



Turkana County Government

# MATERNAL INFANT AND YOUNG CHILD NUTRITION (MIYCN) KNOWLEDGE, ATTITUDES, BELIEFS AND PRACTICES (KABP) SURVEY REPORT

## TURKANA COUNTY

NOVEMBER 2017

Independent Consultant  
Sophie Ochola (PhD)  
P.O. BOX 61895 00200  
NAIROBI  
Email: ocholasa55@gmail.com  
Tel: 0721 449 803

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## ACKNOWLEDGEMENT

I take this opportunity to thank UNICEF for giving me the opportunity to conduct this Maternal Infant and Young Child (MIYCN) Knowledge, Attitudes, Belief and Practices (KABP) survey in Turkana County. My appreciation is extended to the Turkana Country Nutrition Coordinator, UNICEF Nutrition Support Officer Turkana County and officers from partner organizations for the guidance and assistance accorded me in the course of conducting this assignment. I am also indebted to Dr. Festus Kiplamai for his technical input in the data collection procedure using the Open Data Kit (ODK) platform. My special appreciation to Dr. Dorothy Othoo for the technical assistance offered during training and data collection.

Special thanks also goes to the members of the survey teams for their tireless efforts in ensuring that the survey was conducted professionally and on time. I am also indebted to the community members who willingly participated in the survey and provided the information required.

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## ACRONYMS AND ABBREVIATIONS

ANC	Ante-natal care
CF	Complementary Feeding
CHMT	County Health Management Team
CHVs	Community Health Volunteers
CNC	County Nutrition Coordinator
EBF	Exclusive breastfeeding
ENA for SMART	Emergency Nutrition Assessment (ENA) for Standardized Monitoring and Assessment of Relief and Transitions
FAO	Food and Agriculture Organization
FGD	Focus Group Discussions
FGDs	Focus Group Discussions
IFAS	Iron, folic acid supplementation
IYCF	Infant and Young Child Feeding
IYCN	Infant and Young Child Nutrition
KABP	Knowledge, Attitudes, Beliefs and Practices
KAP	Knowledge, Attitudes and Practices
KDHS	Kenya Demographic Health Surveys
KIIs	Informed Key Interviews
MAD	Minimum Acceptable Diet
MDD	Minimum Dietary Diversity
MMD-W	Minimum Dietary Diversity for women of reproductive age
MIYCN	Maternal Infant and Young Child Nutrition
MMF	Minimum Meal Frequency
MNPs	Micronutrient Powders
MOH	Ministry of Health
MUAC	Middle Upper Arm Circumference
NGO	Non-governmental Organization
NSO	Nutrition Support Officer
ODK	Open Data Kit

PNC	Post-natal care
SCNC	Sub-County Nutrition Coordinator
WHO	World Health Organization



## EXECUTIVE SUMMARY

### Introduction

This report summarizes the outcomes of a Knowledge, Attitudes, Beliefs and Practices (KABP) Maternal Infant and Young Child Nutrition (MIYCN) survey conducted in Turkana County in October 2017. This was a baseline survey conducted to provide benchmarks against which to measure programme performance in the future as well as identify the barriers to appropriate MIYCN practices in the County.

### Methodology

The survey adopted a mixed design using both quantitative and qualitative data collection methods. The quantitative data was collected at household level whereas qualitative was collected through Key Informant Interviews (KIIs) with programme officers and Focus Group Discussions (FGDs) with mothers, fathers and Community Health Volunteers (CHVs).

The survey used a two-stage cluster sampling methodology based on proportion to population size to select 62 clusters of 16 households each. The clusters were selected from a comprehensive list of the smallest geographical unit (villages) for which population statistics were available. The target population was mothers/caregivers and their children aged 0-23 months. Data was collected for 991 children of whom 336 (33.9%) were infants less than 6 months of age and 991 were mothers/caregivers. Data was also collected on Ante-natal care (ANC), Post-Natal Care (PNC) and Iron Folic Acid (IFAS). The data were entered and analyzed in SPSS version 22.0 for Windows. Qualitative data was analysed through content analysis based on the objectives of the survey.

### Findings on key MIYCN indicators

Indicator	Prevalence (%)
<b>Infant and Young Child Feeding Practices</b>	
Breastfed on demand	96.4
Exclusively breastfed	76.5
Continued breastfeeding at 1 year	89.4
Given pre-lacteal feeds	12.9
Given colostrum	98.4
Initiation of breastfeeding within 1 hour	80.2
Bottle feeding with nipple/teat	12.9
<b>Complementary feeding practices</b>	
Proportion of infants 6-8 months old who received solid, semi-solid or soft foods the previous day	36.0
<b>Minimum Dietary Diversity (MDD)</b>	
% 6-23 months old who received foods from $\geq 4$ food groups	46.6
% 6-23 months who received foods from $\geq 4$ food groups by breastfeeding status:	
• Not breastfed	65.6
• Breastfed	43.5
<b>Minimum Meal Frequency (MMF)</b>	
% of both breastfed and non-breastfed 6-23 months of age who received foods the minimum times or more	33.0
% of both breastfed and non-breastfed 6-23 months of age who received foods the minimum times or more disaggregated by age as follows:	
6-11 months old	33.1
12-12 months old	39.3
18-23 months old	25.3

Breastfed:	
• 6-8 months old [2 times]	29.9
• 9-23 months old [3 times]	37.6
Non-breastfed:	
6-23 months old [4 times]	15.6
<b>Minimum Acceptable Diet (MAD)</b>	19.5
% of children 6-23 months of age who receive a minimum acceptable diet	
<b>Consumption of iron-rich foods</b>	47.6
<b>Feeding during illness</b>	
Offered less breastmilk to child than usual	85.8
Offered less non-breastmilk to child than usual	77.4
Offered less food to child than usual	73.3
<b>Knowledge on breastfeeding and complementary feeding practices</b>	
Breastfeeding should be initiated within 1 hour of birth	85.8
Baby should be given colostrum	96.8
Pre-lacteals should not be given	90.8
Duration of exclusive breastfeeding	94.2
Solid, semi-solid and soft foods should be introduced at 6 months	72.8
<b>Attitudes on breastfeeding and complementary feeding practices</b>	
A baby should be breastfed immediately after they are born	85.2
Would you feed your baby colostrum?	98.9
It is important for a baby to breast fed for 6 months without being introduced to anything else including water	85.8
<b>Perceptions to infant feeding practices</b>	
Do not believe that certain foods are taboo and should not be fed to pregnant women	66.0
Do not believe that a new born baby should be given liquids other than breastmilk	84.6
Do not believe that colostrum is dirty and should not be fed to new born babies	88.7
Do not believe that a baby cannot survive on exclusive breastfeeding for 6 months	80.5
Do not believe that certain foods are taboo and should not be fed to a child	74.3
do not believe that a young child should not be breastfed up to 2 years	75.7
<b>Ante-Natal Care for mothers with children 0-23 months of age</b>	
Attended ANC at least once	94.1
First ANC visit during the first trimester	25.1
Made at least 4 visits during pregnancy	53.6
<b>IFAS for mothers when pregnant with children 0-23 months old</b>	
Heard of IFAS	90.7
First source of information on IFAS:	
• Health staff from health facility	96.6
• Community Health Volunteers (CHVs)	0.0
Know benefits of IFAS	81.6
Number of days for which iron tablets were given:	
<b>Iron tablets:</b>	
< 60 days	64.7
60-89 days	8.5
≥90 days	26.8
<b>Folic acid tablets:</b>	
< 60 days	66.9
60-89 days	8.5
≥90 days	24.6
<b>Combined iron/folic tablets:</b>	
< 60 days	49.4
60-89 days	17.8
≥90 days	32.8

Number of days for which supplements were consumed:	65.9
<b>Iron tablets:</b>	7.8
< 60 days	26.3
60-89 days	
≥90 days	
<b>Folic acid</b>	
< 60 days	68.1
60-89 days	7.7
≥90 days	24.2
<b>Consumption of IFAS:</b>	
< 60 days	55.0
60-89 days	13.5
≥90 days	31.5
Dietary Diversity for women of reproductive age (MMD-W):	
Attained Minimum Dietary Diversity (ate foods from at least 5 food groups)	33.2

## Conclusions

**Breastfeeding practices:** Overall the practices were optimal except for: provision of pre-lacteal feeds; practical support given to mothers to help start breastfeeding; and bottle feeding with teat/nipple. Efforts should continue to be made to ensure further improvement in breastfeeding practices and also to ensure that the gains made are not lost. Despite the fact that EBF has improved significantly, the rate should be improved further to reach 90%, the minimum recommended by WHO to have impact on and reduce mortality by 13% among the underfives. In any case, exclusive breastfeeding was stopped at 3 months for the majority of the children and there is need therefore to encourage mothers to continue the practice until 6 months.

**Complementary feeding practices:** Overall, the CF practices were sub-optimal implying that a majority of the children were not getting adequate diet; a diet that provides adequate nutrients in terms of quantity and variety for healthy development. Given that knowledge and cultural practices were not major hindrances to appropriate complementary feeding practices, there is need for innovative and nutrition-sensitive interventions to address food insecurity which is the major hindrance to appropriate feeding practices.

**Knowledge on MIYCN practices was high and the attitudes and perceptions were positive.** Despite this, the knowledge and the attitudes did not necessarily translate into practice. There is need therefore to address the barriers to adoption of appropriate MIYCN practices. Promotion of appropriate MIYCN messages should be up-scaled. Messages to promote appropriate MIYCN practices should continue to be disseminated with particular emphasis on the remote, hard to reach areas where knowledge was reported to be relatively lower.

**In terms of ANC attendance,** the majority of the pregnant women make at least one visit to a skilled health provider. The challenge is with the frequency of ANC attendance as well with timing of the first visit to the ANC. It is therefore important to establish the reasons why mothers do not start attending ANC in a timely manner and at the recommended frequency. This information would be useful in addressing the development of messages on the health benefits of attending ANC and also useful in addressing the barriers to pregnant women attending ANC as recommended.

**The coverage for the provision and consumption of IFA supplements to pregnant women was low.** The majority of the pregnant women received and consumed IFAS for less than 60

days and yet it was reported that the county had not experienced any stock outs of the commodity in 2017. There is need to train the CHVs on IFAS so that they promote the consumption and address the mothers' challenges in the use of the supplements at the household level. It was reported that this training has yet to be conducted. May be frequent follow-up at the household level by the CHVs may encourage pregnant women and also remind them to take IFAS. One of the reasons given for not taking IFAS on a regular basis was forgetfulness.

**Responsive feeding:** Overall, positive as the majority of the mothers talked to children and encouraged them to eat and self-feed. There is need to discourage the practice of ordering and threatening children to eat as was reported by about one-quarter of the mothers.

**Feeding during illness:** Overall, the feeding practices during illness was poor and should therefore be appropriately addressed in the behaviour change communication messages.

**Maternal dietary intake:** Maternal dietary intake needs improvement given that less than half of the mothers attained a minimum dietary diversity. The major hindrance to adequate dietary intake is food insecurity and poverty. So addressing food security issues would improve mothers' dietary intake.

## **Factors influencing MIYCN practices**

### Factors influencing MIYCN positively

- **High level of knowledge on breastfeeding and complementary feeding practices** the mothers and the community as a whole. This together with the positive attitudes and perceptions to IYCF practices may have contributed to the appropriate breastfeeding feeding practices. The knowledge and positive attitudes and perceptions towards on complementary feeding did not necessarily translate to improved practices.

From the programme perspective, it was reported that improved breastfeeding practices may also be attributed to the: increased number of health facilities including nutrition officers; increased number of health facilities including functional community health units; improved message dissemination through health education, media and community dialogue; and increased rates of hospital deliveries and message dissemination.

- It was also reported during the FGDs **that cultural beliefs** were no longer a major barrier to IYCN practices for the majority of the people.
- **High level of maternal knowledge** on the health benefits of ANC attendance and consumption of IFAS during pregnancy influences mothers to seek these services. Despite this, many mothers did not seek these services on regularly.
- The services provided at the ANC such as; growth monitoring of the foetus, checking of anaemia and provision of supplementary foods encouraged mothers to attend ANC encouraged mothers to attend ANC clinics.

### Barriers to appropriate MIYCN practices

- **Household food insecurity** resulting into inadequate dietary intake affecting milk production among breastfeeding mothers. Similarly, food insecurity was a major factor contributing to inappropriate complementary feeding practices because of unavailability and inaccessibility of a variety of foods. Poverty and loss of livestock were reported to major

constraints to household food security. Poor household food security was also a major factors constraining maternal adequate dietary intake;

- **Family conflicts and violence** causing stress to the mother and therefore not able to produce adequate breastmilk and also take care adequate care of children;
- **High maternal workload** affecting time mother is available to provide quality care to the child and also to breastfeed and prepare appropriate complementary foods for the baby;
- **Alcoholism among the mothers** interfering with quality of care given to children including appropriate feeding practices;
- **Inadequate knowledge on complementary feeding practices** particularly on how to prepare foods for the children was reported to be a constraint to appropriate feeding practices.
- **The women who did not attend ANC regularly** were discouraged by: the high maternal workload; long distance to health facilities; and felt that traditional herbalists and TBAs were better at palpations than the health workers.
- **The women who did not take IFAS on a regular basis** were discouraged by the side effects (nausea and vomiting) while some forgot to take them.

## RECOMMENDATIONS

### Recommendations for programming

SR/NO	Recommendations	Person Responsible	Time Line
1	Conduct review of Turkana MIYCN SBCC strategy (2016 to 2018) based on the findings of KABP to translate knowledge to practice.	MOH, UNICEF, Nutrition IPS	April 2018
2	Hold community feedback meetings to discuss the findings and develop a joint plan of action involving both duty bearers and rights holders.	MOH, UNICEF, Nutrition IPS	April 2018
3	Develop contextualized high impact SBCC interventions (BFCI, c IMCI, BFHI, Care group Model, wound up radios/use of media, IPC, change stories/Agents/mentor mothers) to address the low optimal complimentary feeding practices (MAD, MAF, MMD and introduction to solid and semisolid foods.).	MOH, UNICEF, Nutrition IPS	April 2018
4	Scale up Micronutrients sprinkles /powders programme to improve the nutrient quality of complementary foods for children 6-23 months.	MOH, UNICEF, Nutrition IPS	On going
5	In collaboration with food manufacturers scale up community awareness on locally available fortified foods	MOH, International and local development Agencies, Food manufacturers	On going
6	In collaboration with food security, specific and sensitive nutrition sectors develop multisector plans to address food insecurity and diet diversification, which were highlighted as key barriers for optimal complementary feeding.	Department of Health, Water Agriculture and Livestock, Pastoral fisheries Livestock, Trade and labor, Education, Local and international development agencies.	June 2018
7	Conduct sensitization on the Breastfeeding mothers Bill 2017 so as to promote and support breastfeeding for working mothers	MOH, UNICEF, nutrition IPS	June 2018
8	Strengthen the existing community health strategy since CHVs were a main source of information on child care practices for the mothers.	MOH, international and local development agencies.	Ongoing
9	Conduct anthropological studies to have in depth understanding of factors affecting childcare practices, dietary patterns and health care seeking practices among caregivers in Turkana.	MOH, International and local development agencies.	End of 2018

## **Recommendations for future surveys**

- Conduct in-depth MIYCN KAPB qualitative surveys to provide detailed sub-county level information to allow for appropriate programming taking into account any differences in the sub-counties.
- The questionnaire should be shortened and made to focus on the key MIYCN indicators. Questions with a high possibility of recall bias e.g. IFAS for mothers with children 0-23 months old- the target population should be changed to mothers with younger children to minimize recall bias.
- Data analysis: It is recommended that qualitative data be analysed using data analysis software for improved efficiency. It is also recommended that basic inferential statistics be included in the analysis to provide information for more targeted MICYN messages.
- The ToR should include maternal nutrition and other-related indicators e.g. IFAS and ANC based on the WHO and MOH guidelines.

# 1. INTRODUCTION

## 1.1 Background Information

Turkana County is a county in the former Rift Valley Province of Kenya. Turkana is the second largest, by land area, (after Marsabit County) and also the north western most county in Kenya. It is bordered by the countries of Uganda to the west; South Sudan and Ethiopia, including the disputed Ilemi Triangle, to the north and northeast; and Lake Turkana to the east. To the south and east, neighbouring counties in Kenya are West Pokot, Baringo and Samburu Counties, while Marsabit County is located on the opposite (i.e. eastern) shore of Lake Turkana.

