

**BASELINE SURVEY REPORT ON  
HOME FORTIFICATION WITH MICRONUTRIENT  
POWDER (MNP) IN NAIROBI COUNTY, KENYA**

**SUBMITTED TO  
THE GLOBAL ALLIANCE FOR IMPROVED NUTRITION  
(GAIN)**

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## Executive Summary

Infant and Young Child Feeding (IYCF) practices impact on the nutritional and health status, growth, development and the very survival of infants and young children. Despite the existence of the IYCF guidelines, many children especially those from resource poor settings are not fed in the recommended way and therefore do not achieve catch-up and optimal growth. While most nutrition interventions focus on protein and energy undernutrition (PEU), the role and contribution of micronutrients for survival, increasing immunity, physical strength, productivity and promoting cognitive development, including micronutrients role in the metabolism of macronutrients, is often overlooked. Micronutrient rich foods are expensive and households in resource poor settings may not consistently afford these foods. These settings are also characteristic of inadequate access to safe drinking water, housing and sanitation services thus putting the children at increased risk of micronutrient deficiencies, illness and under nutrition. Among children under 5, children less than 2 years experience the highest health risks. Most complementary foods consumed at 6 months and beyond do not provide enough micronutrients to meet nutritional requirements and therefore the need for home fortification with vitamin and mineral powder (MNP). Home fortification using MNPs is a strategy to improve the nutrient content of complementary foods towards ensuring that complementary foods combined with continued breastfeeding meets the nutritional demands of the young child. MNPs contain about 15 essential vitamins and minerals and are relatively simple to use at the household level. The overall goal of the GAIN's MNP project is to reduce anemia, iron deficiency and Vitamin A deficiency through improved infant and young child feeding (IYCF) practices and MNP intake by integrating distribution of MNP in different existing platforms including: Government health facilities and commercial distribution. The purpose of this baseline was to assess and benchmark the current status on the indicators to be monitored throughout the MNP project implementation.

A cross sectional descriptive survey design was utilized to collect data from 618 caregiver-child (6-23months) pairs in Nairobi's Eastlands in November 2014. Cluster sampling was used to select 7 clusters. Proportionate to size sampling technique was used to determine the number of households to be sampled in each cluster. Modified EPI method was used to select households in each cluster. Data collection tools included; a structured questionnaire, focus group discussion guide, observation checklist and a key informant interview guide. SPSS version 16 computer package was used to analyze data in descriptive statistics.

The results indicate that 50.6% of the respondents were young mothers aged below 25 years, 10% of these aged below 20 years. Over half of the caregivers had secondary and post secondary education. About 57.1% were housewives. Gas and kerosene was the common cooking fuel. About 76.5% and 80.3% of the caregivers reported that their households owned radio and TV respectively. Nearly all the

respondents (93.9%) owned mobile/cell phones. About 50% of caregivers did not dispose child's stool appropriately while more than half of them knew the important occasions to wash hands. At the time of the survey, 78.6% of the index children were being breastfed. The level of continued breastfeeding for one year was 40.5%. Breastfed children aged 6-8.9 months who received meals  $\geq 2$  times a day as recommended were 20.7% while breastfed children 9-23 aged months who received meals  $\geq 3$  times a day as recommended were 71.3%. Children 6-23 months of age who received the recommended  $\geq 4$  food groups out of 7 food groups in a day were 55.7%. About, 71% caregivers consumed  $\geq 5$  out of 10 food groups implying that they consumed a more diversified diet than their children. Only 13.8% reported that in the past four weeks prior to the survey, there was ever no food to eat of any kind in the household because of lack of resources to get food. About 3.6% of the survey children were malnourished while 14.6% were at risk of malnutrition implying the need for nutrition interventions such as home fortification with MNPs.

There was low awareness on the use and benefits MNPs. Only 28.5% of the caregivers reported to have heard of or seen MNPs implying the need for continued communication on the same. 24.1% of the caregivers (84.7% of the 28.5% that had heard of or seen MNPs) reported to have heard and received advice from the health clinic or health worker. None of the caregivers reported to have heard of or seen MNPs from sales agents, TV or radio. Further, 108 out of 114 (95%) who had ever obtained MNPs for their children had received them freely given from the health facilities; implying that if free distribution from the health facility were excluded, the MNP coverage goes down substantially. Of the 28.5%, 70.5% could identify at least one benefit of using MNPs, 42% could identify the appropriate age to start MNPs and 54% knew that children should consume no more than one MNP sachet per day. Another 54% and 59.7% of the 28.5% who had heard or seen MNPs knew that MNPs should be added to solid and semi solid foods and that MNPs should be added to a small portion of food that a child can eat all of it. A fifth (20.5%) of the 28.5% who had heard of or seen MNPs reported to have received the MNPs within 7 days prior to the survey. Much of the salt, oil and flour consumed in the survey area were purchased packed and most of these commodities were fortified as evidenced by the food fortification logo/mark.

