissa County that were accessible and secure were included in the sampling frame.

2.2.2. Sampling Methods and Sample size Calculation

Two stage cluster sampling was used for sampling villages and households during the survey. Villages were used as clusters during the 1st stage sampling. Clusters were the primary sampling Units. During this stage, clusters were selected randomly based on Proportion to population size principle. All 7[8] key IYCF indicators were used for sample size calculation as guided by 2010 CARE IYCN assessment guidelines.

Estimated prevalence for timely breastfeeding, Exclusive breastfeeding and minimum dietary diversity were obtained from Lagdera Sub County MIYCN and WASH KAP Survey 2014 while minimum meal frequency and minimum acceptable diet were estimated based on KDHS 2014 (North Eastern region). National rates (KDHS 2014) were used to estimate the prevalence of bottle feeding. For consumption of iron rich or iron fortified diet an estimated prevalence of 50% was used as there was no data. Precision of 8% and a design effect of 1.3% based on similarity of characteristics of clusters as well as a non-response rate of 5% were used in sample size calculation. Table 1 below shows the estimated sample sizes of all the indicators used. The largest sample size (consumption of iron rich or iron fortified foods) was multiplied by 4 (to cater for the 4 age groups within 0 to 23 months)[9]. A sample size of **820** children (less than 24 months) was obtained. Based on logistical factors, it is possible to administer 18 questionnaires in a day which translated to a minimum of 46 clusters. A total of 48 clusters were however sampled.

[8] 2 indicators were removed due to small range of population
[9] 0 to 5 months, 6 to 11 months, 12 to 17months and 18 to 23 months)

Table 2: Sample size calculation

Indicator	z	Z-Squared	P	q= 1-p	Desired Precision	Design Effect	No of Children	Non Response Rate	Sample Size
Timely initiation of breastfeeding (children 0-23 months)	1.96	3.84	42.3%	57.7%	8%	1.3	**190**	5%	**200**
Exclusive breastfeeding under 6 months	1.96	3.84	44.5%	55.5%	8%	1.3	**193**	5%	**202**
Minimum dietary diversity	1.96	3.84	22.2%	77.8%	8%	1.3	**135**	5%	**142**
Minimum meal frequency	1.96	3.84	26.1%	73.9%	8%	1.3	**151**	5%	**158**
Minimum acceptable diet	1.96	3.84	2.7%	97.6%	8%	1.3	**21**	5%	**22**
Consumption of iron-rich or iron-fortified foods	1.96	3.84	50%	50%	8%	1.3	**195**	5%	**205**
Bottle feeding	1.96	3.84	22%	78%	8%	1.3	**134**	5%	**141**
		Lagdera sub County KAP MIYCN and WASH				**Prevalence based on KDHS 2014**			

Simple random sampling was used to sample households in the second stage. All households with children under 2 were used as sampling frame at this. With assistance from the village elders, every household with a child under 2 years was listed to come up with a sampling frame. In every cluster (village), 18 households were selected.

2.3. Qualitative Information

Qualitative data was collected using key informant interviews and focus group discussions. A total of 12 focus group discussions were successfully completed. Each FGD composed of 10 to 15 participants. Key information was obtained from people with nutrition and health knowledge such as the County nutritionist, County health strategy head, Community health assistants, sub county nutrition officers, nutrition managers and health facility staff. Key informants were purposively selected. A total of 6 key informant interviews were done.

2.4. Survey Organization and Training of the Survey Teams

Data collection was done by 8 teams for 6 days. A separate team was tasked to do focus group discussions. Each team consisted of a team leader and 2 members. A community leader/guide was engaged in data collection exercise. All teams will be trained for 3 days at a central place. During the 4th day, a pretest was done in a cluster not sampled for data collection. During the pilot test, enumerators were required to undertake the entire process of the survey which will include households' selection and administration of the questionnaire. The training covered topics such as; survey objectives, IYCN basics, sampling procedures, data collection tools as well as interviewing skills.

The overall managers of the survey were the Garissa County deputy director of health and IMC Monitoring and Evaluation officer. Garissa county nutrition coordinator and IMC program manager for

Garissa County will assisted in coordination roles. All team leaders were the County government department of health staff. Other team members were drawn from Garissa County community. The village guide assisted in guiding the survey teams in locating the village boundaries as well as households with children under 2.

2.5. Data Collection

Data collection took place in all the sampled villages and selected key informants for 6 days (including the FGDs).

2.5.1. Data Collection Tools

A standard Kenya MIYCN, KAP questionnaire and qualitative data collection guide developed by Nutrition Information Technical Working Group was used for data collection. The following indicators were assessed;

- Timely initiation of breastfeeding (0 to 23 months)
- Exclusive breastfeeding (0 to 5 months)
- Continued breastfeeding at 1 year (12 to 15 months)
- Timely complementary feeding (6 to 8 months)
- Introduction to solid/semisolid/soft foods (6 to 8 months)
- Minimum dietary diversity (6 to 23 months)
- Minimum meal frequency (6 to 23 months)
- Minimum acceptable diets (6 to 23 months)
- Consumption of iron rich or iron fortified foods (6 to 23 months)
- Bottle feeding (0 to 23 months)
- Antenatal/ post-natal care practices
- Maternal nutrition status

2.6. Data Entry and Analysis

Data entry was done co- currently with data collection. This was done by a team of 4 data entry clerks under the supervision of the survey coordinator. Data was entered and analyzed using SPSS version 20. IYCN indicators will be analyzed based on WHO 2010 protocols.

2.7. Data Quality Control Measures

To ensure the data collected is valid and reliable for decision making; the following measures were put in place;

- Thorough training of survey teams to ensure that interviews are conducted in a standardized way.
- Thorough supervision of enumerators during data collection to ensure errors are corrected on time
- Review of data collection tools during training and after pilot test.
- Daily review of filled questionnaires and daily feedback to the survey teams based on issues noted
- Simultaneous data entry and collection to provide an early opportunity for feedback on data quality.

3.0. RESULTS

3.1. GENERAL CHARACTERISTICS OF STUDY POPULATION

The study involved collection of data from 842 children out of 864 sampled (97.5%). Among the children surveyed, 51.3% were male while 48.7% were female. For women of reproductive age, 878 women aged 15- 49 years participated in the assessment. Twenty two (2.5%) of household sampled did not participate as they were absent during the survey. Table 3 below shows the age group distribution of the sampled children. Table 4 shows the distribution of women of reproductive age based on their physiological status.

Table 3: Age distribution of sampled children

Age group	Number	Percentage of 0- 23 m
0- 23 Months	842	100
6 to 23 Months	568	67.5
0-5 Months	274	32.5
6-8 Months	112	13.3
12 to 15 Months	143	17
20- 23 Months	94	11.2
9 to 23 Months	456	54.2
Response Rate	97.5%	

Table 4: Women of reproductive age physiological status

Women Category	Number
Current Pregnant Women	130
Current lactating women	618
Pregnant and lactating women	13
Not Pregnant or lactating	117
Total Number of Women of reproductive age interviewed	**878**

3.1.1. Women Marital Status, Education Level and Occupation

Majority of women interviewed (88.8%) were married while 5.8% were living together (cohabiting) with no formalized marriage (cultural, civil or religious). The rest were single (2.7%), widowed (1.4%) or divorced (1.3%). In terms of Education levels, only 28.4% answered affirmatively when asked whether they attended school. Among those who had attended, 36.7% indicated that they had less than primary school as their highest education level while 42.2% were educated up to primary level as shown in figure 2 below. Majority of women interviewed were dependent (25.5%), 18.3% were housewives, 16.9 were

pastoralists while 16% were in formal employment. Analysis shows that majority of respondents have no source of sustainable incomes depends on their spouses for maintenance and had low education status.

Figure 2: Highest Education level attained

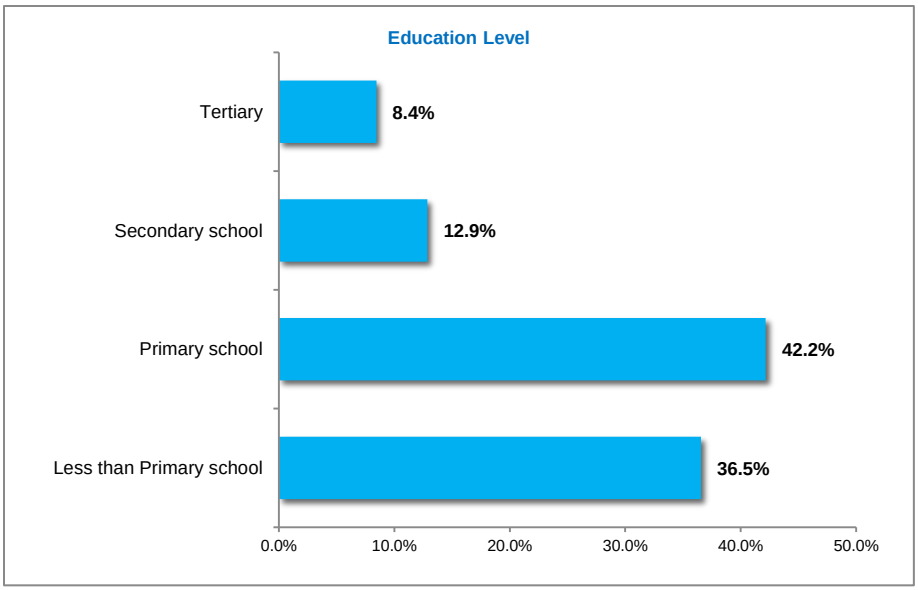


Table 5: Occupation of women of reproductive age

Occupation	n	Percentage
Dependent	221	25.5%
Housewife	159	18.3%
Pastoralist	147	16.9%
Formal Employment	139	16.0%
Own business	72	8.3%
Casual laborer	47	5.4%
Informal employment	41	4.7%
Farming	35	4.0%
Petty trading	7	0.8%

3.2. BREAST FEEDING

Breastfeeding confers both short term and long term benefits to the mother and the child including helping to protect children against a variety of acute and chronic disorders (WHO/UNICEF 2009). Infants who are not breastfed are 6 to 10 times likely to die in the first 6 months of life than infants who are breastfed. Diarrhea and pneumonia are the common and more severe in children who are artificially fed and are responsible for these deaths. Artificially fed children have increased risk of long term diseases with immunological basis including asthma and other atopic conditions, type 1 diabetes, celiac diseases, ulcerative colitis, and Crohn disease. Breast feeding is also known to reduce risks of

cardiovascular diseases, increased blood pressure, elevated cholesterol levels as well as athesclerosis later on in adulthood. It is also associated with higher intelligence levels.

The Kenya Policy guideline on MIYCN has adopted WHO recommendations on IYCN. It advocates for promotion, protection and support of exclusive breastfeeding for the first 6 months of life and continued breast feeding for 2 years and beyond. The policy guideline further recommends the introduction of breastfeeding within an hour after birth. The guideline advice mothers to desist from giving their newborn infants any foods or drinks other than breastmilk unless medically indicated.