Turkana has an estimated population of 855,399 (1,161,197 pop.; <5s 151,462-Estimate of 2018) and cover an area of 77,000 km<sup>2</sup> (KNBS 2009). Turkana is divided into 7 sub counties and 17 administrative divisions. The County has 4 main livelihood zones (60% pastoral, 20% agro pastoral, 12% fisher folks and 8% urban/peri-urban formal and informal employments (NDMA).

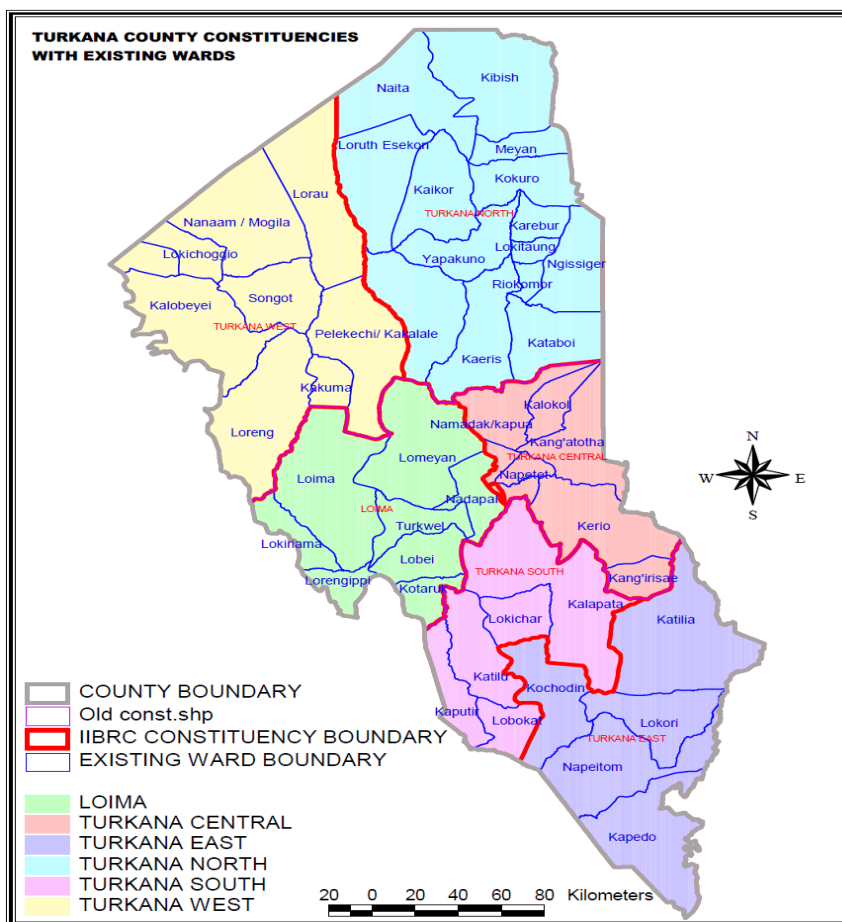


Figure 1: Map of Turkana showing the areas where the survey was conducted

The nutritional status of children underfive years of age in Turkana County continues to be poor and the rates of malnutrition are above the minimum acceptable levels and are also higher than the national rates. The stunting rate in Turkana according to the most recent Kenya Demographic Health Survey (KDHS) 2014 is 30.1% compared to the national rate of 26.1%; wasting rate is 13.6% compared to 4.0% national rate and underweight is 28.9% whereas the national rate is 11.0%. Nonetheless, the findings of the January/February SMART survey results indicate for the first time in 5 years a significant decrease in the rate of global acute malnutrition to 16.2% (Integrated SMART survey, 2018). Despite this improvement, the rate is still above the

emergency threshold level (15%). The findings of this survey also showed an overall improvement in the county in the rate of underweight (24.0%) whereas stunting rate was lower (20.3%) than the national level at 26.0% (KDHS, 2014).

Stunting is as a result of extended periods of inadequate food intake, poor dietary quality, increased morbidity, poverty, low maternal education or a combination of these factors. Stunting and poor nutritional status eventually result to mortality among children. Nutrition interventions have been demonstrated to be the most effective preventive actions for reducing mortality among children under the age of five years. Of these actions, exclusive breastfeeding ranks first; being estimated as having the potential to prevent 13 percent of all deaths in this age group while appropriate complementary feeding, water, sanitation and hygiene would reduce 6 percent and 3 percent respectively (Lancet, 2003).

## 1.2 Justification to conduct the survey

According to Kenya Demographic Health Survey (KDHS 2014), data on exclusive breast feeding and complementary feeding practices is available at national level but not county level. At the national level, Kenya has made progress on exclusive breast feeding from 32% in 2008/09 to 61% in 2014. In Kenya, about two in ten (21 percent) children age 6-23 months consume an Minimum Acceptable Diet (MAD). The Nutrition Program Review (2016) has shown that current data on exclusive breastfeeding and complementary feeding practices is lacking in target Counties such as Turkana. The 2016 Communication For Development Secondary Data Analysis and Literature identified information gaps such as lack of sub-national level evidence on knowledge, attitudes, beliefs and practices in relation to appropriate feeding practices and lack of analysis on reasons for low exclusive breastfeeding in selected counties such as Turkana. It was therefore important to gather evidence (quantitative and qualitative) that will guide nutrition program in terms of measuring progress and guiding programmatic strategies and activities based on WHO 2010 and Kenya MOH guidelines (June 2015) and data collection tools (June 2016).

## 1.3 Survey objectives

Overall, the main objective of this survey was to collect baseline information on knowledge, attitudes, beliefs and practices among mothers/caregivers in Turkana County (Annex 3 for TOR).

## 1.4 Significance of the survey

In particular, the findings of this survey will be used to support MOH, partners and UNICEF's work in nutrition, specifically by:

- Improving the understanding of the core IYCN indicators in Turkana County;
- Measuring progress and informing programme design and implementation through application of these findings.

## 2. METHODOLOGY

### 2.1 Survey Design

The survey adopted a mixed methods using both quantitative and qualitative data collection methods. The quantitative data was collected through household surveys to obtain information on maternal knowledge, attitudes, practices, beliefs and practices on MIYCN. Qualitative data collection involved Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). KIIs were conducted with various stakeholders (Programme Officers from partner organizations, Country Nutrition Coordinators (CNCs), Sub-County Nutrition Coordinators (SCNCs). The KIIs



solicited information on MIYCN practices in the County, the factors enhancing appropriate practices and the barriers to appropriate practices in the County. Focus Group Discussions (FGDs) were conducted with mothers, fathers and Community Health Volunteers (CHVs) to solicit their perceptions on the MIYCN practices in the County as well as the barriers to such practices, if, any and how they think these can be minimized. The qualitative information collected from the KIIs and FGDs was used to complement the quantitative data from the household survey and also to provide an in-depth understanding of the community’s MIYCN practices and perceptions.

The survey was conducted in a participatory manner that involved consultations with Ministry of Health (MOH) Officials, NGO partners, UN agencies and beneficiaries.

## 2.2. The Target Population

The target population was mothers/caregivers and their children 0-23 months of age in Samburu County. Children 0-23 months old were targeted because this is the window period for implementing appropriate infant and young child feeding otherwise the adverse consequences of inappropriate feeding may be irreversible after this period. The survey was conducted in the all the seven sub-counties in Turkana County; sub-counties in Turkana (West, East, South, Central, North, Kibish and Loima)

## 2.3 Sample Size Determination

### 2.3.1 Sample Size Determination for IYCN indicators

The sample size for the IYCN indicators was calculated based the Care International Step by Step Guide (2010). Based on this guide, the sample size for each of the **eight** IYCN core indicators was calculated and computed based on various parameters: the most recent estimate (prevalence/rate); level of precision; and design effect as shown in Table 1. The estimates used in the sample size calculation was from the findings of a KABP survey conducted in Turkana County in 2014.

Table 1: Calculation of sample size

Indicator	Estimate* (%)	Precision	Design Effect	Sample Size
Timely Initiation of breastfeeding	69.8	8.0	1.5	207
Exclusive Breastfeeding Rate	31.6	8.0	1.5	212
Continued breastfeeding at 1 year	18.4	7.0	1.5	192
Minimum Dietary Diversity	9.5	7.0	1.5	110
<b>Minimum Meal Frequency</b>	<b>45.3</b>	<b>8.0</b>	<b>1.5</b>	<b>243</b>
Minimum Acceptable Diet	6.8	7.0	1.5	81
Consumption of iron-rich or iron-fortified foods	24.2	7.0	1.5	235
Bottle feeding	9.9	7.0	1.5	114

\*From KABP 2014 Survey

The Care International Step-By-Step Guide (2010) recommends a precision of between 5% and 10%; in this survey, a precision of 8% was used for prevalence rates above 25% and 7% for those below 25% (Table 1). A design effect of 1.5 was used for the eight indicators. This was based on the assumption that there is some level of heterogeneity in the IYCN practices within the County. A 95% Confidence Interval was used in the calculation of the sample size. The indicator Minimum Meal Frequency (MFF) was used to calculate the final sample size because it yielded the largest sample size (243) at this stage sample size calculation. This sample size (243) was multiplied by 4 to yield a total sample size of 972 children 0 to 23 months of age. As recommended by the Care International Step-by-step Guide (2010); the sample size is multiplied

by 4 to allow for large enough samples for disaggregation into 4 age categories for children 0-23 months (0 – 5, 6 – 11, 12 – 17 and 18 – 23) during data analysis. This sample size (972) was then adjusted upward by a non-response rate of 2% to give **992** as the final sample size of children aged between 0 and 23 months.

### 2.3.2 Calculation of number of clusters

The total number of clusters/villages for the survey was **62**. This was obtained by dividing the calculated final sample size (**992**) by **16** (total number of households to be visited per cluster per day). The number of households to be visited per cluster per day was based on experience from previous KABP surveys that used the same MIYCN KABP tool as used in this survey and conducted in Homa-Bay, West Pokot, and Turkana.

### 2.3.3 Sample size for focus group discussions (FGDs)

In total 20 FGDs were conducted in all the three sub-counties in Samburu County. The FGDs were conducted in 20 villages across the villages/clusters sampled for the household survey. Half (10) FGDs were allocated to the mothers since they are the main stakeholders of IYCF issues, 6 FGDs for CHVs and 4 FGDs for men.

## 2.4 Sampling Procedure

A two-stage sampling methodology was used to select the target population (mothers/care givers) of children 0-23 months old.

### Sampling Stage 1

The first stage of sampling involved selection of villages (clusters) which was the sampling unit. The village is the smallest geographical unit for which population statistics were available. All the villages in each of the three sub-locations in Samburu County constituted the sampling frame with the exception of villages where there was insecurity. The population statistics used for sampling of the villages were from the National Census (2009) projections. Emergency Nutrition Assessment (ENA) for Standardized Monitoring and Assessment of Relief and Transitions (SMART) version November 2012 was used to randomly select the villages/clusters.

Each of the villages was listed together with its total population. The cumulative population was then calculated and used in the computation of a population proportional to size (PPS) sampling design to identify the specific villages to be covered by the survey. After computing the cumulative population, the sampling interval was determined by dividing the total cumulative population by the number of clusters required, i.e. 62. A random number (equal to or less than the sampling interval) was then selected from a Table of Random Numbers and the village where the random number fell was the first cluster to be selected for the survey. Subsequent villages were selected by adding the sampling interval to the number first selected. Through this process, the locations of the sampled villages/clusters were identified. This process was conducted using the ENA for SMART software.

### Sampling Stage 2

The second stage involved selection of 16 households per cluster/village. A list of all households with children 0-23 months per village was obtained from the Community Health Volunteers (CHVs) and 16 households selected through simple random sampling using Table of Random Numbers. Once a house was selected, the survey team visited the household and inquired if the

target respondent (mother/caregiver) of children 0-23 months of age lived that household. If the target population lived there and was willing to participate in the survey, then the relevant data was collected from the respondent. The same procedure was used in each of the selected 16 sampled households. Sampled households were revisited later during the day if, on first visit, the mother/caregiver was not present. If the target population did not live the sampled households then the same sampling procedure was followed to select another household.

If there was more than one child 0-23 months old in a household then the youngest one was included in the sample.

## 2.5 Data collection tools

The Kenya Ministry of Health (MoH) KAP questionnaire on Maternal, Infant and Young Child Nutrition (June 2015) shown in Appendix 1 was used to collect the quantitative data at the household level. The questionnaire was in English language. During the training, the key terms were translated into and described in Kiswahili (Kenyan national language) or/and the local languages spoken in Turkana County and back translated into English to ensure accurate translation. The translation (from English to local language and back translation to English) was agreed upon through general consensus during the training.

FGD and KII guides were used to collect quantitative data from various groups of community members and Key Informants (MoH officials and programme officers) respectively (Annex 2). These guides were developed by the consultant to solicit information related to the objectives of the KAPBP survey. The guides were developed in English language and key terms and ideas were translated into Kiswahili and local languages in Turkana County and back translated into English to ensure accurate translation during the training of the FGD team.

The questionnaires were pre-tested during the training for accuracy and validity. Minor corrections were incorporated after pre-testing. The questionnaires had provision for respondents to indicate their verbal informed consent before participating in the survey.

## 2.6. Implementation of the Survey

### 2.6.1 Survey Team

The survey team was composed of various groups of people:

- The coordination and supervisory teams composed of the consultant and two external technical assistants; CNC and SCNCs Turkana County, NSO Turkana County and officers from partner organizations.
- An ODK expert in charge of uploading questionnaire on to the ODK platform and ensuring their accuracy, managing data quality at the server and sharing the data with the relevant persons on a daily basis.
- The household survey team: Composed of 12 teams each comprising of 3 members making a total of 36 data collectors. Each team had 2 enumerators, and a team leader from the MoH and/or the partners.
- The FGD teams: Three FGD teams each composed of a facilitator/moderator, a recorder, an observer and a transcriber, making a total of 12 people.

The household survey team members had at least Kenya Certificate of Secondary Education (KCSE) with the majority having prior experience in surveys.

Note: The survey team members were mainly staff from the MoH (nurses, nutritionists, public health officers) and partners.

### 2.6.2 Training of survey team members

Four-day training for the household survey was conducted by the consultant and two technical assistants in collaboration with the Nutrition Support Officer (NSO) Turkana, Country Nutrition Coordinator (CNC) Turkana and Officers from the partner organizations. The training took place from 7<sup>th</sup> to 10<sup>th</sup> November 2017. The training focused on the objectives of the survey, uses of KABP surveys, cluster and household selection, interviewing techniques, accurate recording of responses and the use of mobile technology in data collection. Lectures, Question and Answer and demonstrations were used to train the participants. Role-plays on how to administer the questionnaire and record responses were also conducted. Participants were exposed to practical hands on experience on the use of mobile technology in data collection.

The FGD team was trained separately from the household survey team over a 3-day period from 8<sup>th</sup> to 10<sup>th</sup> November 2017 although they participated in the training for the household survey during the first day of the training (7<sup>th</sup> February). This was to enable them understand the survey purpose and objectives as this would assist them to better understand the kind of information they were required to collect through the FGDs. The training focused on the objectives of the FGDs, understanding the kind of information to be solicited through the FGDs, how to conduct FGDs, translation of the questions into the local language etc. Very important was how to record the discussions and deliberations. The transcribers were also trained on the transcription process.

### 2.6.3 Pre-testing

A one-day pre-testing of the questionnaires was conducted on the last day of training. This was to test for accuracy, clarity and validity and modified accordingly. Each team conducted 3 interviews and recorded responses on the tablets/mobile phones. The survey teams also tested the survey procedures; sampling, interviewing techniques, and the duration taken to sample and interview one household. The consultant and the supervision team members accompanied and observed the teams during the pre-testing in order to identify the weaknesses and strengths of the teams. All the filled in questionnaires were checked by the consultant, her assistants and the rest of the supervisory team (MOH and partners). Pre-test data was uploaded by the enumerators to the server and checked for data quality and accuracy by the consultant.

The FGD teams each conducted an FGD during the pre-testing; one team conducted an FGD for mothers, another for men and the third one for CHVs.