It was concluded that there was low awareness among caregivers on the use and benefits for use of micronutrient powder. Although, there seemed to have been efforts to train health workers on MNPs, it seems the MNP messages have not translated to increased awareness in the community. This survey therefore recommends that the health workers, including community health volunteers be properly trained on MNPs. Other channels of communicating MNP messages such as use of telephone SMS should also be explored to disseminate MNP messages.

## **List of Abbreviations and Acronyms**

BCC	Behavior Change Communication
CSTS	Child Survival Technical Support Project
KDHS	Kenya Demographic and Health Surveys
IMCI	Integrated Management of Childhood Illnesses
MCH	Maternal and Child Health
KPC	Knowledge, Practices, and Coverage survey
M&E	Monitoring and Evaluation
MNP	Micronutrient Powder
MOH	Ministry of Health
MUAC	Mid Upper Arm Circumference
NGO	Non-Governmental Organization
USAID	United States Agency for International Development
CHV	Community Health Volunteer

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## Operational definitions of terms

**Knowledge:** This was measured by caregivers' knowledge on the importance, descriptions and directions for MNP use

**Coverage:** This was measured as the number of individuals in the target population consuming MNPs within the survey area

**Practice/use:** This was measured by the actual use of MNPs in the survey area

**Cluster:** A naturally occurring group of individuals that is likely to include a specified number of individuals from a population group of interest.

**Cluster sampling:** A method of sampling population clusters rather than individuals, then interviewing a certain number of individuals within each cluster to achieve the desired sample size.

**Multi-stage sampling:** A process involving more than one step of sampling before reaching the ultimate unit of interest. For example, with cluster sampling, projects first sample clusters from the population, then households within clusters, and finally, mothers/caregivers within sample households.



## 1.0 Chapter One: Introduction

### 1.1 Background information

There is overwhelming evidence that investments made at different stages in a child's life, such as interventions towards maternal, infant and young child nutrition and health influence the entire lifecycle and yield desirable outcomes in adult life. Adopting a child-centric approach across all sectors and by all partners ensures that investments made across each child's life will maximize the impact for the greater good of that child. Child care practices including; feeding; breastfeeding, complementary feeding, feeding in context of HIV/AIDS, health seeking behavior, psychosocial stimulation, hygiene and sanitation practices among others all have a bearing towards the health and nutrition status of a child and consequently their survival.

Infant and Young Child Feeding (IYCF) practices impact on the nutritional status, growth, development, health, and the very survival of infants and young children. The World Health Organization (WHO) and UNICEF developed The Global Strategy for Infant and Young Child Feeding based on conclusions and recommendations of expert consultations, which resulted in the recommendation to protect, promote and support exclusive breastfeeding for six months, and to provide safe and appropriate complementary foods with continued breastfeeding for up to two years of age or beyond. Countries committing themselves to the Scaling Up Nutrition (SUN) movement further adapted the WHO and UNICEF guidelines<sup>12</sup>. Kenya has committed to improve nutrition status through the National Nutrition Plan of Action (2012-2017) and has adopted nine (9) MIYCN indicators as reflected in the Policy and Strategy Guidance for Improving Maternal, Infant and Young Child Nutrition (MIYCN) (2013) and the National Maternal Infant and Young Child Nutrition Strategy (2012 - 2017).

Despite the existence of the guidelines, many children are not fed in the recommended way and therefore do not achieve catch-up and optimal growth. Many mothers, who initiate breastfeeding satisfactorily, often start complementary feeds or stop breastfeeding within a few weeks of delivery. In addition, many children, even those who have grown well for the first six months of life, do not receive adequate complementary feeds. This may result in malnutrition including micronutrient deficiencies, which is an increasing problem in many countries.

While most nutrition interventions focus on protein and energy undernutrition (PEU), the role and contribution of micronutrients for survival, increasing immunity,

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<sup>1</sup> WHO, WFP, UNICEF (2007) Joint statement. Preventing and controlling micronutrient deficiencies in populations affected by an emergency.