Analysis on breastfeeding status indicated that 95.6% of children 0 to 23 months in Garissa County had ever been breastfed at one time in their lifetime. Among the breastfed children 59.6% were breastfed within 1 hour after birth as shown in table 6 below. Qualitative information reveals some of the reasons for late introduction of breast feeding. Mothers believe that breasts are not ready to produce breastmilk until the 2nd or the 3rd day. They also believe that after laborious task of giving birth, the mother need to rest for some time before breastfeeding. The community also perceives that the mother to be "very ill" to start breastfeeding within one hour. The community also thinks that milk produced in the first 3 days to be dirty and not good for the infant. Majority of the caregivers (87.2%) believe a child should be fed on breastmilk immediately after birth. Care givers also have knowledge on the timing of initiating breastfeeding as indicated in figure 3.

Table 6: Breastfeeding within 1 hour

	n	Percent
Child breastfed within 1 hour	476	59.6
1 to 24 hours	289	36.2
Above 48 hours	34	4.3
Total	**799**	**100**

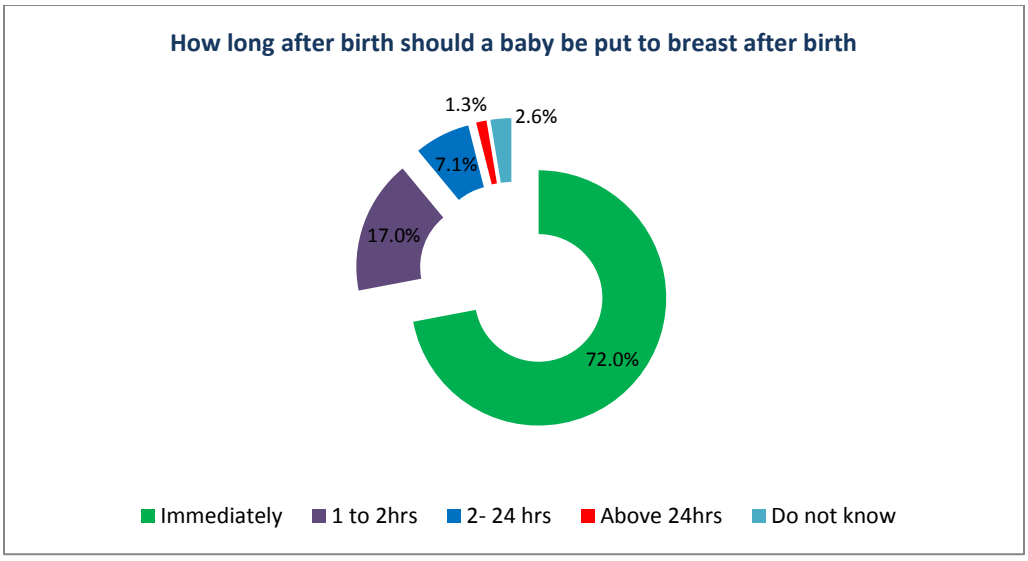


Figure 3: Knowledge on early initiation of breastfeeding

3.2.1. Introduction of Pre- Lacteals

A pre lacteal feed is any food given to a new born before initiating breastfeeding. Giving pre- lacteals is discouraged as it reduces the benefits of exclusive breast feeding. Analysis indicated that 30.7% of children were given pre- lacteals within the first 3 days after delivery. Plain water was the major pre lacteal introduced (71.7%) followed by milk (61.5%). Other pre lacteals given are as shown in table 7 below.

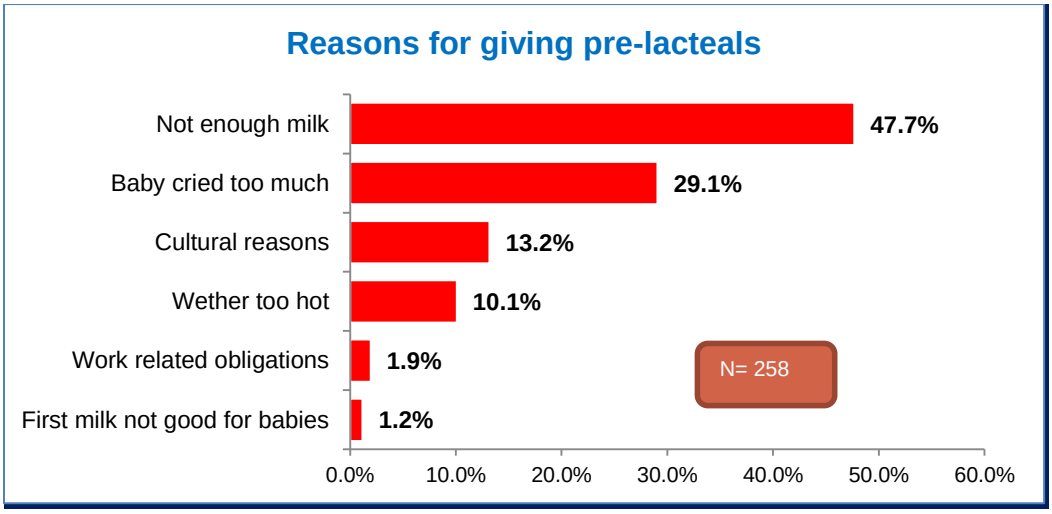
Table 7: Pre lacteals given

Pre-lacteal given	n	Percentage
Plain water	177	71.7%
Milks	152	61.5%
Sugar/glucose water	41	16.6%
Sugars solution	5	2.0%
Gripe water	4	1.6%
Fruit Juice	3	1.2%
Tea infusions	3	1.2%
Infant formula	2	0.8%
Honey	2	0.8%

Further the caregivers who gave pre lacteals were asked the reasons for doing so. Majority indicated that they did so due to the perception that they do not have enough milk (47.7%). Quite a number indicated that the baby cried too much (29.1%). Other reasons are as indicated in figure 4 below.

Key informants indicated that the community believes that animal milk has superior qualities in terms of animal productivity. They belief that when a newborn is fed on animal milk the number of animals will increase in number as well as their productivity. Animal milk is also believed to have therapeutic qualities. Water and is given to quench child's thirst while sugar is added at times to add more energy. They believe colostrum is not ideal to feed the baby for the first 3 days

Figure 4: Reasons for giving pre- lacteals



The knowledge on early initiation of breastfeeding is also high. Only 26.5% answered affirmatively while 73.2% indicated that nothing should be given when asked whether a newborn should be given anything to eat or drink within the first 3 days after delivery. Among those who gave an affirmative answer, 75.3% indicated plain water should be given while 52.9% said milk other than breastmilk. Other foods/drinks mentioned are as shown in table 8 below.

Table 8: Foods and drinks to be given

Foods/Drinks	n	%
Plain water	168	75.3%
Milks other than breast milk	118	52.9%
Sugar/Glucose	46	20.6%
Sugar/salt solution	8	3.6%
Gripe water	5	2.2%
Infant formula	3	1.3%
Fruit juice	2	0.9%
Animal fat/herbs	2	0.9%
Tea/infusions	1	0.4%

3.2.2. Feeding on Colostrum

Colostrum is the special milk that is secreted in the first 2 to 3 days after delivery. Though it is produced in small amounts in the first day, it is what the infant need at this time. Colostrum is rich in white cells and antibodies, especially sIgA. It also contains larger percentages of proteins, minerals and fat soluble vitamins (A,D, E and K) than later milk.

Due to vitamin A composition, colostrum offers body immunity to an infant upon exposure to microorganisms in the environment, and epidermal growth factor helps to prepare the gut to receive the nutrients in milk. It is important to feed the infant on colostrum but no other feeds at this time. Most infants in Garissa County (85.9%) were fed on colostrum in the first 3 days after birth. This is probably due to the benefits the mothers attribute to the colostrum. Majority (62.1%) indicated that colostrum is nutritious while 41.9% indicated that it prevents infections and diseases. However, 11.5% did not know any benefit of colostrum as indicated in table 9 below.

Table 9: Benefits of Colostrum

Benefits	n	Percentage
Nutritious to a baby	523	62.1%
Prevents diseases and infections	353	41.9%
Do not know	97	11.5%
Cleans baby's stomach	86	10.2%
Nothing specific	36	4.3%
Others	19	2.3%

3.2.3. Exclusive breastfeeding and Continued Breastfeeding

Exclusive breastfeeding entails feeding an infant with no food or drink (even water) other than breastmilk. Children who are exclusively breastfed are 8.6 times less likely to die than those who are partially breastfed. If exclusive breastfeeding technique is satisfactory, exclusive breastfeeding is able to meet the child energy and nutrient needs for the vast majority of infants. No other foods or fluids are needed even in hot climate (WHO 2010).

Garissa County target to reach the exclusive breastfeeding rates of 30 % according to the County Nutrition Action Plan (CNAP) 2016- 2018. Exclusive breast feeding was computed based on 24-hour recall i.e. children under 6 months who were fed on no other foods or fluids during the previous day. As indicated in table 9 below the County EBF rate is **43.4%.** The Kenya National Policy on MIYCN recommends breastfeeding to be done on demands. It further recommends breastfeeding to continue for at least 24 months. Analysis indicated that 68.2% of children were breastfed on demand. Continued breastfeeding up to 1 year was 74.3% while continued breastfeeding to 2 years was 30.9% (see table 10).

Table 10: Exclusive breastfeeding and continued breastfeeding

Indicator (Age Cohort)	N	n	Percentage
Exclusive breastfeeding (0 to 5 m)	274	119	43.4
Breastfeeding on demand (0 to 23m)	842	574	68.2
Continued breastfeeding to 1 year (12 to 15m)	143	105	74.3
Continued breastfeeding to 2 years (20 to 23m)	94	29	30.9
Introduction to solid, semi solid and soft foods (6 to 8 months)	112	36	32.1

Analysis on knowledge on EBF among the caregivers portrayed a positive picture as majority of them (67.7%) knew that a child should be exclusively breastfed for 6 months as shown in table 11. Majority of the caregivers (74.9%) expressed positive opinion toward exclusive breastfeeding for 6 months. Hindrances to EBF were noted from qualitative information both by FGDs as well as KIIs. Some women believe they do not produce enough milk and in fear of starving their children, they give other foods and drinks. Mothers belief breastmilk alone is not enough for the child and if they practice EBF, their children will become weaker. Others introduce sweetened water to quench child's thirst owing the hot climate in Garissa County. The community believes that breast milk alone is not enough especially for a boy child who tend to become weak. They belief animal milk is "stronger" than breastmilk. "Breastmilk refusal" by the child is also another reason for introducing other foods and drinks. The common foods introduced are plain water, cows and camel milk, ghee and sweetened water.

Table 11: Knowledge on EBF

How long should a child be fed on breastmilk without being given anything else not even water	Number	Percent
Below 6 months	103	12.2%
6 months	**570**	**67.7%**
Above 6 months	66	7.8%
Do not Know	103	12.2%
Total	**842**	**100%**

3.3. INTRODUCTION OF SOLID SEMISOLID AND SOFT FOODS

After 6 months of age, it becomes increasingly difficult for breastfed infants to meet their nutrient needs from human milk alone. Furthermore most infants are developmentally ready for other foods at 6 months. Therefore 6 months is the recommended age at which complementary feeds can be introduced (WHO 2010). Complementary foods should be nutritionally adequate and should be given in the right amounts, consistency and frequency. Good hygiene and proper food handling practices should be adopted.