## 2.7 Data collection and quality control

The data was collected over a 6-day period, from 11<sup>th</sup> to 16<sup>th</sup> November 2017. Data was collected using face to face interviews at respondents' home. Data was collected by trained enumerators under the supervision of the consultant and the external technical assistants, MOH officials, NSO, officers from UNICEF, CNC, SCNCs and officers from partner organizations. Data was collected using android phones/tablets and the Open Data Kit (ODK software). Data entry process was conducted simultaneously with data collection. Validation and verification through comparisons of the data sets was done using Open Data Kit aggregate to obtain the final data. The enumerators were comprehensively trained in order to standardise the data collection

method. The enumerators uploaded the data on the ODK server daily once the data had been checked by the team leaders. Data was also validated on a model installed into the phones through skip patterns to ensure that what was submitted was correct and accurate.

## 2.8 Data management and analysis

### *Quantitative data*

The external ODK expert sent data uploaded to the server by the enumerators to the consultant on a daily basis and if there was need for corrections, the consultant passed this information to the expert who would then make the necessary changes to the data set. At the end of the survey, the expert sent the data set to the consultant in excel format. The consultant exported the data to SPSS version 22 and analysed the data based mainly on the WHO (2010) and MOH MIYCN indicators.

### *Qualitative data*

The data from both focus group discussions and key informant in-depth interviews were transcribed and content analysis conducted. Content analysis involves the detailed exploration for common themes and assigning of labels to variable categories. The categories or themes were identified in advance, in line with the objectives and scope of the survey. The coding consisted of searching for the common themes which could be established as categories into which later information could be inserted. The themes were clustered into a patterned order so as to identify variables that predict general concepts and isolate repetitions. Inferences were made from particular data under each theme and conclusions drawn from the findings. The qualitative data was used for triangulation of the findings; and to complement the quantitative data obtained from reported household interview information. The qualitative data has also been used to report findings on community's knowledge, attitudes, beliefs and practices of MIYCN as well as to identify the factors enhancing and barriers to appropriate MICYN practices.

## 2.9 Definition of key MIYCN indicators

A. **Household:** A group of persons who eat from the **same cooking pot**.

B. **Minimum Dietary Diversity for women of reproductive age [15 to 49 years of age] (MDD-W)** is a dichotomous indicator defined as: The proportion of women 15-49 years of age who consumed food items from at least five out of 10 food groups (FAO, 2016)<sup>1</sup>. The ten food groups are as follows:

1. Grains, white roots and tubers, and plantains
2. Pulses (beans, peas and lentils)
3. Nuts and seeds
4. Dairy
5. Meat, poultry and fish
6. Eggs
7. Dark green leafy vegetables
8. Other vitamin A-rich fruits and vegetables
9. Other vegetables

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<sup>1</sup> FAO (2016), Minimum Dietary Diversity for Women. A Guide to Measurement. Published by the FAO of the United Nations and USAID'S Food and Nutrition Technical Assistance Project III (FANTA), managed by FHI 360 Rome.

## 10. Other fruits

### C. Definitions of IYCF indicators:

1. **Early initiation of breastfeeding:** Proportion of children born in the last 24 months who were put to the breast within one hour of birth (WHO, 2010).
2. **Exclusive breastfeeding under 6 months:** Proportion of infants 0-5 months of age who are fed exclusively with breastmilk (WHO, 2010).
3. **Continued breastfeeding at 1 year:** Proportion of children 12-15 months of age who are fed milk (WHO, 2010).
4. **Introduction of solid, semi-solid or soft foods:** Proportion of infants 6-8 months of age who receive solid, semi-solid or soft foods (WHO, 2010).
5. **Minimum Dietary Diversity:** Proportion of children 6-23 months of age who receive foods from 4 or more food groups (WHO, 2010). The seven food groups are also as follows:

11. Grains, roots and tubers
12. Legumes and nuts
13. Dairy products (milk, yoghurt, cheese)
14. Flesh foods (meat, fish, poultry and liver/organ meats)
15. Eggs
16. Vitamin A-rich fruits and vegetables
17. Other fruits and vegetables

6. **Minimum Meal Frequency:** Proportion of children 6-23 months of age who receive solid, semi-solid, or soft foods (including milk feeds for non-breastfed) the minimum number of times or more calculated as follows (WHO, 2010):

- **Breastfed children 6-23 months old who receive** solid, semi-solid, or soft foods the minimum number of times or more during the previous day **and non-breastfed children 6-23 months old who receive** solid, semi-solid, or soft foods the minimum number of times or more during the previous day.

Note: **For breastfed children**, the minimum number of times varies with age (2 times for children 6-8 months old and 3 times is 9-23 months old).

**For non-breastfed children**, the minimum number of times does not vary with age (4 times for all children).

7. **Minimum acceptable diet:** Proportion of children 6-23 months of age who receive a minimum acceptable diet (apart from breastmilk) calculated as follows (WHO, 2010).

- **Proportion of breastfed children 6-23 months of age** who had at least the minimum dietary diversity and the minimum meal frequency during the previous day **and non-breastfed children 6-23 months of age** who had at least the minimum dietary diversity and the minimum meal frequency during the previous day.

8. **Consumption of iron-rich or iron-fortified foods:** Proportion of children 6-23 months of age who receive an iron-rich food or iron-fortified food that is specially designed for infants young and children during the previous day (WHO, 2010).

### 3. RESULTS

#### 3.1 Household characteristics

The majority (88.6%) of the households were male-headed with only 11.4% being female-headed. The mean household size was  $5.5 \pm 2.1$ .

#### 3.2 Child characteristics

The total sample size for children 0-23 months was 991 out of which infants 0-5 months of age were 336 (33.9%). This sample size was higher than the calculated sample size of 243. Children 6-23 months of age comprised of 66.1% of the total population. Disaggregated further by age, children 6-11 months old formed 27.7%, and those 12-17 months formed 20.8% whereas those 18-23 months old formed 20.8% of the total sample. The mean age of the children was  $9.8 \pm 6.8$  (Table 2). For the majority of the children the age was verified by health card (89.7%) whereas the rest were verified with other means including seasonal calendar of events for 7.2% of the children. The sex distribution of the children was almost equal 50.3% males and 49.7% females. The majority of the children (60.7%) were born at home, 27.1% in hospitals and 3.5% and 6.4% in health centres and dispensaries respectively (Table 2).

Table 2: Child characteristics

Child Characteristics	N=991	
	n	%
Children 0-23 months old	991	100
Children 0-5 months old	336	33.9
Children 6-23 months old	655	66.1
Children 6-11 months old	275	27.7
Children 12-17 months old	206	20.8
Children 18-23 months old	174	20.8
Age (mean +SD)	$9.8 \pm 6.8$	
<b>Age verified:</b>		
Health Card	889	89.7
Birth certificate	1	0.1
Seasonal calendar of events	71	7.2
Others	30	3.0
<b>Sex of child:</b>		
Male	498	50.3
Female	493	49.7
<b>Place of delivery:</b>		
Hospital	269	27.1
Health centre	35	3.5
Dispensary	63	6.4
Home	602	60.7
Midwife's home	14	1.4
Others	8	0.8

#### 3.3 Maternal/Caregivers' characteristics

The majority of the mothers/caregivers were relatively young with a mean age of  $27.8 \pm 6.7$  years and a mean parity of  $3.5 \pm 2.2$  children. The majority of mothers/caregivers (90.7%) were married whereas much smaller proportions were separated/divorced (3.7%) and the rest were either



cohabiting, separated/divorced were single or never married (Table 3). The majority (89.4%) of the mothers/caregivers were lactating with only 1.2% who reported to be pregnant and lactating. The mothers/caregivers' level of education was low; most of them 75.6% had no formal education and 12.6% had less primary education. The main occupation of the mothers/caregivers was petty trade practiced by 48.7% whereas 22.6% were (Table 3).

Table 3: Maternal and caregivers' characteristics

Characteristics	N=991	
	n	%
Age (mean $\pm$ SD)	27.8 $\pm$ 6.7	
<b>Religion:</b>		
Christian	946	96.4
Muslim	7	0.7
Traditional	27	2.8
<b>Marital status</b>		
Currently married	890	90.7
Cohabiting	17	1.7
Separated/divorced	36	3.7
Widowed	19	1.9
Single/never married	19	1.9
<b>Physiological status:</b>		
Pregnant	42	4.3
Lactating	877	89.4
Pregnant and lactating	12	1.2
Not pregnant/Not lactating	50	5.1
<b>Education:</b>		
No formal education	742	75.6
Less than primary school	125	12.6
Primary school	63	6.4
Secondary school	31	3.1
College/University	19	1.9
Postgraduate school	1	0.1
<b>Main occupation:</b>		
Formal employment	16	1.6
Informal employment	2	0.2
Casual labour	49	5.0
Own business	49	5.0
Petty trading	478	48.7
Farming	43	4.4
Pastoralist	76	7.7
Dependent	20	2.0
Housewife	222	22.6
Others	26	2.2
<b>Parity (mean<math>\pm</math>)</b>	3.5 $\pm$ 2.2	

### 3.4 1. Infant and young child feeding practices

Infant feeding and complementary feeding practices were determined based on a 24-hour recall as recommended by WHO (2010) and the Kenya Ministry of Health (MoH) guidelines (2016). The key indicators are also based on the same guidelines (refer to section 2.9 Definitions of IYCF indicators).

#### 3.4.1 Breastfeeding practices for children 0-23 months old

Breastfeeding was universal with almost all the children (99.3%) having ever breastfed. The majority (80.2%) of the children were initiated to breastfeeding timely (within one hour of birth) as per the WHO recommendations (WHO, 2010). A majority of the children (98.4%) were fed colostrum, 89.4% of children one year old were still breastfeeding and the majority (96.4%) were

fed on demand. The exclusive breastfeeding practice was 76.5% (Figure 2). These findings demonstrate that breastfeeding practices are optimal.

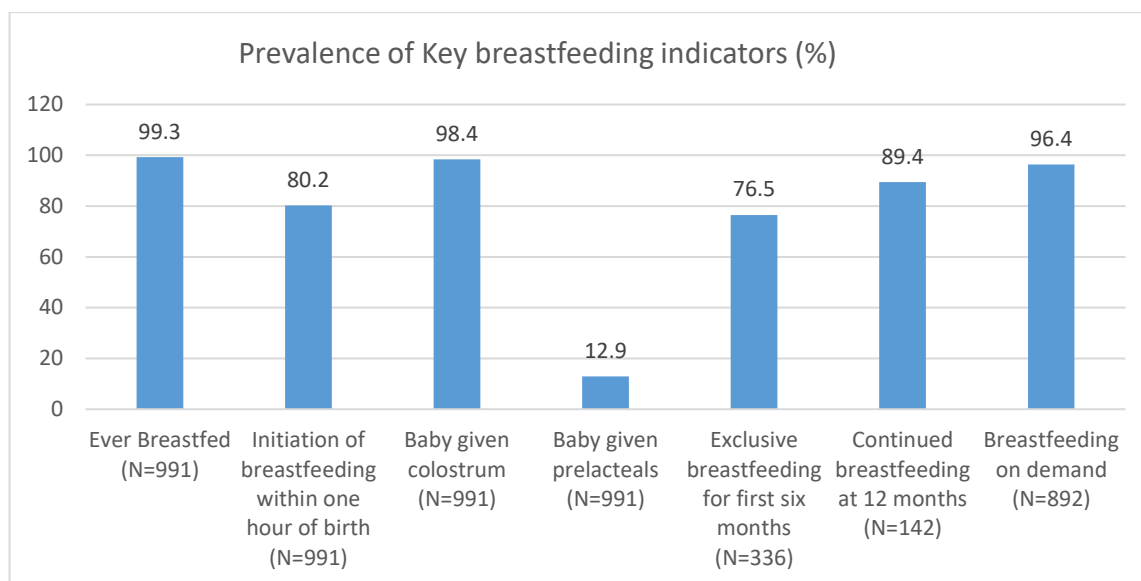


Figure 2: Breastfeeding practices

Disaggregated by age exclusive breastfeeding rate was highest among infants 0-1 month (88.7%) followed by those 0-3 months old at 86.0% and the lowest rate (56.1%) was for infants 4-5 months old showing a decline in the practice as the child become older. Most of the infants were exclusively breastfed up to 3 months as demonstrated by the sharp drop in the rate at 4-5 months of age (Figure 3).

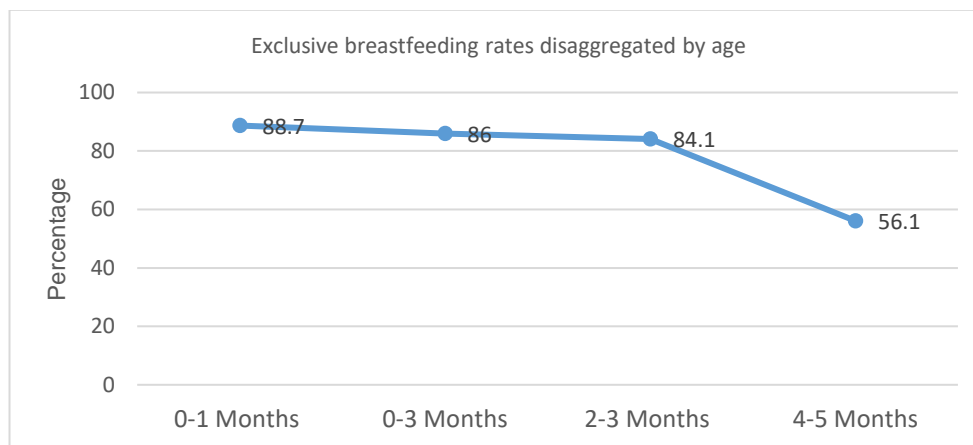


Figure 3: Exclusive breastfeeding rates disaggregated by age of child

Pre-lacteal feeds were given to 12.9 % of the children (Table 4), a practice that should be discouraged because it interferes with the establishment lactation. The most commonly given pre-lacteal feed was other milks given to 61.7% of those children who received pre-lacteal feeds followed by plain water given to 23.4% and sugar water to 15.6%. Various reasons were reported for giving of pre-lacteal feeds; cultural reasons by 39.8%, mother does not or have little breastmilk by 36.7%, baby cries too much by 19.5% whereas 16.4% of the mothers did not know why pre-lacteal feeds are given (Table 4).

Table 4: Pre-lacteal feeding/Types of Pre-lacteal feeds given to infants

Giving of pre-lacteal feeds	N=977	
	n	%
Given pre-lacteal feeds	128	12.9
<b>Pre-lacteal feeds given (N=128)*</b>		
Other milks	79	61.7
Plain water	30	23.4
Sugar/glucose water	20	15.6
Gripe water	3	2.3
Sugar/salt solution	19	14.8
Infant formula	6	4.3
Animal fat	1	0.8
Others	5	3.9
<b>Reasons for giving pre-lacteals (N=128)</b>		
No/little breastmilk	47	36.7
Baby cries too much	25	19.5
Cultural reasons	51	39.8
Weather too hot	1	0.8
DNK	21	16.4

\*Multiple responses

### Support offered to mothers to help in start breastfeeding

In terms of breastfeeding support given to mothers to start breastfeeding; 47.2% received such support whereas 52.8%, relatively large proportion did not receive this vital support (Figure 4).

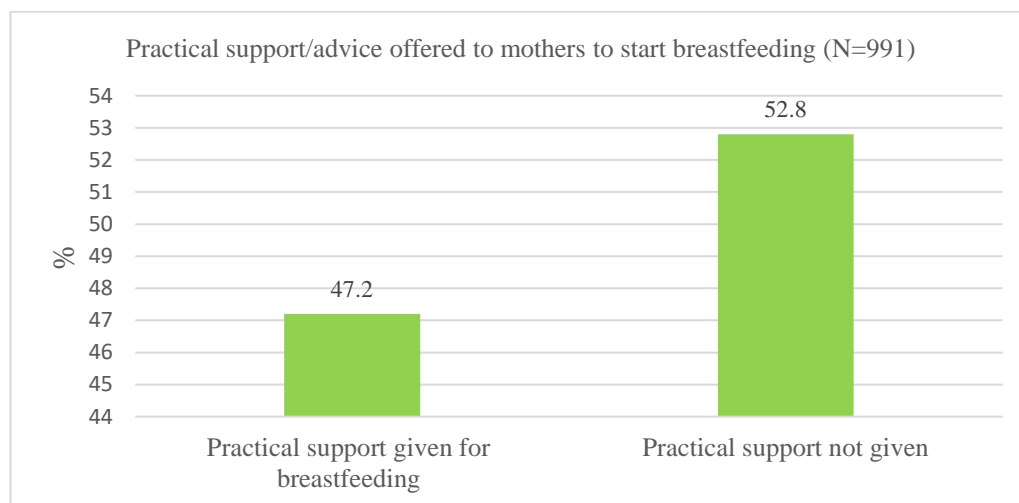


Figure 4: Practical support offered to mothers to start breastfeeding

### 3.4.2 Bottle feeding practices

Overall, 63.7% of the children were fed using a container the day before the survey. Over one-tenth (12.7%) of the children were fed using a bottle with a nipple/teat, a practice that is not recommended because of hygienic reasons as it is difficult to keep the teat clean especially for mothers with poor hygiene practices. About one-third of the children (34.9%) who were fed from a container were correctly fed using a cup only as is the recommended practice (Figure 5).