[http://www.who.int/nutrition/publications/micronutrients/WHO\\_WFP\\_UNICEFstatement.pdf](http://www.who.int/nutrition/publications/micronutrients/WHO_WFP_UNICEFstatement.pdf)

<sup>2</sup> WHO (2008) Indicators for assessing infant and young child feeding practices: Available at: [http://whqlibdoc.who.int/publications/2008/9789241596664\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241596664_eng.pdf)

physical strength, productivity and promoting cognitive development, including their role in the metabolism of macronutrients, is often overlooked leading to hidden hunger and sometimes irreversible negative consequences. Vitamin A deficiency (VAD) occurs when the body stores are depleted to the extent that physiological functions are impaired leading to depressed immune response, impaired movement of iron, poor growth and night blindness. In its most severe form it leads to impaired sight and finally total blindness. Vitamin A deficiency is most common among children, especially those with measles, diarrhea and undernutrition. Risk factors for VAD include consumption of diets low in vitamin A or of low bioavailability, poor nutritional status of an individual, consumption of diets low in fats, infections such as measles, diarrhea, respiratory diseases, HIV/AIDS and helminthes and physiological status such as pregnancy. Diet in most resource poor settings provide the pre-formed vitamin A which is not readily available. Treatment of visible vitamin A deficiency involves supplementation with high doses as well as promoting use of fortified foods like sugar, fats and oils, among others.

Iron deficiency anaemia (IDA) is also a common problem in Kenya. Risk factors to iron deficiency anaemia include inadequate consumption of high bio available (*heme*) iron, high consumption of low bio available iron, inadequate intake of foods that enhance iron absorption from diet, such as Vitamin C, consumption of foods high in phytate or phenolic compounds that inhibit iron absorption such as legumes, cereals, coffee, tea, sorghum and millet. Others include parasitic infestation such as hookworms, malaria, chronic infections such as TB and HIV and heavy blood loss. Consumption of foods fortified with micronutrients and routine micronutrient supplementation for vulnerable groups which include infants and young children can be used to address micronutrient deficiencies. Use of Micronutrient powders (MNP) has been found to reduce micronutrient deficiencies<sup>3</sup> especially in resource poor settings. Multi-sectoral coordination is a prerequisite to the success of MNP interventions.

The utilization of MNPs is not only influenced by their availability but also by the level of consumers' knowledge, perceptions, attitude and practices. Effective socio-behavior change and communication (SBCC) activities are important for raising awareness on micronutrient powders (MNP) thus motivating individuals to seek out information on the same. Social and behavior change communication (SBCC) is a process of working with individuals, communities, and societies to develop context-appropriate communication strategies to promote healthy behaviors such as optimal infant and young child feeding. SBCC channels include the mass media;

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<sup>3</sup> De-Regil LM, Suchdev PS, Vist GE, Walleser S, Peña-Rosas JP (2013) Home fortification of foods with multiple micronutrient powders for health and nutrition in children under two years of age (Review). Evidence-Based Child Health: A Cochrane Review Journal. *Evid.-Based Child Health* 8:1: 112–201 (2013). Published online in Wiley InterScience ([www.interscience.wiley.com](http://www.interscience.wiley.com)). DOI: 10.1002/ebch.1895

interpersonal communication, such as provider-client or peer-to-peer counselling; and community-based channels, such as household door-to-door outreach, street theater, or local radio. A supportive environment such as a functional health system enable people initiate and sustain improved health behavior is essential to the success of any health communication effort such as communicating the benefits and directions for MNP use. Urban malnutrition is complex as it includes overnutrition, undernutrition and micronutrient deficiencies also known as hidden hunger and therefore the need for multi-sectoral approach. Findings from this baseline survey provide information to inform the design, implementation and evaluation of interventions focusing on home fortification with MNPs in Kenya.

## **1.2 Rationale and problem statement**

In Kenya over 60% of the urban population lives in slums/informal settlements contributing to the high indices of poor health in urban areas. Such indices include; poor infant and young child feeding practices, high level of malnutrition with stunting levels of over 40% among children under five years compared to 35% national level, more than 50% of mothers deliver at substandard facilities or at home and so have limited access to information and quality care. There is also systematic exclusion of slum residents from public health initiatives. Poor health in the slums may not be due to poverty alone, but due to ignorance, poor infant and young child feeding and care practices, poor health seeking behavior coupled with a limited number of public health facilities in the slums. There is therefore need to investigate dietary practices for children under 5 years in order to come up with effective strategies to address the poor health and nutrition status among the urban poor. According to estimates by UNICEF, from 1995 to 2003, about 38% of infants in the developing world were exclusively breastfed for their first 6 months. In Kenya, the KDHS (2008-2009) stated a rate of 32% at five completed months and 13% at six completed months, an improvement from the rate of 2.6% in the year 2003<sup>4</sup>.