While 74.7% of all children had been introduced to solid, semisolid or soft foods, only **32.1%** were appropriately introduced at 6 to 8 months. In terms of caregivers knowledge, majority of them (60.3%) knew that a child should be introduced to solid, semisolid and soft foods as shown in figure 5 below.

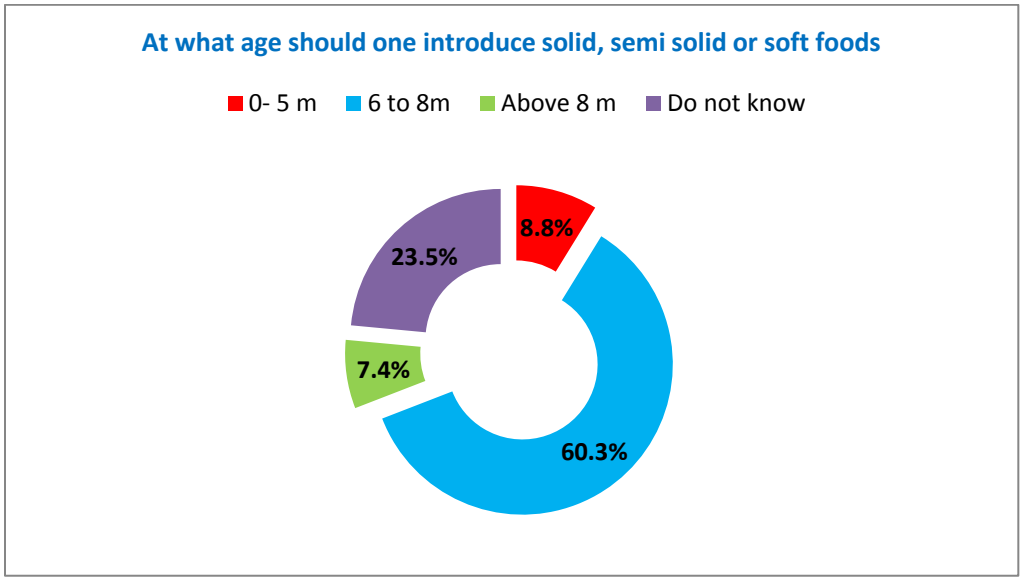


Figure 5: Knowledge on introduction of solid, semisolid and soft foods

3.4. BOTTLE FEEDING

The Kenya National policy on MIYCN discourages the caregivers against giving pacifiers, artificial teats or feeds using bottles. When bottle feeding is associated with unhygienic conditions and poor preparation of infant formula, it puts the infant at a great risk of illness, resulting in increased risk of mortality. Feeding an infant from a bottle with an artificial teat may also make it more difficult for the baby to learn to attach well at the breast and has been associated with earlier cessation of breastfeeding. If an infant cannot feed directly from the breast, then the safest alternative is to feed expressed breast milk from a cup.

At least 72.3% of children were fed in a container during the previous day. Among those who were fed in a container, majority (40.7%) were fed on a cup with no cover only (recommended) followed by those who were fed with bottle with nipple or teat (20.4%), cups with holes (18.1%) and cup with spout (17.6%). Other containers used to feed children are as indicated in figure 6 below. In computing the overall bottle feeding rates, those children who were fed using bottle with nipple, cup with holes as well as those who were fed on cup with spout were considered. The overall bottle feeding in Garissa County was **37.3%.** Qualitative information revealed that bottle feeding is associated with advancement. Not enough sensitization has been done at the community. "the quest for quick answers makes the community opt for use of infant formulas, usually fed on bottles as compared to breast feeding. Many cheap products "infant formulas" that originates from Somalia encourages mothers to use infant formulas.

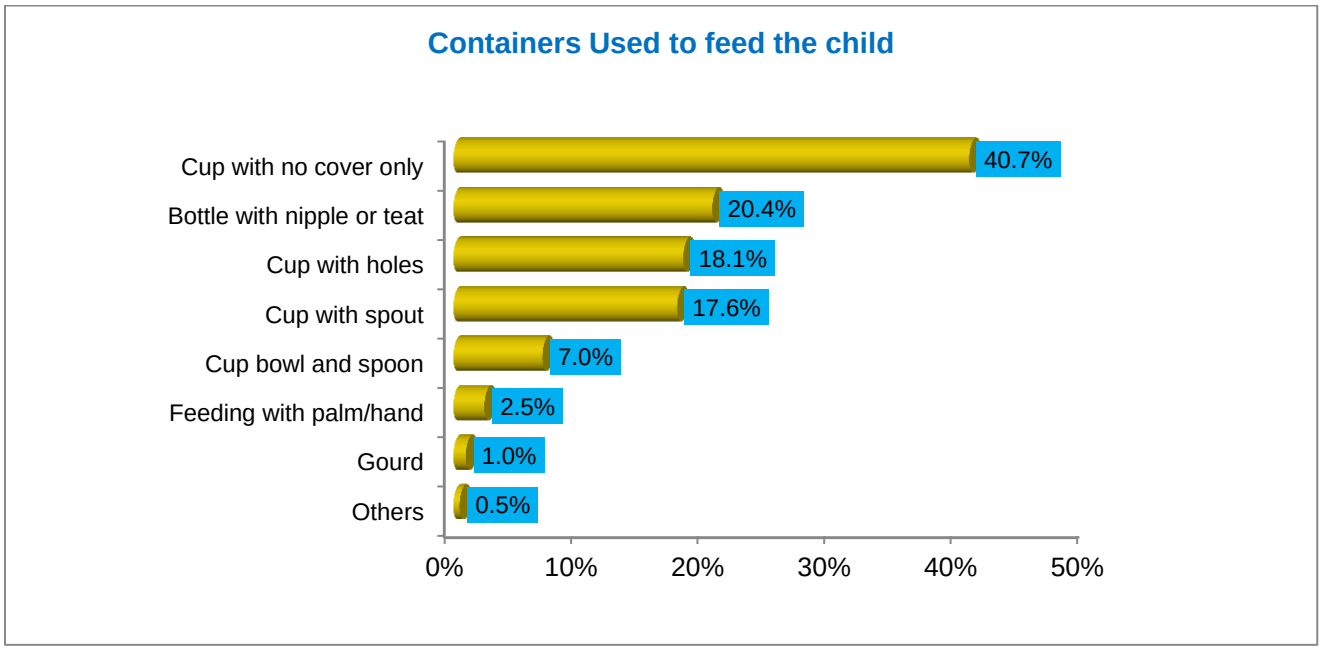


Figure 6: Containers used for feeding children

Care givers knowledge on bottle feeding was also interrogated by asking them the container that should be used to feed the baby. Majority (37.3%) indicated cup with no cover (as recommended). Other

methods mentioned included bottle with nipple (18.8%), cup with spout (8.6%), cup with holes (7.6%) as shown in figure 7 below.

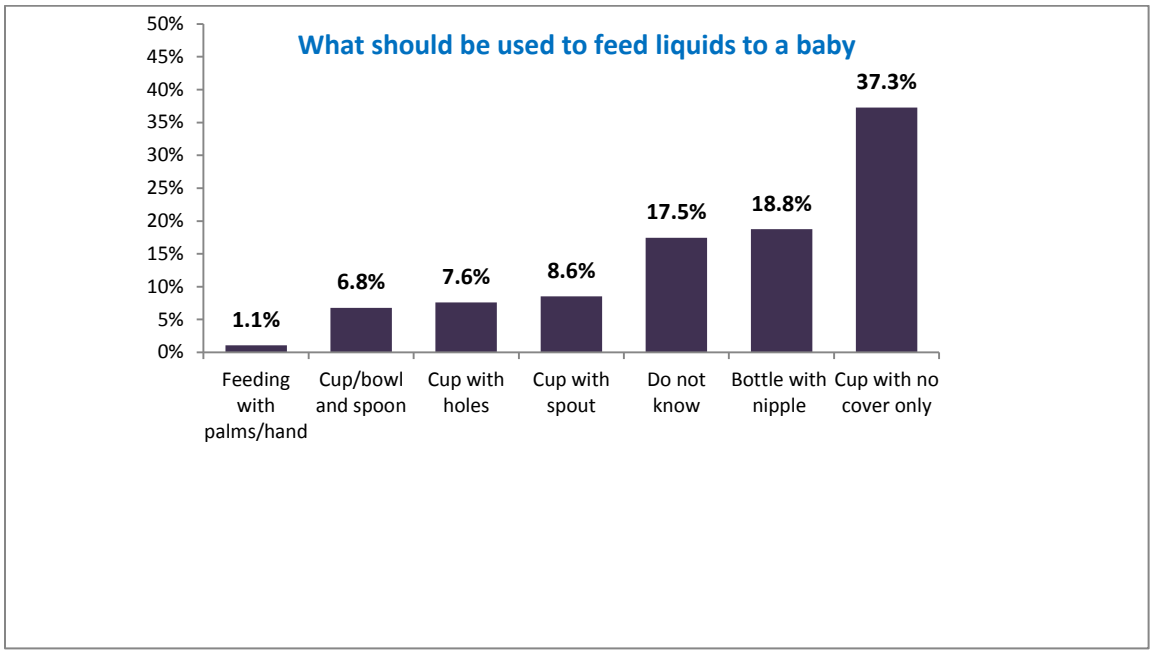


Figure 7: Containers that should be used to feed a baby

3.5. IYCN SUPPORT AND DECISION MAKERS ON IYCF

In order to achieve success in infant and young child feeding, mothers/caregivers need to be supported whether at the health facility, the household or at the community level. Difficulties may arise in the first few weeks with breastfeeding, and later on when complementary foods are needed. Illness of infants and young children is often associated with poor feeding. Families and friends are usually a mother's main source of advice about feeding her children, but this advice is sometimes fraught by misconceptions. Mothers need continuing support to maintain exclusive and continued breastfeeding, to implement other methods of infant feeding when breastfeeding is not possible, and to establish adequate complementary feeding when the child is 6 months of age and older (WHO 2010).

Less than half (47.9%) of the caregivers had received information on how to feed a child. Amongst those who received support, majority did receive from mother in law (65.0%) while 20.3% received support from the health worker. Other sources of information are as shown in table 11 below.

Baby's mother was mentioned by many respondents (89.3%) as the key decision makers in IYCN while grandmothers were mentioned by 5%. Qualitative data through FGD and KIIs revealed the role played by mother in law as well as the child mother in the infant and child feeding. The FGDs cited mother in law, grandmothers and peers as key influencers in decision making. Key informants cited little role being played by men in deciding what the child should be fed on a part from allocating household budgets. Men who play leadership roles especially in religion do have influence on IYCN decisions especially in continued breastfeeding where *Quran* recommends continued breastfeeding up to 2 years. Table 12 shows other decision makers for IYCN.