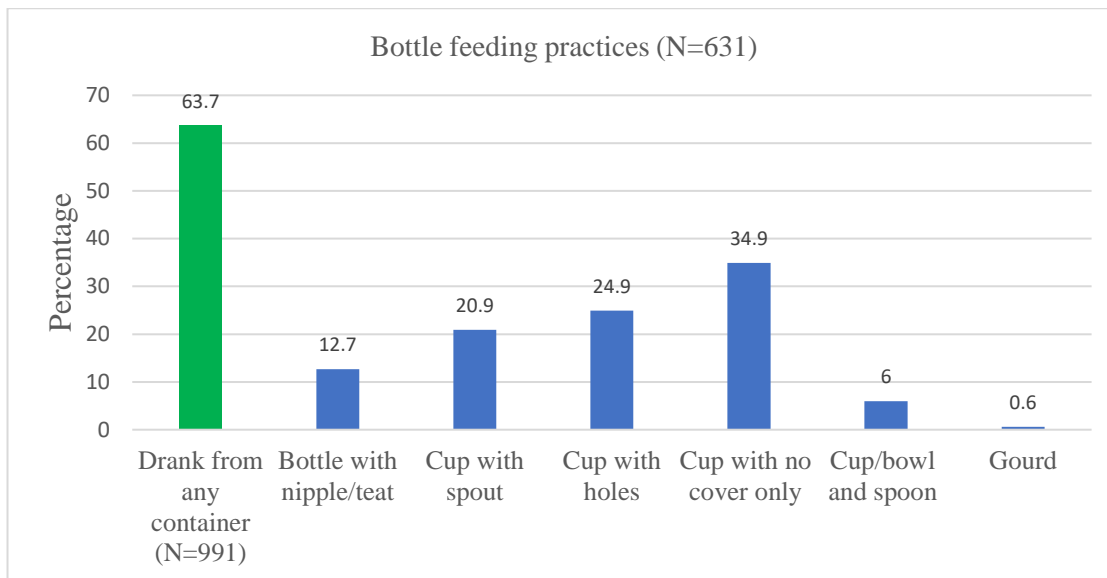


Figure 5: Feeding of children using various containers

### 3.5 Complementary feeding practices

The main decision maker on what the child eats was reported to be the mother by 93.2% of the respondents and only 0.4% of the fathers and 1.6% grandmothers.

#### 3.5.1 Types of foods eaten the previous day by children 6-23 months old

The most consumed foods were cereals eaten by 80.3% of the children followed by foods from the milk and milk products group by 70.1% and meats by 37.3% (Table 5). Legumes were consumed by 56.9% and dark green vegetables by 33.7%. The least consumed food groups were fresh and dried and fish by 11.8% and other fruits and vegetables by the same percentage of children (Table 5).

Table 5: Types of food eaten by children 6-23 months old

Foods eaten the previous day	N=655	
	n	%
Fortified food like cerelac	46	7.0
Cereals (maize, rice, wheat, porridge, sorghum, bread, or other foods grains	526	80.3
Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside	108	16.5
White potatoes, white yams, cassava or any other foods made from roots	206	31.5
Dark green vegetables	221	33.7
Ripe mangoes, papayas, pawpaw, guava (yellow or orange on the inside of the fruit	181	27.6
Any other fruits or vegetables	77	11.8
Liver, kidney, heart or other organ meats	213	32.5
Meat such as beef, pork, lamb, goat, chicken, or duck	244	37.3
Eggs	95	14.5
Fresh or dried fish	77	11.8
Bean, lentils, or nuts	373	56.9
Cheese and other foods made from milk	459	70.1
Any other solid foods	353	53.9

### 3.5.2 Introduction and consumption to solid, semi-solid or soft foods

A small percentage of (36.0%) of children 6-23 months old were introduced to solid, semi-solid or soft foods at the appropriate age (6-8 months). About half of the children (46.4%) both breastfed and non-breastfed children attained the Minimum Dietary Diversity (MDD), that is ate foods from **four** or more out of **seven** food groups (WHO, 2010) (see section 2.9 on definitions of IYCF indicators). Disaggregated by breastfeeding status, the percentage of breastfeeding children who attained MDD was 43.5% compared to 65.6% non-breastfed children (Table 6).

The percentage of both breastfed and non-breastfed children who attained the Minimum Meal Frequency (MMF) was 33.0 % (Table 6). Disaggregated by age, children 6-11 months old who attained the MMF was 33.1%, 12-17 months 39.3% and 18-23 months 25.3%. Disaggregated by age and breastfeeding status; the proportion of breastfed children 6-8 months who attained MMF was 29.9% and those 9-23 months who attained MMF WAS 37.6%. The proportion of non-breastfed children who attained MMF WAS 15.6% (Table 6).

The percentage of children 6-23 months old who received a Minimum Acceptable Diet (MAD) was low at 19.5% (Table 6) implying that about three-quarters of the children are not receiving diverse diets and also the meals are not as frequent as they should be. The children are therefore not getting adequate diet in terms of diversity and quantity.

About half (47.6%) of the children 6-23 months received iron-rich or and iron-fortified foods (Table 6).

Table 6: Prevalence of Key complementary feeding practices

	n	%
Proportion of infants 6-8 months old who received solid, semi-solid or soft foods the previous day: (N=139)	50	36.0
<b>Minimum Dietary Diversity (MDD)</b>		
Proportion of infants 6-23 months old who received foods from $\geq 4$ food groups the previous day: (N=655)	305	46.6
Proportion of children 6-23 months who received foods from $\geq 4$ food groups the previous day disaggregated by breastfeeding status:		
• Not breastfed (N=90)	59	65.6
• Breastfed (N=565)	246	43.5
<b>Minimum meal frequency (MMF)</b>		
Proportion of breastfed and non-breastfed 6-23 months of age who received foods the minimum times or more the previous day (N=655)	216	33.0
Proportion of both breastfed and non-breastfed who received foods the minimum times or more the previous day disaggregated by age as follows:		
• 6-11 months [2 times] (N=275)	91	33.1
• 12-17 months old (N=206)	81	39.3
• 18-23 months old [3 times] (N=174)	44	25.3
Proportion of breastfed children who received foods the minimum times or more the previous day by breastfeeding status and age:		
Breastfed:		
• 6-8 months old [2 times] (N= 137 )	41	29.9
• 9-23 months old [3 times] (N=130 )	49	37.7
Non-breastfed:		
6-23 months old [4 times] (N=112)	14	15.6
<b>Minimum Acceptable Diet (MAD)</b>		
Proportion of children 6-23 months of age who receive a minimum acceptable diet: N=655	128	19.5
<b>Consumption of iron-rich and or iron-fortified foods (N=655)</b>	312	47.6

### 3.6 Responsive feeding of children 6-23 months old

Most of the children 6-23 months old (91.1%) were fed by their mothers/caregivers the day before the survey. About half of the children (48.1%) did not eat all the food served for them at the main meal. About half of the children (56.3%) were verbally encouraged to eat with a high percentage of those encouraged (85.4%) being verbally encouraged to do so (Table 7). Over half of the mothers/caregivers (57.6%) talked to the children during the main meal eaten the day before the survey; 81.4% praised the child whereas 13.3% ordered the child to eat. Slightly over one-third of the children self-fed during the meal with 44.6% of them self-feeding all the time and 25.2% half the time (Table 7).

Table 7: Responsive feeding of children 6-23 months old

<b>Responsive feeding of children 6-23 months old</b>		
Mother/caregiver fed the child the previous day (N=655)	597	91.1
YES	58	8.9
NO		
Child ate all the food at the main meal (N=655)		
YES	302	46.1
NO	287	43.8
DNK	8	1.2
Did you do anything yesterday during the main meal to encourage the child to eat? (N=597)		
YES	336	56.3
NO	261	43.7
How child was encouraged to eat: (N=336)		
Offered another food or liquid	48	14.3
Encouraged verbally	287	85.4
Modeled eating (with or without toy)	15	4.5
Ordered strongly or forced the child to eat	10	3.0
Another helped feed the child	7	2.0
Another person encouraged the child	35	10.4
Talked to the child during the main meal (N=597):		
YES	344	57.6
NO	250	41.9
DNK	3	0.5
If YES, What did you say? (N=344)*		
Ordered child to eat	46	13.3
Praised the child	280	81.4
Asked the child questions	12	3.5
Talked about the food	74	21.5
Threatened the child	8	2.3
Told the child that she liked the food	22	6.4
Talked about other things	23	6.7
Did the child self-feed at any moment during the meal? (N=655)		
YES	242	36.9
NO	412	62.9
DNK	1	0.2
Did the child feed all the time during the main meal? (N=242)		
All the time	108	44.6
Half the time	61	25.2
Little bit of the time	71	29.3
DNK	2	0.8

\*Multiple responses so total more than 100%

### 3.7 Feeding during illness

Appropriate feeding during illness is important to confer immunity to the child and also to prevent the child getting from getting malnourished. The majority of the children (85.8%) were offered less breast milk during the last time the child was ill. The same was true for the amount of non-breast milk liquids as 77.4% sick children was offered less amounts than usual. Similarly, the majority of the sick children (73.3%) were fed less food during illness than normal times. The reasons for this was that the children did not want the food or the liquids because of lack of appetite (Table 8). During recovery from illness 30.8% were offered less food, 30.7% more food and 26.0% the same amount of food as usual (Table 8).

Table 8: Feeding during illness

	n	%
Has child ever been sick? (N=991)		
YES	753	76.0
NO	238	24.0
The amount breast milk the child was offered during the last time illness (N=753)		
Less, because the child did not want it	646	85.8
Less because mother decided to give less	13	1.7
More	27	3.6
The same	41	5.4
Child never breastfed or child not breastfeeding before illness	19	2.5
Does not know	7	0.9
The amount of non-breast milk liquids offered to the child during illness: (N=753)		
Less, because the child did not want it	583	77.4
Less because of mother's decision	11	1.5
More	15	2.0
The same	14	1.9
Child never fed on non-breastfed liquids	119	15.8
Does not know	11	1.5
The amount of food offered to the child during illness: (N=753)		
Less, because the child did not want it	552	73.3
Less because of mother's decision	18	2.4
More	21	2.8
The same	31	4.1
Child never fed foods	120	15.9
Does not know	11	1.5
The amount of food offered to the child after illness ended: (N=548)		
Less, because the child did not want it	234	30.8
Less because of mother's decision	21	2.8
More	231	30.7
The same	196	26.0
Does not know	73	9.7

### 3.8 Knowledge and consumption of micronutrient powders for children 6-23 months old

#### 3.8.1 Knowledge of micronutrient powders (MNPs)

When asked about awareness MNPs, only 24.3% of the mothers and caregivers indicated that they had seen or heard of them and 75.7% said they had not seen or heard of them. The majority (85.9%) of those who were aware of the MNPs had first seen or heard of them from the health facility and 9.1% from CHVs (Table 9). Only 6.4% of all the children 6-23 months old received the MNPs in the last 6 months with 87.3% of them having received the commodity from the health facility and 11.1% from the CHVs (Table 9). The major reason why the children had not received MNPS was because the mothers did not know about them as reported by 74.3% and 29.7% stated that they had not been offered the commodity at the health facility (Table 9).



Table 9: Maternal knowledge and sources of MNPs

	<b>n</b>	<b>%</b>
Seen or heard of micronutrient powders: (N=991)		
YES	241	24.3
NO	750	75.7
Where first seen or heard of micronutrient powders (N=241)		
Health facility	207	5.9
CHV	22	9.1
Support group	1	0.4
Community members (barazas/church/neighbor/friend)	6	2.5
Other family member	3	1.2
Other	2	0.8
Did child receive micronutrient powders in the last six months: (N=991)		
YES	63	6.4
NO	928	93.6
Where the micronutrient powders was sourced from: (N=63)		
Bought from shop/chemist	1	1.6
Free from health facility	55	87.3
Free from CHV	7	11.1
Reasons why child did not receive micronutrient powder: (N=928)		
Do not know about micronutrient powder	443	74.3
Discouraged from what I heard from others	4	0.7
The child has not fallen ill, so have not gone to health facility	13	2.2
Health facility outreach or is far	14	2.3
Child receiving therapeutic or supplementary foods	11	1.8
I was not offered micronutrient powder at the health facility	177	29.7
Others	15	2.5

### 3.8.2 Preparation of food and consumption of Micronutrient Powders (MNPs)

The majority of the mothers/caregivers (81.6%) indicated that they stayed away from the child for more than half a day for 0-1 day/week. This is an indication that they took care of the children including feeding them by themselves most of the time. A large percentage of the children ate all the food served to them as 46.5% of the children left food once in a while and 21.0% left food on the plate most of the time (Table 10) with 18.3% having never left the food served to them. In terms of what is done to the food that remained on the plate, the majority of the mothers (70.5%) gave the food to other children whereas 15.9% put the food elsewhere to feed the child later and 8.1% threw away the food (Table 10). The majority of the mothers (93.7%) prepared food with MNPs correctly, by putting in food warm cooked food that is ready to eat whereas only 23.8% gave the child food with MNPS every third day as recommended.

Table 10: Preparation of food with and consumption of MNPs

	n	%
How often are you/mother away from the baby for most of the day (more than half a day)? (N=991)		
Always (6 days/week)	30	3.0
Often (4-5 days/week)	21	2.1
Sometimes (2-3 days/week)	131	13.2
Never/few days (0-1 day/week)	809	81.6
How often the child's food remains on the plate: (N=652)		
Most of the times/always	137	21.0
Often/several times	93	14.3
Few times/once in a while	303	46.5
Never	119	18.3
What is done to the food that remains on the plate: (N=533)		
Put in a cupboard to feed baby later	8	1.5
Put elsewhere to feed baby later	85	15.9
Thrown away	43	8.1
Given to other children	376	70.5
Others	21	3.9
How frequent do you give your child micronutrient powders: (N=63)		
Every day	12	19.0
Every other day	20	31.7
Every third day	15	23.8
2 days per week at any day	9	14.3
At any day when I remember	3	4.8
Cannot remember/Do not know	4	6.3
Preparation of food with micronutrient powders: (N=63)		
Cook with child's food	4	6.3
Mix with cooked solid or semi-solid food that is warm and ready to it	59	93.7
Quantity of food mixed with the micronutrient powder: (N=63)		
All the amount of food prepared for the child	5	7.9
Quantity that a child can eat once	58	92.1

### 3.9 Knowledge on infant and young child feeding practices

#### 3.9.1 Knowledge on breastfeeding practices

Overall, the mothers/caregivers were knowledgeable on breastfeeding practices (Table 11). The majority of the mothers (85.8%) knew the right time to initiate breastfeeding after birth. Majority (96.8%) stated that a baby should be given colostrum and 79.7% also knew the health benefits of colostrum to the child. Most of the mothers (93.0%) stated that babies should not be given pre-lacteals. Maternal knowledge on the duration of exclusive breastfeeding was high with 94.2% reporting that EBF should be conducted for 6 months. Over one-tenth of the mothers (14.4%) reported that babies should be fed liquids with a bottle with nipple/teat and 38.7% indicated that babies should be fed liquids with a cup only and 3.9% reported or cup and spoon (Table 11).