The slum dwellers in Nairobi reside on only 5% of the land<sup>5</sup> and therefore close to 100% of household food is purchased or donated. More than half of the slum dwellers live in poverty –‘food poor’ or ‘hard core poor’ due to lack of employment, lower wages and returns from informal employment. Poverty is often at the root of micronutrient malnutrition and is linked to inadequate access to diversified food, sanitation and safe water and to lack of knowledge about safe food handling and feeding practices. The poorest urban-dwellers spend up to 75% of their income on staple foods alone. Micronutrient rich foods are expensive. Home fortification with MNPs is a direct nutrition intervention in addressing micronutrient deficiencies by

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<sup>4</sup>Kenya National Bureau of Statistics (KNBS) and ICF Macro (2010) Kenya Demographic and Health Survey 2008-09. Calverton, Maryland: KNBS and ICF Macro

<sup>5</sup> Nairobi Urban Sector Profile, 2006

improving complementary foods and together with continued breastfeeding ensures that nutritional demands of the young child are met for optimal growth.

MNPs contain about 15 essential vitamins and minerals in powder form that caregivers can easily use at household level to fortify the child's food especially if the benefits are explained to them. The directions for use are quite simple. They include but not limited to; One sachet every third day, mix in solid or semi solid foods, mix powder in the amount of food that a child can consume (eat) and finish one time, food mixed with MNP should be fed to a child within half an hour (30 minutes) of mixing. MNPs should not be added in hot foods and to liquid foods<sup>6</sup>. MNP Sachets are not supposed to be shared among children. They should be started at 6 months<sup>7</sup> when complementary foods are introduced into a child's diet. Program distribution of MNPs could be designed such that each child gets at least 10 sachets per month or about 60 sachets per six months period.

### **1.3 Description of the Nairobi County MNP Project<sup>8</sup>**

The overall goal of the MNP project is to reduce anemia, iron deficiency and Vitamin A deficiency through improved infant and young child feeding (IYCF) practices and MNP intake. The project aims to accomplish this goal by employing a hybrid distribution model to ensure product accessibility and availability through the government and emerging consumer based retail market. The project supports behaviour change communication (BCC) activities and integrating distribution of MNP in different existing platforms including: Government health facilities and commercial distribution.

The Nairobi County MNP project is aimed at strengthening county health systems in the delivery of MNPs through capacity building of Health workers on home fortification in the context of IYCF, Behaviour Change Communication and improved reporting. The MNPs are distributed through health facilities in the sub counties targeting all children aged 6-23 months. The general objective of the project is to reach 70% of children 6-23 months with MNPs through strengthening of existing systems at health facility and community level. The project also supports behaviour change communication (BCC) activities. The main outcomes for the MNP project are focused on key program indicators (coverage, utilization and access). These include consumer exposure to knowledge related to nutrition (especially infant and young child nutrition), knowledge of MNP products, purchase and

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<sup>6</sup> De-Regil LM, Suchdev PS, Vist GE, Wallester S, Pena-Rosas JP (2011) Home fortification with multiple micronutrient powders for health and nutrition in children under two years of age. Cochrane Database of systematic Reviews. Issue 9. Art. No. CD008959. DOI:10.1002/14651858.CD008959.pub2

<sup>7</sup> WHO (2011) Use of multiple micronutrient powders for home fortification of foods consumed by infants and children 6-23 months of age. Geneva WHO

<sup>8</sup> Source: The Global Alliance For Improved Nutrition (GAIN) (2014) Nairobi, Kenya

affordability of MNP as well as consumption patterns of MNP. The role of GAIN has been to support the supply chain management of the MNPs.

#### **1.4 Purpose of the baseline survey**

This baseline survey was part of a broader evaluation plan to assess and benchmark the current status on the indicators to be monitored throughout the MNP project implementation.