Table 12: Source of information on IYCN

Source of Information	n	Percentage
Mother/mother in law	262	65.0%
Health worker	82	20.3%
Community Health Volunteer	15	3.7%
Siblings	13	3.2%
Father/father in law	9	2.2%
Other relative	9	2.2%
Neighbor/Friend	4	1.0%
Print media	4	1.0%
Electronic media	3	0.7%
House girl	1	0.2%

Table 13: IYCN Decision Makers

Decision maker	n	Percentage
Baby's Mother	739	89.3%
Baby's grandmother	41	5.0%
Baby's Father	30	3.6%
Siblings	9	1.1%
Others	6	0.7%
House girl	1	0.1%
Day care center	1	0.1%
No one (self)	1	0.1%

3.6. DIETARY INTAKE

Complementary foods should meet the basic criteria of frequency, amount, texture (thickness), variety, adequacy, active (responsive) feeding and hygiene (DoN 2013). Daily child intake for complementary foods should have at least 4 out of 7 food groups[10]. Breastfed children aged 6 to 8 months should be fed at least twice with solid, semi solid or soft foods. Those aged 9 to 23 should be fed at least 3 times. For Non breastfed children, all children (6 to 23) should be fed at least 4 times in a day including milk feeds. It is also important to include iron rich and iron fortified foods.

The Minimum dietary diversity (MDD) (Children 6 to 23 months who were fed on 4 or more food groups among the 7 food groups was **22.9%.** The Minimum Meal Frequency (MMF) (Sum of breastfed children 6 to 8 months old who were fed at least 2 times in a day, 9 to 23 months old children who were fed at least 3 times in a day and non-breastfed children 6 to 23 months old who were fed at least 4 times on solid, semi solid, soft or milk foods was 28.2%. The Minimum acceptable diets (Which is a composite indicator for MDD and MMF) was 7.4%. Less than a third (32.4%) of children consumed iron rich and iron fortified diets. The table below summarizes the dietary intake indicators. According to key

[10] Grains roots and tubers, Legumes and nuts, Dairy products, Flesh foods, Eggs, Vitamin A rich foods and Other fruits and Vegetables

informants, low acceptable diets is associated to low social economic status, lack of knowledge as well as lack of feeding options.

Table 14: Dietary intake Indicators

Indicator	N	n	Percent
Minimum Dietary Diversity ≥ 4 food groups	568	130	22.9
Minimum Meal Frequency	568	160	28.2
Minimum Acceptable Diets	568	42	7.4
Consumption of iron rich and iron fortified diets	568	186	32.4

3.7. RESPONSIVE FEEDING

Optimal complementary feeding depend not only on what is fed but also on how, when where and by whom the child is fed. Responsive feeding means caregiving that applies the principles of psychosocial care. Responsive feeding entails feeding directly and assisting older children when they feed themselves. The child should be fed patiently, slowly and encouraged to eat but not to be forced. Combination of different foods (of different textures and tastes should be used). Different encouragement methods should be applied in case the child refuses to eat (WHO 2010).

Less than half (44.3%) of the caregivers encouraged their children to eat. Among those who encouraged their children to eat, majority did it verbally (64.5%) while 27.3% offered another fluid or drink. Apparently, 4.6% ordered their children to eat as shown in table 14 below.

Table 15: Methods of Encouraging a baby to feed

Method of Encouragement	n	Percent
Encouraged verbally	182	64.5%
Offered another fluid or Liquids	77	27.3%
Another form of encouragement	17	6.0%
Ordered strongly or forced the child to eat	13	4.6%
Modeled Eating	11	3.9%
Another person helped to feed the child	7	2.5%
Don't know	4	1.4%

3.8. FEEDING A SICK CHILD

During illness, the need of fluids often increases. During this period, a child should be encouraged to take more and breastfeeding on demand should continue. A child appetite for food often decreases while the desire to breastfeed increases. Breastmilk may become the only source of both fluids and nutrients. A child should also be encouraged to eat some complementary food to maintain nutrient intake and enhance recovery. Intake is usually better if the child is offered his or her favorite foods, and if the foods are soft and appetizing. The amount eaten at any one time is likely to be less than usual, so the caregiver may need to give more frequent, smaller meals.

Majority of caregivers (60.4%) breastfed their children less because the child did not want to feed. While 3.4% fed their children more frequently. Similarly, majority of them fed on less non breast milk fluids

(71.2%) and food (67.8%) because the child did not want to feed while 3.7% and 3.0% fed on more non breastmilk fluids and foods respectively as shown in tables 15 and 16 below.

Table 16: Frequency of breastfeeding during illness

	n	Percent
Less because the child did not want	508	60.4%
Do not know	108	12.8%
Child never been sick	88	10.5%
Child never breastfed or child not breastfeeding before the last illness	57	6.8%
The same	46	5.5%
More	29	3.4%
Less because of mothers decision	5	0.6%
Total	841	100.0%

Table 17: Frequency of feeding during illness

Frequency of feeding during Illness	Non breastmilk fluids		Foods	
	n	Percent	n	%
Less because the child did not want	497	71.2%	452	67.8%
Less because of mothers decision	8	1.1%	13	1.9%
More	26	3.7%	20	3.0%
The same	57	8.2%	47	7.0%
Child never fed on non-breast milk liquids/Food	79	11.3%	116	17.4%
Do not know	31	4.4%	19	2.8%
Total	698	100.0%	667	100.0%

3.9. MICRONUTRIENTS SUPPLEMENTION

Micronutrient powders (MNPs), also known as Sprinkles contain a mix of micronutrients in powder form that are packaged in single-dose sachets and can be added directly to any semi-solid complementary foods prepared in the household without substantially affecting taste or color of the food. Iron and other essential MNs such as zinc, iodine, B vitamins, and vitamins A, C, and D may be added to the MNP sachets (micronutrients forum 2009). The Kenya National Guidelines on home fortification with MNPs for children aged 6 to 23 months recommend that each child to receive 10 sachets of MNPs per month. The MNPs should be consumed every third day and no more than 1 sachet per day. MNPs should be given for 6 months. The recommended delivery points are the health facilities.
Less than a third (32.2%) of caregivers of children aged 6 to 23 months have ever heard or seen MNPs. Among those who had seen or heard of MNPs, majority (72.1%) indicated they got the information from the health facilities or clinics while 18.0% got such information from the community health volunteers. Other sources of information are shown in figure 8 below.

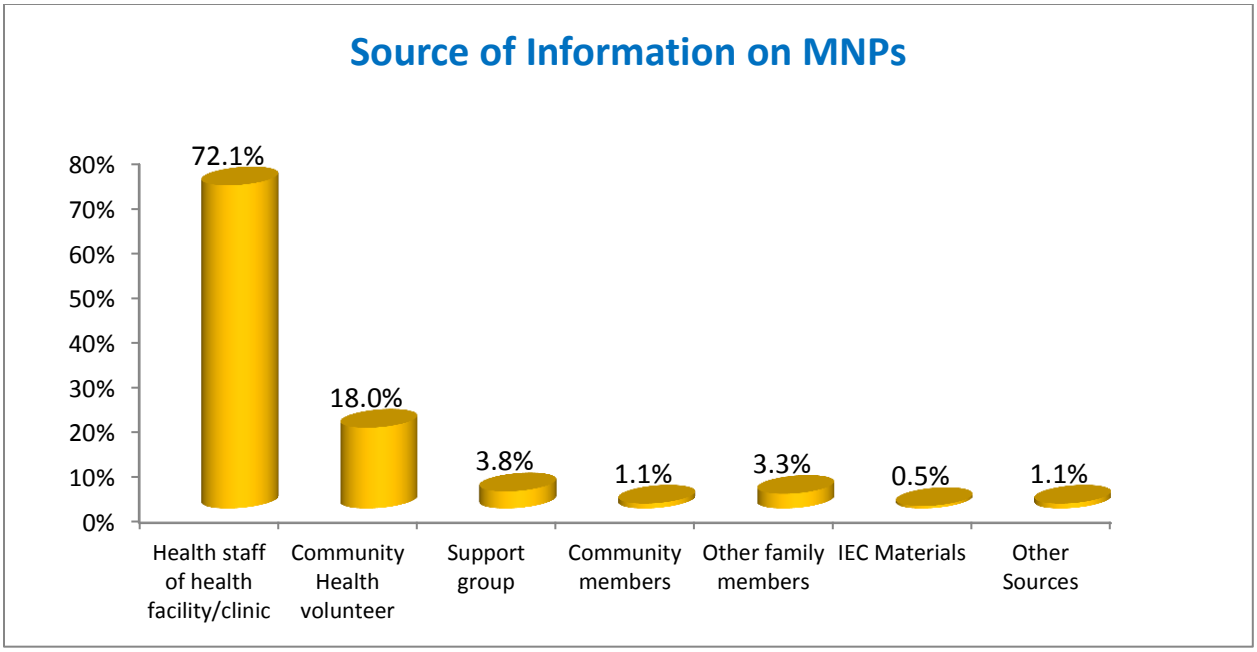


Figure 8: Source of information on MNPs

Only 9.2% of children 6 to 23 had consumed MNPs in the last 6 months prior to the survey. Among those who had taken MNPs, 82.7% got it from the health facilities while 7.7% got them free from CHVs. The rest obtained it from other sources shown in table 17 below.

Table 18: Source of MNPs

Source of MNP	n	Percentage
Health facilities	43	82.7
Free from CHVs	4	7.7
Bought from the health facilities	3	5.8
Bought from the Chemist	2	3.8
Total	**52**	**100**

3.9.1. Frequency of MNPs Intake

Less than 2% of children who took MNPs took it as the guidelines on home fortification with MNPs recommends (Every third day). Majority took MNPs on daily basis. Given the fact that majority of them obtained MNPs from the health facilities, it reveals lack of knowledge by health workers on administration of MNPs or non-compliance of the caregivers. Figure 9 summarizes the frequency of intake on MNPs

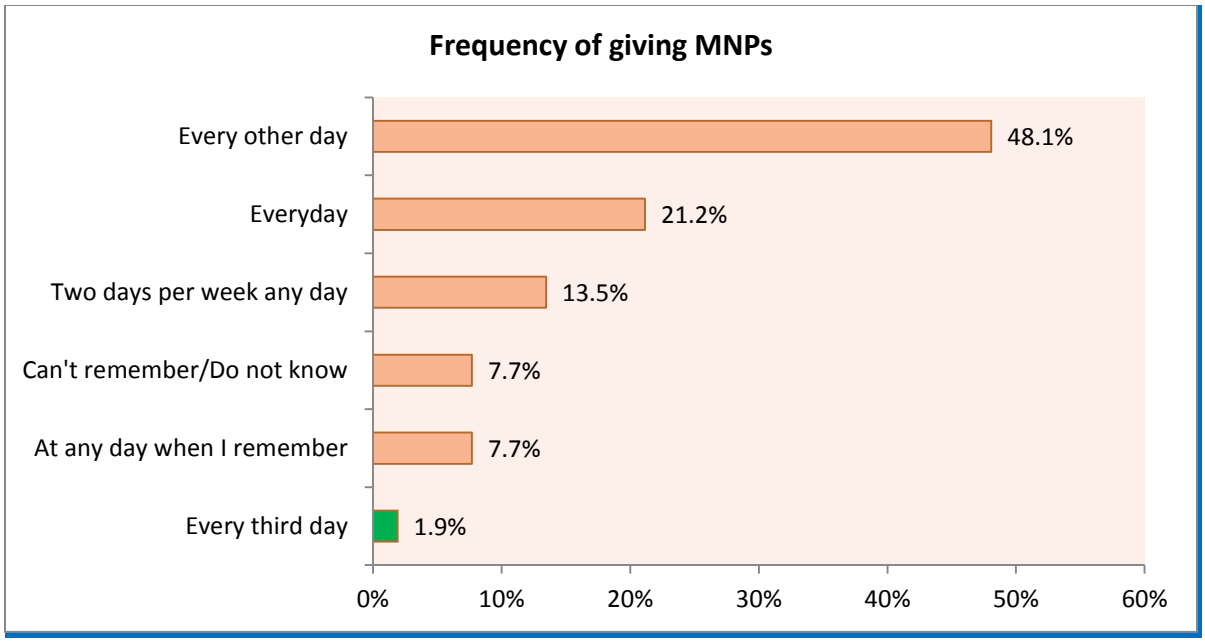


Figure 9: Frequency of MNPs intake

3.9.2. Reasons for Not Taking MNPS

Further analysis was done to establish why children were not given MNPs. As indicated in figure 10 below, majority (71.2%) of caregivers said they did not know about them while 12.7% said they had not been offered the sachets at the health facilities.