Table 11: Maternal knowledge on breastfeeding practices

<b>Breastfeeding practices</b>	<b>n</b>	<b>%</b>
How long after birth should a baby be put to the breast? (N=991)		
Less than one hour	850	85.8
More than one hour	103	10.4
More than 24 hours	15	1.5
DNK	23	2.3
Should a baby be given colostrum? (N=991)		
YES	959	96.8
NO	23	2.3
DNK	9	0.9
What are the benefits of feeding the baby colostrum? (N=991)		
Nutritious to the baby	790	79.7
Prevents diseases/infections	500	50.5
Cleans baby's stomach	287	30.0
Nothing specific	11	0.2
Others	39	3.9
Don't know	101	10.2
Within the first three days after delivery, should a baby be given anything to drink/eat other than breast milk? (N=991)		
YES	85	8.6
NO	900	90.8
DNK	6	0.6
If YES, What should be given? N=85*		
Milk other than breastmilk	62	72.9
Plain water	24	28.2
Sugar/glucose water	8	9.4
Gripe water	1	1.2
Sugar/salt solution	15	17.6
Fruit juice	1	1.2
Infant formula	1	1.2
Others	4	4.7
For how long (in months) should a child be fed on breast milk without being given anything else even water? (N=991)		
Less than 6 months	68	6.9
6 months	866	94.2
7-12 months	43	2.5
>12 months	13	1.3
DNK	1	0.1
What should be used to feed liquids to a baby? (N=991)		
Bottle with nipple/teat	143	14.4
Cup with spout	161	16.2
Cup with holes	233	23.5
Cup only	384	38.7
Cup/bowl and spoon	39	3.9
Feeding with palm/strokes	2	0.2
Gourd	2	0.2
Others	27	2.7

\*Multiple responses

### 3.9.2 Knowledge on complementary feeding practices

In terms of having received information on complementary feeding practices, about half (48.8%) of the mothers/caregivers reported that they had received the information. The main sources of information for the majority of the mothers/caregivers was the CHVs (44.8%) mother/mother in law for 43.2%. The print media was a source of information for 19.6% whereas the health worker was a source of information for only 0.4% of the mothers. A large majority of the mothers 72.8% knew that solid, semi-solid or soft foods should be introduced to the child at 6 months of age (Table 12).

Table 12: Knowledge of complementary feeding practices

<b>Knowledge on complementary feeding practices</b>	<b>n</b>	<b>%</b>
Received information about feeding (N=991)		
YES	484	48.8
NO	502	50.7
DNK	5	0.5
Source of information on feeding: (N=484)		
• Mother/mother in law	209	43.2
• Father/father in law	4	0.8
• Other relative	41	8.5
• Neighbour/friend	47	9.7
• Health worker	2	0.4
• Community Health volunteer (CHV)	217	44.8
• Print media	194	19.6
• Electronic media	2	0.4
• Others	9	1.8
• DNK	9	1.8
Age at which solid, semi-solid and soft foods should be introduced to a child		
< 6 months	43	4.3
6 months	721	72.8
7-12 months	226	22.8
>12 months	1	0.1

### 3.10 Attitudes on infant and young child feeding practices

On the whole, maternal attitudes on infant and young child feeding practices were positive. Most of the mothers (85.2%) were of the opinion that babies should be put to the breast immediately after birth (Table 13). A large majority 98.9% also stated that they would feed their babies colostrum and 85.8% of the mothers also stated that it is important to exclusively breastfeed the baby without giving anything else or drink including water for 6 months.

Table 13: Maternal attitudes on infant and young child feeding practices

	n	%
In your opinion should a baby be put to the breast immediately they are born (N=991)		
YES	844	85.2
NO	133	13.4
DNK	14	1.4
Would you feed your baby colostrum? (N=991)		
YES	980	98.9
NO	6	0.6
DNK	5	0.5
Why would you not feed your baby colostrum? (N=6)		
Dirty milk	1	16.7
Not satisfying/sufficient	2	33.3
Mother needs rest	1	16.7
other	2	33.3
In your opinion is it important for a baby to be breast fed for 6 months without being introduced to anything else or drink including water? (N=991)		
YES	850	85.8
NO	102	10.3
DNK	39	3.9

### 3.11 Perceptions on infant feeding practices

Overall, the maternal perceptions towards infant feeding practices were positive. The majority of the mothers (66.0%) disagreed with the idea that certain foods are taboo and should not be fed to pregnant women (Table 14). Similarly, 84.6% the mothers also disagreed with the idea that a new-born baby should be given liquids or semi-liquids and 80.5% disagreed with the idea that a baby cannot survive on breastmilk alone for 6 months. In terms of cultural practices, 74.3% of the mothers disagreed with the perception that certain foods are taboo and should not be fed to a child whereas 75.7% disagreed with the idea that children should not be breastfed up to 2 years (Table 14).

Table 14: Maternal perceptions on infant feeding practices

Perceptions	N=991	
	n	%
Some people believe that certain foods are taboo and should not be fed to pregnant women		
Agree	281	28.4
Not sure/neutral	56	5.7
Disagree	654	66.0
Some people believe that a new-born baby should be given other liquids/semi-liquids		
Agree	116	11.7
Not sure/neutral	37	3.7
Disagree	838	84.6
Some people believe that colostrum is dirty and should not be fed to new born babies		
Agree	75	7.6
Not sure/neutral	37	3.7
Disagree	879	88.7
Some people believe that a baby cannot survive on exclusive breastfeeding for six months,		
Agree	113	11.4
Not sure/neutral	80	8.1
Disagree	798	80.5
Some people believe that certain foods are taboo and should not be fed to a child.		
Agree	184	18.6
Not sure/neutral	71	7.2
Disagree	736	74.3
Some people believe that a young child should not be breastfed up to 2 years.		
Agree	135	13.6
Not sure/neutral	106	10.7
Disagree	750	75.7

### 3.12 Factors influencing Infant and Young Child Feeding (IYCN) practices

#### 3.12.1 Factors enhancing IYCF practices

##### Breastfeeding practices

In general, the practice of EBF was reported to be improving at the community level but with variability from one area to another. Exclusive breastfeeding was reported to be commonly practiced in Turkana West and Turkana North although with variability from one area to another. The practice of EBF was reported not to be common in Turkana Central, Turkana South, Loima and Kibish but again with variability from one area to another.

One of the factors that is probably contributing to improved breastfeeding practices and in particular EBF rates is high level of knowledge in the community about breastfeeding practices. The quantitative findings showed the majority of the respondents to be knowledgeable about the critical aspects of breastfeeding such as duration and importance of EBF, timely initiation of breastfeeding, the health benefits of colostrum to the baby and that pre-lacteal feeds should not

be given to the baby. These findings were corroborated by those from the FGDs. The community members including the men demonstrated high level of knowledge on breastfeeding practices. Overall, the views of the community about exclusive breastfeeding were positive. The following statement made by a participant during an FGD demonstrates that the community members were knowledgeable about the health benefits of EBF;

*“The CHVs have taught them enough about exclusive breast feeding. The majority of the women know about the benefits of EBF- exclusively breastfed children are healthy and do not fall sick often and they also grow faster”.*

In addition, community views on breastfeeding practices were positive. Exclusive breastfeeding practices, for example, was viewed as imparting a lot health benefits to the baby. The community members reported in the FGDs that exclusive breastfeeding of children makes them grow well; prevents diarrhoea because it boosts immunity and therefore it reduces expenses of going to health facility for medication because the baby hardly gets sick. It was reported that the household visits by CHVs were majorly responsible for high community knowledge and positive attitudes and perceptions towards appropriate breastfeeding practices.

Some cultural factors were also reported to enhance the practice of breastfeeding as expressed in the following statement;

*“When the mother is still breastfeeding then she should not have sexual intercourse with the husband, to avoid the child getting the dirty milk from the mother”.* Some believe that the husband’s sperms are transferred to the breastmilk and this is not healthy for the baby.

#### Complementary feeding practices

There was high knowledge demonstrated by mothers and other community members on appropriate complementary feeding practices. For example, the community members knew that complementary foods should be introduced at 6 months of age. In one of the FGDs, a participant reported:

*“Complementary feeding should be introduced at 6 months for baby to grow healthily”.*

The knowledge did not always translate into appropriate practices. During the FGDs, it was reported in most of the villages that complementary feeding practices were inadequate for the majority of the children. Many children were introduced to complementary feeding between 3-4 months of age and that many were not given a variety of foods as recommended. This finding was in agreement with the quantitative data which showed high level of knowledge on and at the same time inappropriate feeding practices based on most of the key indicators of complementary feeding. Many mothers were not able to translate the knowledge on complementary feeding into feeding practices because of factors beyond their control such as unavailability and inaccessibility of foods.

#### 3.12.2 Barriers to Infant and Young Child Feeding Practices

During the FGDs, many barriers were reported to be interfering with appropriate infant feeding practices as indicated below:

- Inadequate food for mothers affecting milk production among breastfeeding mothers. Poverty was cited as the main reason causing household food insecurity and therefore why the mothers do not have an adequate diet;
- EBF in particular is not practical when mother is sick;

- Cultural factors such as were reported to hinder the practice of EBF in some areas and communities such. It was a belief in some areas breastfeeding can only be initiated after the baby has been named. The naming ceremony may delay because of the procedures to be followed during the ceremony. Meanwhile, the baby will be given ghee or water before;
- High maternal workload affecting time mother is available to breastfeed and prepare appropriate complementary foods for the baby;
- Alcoholism among the mothers interfering with quality of care given to children;
- Unavailability and inaccessibility of foods to provide appropriate complementary feeding to the children;
- Poverty making food inaccessible to the majority of the households; and
- Lifestyle (nomadism) making the mother not have adequate time to take of children.

### 3.13 Ante Natal Care (ANC) for pregnant women

#### 3.13.1 Attendance of ANC clinics and provision of services

Women who were currently pregnant during the survey were asked questions about ante-natal care during the pregnancy. Almost two-thirds (64.8%) of the women had received ANC services (Table 15). The mean age of gestation at which the first ANC visit was made was  $4.5 \pm 1.8$  months. In terms of frequency of ANC attendance, the mean number of times was  $2.8 \pm 1.6$ . The majority of the women received services from public health facilities: hospital (25.7%); public health centre (22.9%) and public health dispensary 40.0%. A very small percentage (5.7%) received services from faith-based clinics. The majority (85.7%) of the women were attended to by nurses/midwives.

The majority of the women had received the essential services which should be offered in an ANC clinic. Test for pregnancy and HIV/AIDS and provision of IFAS were the most commonly offered services; offered to 88.6% of the pregnant women. Breastfeeding information was offered to 77.1%, infant feeding to 68.6% and birth planning to 68.6% (Table 15). The overall picture is that nutrition services were not offered to the same extent as the other health services.

When asked about services which had been offered to them at least once, the majority of the women had received the critical services offered in ANC clinics. Most of the women received the essential services which should be offered in ANC clinics (Table 15). All the women had their weights measured; 97.1% tested for HIV status and those supplied with IFAS were 91.2%. The least offered services were provision of mosquito bed nets to 28.6%, and de-worming tablets and anti-malaria drugs to 57.1% in each case.



Table 15: ANC care for pregnant women

	n	%
Seen anyone for ANC during this pregnancy (N=54)		
YES	35	64.8
NO	19	35.2
Mean gestation age when first receive Ante-natal care (N=35)	Mean 4.5 ±1.8	
Mean number of times received ante-natal care (N=35)	Mean 2.8 ± 1.6	
Where ANC services were received: (N=35)		
Home	1	2.9
Public Hospital	9	25.7
Public Health Centre	8	22.9
Public Dispensary	14	40.0
Faith-based Hospital/Clinic	2	5.7
Others	1	2.9
Who attended to you during ANC visits (N=35)		
Doctor	5	14.3
Nurse/Midwife	30	85.7
Information or counseling that you have received during this pregnancy on the following: (N=35) *		
Test during pregnancy	31	88.6
Birth planning	24	68.6
Place of delivery	29	82.9
Own health & hygiene	30	85.7
Own nutrition	30	85.7
HIV/AIDS	31	88.6
Breastfeeding	27	77.1
Infant feeding	24	68.6
Iron/Folic supplementation	31	88.6
Growth monitoring	25	71.4
Services offered at ANC at least once* (N=35)		
Weight measurement	35	100.0
BP measurement	31	88.6
Iron folic acid supplementation	32	91.2
Anti-malaria drugs	20	57.1
Blood sample/HB	31	88.6
Urine sample	24	68.6
Tetanus vaccine	27	77.1
De-worming tables	20	57.1
HIV test	34	97.1
Mosquito net provided	10	28.6
MUAC measurement	27	77.1
Information or counseling that you have received during this pregnancy on the following: (N=35) *		
Test during pregnancy	31	88.6
Birth planning	24	68.6
Place of delivery	29	82.9
Own health & hygiene	30	85.7
Own nutrition	30	85.7
HIV/AIDS	31	88.6
Breastfeeding	27	77.1
Infant feeding	24	68.6
Iron/Folic supplementation	31	88.6
Growth monitoring	25	71.4
The source of information given: (N=35)		
Doctor	5	14.3
Nurse	27	77.1
Relative/neighbor	2	5.7
CHWs	1	2.8
NGO/CBO	1	2.8
TBA	3	8.6

\*Multiple responses

### 3.14 Iron folic acid supplementation (IFAS) for women currently pregnant women

#### 3.14.1 Pregnant women's knowledge on IFAS

Pregnant women were asked questions to establish their knowledge on IFAS. The majority of the women (94.4%) had heard about IFAS and 92.2% of them first heard of IFAS at the health facility (Table 16). A high percentage of the women (75.9%) reported that they knew the benefits of IFAS. The women were highly knowledgeable on the health benefits of IFAS taken during pregnancy; with a large percentage (57.3%) reporting that IFAS increases blood, 46.3% it prevents anaemia, 40.5% helps development of the foetus; and 11.8% that it prevents dizziness among other correct responses (Table 16).

Table 16: Pregnant women's knowledge on IFAS

	n	%
Heard information on IFAS for pregnant women: (N=54)		
YES	51	94.0
NO	3	5.6
Where first heard information on IFAS: (N=51)*		
Health staff of health facility	47	92.2
CHVs	11	21.6
Friend/support group	1	2.0
IEC material	1	2.0
Know benefits of taking IFAS during pregnancy (N=54)		
YES	41	75.9
NO	13	24.1
The benefits of taking IFAS tablets during pregnancy:* (N=991)		
Prevents anaemia among pregnant women	459	46.3
Prevents dizziness	117	11.8
Increases blood	568	57.3
Helps development of the foetus	401	40.5
Improves immunity	155	15.6
Increases energy	59	5.9
Improves concentration	16	1.6
Others	10	1.0
Do not know	26	2.6

\*Multiple responses

#### 3.14.2 Provision and consumption of IFAS by women currently pregnant

The pregnant women were asked to state whether they had received IFAS or not during the current pregnancy. Almost three-quarters (74.1%) of them reported that they had received the supplements. Of those who received the supplements; 55.0% received iron tablets, 57.5% folic acid and 50.0% received the combined supplements (Table 17). There was not much difference in the type of IFAS received. The pregnant women who received iron tablets did so for a mean number of days  $37.5 \pm 4.9$ , folic acid tablets for  $41.7 \pm 7.1$  days and the combined iron/folic acid tablets for  $54.0 \pm 8.8$  days.

Overall, there was a discrepancy in the number of the supplements given and the number consumed with the number given being higher than that consumed. The mean number of days for which the pregnant women consumed the iron supplements was  $39.2 \pm 25.2$ ; folic acid tablets  $31.5 \pm 22.6$  and the combined iron and folic acid tablet  $33.8 \pm 19.8$  days (Table 17) indicating that there were some days that the supplements were not consumed despite having received them. When asked if there were days the women had the supplements but did not take them, 16.7% of

the women responded in the affirmative. The most common reason given for not taking the supplements was the negative side effects reported by 52.9% and 35.0% who reported that they forgot to take the supplements. These findings however should be interpreted cautiously because of the relatively small sample size (N=9) as shown in Table 17. Those women who did not take the supplements all the time reported that they forgot to take them (66.6%) and also because of the side effects of taking them by 33.3% (Table 17).

The pregnant women were also asked whether they were currently taking food supplements fortified with micronutrients. Only a small percentage were taking such supplements; 51.9% were taking either CSB, Advantage PLUS or UNIMIX and 16.7% were taking ready to use supplementary feeds and the same percentage 16.7% reported that they were taking soil/mineral stones.