#### **1.5 Objectives of the baseline survey**

The specific objectives of this baseline survey were to;

1. Establish the demographic and socio economic characteristics of households in the survey area.
2. Determine infant and young child feeding (IYCF) practices including appropriate use of MNPs by households and children's nutritional status in the survey area
3. Establish the household food security and caregivers' dietary diversity in the survey area
4. Assess the level of caregivers' knowledge on MNPs availability, accessibility and use/utilization in the survey area
5. Determine the coverage (availability and accessibility) and source of MNPs in the survey area
6. Assess the distribution and reporting of MNP by the health facilities in the survey area
7. Establish the status of large scale food fortification, consumption of fortified foods in the survey area

## **2.0 Chapter Two: Methodology**

### **2.1 Survey design**

A cross-sectional survey was used to investigate status of knowledge, practices/appropriate use and coverage (KPC) of micronutrient powder and general food fortification in Nairobi, Kenya. This design is justifiable for nutritional surveys since cross sectional design provide information on exposure and outcome at the same time.

### **2.2. Survey area**

The baseline survey was carried out in the low to middle income areas of Nairobi Eastlands. The area was also in the market area of Living Goods Kenya, a not for profit organization that sells products through door to door sales agents. It was assumed that Living Goods had a potential to demonstrate a market-based model for distribution of MNP and, accordingly, the decision was made to focus the baseline survey in the market area of Living Goods. The market area of Living Goods included a 7 kilometer radius from their main office, in Kariobangi. Targeted neighborhoods that formed survey clusters included Dandora, Umoja, Kayole, Mathare, Ruaraka, Bahati and Njiru.

### **2.3. Survey population**

The target population was caregivers of children 6-23 months of age living in the survey area. Children in this age group experience the highest health risks especially if the feeding and care practices are in appropriate. Use of MNPs has been recommended for this age group and guidelines for use provided internationally<sup>9</sup> and nationally. The sampling unit was the household and therefore children in day-care centres were excluded.

### **2.4. Sample size**

The sample size calculation was driven by estimating a 70% coverage of the product at end-line with a +/- 8.5% relative precision (or a +/- 6% absolute precision) while assuming a design effect of 2.0 and a 75% individual response rate which incorporates the possibility of areas with higher than expected refusal rates or inability to participate due to unexpected inaccessibility or unrest. Using a sample size calculator to account for cluster sampling and applying the stated assumptions, the sample size was 598. To cater for non-response, a sample size of 618 caregivers-child pairs was included in the study.

### **2.5 Sampling procedures**

Two-stage cluster sampling was used to sample the households. In the first stage, Dandora, Umoja, Kayole, Mathare, Ruaraka, Bahati and Njiru areas were

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<sup>9</sup> WHO (2011) Use of multiple micronutrient powders for home fortification of foods consumed by infants and children 6-23 months of age. Geneva WHO

purposively selected and formed the 7 clusters. The reason for purposive selection is stated in section 2.2. Proportionate to size sampling technique was used to determine the number of households to be targeted in each cluster. The Kenya Census Report of 2009<sup>10</sup> was used to determine the estimate population in each of these neighborhoods. Further, 12.7% of this population was assumed to be children under 5 years and 30% percent of these were assumed to be the children less than 2 years as recommended by the Kenya Ministry of Health. This yielded 176 households in Dandora, 124 in Umoja, 112 in Kayole, 38 in Mathare, 77 in Ruaraka, 36 in Bahati and 55 in Obama/Njiru respectively. As such the Umoja, Kayole and Dandora clusters were segmented into smaller discrete cluster areas with the help of community health volunteers in the area as recommended by Espeut in The Child Survival Technical Support Project+ Field Guide for Knowledge, Practices, and Coverage (KPC) Survey 2000+ (2001)<sup>11</sup>. Umoja was segmented into Umoja 1 and Umoja 2, Kayole into Kayole 1 and Kayole 2 and Dandora into Dandora 1 and 2.

In the second stage, one cluster area out of the number of clusters was selected by simple random sampling. Modified EPI method was used to select households where caregivers and their 6-23month-old children were present in the cluster. This method involved going to the approximate centre of the randomly selected cluster and randomly choosing a direction by spinning a pen and walking in the direction the pen pointed to the edge of that cluster. The first household was selected based on the willingness of the caregiver to respond to data collection tools. Subsequent households were chosen by proximity in the direction until the desired number of households was arrived at. The same method was used in all clusters.

## **2.6 Data collection tools/instruments**

Several data collection tools were developed and used. These included; a structured questionnaire (Appendix 2.1) which was translated to Kiswahili, a Focus Group Discussion (FGD) guide with caregivers of children 6-23 months (Appendix 2.2), Observation Checklist (Appendix 2.3) developed to check the presence of MNPs in households, nearby shops/kiosks and health centers, use on MNPs on the child's food, general cleanliness and foods commonly available in the survey area and a Key Informant Interview Guide to collect qualitative data from Living Goods staff (Appendix 2.4) and from selected nutritionists in the health facilities in the survey area (Appendix 2.5). Mid Upper Arm Circumference (MUAC) measurement was taken from the study children.