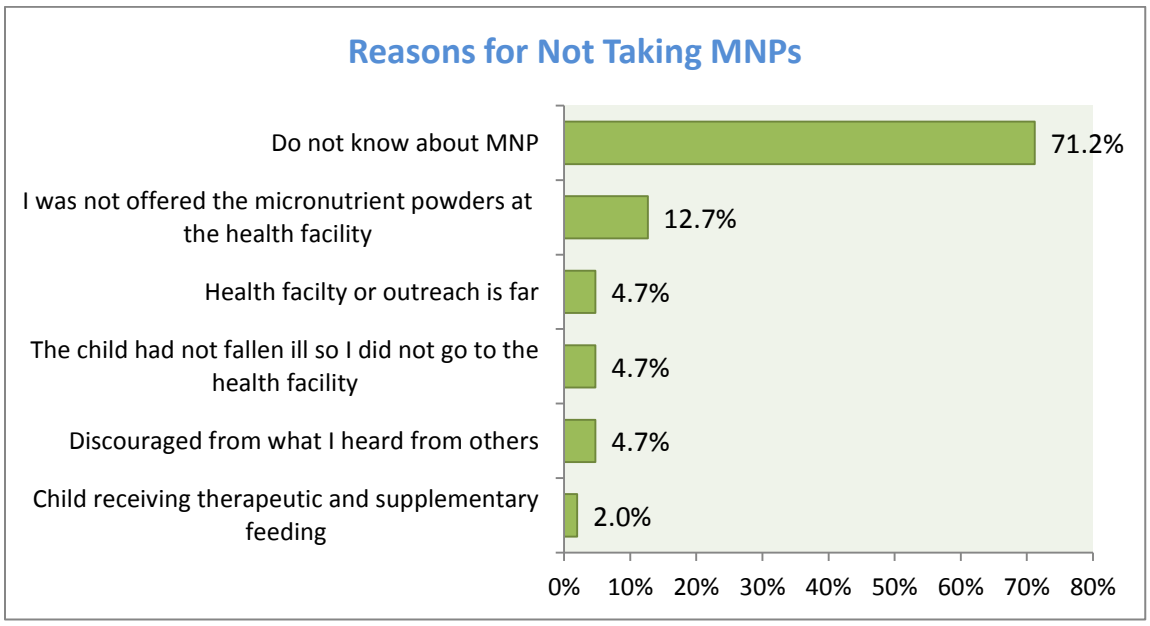


Figure 10: Reasons for not taking MNPs

3.10. ANTENATAL CARE FOR CURRENT PREGNANT WOMEN

All pregnant women should attend at least for ante- natal care (ANC) assessment by or under the supervision of a skilled attendant. The ANC visits should commence as early as possible in the first trimester (WHO Standard for maternal and Neo natal Care). The purpose of ANC assessment is to prevent alleviate or treat/manage health problems/diseases including those associated with pregnancy that are known to have un favorable outcome on pregnancy and to provide women and their families with appropriate information and advice for healthy pregnancy, childbirth and postnatal recovery including care of newborn promotion of early initiation and exclusive breastfeeding and assistance with deciding on future pregnancies in order to improve on pregnancy outcomes.

Only 37.6% of the current pregnant women had seen someone for antenatal care.

3.10.1. Timing of 1st ANC Visit

Among those who attended ANC, 33.3% did it during the first trimester, 57.4% during the second trimester while the rest (9.3%) did it during the 3rd trimester.

Table 19: Timing of 1st ANC visit

Time of the 1st ANC visit	n	Percent
1 month	2	4%
2months	9	17%
3 months	7	13%
4 months	11	20%
5 months	16	30%
6 months	4	7%
7 months	3	6%
8 months	1	2%
9 months	1	2%

3.10.2. Place of ANC visit

Among those who attended ANC clinic, majority did it in public dispensary (45.5%) and public health centers (27.3%). Few (6.8%) were attended at home by the nurse or traditional birth attendants. Figure 11 below summarizes the places of ANC visits.

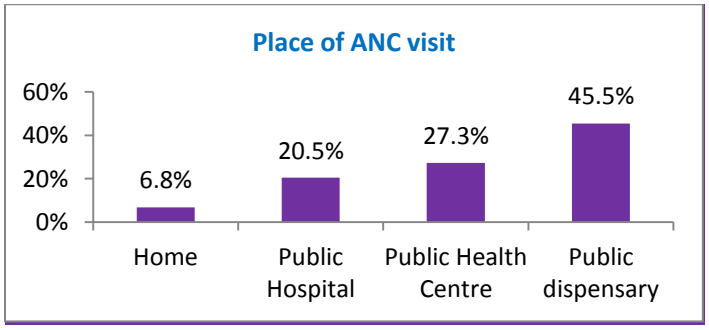


Figure 11: Places of ANC Visits

3.10.3. Reasons for not attending ANC

Further analysis was done among those care givers to establish reasons for not attending ANC clinics. Distance was mentioned as the main cause of not attending ANC (53.6%). 14.5% said they were not aware of the existence or the importance of ANC. Unfriendly health workers was another cause which was mentioned by 13.0%. Other reasons are as shown in table 19.

Table 20: Reasons for not attending ANC

Reasons for not attending ANC clinic	n	Percentage
Not aware of existence/importance of ANC	10	14.5%
Health facility too far	37	53.6%
Unfriendly health workers	9	13.0%
TBA services adequate	6	8.7%
Cultural barriers e.g. staff too young, male staff	7	10.1%
Total	**69**	**100.0%**

3.10.4. Iron acid Supplementation

All Pregnant women in areas of high prevalence of malnutrition should be routinely receive iron folic acid supplements, together with appropriate dietary advice to prevent anemia. Where the prevalence of anemia is high (over 40%), supplementation should continue for 3 month in post-partum period (WHO 2006)

Specifically all women attending ante- natal clinic must be given a standard dose of 60 mg iron and 400µg of folic acid on daily basis throughout the pregnancy period (approximately 270 days)[11]. Daily iron and folic acid supplementation is recommended as part of the antenatal care to reduce risks of low birth weight, maternal anemia and iron deficiency. If a woman is diagnosed of anemia a higher dose (120mg of elemental iron) and 400µg of folic acid supplementation is recommended until the hemoglobin concentration levels rises to normal after which she switches to the normal antenatal dose to prevent the recurrence of anemia. Folic acid requirements are increased in pregnancy because of the rapidly dividing cells in the fetus and elevated urinary losses. As the neural tube closes by day 28 of pregnancy, when pregnancy may not have been detected, folic acid supplementation after the first month of pregnancy will not prevent neural tube defects. However, it will contribute to other aspects of maternal and fetal health. Give iron supplements even if folic acid is not available.

Only 38.8% of current pregnant women had ever heard or seen iron and folic acid supplement (IFAS). Among those who had information on IFAS, 95.6% received such information from the health facility staff.

Less than a third of current pregnant women had received, iron, folic acid or combined iron folic acid supplements. Amongst these 20.7% consumed iron folic tablets table 20 below is a summary of iron and folic acid consumption.

[11] National Policy Guideline on Combined Iron and Folic acid supplementation in Kenya

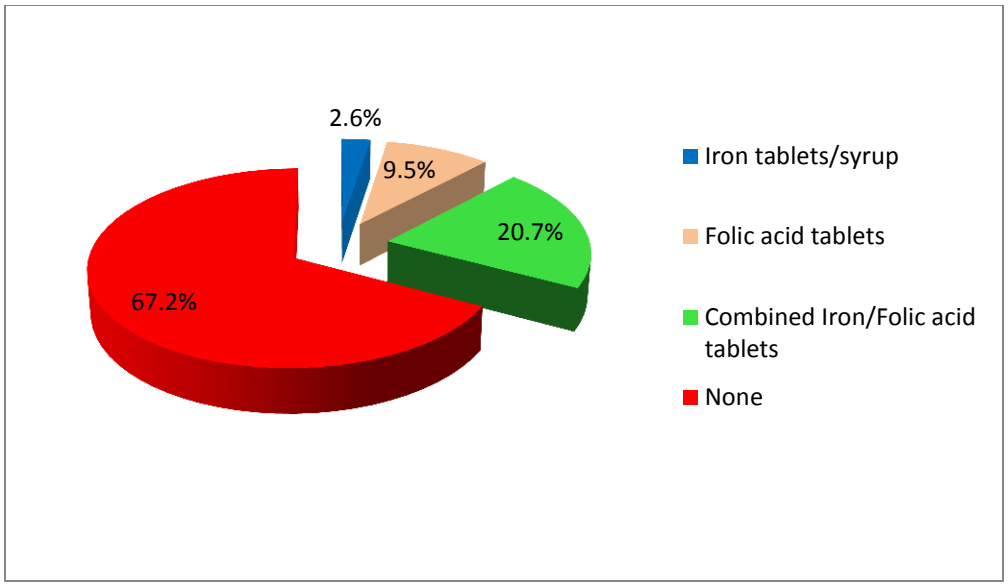


Figure 12: Iron folic acid intake for current pregnant women

Table 21: Iron and Folic Acid Consumption for the current pregnant women

No of days	Combined FeFo received	Combined FeFo Consumed
≤ 30 days	19	19
31- 60 days	2	3
≥ 90 days	3	2

3.10.4.1. Benefits of IFAS

Only 34.5% of current pregnant women knew the benefits of iron and folic acid supplementation. Among those who know the benefits, majority of them (82.5%) cited the role of supplements in increasing blood. 52.5% mentioned that IFAS prevents anemia among pregnant women while 10% indicated that the supplements prevents dizziness. Other benefits are as shown in table 21 below.