Table 17: Provision and consumption of IFAS by women currently pregnant

Provision of IFAS		
	n	%
Have received the following: N=54		
YES	40	74.1
NO	14	25.9
<b>Type of IFAS received:</b>		
Iron tablets/syrup (N=40)*	22	55.0
Folic acid tablets (N=40)	23	57.5
Combined iron/folic acid (N=40)	20	50.0
Number of days for which the supplements have been given (N=40):		
Iron tablets/syrup	37.5 ± 4.9	
Folic acid tablets	41.7 ± 7.1	
Combined iron/folic acid	54.0 ± 8.8	
Consumption of IFAS		
Number of days the supplements have been consumed (mean ±)		
Iron tablets/syrup		
Folic acid tablets	39.2±25.2	
Combined iron/folic acid	31.5±22.6	
	33.8±19.8	
Days you have had IFAS at home but did not take them (N=54)		
YES	9	16.7
NO	45	83.3
Reasons for not taking them* (N=9)		
Forgot	6	66.6
Side effects	3	33.3
Currently taking any of the following:* (N=54)		
CSB, Advantage PLUS, UNIMIX	28	51.9
Ready to use supplementary feed	9	16.7
Herbal supplements	6	11.1
Soil/mineral stones	9	16.7

\*Multiple responses

### 3.15: Ante-natal care for mothers with children 0-23 months old

#### 3.15.1 Frequency and timing of ANC attendance

Mothers of children 0-23 months old were asked questions about their ANC attendance when pregnant with the youngest child. A large percentage (94.1%) of the mothers attended ANC at least once (Figure 6). Only 1.6% of the mothers made a first ANC visit during the first month of

pregnancy. Most of the mothers (61.5%) made their first visit during the second trimester followed by 25.1% during the first trimester and 13.4% during the third trimester. The percentage of mothers who made at least 4 visits during the entire pregnancy period was 46.1% (Figure 6). The mean number of times that the mothers attended ANC was  $4.7 \pm 1.7$ .

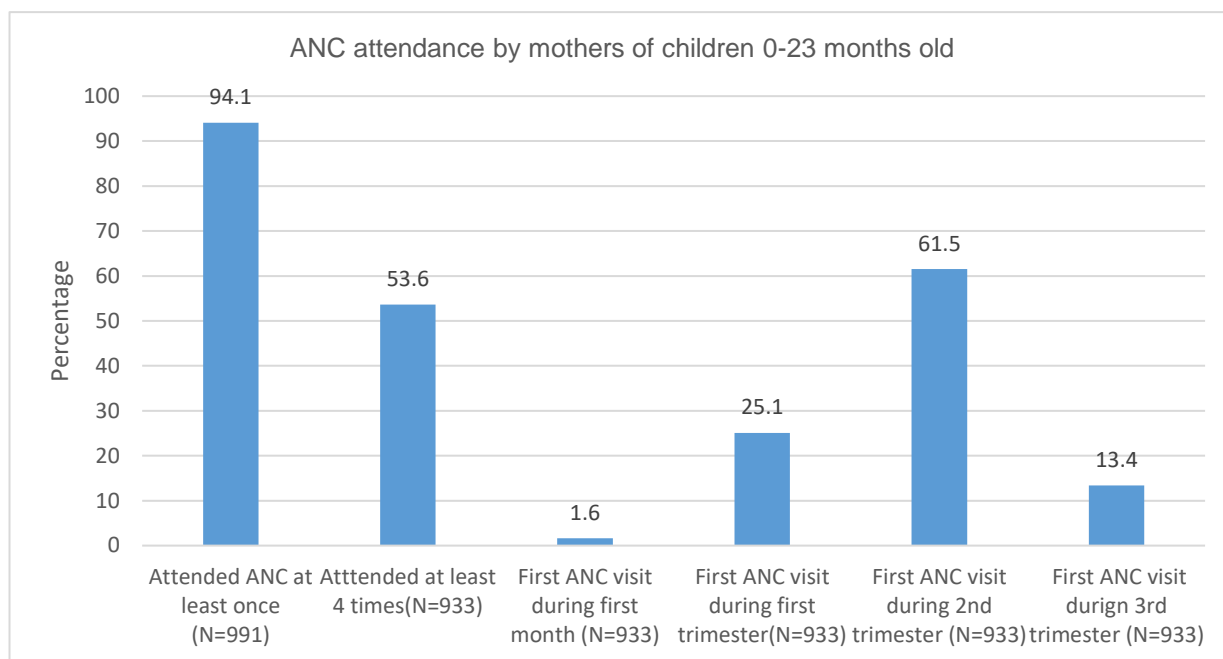


Figure 6: ANC attendance for mothers with children 0-23 months old

### Reasons for not attending ANC

The reasons given by the few mothers who did not attend ANC at all was that the health facility was too far by 63.8%. Other reasons given for non-attendance was that the mothers were not aware of the existence of or the importance of attending ANC stated by 12.1%. A similar percentage reported that they did not attend because of cultural barriers such as staff too young or the presence of male staff who culturally should not see their nakedness.

### Services offered at ANC clinic

Mothers were asked to state the information or counselling offered during the ANC clinics. Most of the essential services supposed to be provided during ANC visits were offered as reported by a majority of the mothers (Table 18). A majority of the women (90.2%) went through a pregnancy test, 94.1% HIV/AIDS test and 93.4% received IFAS. The least provided information was on infant feeding at 73.2%.

When asked what services were offered at least once during the ANC visits, most of the services had been offered to large majority of mothers: weight measurement to 97.2%; IFAS to 96.1%; BP measurement to 96.9% and the rest of the services were offered to over 70.0% of the mothers with the exception of de-worming tablets at 57.8%, provision of mosquito bed-nets at 32.6%, testing of urine samples at 60.0% and MUAC measurement at 69.8% (Table 18).

Table 18: Services offered at the ANC clinic

	N=933	
	n	%
Information or counseling that you have received during this pregnancy on the following: (N=933)		
Test during pregnancy	842	90.2
Birth planning	711	76.2
Place of delivery	850	91.1
Own health & hygiene	827	88.6
Own nutrition	784	84.0
HIV/AIDS	878	94.1
Breastfeeding	803	86.1
Infant feeding	683	73.2
Iron folate supplementation	871	93.4
Growth monitoring	733	78.6
Services offered at ANC at least once (N=933)		
Weight measurement	907	97.2
BP measurement	841	90.1
Iron folic acid supplementation	897	96.1
Anti-malaria drugs	455	48.8
Blood sample/HB	766	82.1
Urine sample	560	60.0
Tetanus vaccine	850	91.1
De-worming tables	539	57.8
HIV test	899	96.4
Mosquito net provided	304	32.6
MUAC measurement	651	69.8

### 3.15.2 Factors influencing ANC attendance

Information on the factors influencing ANC attendance was collected mainly from the FGDs conducted with various members of the community.

#### ANC clinic attendance

ANC attendance was reported to vary from one area to another but it was also reported that many women do not attend on a regular basis. Pregnant women attend ANC mainly during outreach for those mothers who live far from health facilities. For such mothers mobile clinics were reported to be very useful. Many women attend ANC when they are unwell and not so much for routine checkup. ANC attendance was reported to be improving in many areas due to the influence of CHVs. The statement below by a woman in an FGD expresses the sentiment that CHVs played a role in encouraging the pregnant women to attend ANC:

*“There are those who attend ANC due to the influence from the CHVs”.*

#### Factors that influence ANC attendance positively

During the FGDs it was reported that women were encouraged to attend ANC clinics because of the services provided which include: education on how to carry the pregnancy until birth; the health services received such as checking on blood pressure, weight, anaemia status, and the development of the foetus. The following statements made during the FGDs demonstrate these views:

*“Mothers attend ANC so that the gestational progress can be monitored”.*

*“Some mothers attend ANC clinics so that they can avoid living with complications they are not aware of”.*

### Factors that influence ANC attendance negatively

The following reasons were given for irregular visits to the ANC clinics:

- Many women do not attend ANC because majority are pastoralists and therefore move from place to place taking care of their animals;
- Cultural factors such as the belief that a pregnant mother should be attended to by a herbalist/traditional medicine men discourage a few women from attending ANC clinics;
- Insecurity is another factor that discourages women from attending ANC clinics;
- Distance to health facilities;
- Ignorance and negative attitude towards IFAS makes others not to attend ANC;
- Some of the mothers fear injections because they believe that they are responsible for miscarriages; and
- Some believe that palpation in the hospital is not done well and that some tradition herbalists know how to palpate better than the health workers.

## 3.16 Iron and folic acid supplementation (IFAS) for mothers with children 0-23 months old

### 3.16.1 Maternal knowledge on IFAS

Mothers were asked questions to establish their knowledge on various aspects of IFAS. The majority of the mothers had heard of IFAS (90.7%). The main source of information where the mothers first heard of IFAS was the health facility by 96.6% (Table 19). The next common source of information was the community members (*barazas*/church/neighbours). None of the mothers mentioned CHVs as a source of information. The majority of the mothers (81.6%) reported that they knew the benefits of IFAS with a majority of them (70.2%) stating that it increases blood, 56.7% it prevents anaemia and 49.5% reported that it helps in the development of the foetus (Table 19).

Table 19: Maternal knowledge on IFAS

	N=991	
	n	%
Heard information on IFAS for pregnant women: (N=991)		
YES	899	90.7
NO	92	9.3
Where first heard of information on IFAS: (N=899)		
Health staff of health facility	868	96.6
Community members ( <i>baraza</i> /church/neighbour)	232	25.8
Friend/support group	26	2.8
Husband/male partner	49	5.4
Other family member	2	0.2
IEC Material	14	1.5
Mass media	1	0.1
Other	3	0.3
Know benefits of taking IFAS during pregnancy (N=991)		
YES	809	81.6
NO	182	18.4
The benefits of taking IFAS tablets during pregnancy:* (N=809)		
Prevents anaemia among pregnant women	459	56.7
Prevents dizziness	117	14.4
Increases blood	568	70.2
Helps development of the foetus	401	49.5
Improves immunity	155	19.2
Increases energy	59	7.2
Improves concentration	16	1.9
Other	10	1.2
Do not know	26	3.2

\*Multiple responses

### 3.16.2 Maternal provision and consumption of IFAS by mothers 0-23 months old

#### Maternal Provision of IFAS

Mothers were asked about the IFAS they received during the pregnancy of their youngest child aged 0-23 months old. The majority (91.8%) reported that they had received IFAS during the pregnancy (Table 20). The majority (76.5%) had received the combined iron/folic acid supplement; 45.2% received folic acid tablets and 43.8% received iron tablets. Most of the mothers received IFAS for less than 60 days; iron tablets 64.7%, folic acid 66.9% and combined iron/folic acid 49.4%. Those who received the supplements for  $\geq 90$  days were relatively few; 19.2% for iron supplements, 20.4% for folic acid and 18.8% for the combined iron and folic acid supplements (Table 20).

In terms of the number of days the mothers consumed IFAS during the entire pregnancy period, the majority consumed the supplements for less than 60 days; 65.9% (iron tablets), 68.1% folic acid supplements and 55.0% combined iron and folic acid supplements (Table 20). Those who consumed the three types of supplements for  $\geq 90$  days were less than 35.0% for each of the three types.

Almost one quarter of the mothers (22.4%) reported that there were days they had the supplements at home but did not take them (Table 20). The main reasons given by those who did not take the supplements despite having them at home were forgetfulness reported by 57.3% and side effects caused by the tablets such as nausea by 38.2%. Mothers were asked if they were currently taking any other supplements and 43.2% reported that they were taking either CSB,

Advantage PLUS or UNIMIX. Ready to use supplementary feeds were taken by 11.5% and 11.6% were taking soil/mineral stones (Table 20).

Table 20: Provision and consumption of IFAS by mothers of children 0-23 months

	n	%
Received any of the following when pregnant with child:*( N=991)		
YES	910	91.8
NO	81	8.2
Received Iron tablets/syrup (N=910)	399	43.8
Received Folic acid tablets (N=910)	411	45.2
Received Combined iron/folic acid (N=910)	696	76.5
Number of days for which the supplements were given: (N=910)		
Iron tablets/syrup: (N=399)		
<60 days	258	64.7
60-89 days	34	8.5
≥ 90 days	107	26.8
Folic acid tablets: (N=411)		
<60 days	275	66.9
60-89 days	35	8.5
≥ 90 days	101	24.6
Combined iron/folic acid: (N=696)		
<60 days	344	49.4
60-89 days	124	17.8
≥ 90 days	228	32.8
Number of days the supplements were consumed throughout the pregnancy		
Iron tablets/syrup: (N= 399)		
<60 days	263	65.9
60-89 days	31	7.8
≥ 90 days	105	26.3
Folic acid tablets: (N=411)		
<60 days	280	68.1
60-89 days	32	7.7
≥ 90 days	99	24.2
Combined iron and folic acid: N=696		
<60 days	384	55
60-89 days	94	13.5
≥ 90 days	218	31.5
Days you had IFAS at home but did not take them (N=991)		
YES	199	22.4
NO	689	77.6
Reasons for not taking them* (N=199)		
Forgot	114	57.3
Side effects	76	38.2
Felt better and did not think I needed them anymore	6	3.0
Did not know for how long I should take the tablets	7	3.5
Did not know the benefits of taking IFAS	9	4.5
Other	16	8.0
Currently taking any of the following: (N=873)		
CSB, Advantage PLUS, UNIMIX	175	20.0
Ready to use supplementary feed	102	11.7
Herbal supplements	25	2.9
Soil/mineral stones	175	20.0

### 3.16.3 Factors influencing the consumption of IFAS

During the FGDs it was reported that many pregnant women did not consume IFAS on a regular basis despite the majority being knowledgeable on the health benefits of the commodity. This



finding was in agreement with that from the quantitative findings. The level of knowledge varied from one area to another and among men and women. In general, women were more knowledgeable than men on the benefits of IFAS. The majority of the women in the FGDs were aware of the health benefits of IFAS. The following sentiments from FGDs in Turkana Central and Turkana South sub-counties demonstrate that the women and some fathers are knowledgeable about the benefits of IFAS:

*“IFAS has nutritional value and makes the pregnant woman healthy. It boosts the blood level of the woman”*, reported a woman in an FGD in Turkana South sub-county.

*“IFAS boosts the immune system and increases the appetite of the pregnant women”*, reported a father in an FGD in Turkana Central sub-county.

*“It was reported that some fathers especially those who knew the benefits of IFAS encouraged their wives to take IFAS”*, reported a man in an FGD in Turkana West.

The majority of the men were however not knowledgeable on the health benefits of IFAS. During an FGD for men in Kibish sub-county, one participant stated that:

*“Men should be educated on the benefits of IFAS. We do not know the use of IFAS. We know women are given these tablets at the ANC clinic but some do not attend ANC. If we knew the benefits we would make sure our wives attend ANC and also take IFAS”*, reported a man in an FGD

Several issues and concerns were raised during the FGDs which affected the compliance of women to taking the IFAS as recommended. One of the main reasons for non-compliance was the side effects. A woman reported in an FGD responded that; *“I do not take IFAS because of side effects such as vomiting, heart burn and urination of red urine. I believe that these side effects are associated with taking the IFAS”*.

The findings on adherence to taking IFAS from the FGDs was in agreement with the quantitative data which indicated that there were days the pregnant women had the IFAS at home but did not take them.

Other reasons reported for poor adherence to IFAS included:

- Cultural beliefs were also reported to negatively influence the consumption of IFAS as exemplified in the following statements;

*“Some of the pregnant women do not take IFAS because they believe that it causes disability to the foetus”*.

*“IFAS is a foreign substance in the bodies of these women. Most of them were used to herbal medicines in the past. The use of IFAS is negatively influenced by this belief”*.

- Limited knowledge on IFAS among some women particularly those living far away from health facilities. *“The importance of IFAS in the body of a pregnant woman is not well known in some areas and this leads to low compliance to the taking of IFAS”*.

### 3.17. Post-natal care services for mothers with children 0-23 months of age

Mothers of children 0-23 months old were asked questions about post-natal services they received after the delivery of their youngest child. A minority of the mothers (34.5%) delivered at a health facility whereas 40.1% delivered at home without assistance. Those who delivered at home assisted by a TBA were 20.9% (Table 21). Of those mothers who did not deliver in a health facility, 19.7% took the child to the clinic within 24 hours of birth and 38.7% within 2 weeks of birth and 26.5% after one month (Table 21).

The majority of those mothers who did not deliver in a health facility received postnatal care from a health care worker within time varying from; within 48 hours (18.8%), one week 13.4%, two weeks 29.1% and one month 30.2% (Table 21). A relatively large percentage of mothers (21.5%) did not receive post-natal care from a health care worker.