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<sup>10</sup> Kenya National Bureau of Statistics (2009). Kenya Census Report of 2009 Volume 11

<sup>11</sup> United Nations (2005) KPC2000+ Field Guide to KPC surveys. The Child Survival Technical Support Project+ (CSTS) (ATTN: Donna Espeut) 11785 Beltsville Drive, Calverton, Maryland 20705, U.S.A

## **2.7 Data collection procedures**

### **2.7.1 Recruitment and training of survey team**

Two Survey Supervisors and nine survey enumerators who met the criteria provided for in the Terms of Reference (TOR) for this baseline were recruited (Appendix 5). Community Health Volunteers (CHVs) were also recruited to help identify boundaries and survey households (Appendix 6). The consultant went through the data collection tools with the supervisors, scheduled and developed a training timetable, data quality control manuals, assembled training materials for the enumerators and facilitated a 3-day training that covered the survey purpose and objectives, the survey design, household selection procedures, interviewing techniques and a detailed coverage of the data collection tools, especially the questionnaire (Appendix 7). The training also included questionnaire administration role plays/mock interview and training on MUAC measurements.

### **2.7.2 Pre-testing of data collection tools**

The questionnaire was pretested in Pipeline Estate, Nairobi, an area with households with similar characteristics to the study site but not included in the main survey. This was done on approximately 10% of the sample size of the total sample. Revisions were then made to the questionnaire accordingly.

### **2.7.3 Survey authorization, courtesy visits and ethical considerations**

Prior to data collection, the consultant presented the methodology at a Nutrition Information Technical Working Group (NITWG) forum at the Ministry of Health. A research/survey permit was sought and granted from the Ministry of Health (MOH), Nutrition and Dietetics Unit (Appendix 1.1). A courtesy visit was made to the Nairobi County offices. Further permission was sought and granted from the Nairobi County Research committee (Appendix 1.2). Another courtesy call was made to Living Goods in Kariobangi, who distribute MNPs on a commercial basis. Visits were made to the Health Centres in the survey area. Informed consent was sought from the respondents on arrival at the household. In some instances the spouse's permission was sought to interview the wife. Once MUAC measurements were taken using a colored MUAC tape on the child, the readings were interpreted to the caregiver. Nutrition counselling was provided to caregivers whose children were moderately or severally malnourished or who were at risk of malnutrition. Further, these children were referred to the health facility using referral forms/sheets obtained from the health centers in the survey area.

### **2.7.4 Data collection and quality control procedures**

Community Health Volunteers (CHVs) assisted in identifying the study households. On arrival at the household and after introductions were made and consent was sought, the research assistants/enumerators enquired the age of the index child (6-23months) and verified this from the mother-child health (MCH) booklet. Data collection took an average of 45-50 minutes. However, in households where the care



giver had not heard of or seen the MNPs, the interview took slightly a shorter time. Data was collected in 11 days. To maintain high data quality in the field, adherence to GAIN's expected outcomes and survey objectives, design, sampling procedures; inclusion and exclusion criteria were maintained. Briefings were conducted by the consultant and the supervisors every morning and end of every data collection day. In flats (storey buildings) no more than two questionnaires were administered from one flat. The questionnaires were pre-coded before they were issued to the enumerators who signed for them on collection and on return after being checked for completeness. The supervisors conducted one repeat interview out of every 20 questionnaires done by the enumerators and compared results with those of the enumerators.

## 2.8 Data analysis

Data was entered, cleaned, checked for consistency and analyzed using Statistical Package for Social Sciences (SPSS) (Version 16) computer package. A data analysis plan was developed by the consultant and discussed with the data analyst and in collaboration with GAIN. IYCF data was analyzed using the WHO infant and young child feeding indicators. For children 6-23months, minimum dietary diversity was considered as  $\geq 4$  food groups out of 7 groups<sup>12/13</sup>. As evidenced by a wide range of literature, the dietary diversity indicator is based on the argument that the more diverse the diets the child or individual consumes, the more likely they are to provide adequate levels of a range of nutrients. To calculate this indicator, each of the food groups was scored "1" if the child had consumed the food group the yesterday (the day preceding the interview), and "2" if not. During analysis the '2' was changed to a '0'. This results in a diversity score ranging from 0 to 7 for each child. Higher scores correspond to a more adequate range of food groups in the diet. The acceptable dietary diversity for caregivers was calculated  $\geq 5$  food groups out of 10 groups<sup>14</sup>. MUAC cut-off points used were those recommended by WHO. MUAC of  $\leq 11.5$ cm and a MUAC of  $>11.5$ cm to  $\leq 12.5$ cm was classified as severe and moderate malnutrition respectively while a MUAC of  $>12.5$  to  $\leq 13.5$ cm and a MUAC of  $>13.5$  was classified as 'at risk' of malnutrition and normal respectively. Descriptive statistics and cross tabulations were used to analyze data. Data from Focus Group Discussions, key informants and observation checklists were grouped into emerging themes.