Table 22: Benefits of IFAS

Benefits	n	Percent
Increases blood	33	82.5%
Prevents anemia among pregnant women	21	52.5%
Prevents dizziness	4	10.0%
Improves immunity	3	7.5%
Helps development of fetus	2	5.0%
Increased energy	2	5.0%
Improves concentration	1	2.5%

3.11. ANTE NATAL CARE FOR MOTHERS WITH CHILDREN 0 TO 23 MONTHS

The analysis was based on the immediate previous pregnancy recall. Majority of women (71.7%) attended ANC clinic during their previous pregnancy. As indicated in the table below (table 22), Majority of women attended ANC during the second trimester. Only 23.2% did so in the first trimester. A large proportion attended less than required 4 visits as shown in table 23. Less than half (43.4%) attended 4 or more visits

Table 23: Timing of the first ANC visit

Time of 1st visit	n	Percentage
0 to 3 months	136	23.2%
3 to 6 months	383	65.5%
6 to 9 months	56	9.6%
Do not know	10	1.7%

Table 24: Number of ANC visits attended

No of ANC Visits	n	Percentage
Less than 4	312	53.3%
More than 4	254	43.4%
Do not know	19	3.2%

Mothers were also probed on the whether they received information or counselled on a number of serviced provided during their last ANC visits. Iron and folic acid was mostly mentioned by 73.7%, followed by tests during pregnancy, information on HIV/Aids was also mentioned by 69.5% while nutrition was mentioned by 67.9%. The table below shows other areas in which information was provided or mothers were counselled on.

Table 25: Counselling/Health Education provided during ANC visit

Service Provided	n	Percentage
Tests during pregnancy	421	69.7%
Birth Planning	326	54.0%
Place of delivery	387	64.1%
Own health & Hygiene	389	64.4%
Own Nutrition	410	67.9%
HIV/AIDS	420	69.5%
Breastfeeding	356	58.9%
Infant Feeding	320	53.0%
Iron Folic acid Supplementation	445	73.7%
Growth Monitoring	320	53.0%

For those who did not attend ANC clinics, analysis was done to establish the reasons they did not do so. Majority of the respondents indicated distance was the main cause, followed at a distant by lack of awareness of existence or importance of ANC. Among them, 2.1% indicated that TBA services were sufficient

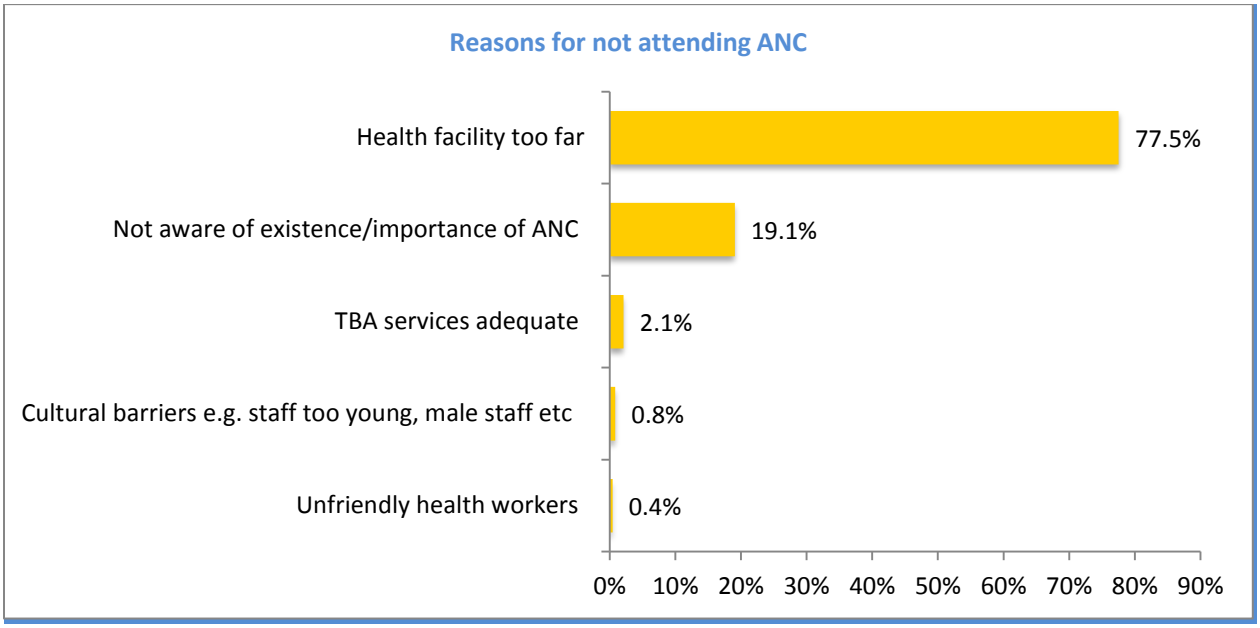


Figure 13: Reasons for not attending ANC clinics

3.11.1. Iron and Folic Acid Supplementation

Most women (75.5%) have heard or seen some information on IFAS. Almost all of those who had such information got it from health facility staff (91.3%), while 6.7% got it from the community health volunteers as shown in the figure below.

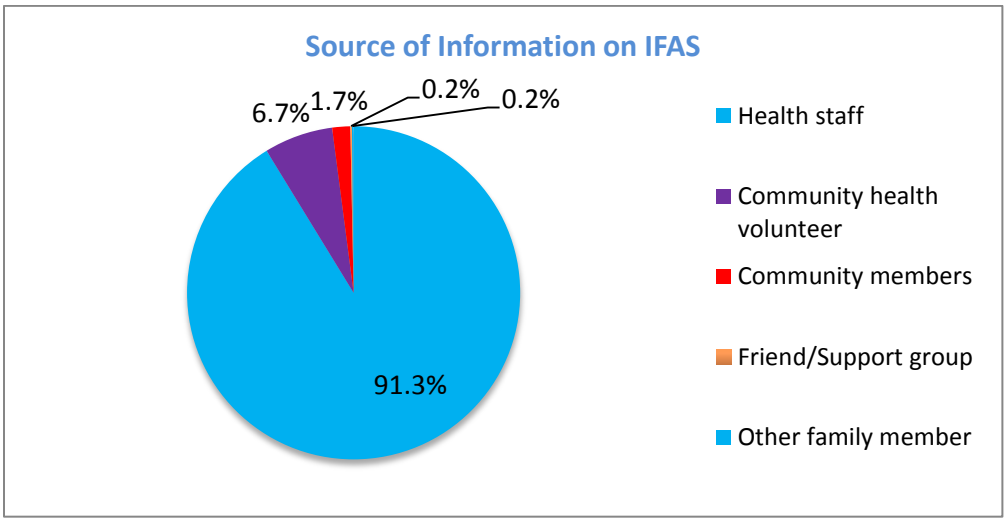


Figure 14: Source of information on IFAS

Almost half of respondents (47.5%) took combined iron folic acid tablet during their last pregnancy, 8.7% took a single dose of iron while 15.0% took folic acid alone. The rest took none. Among those who took combined tablet, further probing was done to establish the number of tablets received and the number consumed. The proportion of women who consumed FeFo for 90 days or more was 0.6%. Those who consumed up to the recommended 270 days was 0%. Majority of women who received iron and folic acid tablets consumed 30 or less tablets as shown in table 25.

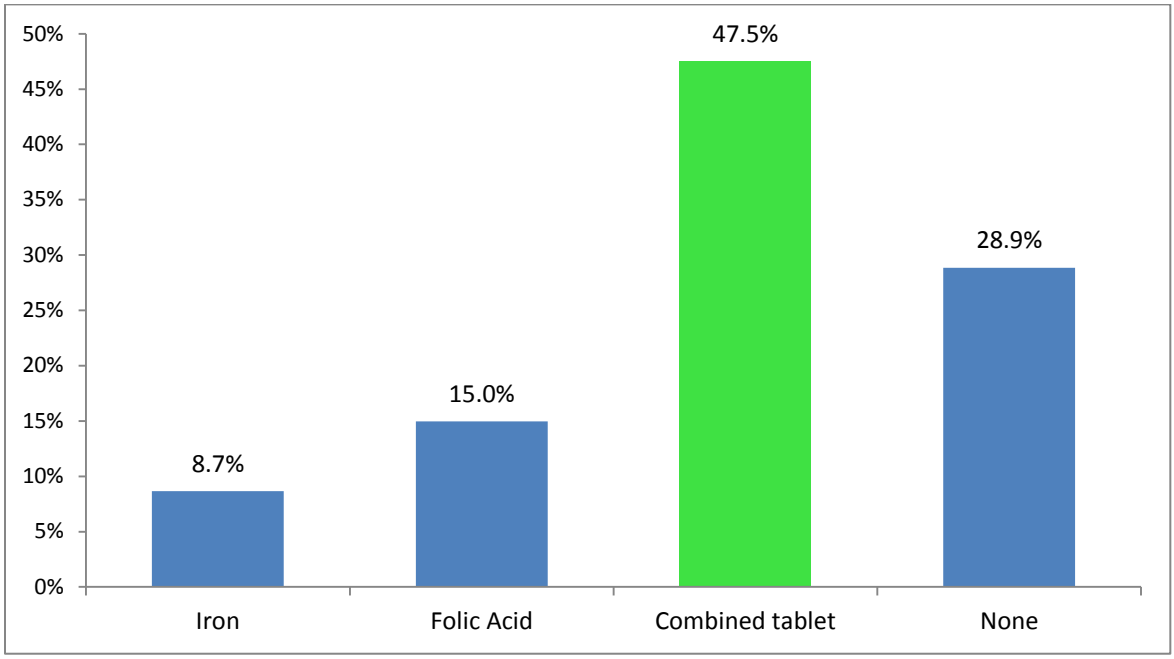


Figure 15: Iron Folic Acid Consumption

Table 26: FeFo Received and Consumed

	Received		Consumed	
	n	Percent	n	Percent
≤30 tablets	291	34.6%	320	38.0%
31- 60 tablets	67	8.0%	50	5.9%
61- 90 tablets	37	4.4%	25	3.0%
> 90 tablets	5	0.6%	5	0.6%

3.11.1.4. Benefits of taking IFAS

Approximately two thirds (66.5%) of women interviewed knew the benefits of IFAS during pregnancy. Among those who knew the benefits of taking IFAS, majority (71.4%) said it increases blood while 52.5% said that the tablets prevents anemia in women. Others (24.8%) indicated that FeFo supplements prevents dizziness. Some women mentioned other benefits as in table 26.

Table 27: Benefits of iron and Folic acid Supplements

Benefits	n	Percent
Prevent anemia among pregnant women	294	52.5%
Prevent dizziness	139	24.8%
Increases blood	400	71.4%
Helps development of fetus	42	7.5%
Improves immunity	45	8.0%
Increases energy	43	7.7%
Improves concentration	22	3.9%

3.11.2. Places of Delivery

Child birth should be done by a skilled health worker. Health facility child delivery ensures safety of both the newborn and the mother. At the health facility complications associated with child birth such as obstructed labor, malpresentation, eclampsia, severe infection and bleeding are detected earlier enough and corrected earlier enough to evert maternal deaths. Management of severe newborn problems such as preterm birth, breathing difficulties, sepsis, severe birth trauma, asphyxia and jaundice is done. It present the earliest opportunity to initiate breastfeeding early (within 1 hour), counselling the mother on EBF and other child care practices.