Table 21: Post-natal care services for mothers with children 0-23 months old

	n	%
Place of delivery of child: (N=966)		
At home by TBA	202	20.9
At home by nurse	7	0.7
At home without assistance	387	40.1
Hospital	333	34.5
Other	37	3.8
If not at health facility, how long did it take before you took child to clinic for the first time? (N=633)		
Immediately (within 24 hours)	125	19.7
Within the first 2 weeks	245	38.7
Between 2 weeks to one month	42	6.6
After one month	168	26.5
Child not taken	52	8.2
Does not intend to take child to clinic	1	0.2
If you did not deliver at health facility, how long after delivery were you seen by a health care worker? (N=633)		
Immediately (within first 48 hours)	119	18.8
Within one week	85	13.4
Within two weeks	184	29.1
After one month	191	30.2
Not seen	54	8.5

#### 3.17.3 Factors influencing the uptake of PNC services

The uptake of PNC services was reported during the FGDs to be low, a finding that concurs with that from the quantitative data. This was true especially for those women who deliver at home. *“Once the mother delivers and the child is well they do not attend PNC”, it was reported in an FGD for CHVs.*

*“After delivery at home the women go to hospital when there is a complication for example placenta retention so that they can get assisted”.*

The following statement also echoes the same sentiment; *“The mothers do not attend PNC frequently. Once the child is born the next time the mother will go to the hospital is when the child is sick”.*

The main barriers to the uptake of PNC services included: long distance to health facility and inadequate knowledge on the health benefits of attending PNC.

### 3.18 Dietary intake by women of reproductive age (15-49 years)

Information was collected to establish the quality of dietary intake by the mothers. Twenty-four hour (24 hour-recall) dietary intake was used to collect the data to establish; the types of foods eaten and the dietary diversity.

#### 3.18.1 Foods eaten the previous day by women of reproductive

Mothers/caregivers were asked to state the foods they ate the previous day. The foods consumed were categorized into food groups as shown in Table 22. The majority of the mothers/caregivers (90.7%) ate cereals followed by spices and condiments (mostly used for cooking food) by 73.5% and pulses by 66.4%. Sweets mainly in the form of sugar in tea and other beverages were also consumed by a majority of the mothers/caregivers at 63.7%. The least consumed foods were eggs eaten by 11.9% of the mothers (Table 22).

Table 22: Foods eaten by women the previous day

Food groups	N=991	
	n	%
Cereals (maize, rice, wheat, sorghum, millet or any other grains or foods made from these foods)	899	90.7
White roots and tubers (white potatoes, white yam, white cassava and other foods)		
Vitamin A-rich vegetables and tubers	267	27.2
Dark green leafy vegetables	408	41.6
Other vegetables (tomato, onion, eggplant etc.)	377	38.4
Other vitamin A-rich vegetables and fruits		
Other fruits (inclusive of wild fruits)	168	17.1
Meat, poultry, fish	386	39.3
Eggs	117	11.9
Pulses (beans, peas and lentils)	681	66.4
Milk and milk products	521	53.1
Oils and fats		
Sweets (sugar, honey, sweetened soda, sweetened juices, sugary foods such as chocolates, candies, cookies and cakes)	625	63.7
Spices and condiments	728	73.5
Ate a meal or snack outside of the home yesterday	107	10.9

#### 3.18.2 Maternal dietary diversity for women of reproductive age group (MMD-W)

Consumption of a minimum of foods from at least 5 out of 10 food groups based on FAO guidelines (FAO, 2016) [see section 2.9 under methodology for details of food groups] was considered an attainment of minimum dietary diversity (MDD) for the women of reproductive age (MDD-W). The percentage of women who attained the MDD was 33.2% (Figure 7) implying that two-thirds of the women were consuming diets limited in a variety of nutrients. The mean MDD-W was (2.2±2.1).

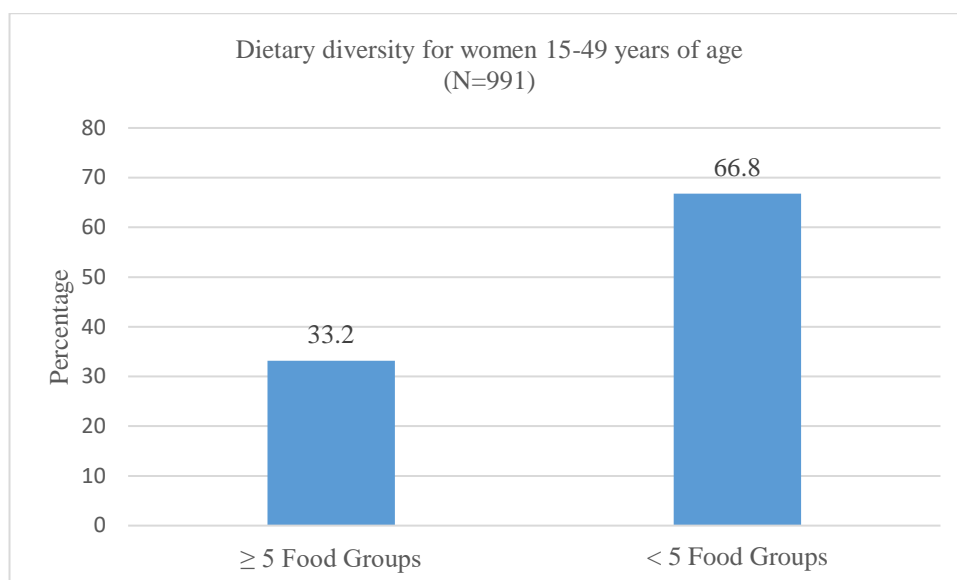


Figure 7: Dietary diversity for women of reproductive age

### 3.18.2 Factors influencing maternal dietary intake

The findings of the FGDs were in agreement with those of the quantitative findings which showed that the dietary intake of both pregnant and lactating women was inadequate with limited variation between the areas. The factors influencing maternal nutrition and dietary intake of women reported among these communities were majorly the same. Availability of foods was reported as a major factor negatively influencing dietary intake among women; the markets were either too far or transport costs too high for the people to access foods. In addition, it was reported that there was no variety of foods available in the markets and this contributed to the low dietary diversity consumed by the women. Another major factor contributing to inadequate dietary intake was poverty; the majority of the households had limited income or purchasing power to buy adequate foods for the women particularly pregnant and lactating women. The socio-economic status of the households was made worse by the frequent cattle raids. High maternal workload including women herding livestock left them with limited time to prepare adequate meals. Insecurity and banditry was another factor reported to influence dietary intake among women. In some of the communities, cultural factors also influenced the foods eaten by pregnant and lactating women. In Turkana South for example, culture negatively influenced dietary intake of pregnant mothers as expressed in the statement below;

*“Pregnant women should eat little food so that the foetus does not grow big resulting in difficult birth”* stated a man in an FGD.

It was also reported by a woman participant in an FGD in Turkana South, *“The order of serving of meals also affects the amount and types of food pregnant women eat. The husbands are served first followed by the children. The women eat the food left after these people have been served. There is no special diet for the pregnant or lactating women. They eat what is available”*.

For lactating mothers, it was reported that the following foods are recommended to enhance breastmilk production: soup from meat, porridge, tea with milk. For those who have animals or can afford to buy it was reported that an animal would be slaughtered after birth for the mother. The mother would be given soup and blood from the animal to help in cleaning womb increase milk production.

### 3.19 Use of fortified food by households

Mothers/caregivers of children 0-23 months old were asked questions about use of fortified foods in their households and the benefits of feeding fortified foods to children. The majority of the mothers/caregivers (70.1%) reported that they used foods and food products enriched with vitamins and minerals (Table 23). When asked the specific fortified foods they consumed, the majority of the households (79.1%) reported that they consumed fortified maize flour, whereas 77.5% consumed fortified wheat flour, 84.3% fortified salt and 76.3% fortified cooking fats and oils. Only 7.3% consumed fortified margarine and 23.3% fortified sugar (Table 23). The main oil/fat consumed by the majority of the households was oil by 81.5% of the households followed by vegetable fat by 15.7% (Table 23).

The mothers/caregivers were asked about the benefits of feeding children fortified flours and oils with vitamins and minerals. About two-thirds of the mothers/caregivers (60.2%) reported that the fortified foods improves the body's ability to fight diseases, 35.8% stated that it makes the child healthy and strong, 30.1% stated that it improves child's appetite and 23.1% that the fortified foods makes be able to learn and develop (Table 23). Many of the respondents (19.6%) did not know the benefits of feeding children with these foods.

Table 23: Use of fortified foods by households

	n	%
Use of foods and food products enriched with vitamins and minerals (N=981)		
YES	688	70.1
NO	293	29.9
Types fortified foods used: (N=688)		
Maize flour	544	79.1
Wheat flour	533	77.5
Margarine	50	7.3
Cooking fats and oils	525	76.3
Salt	580	84.3
Fortified sugar	160	23.3
Other	7	1.0
In your opinion, what are the benefits of feeding children flours and oils fortified with vitamins and minerals* (N=991)		
Improve body's ability to fight diseases	597	60.2
Improves child's appetite	298	30.1
Improve child's to learn and develop	229	23.1
Makes children healthy, strong and active	355	35.8
Prevent vitamins and minerals deficiency	151	15.2
Others	4	0.4
DNK	194	19.6
What is the main oil/fat consumed by your household? (N=991)		
Vegetable fat	108	15.7
Animal fat	16	2.3
Oil	561	81.5
Other	3	0.4

\* Multiple responses

### 3.20 Maternal and child nutritional status based on MUAC measurement

Maternal nutritional status based on MUAC measurement showed that 6.9% of the women were wasted (Table 24). This finding may be an indication that the women were probably getting adequate macronutrients but inadequate micronutrients as just one-third of them consumed the

recommended minimum dietary diversity. The rate of wasting among the children (MUAC < 125mm) was high as 15.4% were wasted with 2.4% being severely wasted (Table 24).

Table 24: Maternal and child nutritional status (MUAC)

<b>Maternal and child nutritional status</b>	<b>n</b>	<b>%</b>
Maternal Nutritional Status (N=981)		
Normal >210 mm	913	93.1
Wasted <210 mm	68	6.9
Child nutritional status (N=665)		
Severely wasted <115 mm	16	2.4
Moderately wasted >115 mm to <125mm	85	13.0
At risk 125 to <135 mm	230	35.1
Normal ≥135 mm	326	49.8

## 4: DISCUSSION

This discussion focuses on the key indicators of MIYCN. An attempt is made to discuss the plausible reasons for the observed rates in these indicators based on both the quantitative and qualitative findings. Qualitative data from this survey was used wherever appropriate to triangulate, or provide in-depth information, to the quantitative findings. Discrepancies between quantitative and qualitative findings, if any, are highlighted. The findings of this survey will provide baseline information useful for setting benchmarks and measuring progress of MYICN interventions County level. The findings of this survey have however, been compared to those of KABP survey 2014 conducted in the county.

### 4.1 Infant and young child feeding practices

Appropriate infant and young child feeding practices play a major role in the healthy growth and development of children. The impact of undernutrition during the “window of opportunity” from minus 9 to 24 months (i.e. from pregnancy to two years old) has irreversible long-term effects on health and on cognitive and physical development.

#### 4.1.1 Breastfeeding practices

Overall, the breastfeeding practices were optimal except for the following indicators: giving of pre-lacteal feeds; practical support given to mothers to help start breastfeeding and bottle feeding with teat/nipple. The optimal breastfeeding practices may have been contributed to by the high level of knowledge among mothers, fathers and other community members.

The attitudes and perceptions towards breastfeeding practices were positive and again there was agreement in the findings from the household survey and those from the FGDs. Cultural barriers were reported to be a hindrance to the adoption of scientifically appropriate feeding practices among some women and in some areas/regions. Nonetheless, despite the relatively high exclusive breastfeeding rate recorded in this survey, effort is still needed to improve the rate to at least 90%, the minimum recommended by WHO to have impact on and reduce mortality by 13% among the underfives (Lancet, 2003). In any case, exclusive breastfeeding for most of the babies ends at 3 months as shown in the analysis of the EBF rates disaggregated by age. Efforts should be made to ensure that EBF is extended to 6 months for the majority of the children.

Overall, there was an improvement in all the key breastfeeding practices in the County compared to the past most current county KABP survey of 2014 (Figure 8). There was a significant improvement in the prevalence of those who initiated breastfeeding within one hour of birth from 69.8% to 80.2%. Similarly, a significant improvement was recorded for EBF rate, continued breastfeeding at 1 year and those children who were given pre-lacteals and those given liquids from a bottle with a teat/nipple decreased significantly (Figure 8). This is a commendable finding and the County should continue with the efforts in place in order to improve the feeding practices even more.

From the programme perspective, it was reported that improved breastfeeding practices could be attributed to the: increased number of nutrition officers; increased number of health facilities including functional community health units; improved message dissemination through health education, media and community dialogue; and increased rates of hospital deliveries.

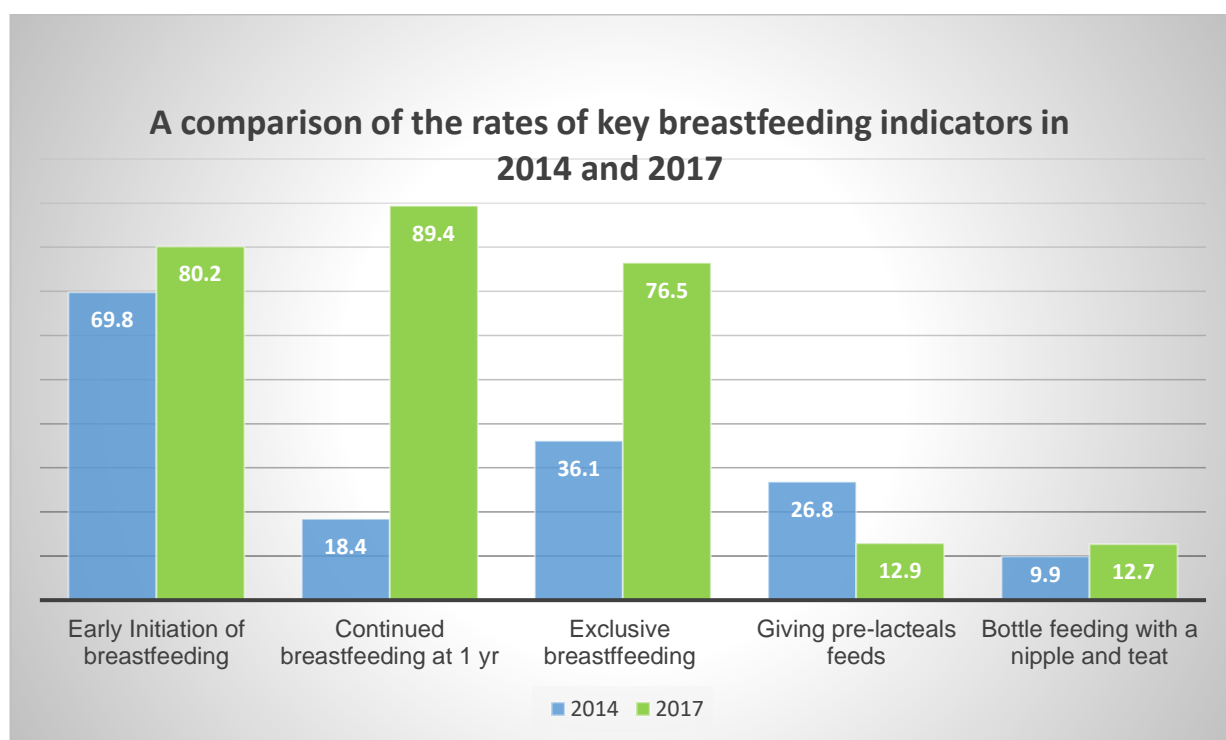


Figure 8: Rates of key breastfeeding indicator in 2014 and 2018

#### 4.1.3 Complementary feeding practices

Overall, the complementary feeding practices were sub-optimal despite the high knowledge and positive attitudes and perceptions. Cultural beliefs and practices were reported to be no longer a major barrier to the adoption of appropriate IYCN practices. The majority of the children were receiving foods with limited dietary diversity and less than recommended frequency of meals, implying that they were not getting enough of a variety of nutrients for healthy growth and development. The children were therefore most likely deficient in micronutrients. This was compounded by the fact that consumption of MNPs among the children was very limited.