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<sup>12</sup> Ruel M. T. (2002): Is dietary diversity an indicator of poor food security or diversity quality? A review of measurement issues and research needs. Food Consumption and Nutrition Division, International Food Policy Research Institute (IFPRI). FCND Discussion Paper NO. 140

<sup>13</sup> WHO (2008). Indicators for assessing infant and young child feeding practices:. Available at: [http://whqlibdoc.who.int/publications/2008/9789241596664\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241596664_eng.pdf).

<sup>14</sup> European Union/FAO/USAID/FANTA III/fhi360 (2014). Introducing the Minimum Dietary Diversity – Women (MDD-W) Global Dietary Diversity Indicator for Women. Washington, DC, July 15–16, 2014

## 3.0 Chapter Three: Results

### 3.1 Demographic and socioeconomic characteristics

#### 3.1.1 Household socio-demographic characteristics

The survey covered a total of 618 households with 1142 (47.1%) males and 1284 (52.9) females. The average household size was 3.9. Half of the household members (50.9%) were over 18 years. A third was children below 5 years (31.7%) while those aged 6-23 months constituted a quarter (25.8%) of the population. About 64.8% of the caregivers were married while 11.8% were single. About 29.2% of the household members were attending school at the time of data collection, out of which 23.8% were aged 5-17 years. Of those aged above 18 years of age, 19.8%, 33% and 21.1% had primary, secondary and college/university education respectively. Close to a quarter of the household members (21.6%) were housewives while 13.2%, 13.4% and 22.7% were casual labourers, in salaried employment and in business respectively.

#### 3.1.2 Caregiver and maternal characteristics

Out of the 618 caregivers interviewed, only one was a grandmother and one father. The rest (99.6%) were the mothers of the survey children. As such, results presented in Table 3.1 reflect maternal characteristics. The mean age of the caregivers was 26.07 ( $\pm 0.37$ ) years. Only 5.7% of the caregivers were attending school/college at the time of data collection.

**Table 3.1 Distribution of study clusters by maternal characteristics**

<b>Socio-economic characteristics</b>	<b>Umoja n=124</b>	<b>Kayole n=112</b>	<b>Njiru n=55</b>	<b>Mathare n=38</b>	<b>Bahati n=36</b>	<b>Dandora n=176</b>	<b>Ruaraka n=77</b>	<b>Total n=618</b>
<b>Age</b>								
17-20 years (n=62)	0.5	1.1	1.3	0.8	0.5	2.6	3.2	10.0
21-25 years (n=251)	5.7	8.3	3.4	2.4	1.9	13.1	5.8	40.6
26-35 years (n=278)	12.3	8.3	3.6	2.6	3.4	11.7	3.2	45.0
36-45 years n=27)	1.6	0.5	0.6	0.3	0.0	1.1	0.2	4.4
Total (n=618)	20.1	18.1	8.9	6.1	5.8	28.5	12.5	100.0
<b>Marital status</b>								
Single (n=76)	2.9	1.5	0.8	1.0	0.0	4.7	1.5	12.3
Married (n=533)	16.8	16.2	7.9	4.9	5.8	23.6	11.0	86.2
Widowed/separated (n=9)	0.4	0.5	0.2	0.3	0.0	0.2	0.0	1.4
Total (n=618)	20.1	18.1	8.9	6.1	5.8	28.5	12.5	100.0
<b>Education attained</b>								
Primary school	2.1	5.5	1.8	4.0	1.5	11.5	6.9	33.3
Secondary school	7.1	8.7	4.9	2.0	2.7	13.7	4.7	43.8
College/University	10.9	3.9	2.2	0.1	1.6	3.3	0.9	22.9
Total	20.1	18.1	8.9	6.1	5.8	28.5	12.5	100.0
<b>Occupation</b>								
casual labour	1.9	0.8	0.8	1.0	0.6	1.0	0.6	6.8
salaried employment	2.8	0.2	1.0	0.2	0.6	0.8	0.3	5.8
Business	8.3	5.2	2.4	1.3	1.1	7.8	2.4	28.5
Housewife	6.5	11.7	4.7	3.8	3.4	18.2	9.1	57.1