Majority of women (mothers of children 0 to 23 months) delivered at home with no assistance of a skilled health worker. While 42.0% delivered with the assistance of a TBA, 11.4% delivered at home without any assistance. Overall 53.4% delivered with no assistance from a skilled health worker. 42.5% delivered at health facilities while 4.1% delivered at home with the assistance of a nurse. Overall 46.6% delivered with the assistance of a skilled health worker.

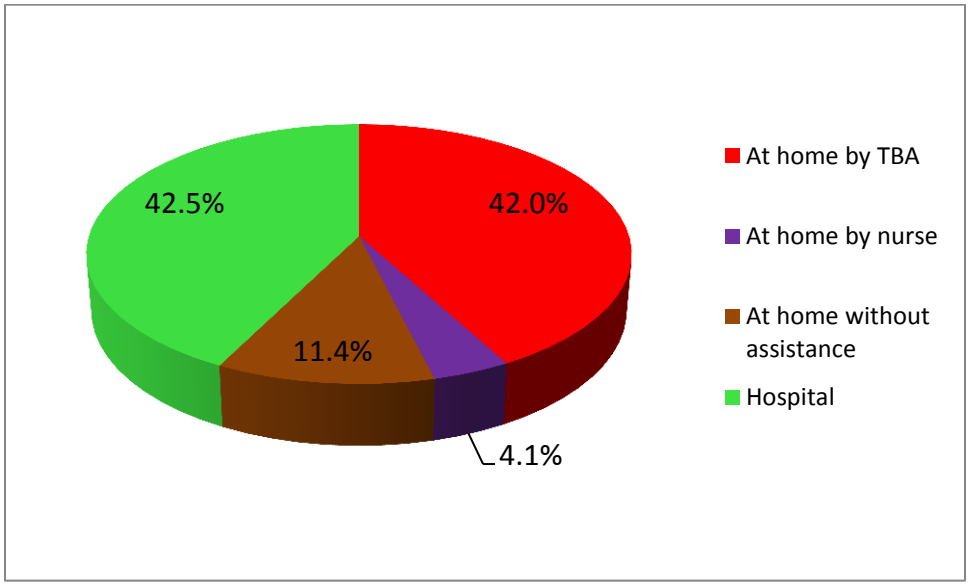


Figure 16: Places of delivery

3.12. MATERNAL NUTRITION PRACTICES

3.12.1. Women Dietary Diversity

Women, especially mothers, are gatekeepers of the family diet, and have long been entrusted with the principal responsibility of selecting, preparing, and serving nutritious foods to support families and households.

Women of reproductive age are particularly vulnerable to food insecurity and associated nutrient inadequacies for two major reasons, each with important implications for families. First, physiological vulnerability comes with childbearing. Maternal nutrient needs increase during pregnancy and breastfeeding, and when these needs are not met, mothers may experience wasting and fatigue that may limit their ability to fully satisfy infant needs. These limitations may result in infants who are small for gestational age and children with stunted growth and slowed cognitive development, which may persist into adulthood and transmit to the next generation. Second, women have a sociological vulnerability. Food security research indicates that during periods of reduced food supply, women experience reduced intakes relative to men. Furthermore, mothers are likely to reduce their own intakes to secure those of infants and small children. Mothers are the first to sacrifice in times of distress and the last to experience improvements when supplies are replenished (PATH 2012)

Analysis of women dietary diversity was based on 9 food groups (FAO) 2013). As indicated in figure 17 below, 99.7% consumed starch and staples (cereals and white roots and tubers such as maize, rice, wheat, sorghum, white potatoes e.t.c.), 67.8% consumed milk and milk products while 49.9% consumed legumes, nuts and seeds. The least consumed food groups were eggs(15.6%), dark green vegetables (23.8%) and meats (32.1%).

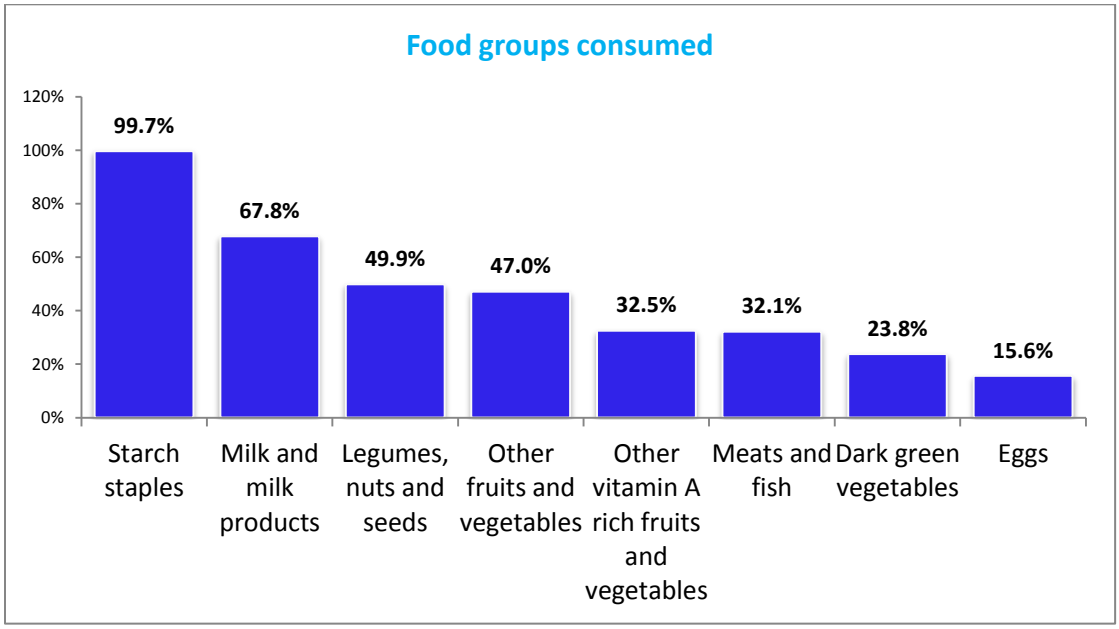


Figure 17: Food groups consumed by women of reproductive age

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Less than 2% of women had consumed no food in the last 24 hours. Approximately 60% consumed less than 4 food groups. The overall dietary diversity score for women was 3.9. The table below summarizes the number of food groups consumed by women or reproductive age.

Table 28: Women Dietary Diversity Score (WDDS)

No. of Women	Percent	No of food items	WDD
17	1.9%	0	0
144	16.4%	1	144
117	13.3%	2	234
156	17.8%	3	468
91	10.4%	4	364
121	13.8%	5	605
103	11.7%	6	618
59	6.7%	7	413
33	3.8%	8	264
37	4.2%	9	333
878	**100.0%**		**3.9**

3.12.2. Anthropometric

Maternal nutrition was also assessed using MUAC. Pregnant and lactating women women whose MUAC measurement was below 21cm were classified as malnourished. The MUAC of children 6 to 23 months was also measured. Children whose MUAC was less than 11.5 cm were classified as severely malnourished while those whose MUAC was 11.5 to less than 12.5 were classified as moderately malnourished. Table 28 and 29 below is a summary of nutrition status of WRA and children 6 to 23 months.

Table 29: Maternal Nutrition Status by MUAC

Maternal MUAC	n	Percentage
< 21.0 cm	43	5.1%
21- 23 cm	190	22.6%
≥ 23 cm	609	72.3%
PLW≤ 21.0 cm	17	2.2%

Table 30: Children Anthropometric Measurement

Child's MUAC	n	Percent
< 11.5 cm	4	0.8%
11.5 to 12.5 cm	19	3.7%
>12.5 cm	496	95.6%

3.13. FOOD FORTIFICATION

Food fortification refers to addition of micronutrients to processed foods. In many situations, this strategy can lead to relatively rapid improvements in the micronutrient status of a population, and at a very reasonable cost, especially if advantage can be taken of existing technology and local distribution networks (WHO 2006)

Since the benefits are potentially large, food fortification can be a very cost-effective public health intervention. However, an obvious requirement is that the fortified food(s) needs to be consumed in adequate amounts by a large proportion of the target individuals in a population. It is also necessary to have access to, and to use, fortificants that are well absorbed yet do not affect the sensory properties of foods. In most cases, it is preferable to use food vehicles that are centrally processed, and to have the support of the food industry. Fortification of food with micronutrients is a valid technology for reducing micronutrient malnutrition as part of a food-based approach when and where existing food supplies and limited access fail to provide adequate levels of the respective nutrients in the diet. In such cases, food fortification reinforces and supports ongoing nutrition improvement programmes and should be regarded as part of a broader, integrated approach to prevent MNM, thereby complementing other approaches to improve micronutrient status.

Majority of WRA (67.6%) had consumed fortied foods and food products. Among the foods and fortified foods consumed included fortified maize flour (62.8%), Fortified wheat flour (49.4%), cooking fat (45.8%). The commonly used brands included; Chef, Dola and Kifaru for wheat flour while Cosmos, Dola and Maisha for maize flour for cooking oil Salit and Pwani was the commonly used cooking fat while Kensalt was the most common used brand.

Respondents were also asked to name the benefits of feeding children aged 6 to 23 months with fortified flour and oils. As indicated in table 30, majority (23.9%) indicated that it improves the body ability to fight diseases. Others (18.2%) said fortified food products improve children's appetite, while the same number indicated that it improves child's physical health.

Table 31: Benefits of fortified food products

Benefits of fortified flour and oils	Number	Percentage
Improves the body's ability to fight diseases	210	23.9%
Improves child's appetite	160	18.2%
Improves child ability to learn and develop	129	14.7%
Makes childs health, strong and active (physical growth	160	18.2%
Prevents vitamin and mineral deficiency	77	8.8%
Do not know	82	9.3%

4.0. CONCLUSION AND RECOMMEDATIONS

4.1. Conclusion

Garissa County MIYCN KAP Survey revealed a number of issues that will form basis in the planning of future intervention specifically in planning and implementation of MIYCN communication plan and behavior change strategy. Among the key findings was;