A comparison of the KABP survey 2014 and the current (2017) survey findings on the prevalence of the key complementary feeding indicators showed a mixed picture. The proportion of children who attained minimum dietary diversity (MDD) improved significantly. The same was observed for those who received a minimum acceptable diet (MAD) and those who consumed a diet rich in iron or foods fortified with iron (Table 25). On the contrary, the proportion of children who



were introduced to complementary feeding at the right time reduced as well as those who received meals at the correct frequency.

The major barriers to adoption of appropriate feeding practices were reported to be unavailability and inaccessibility to foods. It was reported by the county personnel that there was a prolonged drought just before the survey and therefore this exacerbated the food insecurity situation probably contributing to some of the poor indicators of complementary feeding practices. Other barriers to appropriate feeding practices reported during the FGDs were: high maternal workload affecting time mother is available to prepare appropriate complementary foods for the baby; alcoholism among the mothers interfering with quality of care given to children; and lifestyle (nomadism) making the mother not have adequate time to take care of children.

Concerted efforts should be put into place to improve complementary feeding practices in the County. Knowledge alone will not improve the practices as demonstrated by the findings of this survey. There is need for innovative strategies to address the causes of inadequate complementary feeding practices. These strategies should include nutrition sensitive interventions to address food security issues which is the major cause of poor complementary feeding practices.

Table 25: Comparison of complementary feeding practices for 2014 and 2017 surveys

<b>Indicators of Complementary Feeding Practices</b>	<b>KABP TURKANA County Survey 2014 %</b>	<b>KABP Turkana County Survey, 2017 %</b>
Timely introduction of solid, semi-solid and soft foods (children 6-8 months old)	60.4	36.0
Minimum Dietary Diversity (MDD)	9.5	46.6
Minimum Meal Frequency (MFF)	45.3	33.0
Minimum Acceptable Diet (MAD)	6.8	19.5
Consumption of iron-rich and iron-fortified foods	24.2	47.6

#### 4.2 Maternal knowledge, attitudes and perceptions on IYCN

Knowledge on IYCN practices was high and attitudes and perceptions were positive. The high level of knowledge among mothers and caregivers was demonstrated by the findings from the household surveys and corroborated by the findings from the FGDs. The knowledge levels were on the whole higher for breastfeeding indicators than complementary feeding practices. A smaller proportion of mothers/caregivers had received information on complementary feeding practices compared to those who had received information on breastfeeding practices. Could this probably imply that more emphasis was placed on breastfeeding at the expense of complementary feeding practices in the dissemination of messages?

The high level of knowledge on breastfeeding was attributed to the intensive promotion of IYCN messages at the household level by the CHVs and less by health workers at the health facility reported by the FGD participants. The main source of information on complementary feeding practices were the CHVs with fewer mothers having received this information at the health facilities. It was also reported in the Key Infant Interviews with MOH and programme officers that there was intensified dissemination of IYCN promotion messages through a variety of channels (see section 4.1.1).

There should be more emphasis on the promotion of complementary feeding practices at the health facilities and the CHVs should be trained on how to prepare adequate diets using the



locally available foods. They are more in contact with the community members and it was demonstrated in this survey that they are passing appropriate messages to the mothers on complementary feeding practices.

#### 4.3 Responsive feeding practices

Overall the findings on responsive feeding practices were positive as the majority of the mothers talked to the children and verbally encouraged them to eat. Most of the mothers encouraged the children to self-feed which was a positive practice. Nonetheless, there is need to discourage mothers not to order children to eat. About one-tenth of the mothers did so. This practice could have detrimental effects on eating habits as the child may associate meals with unpleasant times or may develop negative perceptions about meals.

#### 4.4 Feeding of children during illness

Appropriate feeding during illness is important to provide immunity to the child and also to prevent the child getting from getting malnourished. Feeding of children during illness was poor. The majority of the children received less food, less liquids and less breastmilk during illness mainly because the child did not want the food because of low appetite. This may imply that the children whose diets are not adequate based on the findings of this survey face a higher risk of malnutrition during illness. During illness the body requires more nutrients to fight the infection and boost the immunity system. During recovery, a higher proportion of children were given more or the same amount of food as they usually eat when they are not ill – but the percentage who received more food was low. Feeding during illness therefore needs more emphasis in the messages on appropriate feeding of children.

#### 4.5 Access, preparation and consumption micronutrient powders (MNPs)

On the whole, the coverage for the key indicators of MNPs were low. The knowledge on MNPs was limited; only 24.3% of the mothers had heard of MNPs. This may be attributed to the fact that MNPs were only available in one-tenth of the health facilities between January and March in 2017. Therefore, access to MNPs was a challenge as less than one-quarter of the children received MNPs in the last 6 months. It is therefore recommended that once the commodity is made available to all the health facilities, awareness creation should be conducted for all stakeholders. Appropriate messages on the health benefits of MNPs, preparation and frequency of consumption should be developed and disseminated to all stakeholders.

#### 4.6 ANC attendance by pregnant women

The major objective of antenatal care during pregnancy is to identify and treat problems such as anaemia and infections. Screening for complications take place during ANC visits and advice is given on a range of issues, including place of delivery and referral of mothers needing further medical attention. The WHO recommendations, adopted by the MOH in Kenya stipulates that pregnant women should visit ANC at least 4 times during pregnancy and that the first visit should take place during the first trimester.

Overall, the majority of the pregnant women attended ANC at least once, most of them making their first visit during the second trimester instead of the recommended first trimester. This first visit, if started at the right time offers good opportunity for women to be reached with the full ANC service package including assessment, counselling on key IFAS messages etc. About half the women made the recommended 4 ANC visits. The majority of the mothers received the essential services that should be offered at the ANC clinics at least once during the entire

pregnancy period. The overall implications of these findings is that the women were not getting critical services including check-ups on a frequent basis as per the recommendations because they do not visit ANC clinics regularly neither do they make timely first visit.

The interventions geared towards improving ANC attendance should address the factors hindering attendance for most women including: distance to health facilities, high maternal workload, and cultural issues such as that traditional herbalists and TBAs are better in palpitations than health workers.

#### 4.7 Maternal knowledge on IFAS, provision and consumption by pregnant women

Maternal knowledge on the health benefits of IFAS to the pregnant and unborn baby was high but this did not necessarily translate into consumption of the supplements, one per day as per the current WHO and MOH recommendations. The main source of information for the majority was the health facility and less from the CHVs. In terms of provision, the majority of the mothers received the combined IFAS. The majority of the mothers received IFAS to last less than 60 days and the majority also consumed the IFAS for less than 60 days and yet it was reported there were no issue with the stocks of this commodity. The provision of IFAS for less than 60 days may be partly explained by the fact that the pregnant women do not attend ANC frequently and therefore they do not get adequate supply of IFAS.

The main reasons for the inadequate consumption was reported to be the side effects (nausea and vomiting) and forgetfulness. The community (all stakeholders including fathers) should be sensitized to understand the benefits of and the frequency of taking IFAS during pregnancy. It was reported during one of the FGDs with men;

*“We do not have information on the benefits of IFAS. We see our wives come with them from the health facility but we do not know how important they are”.*

#### 4.8 Dietary intake of women of reproductive age

Dietary diversity is an indicator of diet quality; the Minimum Dietary Diversity for women of reproductive age (MDD-W) is the consumption of at least five foods from five or more of ten food groups as per FAO, 2016 guidelines (refer to section 2.9 in the methodology section). Those women who attain the MDD-W are highly likely to consume at least one animal- source food and either pulses or nuts/seeds and food items from two or more of the fruit/vegetable food groups.

Maternal dietary intake was poor given that one-third of the women attained the MDD-W with a mean dietary score of  $2.2 \pm 2.1$ . The MDD-W was low indicating low quality diet. The major reasons for poor dietary intake were food insecurity and lack of purchasing power. Cultural factors were reported during the FGDs to affect the diet of a minority of pregnant women.

## 5. CONCLUSIONS

**Breastfeeding practices:** Overall the practices were optimal except for: provision of pre-lacteal feeds; practical support given to mothers to help start breastfeeding; and bottle feeding with teat/nipple. Efforts should continue to ensure further improvement in breastfeeding practices and also to ensure that the gains made are not lost. Despite the fact that EBF has improved significantly, the rate should be improved further to reach 90%, the minimum recommended by WHO to have impact on and reduce mortality by 13% among the underfives. In any case,

exclusive breastfeeding stops at 3 months for a majority of the children and there is need therefore to encourage mothers to continue the practice until the 6<sup>th</sup> month.

**Complementary feeding practices:** Overall, the CF practices were sub-optimal implying that a majority of the children are not getting adequate diet. Most of the children received diets that did not provide adequate nutrients in terms of quantity and variety for healthy development. Given that knowledge and cultural practices were not the major hindrances to appropriate complementary feeding practices, there is need for innovative and nutrition-sensitive interventions to address food insecurity which is the major hindrance to appropriate feeding practices.

**Knowledge on MIYCN practices was high and the attitudes and perceptions positive.** Promotion of appropriate MIYCN messages should be up-scaled. Messages to promote appropriate MIYCN practices should continue to be disseminated with particular emphasis on the remote, hard to reach areas where knowledge was reported to be relatively lower.

**In terms of ANC attendance,** the majority of the pregnant women make at least one visit to a skilled health provider. The challenge is with the frequency of ANC attendance as only half of the pregnant women received ANC services at least 4 times by a skilled health provider as per the WHO and MOH recommendations. The other challenge is the timing of the first visit to the ANC; only one quarter of the women make first ANC visit during the first trimester. It is therefore important to establish the reasons why mothers do not start attending ANC in a timely manner and at the recommended frequency. This information would be useful in addressing the development of messages on the health benefits of attending ANC and also useful in addressing the barriers to pregnant women attending ANC as recommended.

**The coverage for the provision and consumption of IFA supplements to pregnant women was low.** The majority of the pregnant women received and consumed IFAS for less than 60 days and yet it was reported that the county had not experienced any stock outs of this commodity. There is need to train the CHVs on IFAS so that they promote the consumption and address the mothers' challenges in the use of the supplements at the household level. It was reported that this training has not been conducted yet. May be frequent follow-up at the household level by the CHVs may encourage pregnant women and also remind them to take IFAS. One of the reasons given for not taking IFAS on a regular basis was forgetfulness.

**Responsive feeding:** Overall, positive as the majority of the mothers talked to children and encouraged them to eat and self-feed. There is need to discourage the practice of ordering and threatening children to eat as was reported by about one-quarter of the mothers.

**Feeding during illness:** Overall, poor feeding practices and should therefore be appropriately addressed in the behaviour change communication messages.

**Maternal dietary intake:** Maternal dietary intake needs improvement given that less than half of the mothers attained a minimum dietary diversity. The major hindrance to adequate dietary intake is food insecurity and poverty. So addressing food security issues would improve mothers' dietary intake.

## Factors influencing MIYCN practices

### Factors influencing MIYCN positively

- **High level of knowledge on breastfeeding and complementary feeding practices** the mothers and the community as a whole. This together with the positive attitudes and perceptions to IYCF practices may have contributed to the appropriate breastfeeding feeding practices. The knowledge and positive attitudes and perceptions towards on complementary feeding did not necessarily translate to improved practices. In addition, programmatic factors such as: increased number of health facilities and community health units; increased number of CHVs health facilities; improved messaging through health education, media and community dialogue; and increased health facility deliveries contributed to the improvement of breastfeeding practices.
- It was also reported during the FGDs **that cultural beliefs** were a barrier to MIYCN practices only for a minority of the people.
- **High level of maternal knowledge** on the health benefits of ANC attendance and consumption of IFAS during pregnancy influenced mothers to seek these services. Despite this, many mothers did not seek these services regularly.
- The services provided at the ANC such as; growth monitoring of the foetus, checking of anaemia and provision of supplementary foods encouraged mothers to attend ANC encouraged mothers to attend ANC clinics.

### Barriers to appropriate MIYCN practices

- **Household food insecurity** resulting into inadequate dietary intake affecting milk production among breastfeeding mothers. Similarly, food insecurity was a major factor contributing to inappropriate complementary feeding practices because of unavailability and inaccessibility of a variety of foods. Poverty and loss of livestock were reported to major constraints to household food security. Poor household food security was also a major factors constraining maternal adequate dietary intake;
- **Family conflicts and violence** causing stress to the mother and therefore not able to produce adequate breastmilk and also take care adequate care of children;
- **High maternal workload** affecting time mother is available to provide quality care to the child and also to breastfeed and prepare appropriate complementary foods for the baby;
- **Alcoholism among the mothers** interfering with quality of care given to children including appropriate feeding practices;
- **Inadequate knowledge on complementary feeding practices** particularly on how to prepare foods for the children was reported to be a constraint to appropriate feeding practices.
- **The women who did not attend ANC regularly** were discouraged by: the high maternal workload; long distance to health facilities; were not comfortable to be attended by male health workers; mandatory HIV testing and some were discouraged by their husbands from attending.
- **The women who did not take IFAS on a regular basis** were discouraged by the side effects (nausea and vomiting) while some forgot to take them.

## 6. RECOMMENDATIONS

### 6.1 Programme recommendations

The recommendations made for programming are presented in Table 26 below.

Table 26: Programme Recommendations

SR/ NO	Recommendations	Person Responsible	Time Line
1	Conduct review of Turkana MIYCN SBCC strategy (2016 to 2018) based on the findings of KABP to translate knowledge to practice.	MOH, UNICEF, Nutrition IPS	April 2018
2	Hold community feedback meetings to discuss the findings and develop a joint plan of action involving both duty bearers and rights holders.	MOH, UNICEF, Nutrition IPS	April 2018
3	Develop contextualized high impact SBCC interventions (BFCI, c IMCI, BFHI, Care group Model, wound up radios/use of media, IPC, change stories/Agents/mentor mothers) to address the low optimal complimentary feeding practices (MAD, MAF, MMD and introduction to solid and semisolid foods.).	MOH, UNICEF, Nutrition IPS	April 2018
4	Scale up Micronutrients sprinkles /powders programme to improve the nutrient quality of complementary foods for children 6-23 months.	MOH, UNICEF, Nutrition IPS	On going
5	In collaboration with food manufacturers scale up community awareness on locally available fortified foods	MOH, International and local development Agencies, Food manufacturers	On going
6	In collaboration with food security, specific and sensitive nutrition sectors develop multisector plans to address food insecurity and diet diversification, which were highlighted as key barriers for optimal complementary feeding.	Department of Health, Water Agriculture and Livestock, Pastoral fisheries Livestock, Trade and labor, Education, Local and international development agencies.	June 2018
7	Conduct sensitization on the Breastfeeding mothers Bill 2017 so as to promote and support breastfeeding for working mothers	MOH, UNICEF, nutrition IPS	June 2018
8	Strengthen the existing community health strategy since CHVs were a main source of information on child care practices for the mothers.	MOH, international and local development agencies.	Ongoing
9	Conduct anthropological studies to have in depth understanding of factors affecting childcare practices, dietary patterns and health care seeking practices among caregivers in Turkana.	MOH, International and local development agencies.	End of 2018

### 6.2 Recommendations for future surveys

- Conduct in-depth MIYCN KABP qualitative surveys to provide detailed sub-county level information to allow for appropriate programming taking into account any differences in the sub-counties.
- The questionnaire should be shortened and made to focus on the key MIYCN indicators. Questions with a high possibility of recall bias e.g. IFAS for mothers with children 0-23 months old- the target population changed to mothers with younger children to minimize recall bias.

- Data analysis: It is recommended that qualitative data be analysed using data analysis software to for improved efficiency. It is also recommended that basic inferential statistics be included in the analysis to provide information for more targeted MICYN messages.
- The ToR should also include maternal nutrition and other indicators e.g. IFAS and ANC based on the WHO and MOH guidelines.

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## 8. APPENDICES

  
ADDITIONAL  
QUESTIONS for UNIC

  
KAP  
QUESTIONNAIRE 151

  
KABPS\_2017\_TURKA  
NA.xls

  
**Turkana SPSS.sav**


  
KABPS\_2017\_TURKA  
NA\_results (FINAL).xl

  
Villages in Turkana  
by Sub-county.docx

  
Presentation of  
TURKANA FINDINGS

  
NITWG validated  
UNICEF KABP MIYCN

  
Training Schedule  
TURKANA KABP 2017

  
13-10-2017 revised  
KABP SURVEY FGD G