- Low EBF rates which persist in the County. The EBF rates in Garissa County were 43.4%. The performance was however above the County target based on the County CNAP (25.0%). The community being pastoral attaches some importance to the animal milk which it believes to be better in quality compared to human milk. As much as the caregivers have knowledge on exclusive breastfeeding, cultural barriers seem to override their knowledge. Some perceptions among the caregivers leads to low breastfeeding in the county. Caregivers think that being in a hot and dry environment, their children get thirsty and breastmilk need to be supplemented with either plain water milk or sweetened water. Poor interpretation on what exclusive breastfeeding is, also affects breast feeding. In some instances giving plain water alongside breast milk is interpreted as "exclusive breastfeeding. The community also attaches infant formulas to advancement. This alongside the availability of cheap infant formulas from Somalia makes some mothers introduce such formulas to their children.
- High bottle feeding rates: At 37.3%, the rate of bottle feeding remains far much higher than the national average (22%) as per 2014 KDHS. This is majorly attributed to lack of knowledge as quite a number of mothers do not either know what container is required to feed a child or believe that "wrong containers" such as bottle with nipple, cup with spout or cup with holes should be used.
- Low iron and folic acid consumption. Garissa County targets to reduce iron deficiency at least by 5% by 2017. This target can be achieved by improving on the number of women consuming iron folic acid especially during pregnancy. Low iron folic acid consumption was attributed to late attendance of ANC clinic (at 2nd and 3rd trimester).
- Low minimum Acceptable diets. The minimum acceptable diet among children 6 to 23 months was 7.4% with minimum dietary diversity being 22.9%. This according to key informants was attributed to low social economic status, lack of knowledge on dietary diversity and complementary feeding as well as few feeding options among Garissa County.
- High number of home deliveries; More than half of deliveries in Garissa County are done by unskilled birth attendants mainly TBAs. A part from distance to the health facilities, the community attitudes such as delivery assisted by male health workers still affects hospital deliveries. Overtime the TBAs have received recognition even by key figures in the community. They have retained the position of being opinion leaders in the community. Their opinion is respected. As such, they recommend home delivery compared to heath facility delivery. Home delivery eventually leads to late initiation of breastfeeding.
- Lack of adequate IYCN support; Less than half of caregivers received information on IYCN. Majorly, caregivers receive such information from fellow mothers or mother in law. Women are involved in key household decisions such as what food to cook and what to purchase from the market. Women particularly mother in laws have power over their daughter in laws especially on child care practices. Men have little or no influence as far as foods decision making is

concerned. " In Somali community it is a taboo for a man to be seriously involved in food related matters. The County nutrition coordinator was once laughed of by community members "He talks like a woman" the community members said. "who is going to marry this woman" the community member wondered. A man who talks much about food is referred to as qorqotha meaning useless inquisitive man who likes to talk about food. It is not a wonder to find a male nutritionist whose children are malnourished as he cannot advise the wife on what or not to feed the children.

- Low MNP intake. Very children (9.2%) took MNP in the past 6 months. Lack of vibrant MNP supplementation programs in the County is the major cause of low MNP intake. While majority of caregivers have little information on MNPs, key informants indicated that the supplies are minimal and the County do not have plans or strategies for procurement of MNP
- Lack of knowledge on MNPs administration. Partly 1.9% of caregivers knew how to administer MNPs as per the national guidelines on MNP supplementation.

4.2. Recommendations

To address the identified gaps, the following actions are recommended;

Table 32: Recommendations

5.0. Issue/Gaps identified	Recommendation	By who	Timelines
Low EBF rates (43.4%)	Develop and implement MIYCN communication plan focusing on the key behaviors identified in the KAP survey	County Department of Health and Partners	December 2016
	Pilot implementation of Baby Friendly Community Initiative(BFCI) in at least 2 community Units linked to MNH centers of excellence in Garissa County	County Department of Health and Partners	August 2016
	Scale up Baby friendly Hospital Initiative(BFHI) at Garissa County Referral hospital	County Department of Health and Partners	December 2016
High bottle feeding rates	Sensitize the County CHS stakeholders (potential facilitators) on community dialogue guidelines and conduct focused community dialogues on IFAS, Vitamin A and MIYCN	County Department of Health and Partners	August 2016
Low Iron and Folic Acid Consumption	Train health workers on IFAS, Vitamin A supplementation and MIYCN operational guidelines	County Department of Health and Partners	Ongoing
	Train community health volunteers(CHVs) and Community health Assistants(CHAs) from all existing functional community units on nutrition module(with additional focus on IFAS, Vitamin A supplementation, complementary feeding and MNPs)	County Department of Health and Partners	On going
	Develop and implement MIYCN	County Department of	December 2016

	communication plan focusing on the key behaviors identified in the KAP survey	Health and Partners	
	Print and disseminate MIYCN,IFAS and Vitamin A behavior Change communication materials	County Department of Health and Partners	August 2016
Low Minimum Acceptable diets (7.4%)	Strengthen the linkage between nutrition specific and sensitive interventions and leverage on the opportunities provided by the ongoing interventions e.g. Integrating MIYCN messages in farmer/pastoral field schools, participating in USAID PREG(Partnership for Resilience and Economic Growth) coordination forums to ensure nutrition specific actions are included in the resilience efforts, Integration nutrition actions in schools especially ECDE	County Department of Health and Partners	On going
	Finalize and implement the draft complementary feeding action plan	County Department of Health and Partners	August 2016
High number of home delivery cases	Sensitize the County CHS stakeholders (potential facilitators) on community dialogue guidelines and conduct focused community dialogues	County Department of Health and Partners	August 2016
	Develop and implement MIYCN communication plan focusing on the key behaviors identified in the KAP survey	County Department of Health and Partners	December 2016
Low MNP intake and lack of knowledge on MNP administration	Train health workers on IFAS, MNP supplementation and MIYCN operational guidelines	County department of Health and partners	Ongoing
	Train community health volunteers(CHVs) and Community health Assistants(CHAs) from all existing functional community units on nutrition module(with additional focus on IFAS, Vitamin A, complementary feeding and MNPs)	County department of Health and partners	Ongoing
Lack of Adequate IYCN support to the caregivers	Pilot implementation of Baby Friendly Community Initiative(BFCI) in at least 2 community Units linked to MNH centers of excellence in Garissa County	County department of Health and partners	August 2016
	Train health workers on MIYCN operational guidelines	County department of Health and partners	Ongoing

REFRENCES

1. Kenya Policy on MIYCN
2. Infant and Young child feeding (a model chapter text book for medical students and allied health professionals (WHO 2009)
3. Indicators for assessing infant and young child feeding practices Part 2; Measurements (WHO, UNICEF 2010)
4. Infant and young child feeding practices: Collecting and using data; A step by step Guide, cooperative for assistance and relief everywhere, Inc (Care) 2010
5. Klemn RDN, Harvey PWG, Wainwright E, Faillace S, Wasantwisut E. Micronutrients programs. What works and what need more work. A report of 2008 Innocenti process, August 2009 Micronutrients Forum, Washington DC
6. MoH (2013), National Guidelines on Home Fortification with micronutrients powder (MNP) for children 6 to 23 months in Kenya
7. WHO (2006), Standards for Maternal and Neonatal Care; iron folic acid supplementation
8. Kenya policy guideline on iron and folic acid supplementation for pregnant women
9. FAO (2010), Guidelines for measuring household and individual dietary diversity.
10. Maternal dietary diversity and implications for children's diets in context of food security; USAID's Infant and young child nutrition project (Jan 2012)
11. WHO (2006) guidelines on food fortification with micronutrients
12. Garissa County Nutrition Action Plan (2015 to 2017).

APPENDICIES

Appendix 1: Sampled Clusters

Sub County	Village	Population size	Cluster Number
FAFI	BULLA NADIR	1750	1
	BULLA MTOTNI	950	2
	GUBIS	1202	3
	DABADERE 1	920	4
	Ege dam	2400	5
	Sethagose	1020	6
HULUGHO	Germal	207	7
	Matarba	1613	8
	Daaru	1231	9
	Bulaqoqon	1540	10
BALAMBALA	Bulla Kuro	871	11
	Danyere centre	6236	12
	Dujis centre	8829	13
	Aqaal aar	572	14
	Kuno centre	2629	15
	Libahlow centre	4617	16
	Saka centre	4782	17
IJARA	ALISHILEY	2436	18
	B.GUDUD	1212	19
	HUBI	783	20
	B.WACHA	921	21
	Bulla Sagara	4455	22
GARISSA	Bulla Market	4169	23
	Bulla qadim	2620	24
	Bulla amana	4400	25
	Bulla iskadeg	5312	26
	Bulla nur	3520	27
	Bulla A	203	28
	Bulla ijara	3360	29
	Iftin A	2530	30
	Bulla sarman A	2230	31
	Bulla rahma b	2330	32
	Bulla Eid ground	5200	33
	Najah	2640	34
	Bulla twonship	492	35
	Bulla Naima	3250	36
	Bulla aqsa	3398	37

	Bulla salam	3170	38
	Bulla Juu	3350	39
	Bulla tawakal	2420	40
LAGDERA	Modogashe town	7899	41
	Bulla silic	324	42
	Gurufa town	1789	43
	Benane town	2789	44
DAADAB	DANA	1620	45
	BANAN	570	46
	DAIDAI 1	3180	47
	KHEIR	2580	48
	RESERVE CLUSTERS		
	ALI-EMAJ	1050	RC
	Bulla technical	4996	RC
	Bulla power	2296	RC
	An amt	2302	RC
	Barkuke	1435	RC

Appendix 2: Survey Team

Team No.	Team Leader	Enumerators
1	SHAHMAT YUSUF	SAHARA ABDULLAHI
		FATUMA HUSSEIN ISSA
2	DEKA HASSAN	ANZAL MOHAMED
		MARYAM HUSSEIN
3	ELIZABETH NDUNGU	AHMED GURE
		ABDIFATAH ADEN
4	ABDIWELI MAAH	QIYASSO BASHIR
		BARAQWO ABDULLAHI
5	ABDIRAHIM IDLE	HALIMA OSMAN
		MOHAMED RASHID
6	MOHAMED HASSAN	AHMED HASSAN
		MOHAMED NATHIR
7	FIONA TEMESI	FRANCIS MWANGI
		AMIN ALI ABDOW
8	ABDI MALIK IBRAHIM	HASSAN BIRIK
		ABDIRAZAQ ABASS
SUPERVISORS		
1	ABDISHEIK ABDI	CNC GARISSA COUNTY
2	HASSIMI	MoH GARISSA COUNTY
3	MOHAMED ABDISALAT	IMC Program Manager
3	SALIM ADHUMANI	IMC, M&E Officer (Tana River County
SURVEY MANAGERS		
1	SIYAT GURE MONGE (OPERATIONS)	MoH GARISSA COUNTY
2	MARK MURAGE GATHII (TECHNICAL)	IMC M&E Officer (National)

APPENDIX 3: QUANTITATIVE DATA COLLECTION QUESTIONNAIRE

KAP QUESTIONNAIRE 15T

APPEDIX 4: Qualitative Data Collection Guides

Qualitative assessment will be important to determine the direct and underlying factors that influence MIYCN practises. Understanding the barriers to desired behaviours, the current facilitating, positive practices that could *support* the desired behaviours and the opportunities for changing practices is important

Methods to be used to collect this information include-**focussed group discussions**, **Observations, Key informant interviews**

Type of information to be collected through qualitative methods

1) Focussed group discussion

To determine

1. *What are the reasons why mothers do not practice the desired behaviours? e.g. reasons for not initiating breastfeeding within one hour after birth, not exclusively breastfeeding for 6 months*
2. *Who influences mothers to practice undesirable behaviours?*
3. *What are the roles of different members of household in feeding the infant, such as grandmothers or the husbands/partners?*
4. *What are the views of different participant groups on infant care, breastfeeding, exclusive breastfeeding for 6 months, formula feeding/mixed feeding, and family roles?*
5. *Who benefits from not practicing the desired behaviours?*

2) Key informant interviews-

1. *Collect additional information for understanding the barriers to desired behaviours, the current facilitating, positive practices that could support the desired behaviours and the opportunities*
2. *Establish what programs/efforts/strategies to address harmful MIYCN behaviours and Challenges*