A short birth history recalled at least three births; most recent birth, birth before the most recent one and birth before that one. Nearly all the mothers (99%) reported that the survey index child was their most recent births. About 45.6% of the respondent mothers reported that they had a birth before the most recent one. Of these, four children (0.6%) were reported to have died. Further, 17.8% of the mothers reported that they had a birth before that one and of these seven (1.1%) children had died.

### **3.1.3 Survey children's characteristics**

About 37.9%, 29.8% and 32.4% were aged 6-11months, 12-17months and 18-23 months respectively. The mean age was 14.09 ( $\pm 0.42$ ) months. Slightly more than half of the survey children (52.8%) were males while the rest were females.

### **3.1.4 Other proxy indicators**

Ninety six percent of the respondents reported to have had electricity in their house at the time of the survey. Nearly all the respondents (93.9%) reported to have cemented floors and slightly more than half (55.2%) of the respondents reported that the roofing materials on their dwelling units was cement slabs (storey buildings). Stone was the common walling material (67.7%) followed by cement blocks (21%) and iron sheets at 8.7%. Iron sheets were used mainly in Mathare area which is generally a low income settlement. Slightly more than half of the respondents (56.5%) and 36.1% of the households used kerosene and cooking gas as fuel. A meager 3.7% and 2.1% used charcoal and electricity respectively. Over three quarters of the caregivers reported that their households owned radio (76.5%) and Television (80.3%). Nearly all the respondents (93.9%) reported to own mobile phones with only 7.6% of these having not completed primary school education. About 63.5% of those that owned mobile phones had secondary and post secondary education. Ownership of a refrigerator and a computer/laptop was low at 14.7% and 14.1% respectively.

## **3.2 Water, sanitation and hygiene (WASH)**

About a quarter of the respondents (27.2%) reported that they had water piped into the dwelling unit while 54.7% of them reported that water was piped to the compound. About half of the respondents (51.5%) reported to boil drinking water while 15% reported to use chlorine to make safe. Nearly three quarters (74.1%) had a flush toilet facility. When asked how they disposed the child's stool, 43.4% reported that they put it in the toilet while 47.1% reported that they threw in the drain garbage. Assessment of caregivers knowledge on the critical hand washing occasions showed that 66%, 57.9%, 41.6%, 81.2% and 69.6% knew that they should wash their hands before eating, before feeding the child, before cooking, after defecation and after cleaning a child that has defecated respectively.

### 3.3 Infant and young child practices

#### 3.3.1 Breastfeeding and IYCF status

Over three quarters of the survey children aged 6-23 months (78.6%) were being breastfed at the time of data collection. Table 3.2 provides results on breastfeeding status, reasons for not breastfeeding and children's dietary intake.

**Table 3.2 Status of Infant and Young Child Feeding (IYCF) practices**

IYCF status	Frequency n=618	%
Child currently breastfeeding (yes)		
6-11	225	36.4
12-17	154	24.9
18-23	107	17.3
Total	486	78.6
Continued breastfeeding for 1 year	250	40.5
<b>Those not breastfeeding, main reason for stop breastfeeding</b>		
Mother claimed she did not have milk	4	0.6
Mother pregnant or with another baby	8	1.2
Child refused food so as to breastfeed	2	0.3
Mother did not want to breast feed	56	9.1
Mother going back to work/school	21	3.5
Mother sick	4	0.7
Baby refused to breastfeed	24	3.9
Other reasons	15	2.1
Child consumes food or drink other than breast milk	614	99.4
Age (months) semi-solid & solid foods introduced to the child		
Below 6 months	113	18.3
At 6 months	422	68.3
No. of times child fed with on solid or semi-solid food last 24 hrs		
3 times	100	16.2
4 times	164	26.5
5 times	191	30.9
6 times	63	10.2
Minimum meal frequency		
Breastfed children aged 6-8.9 months who received meals $\geq 2$ times (n=112)	101	20.7
Breastfed children aged 9-23 months who receive meals $\geq 3$ times (n=374)	346	71.3
Non-breastfed children aged 6-8.9 months who received meals $\geq 2$ times (n=2)	2	1.8
Non-breastfed children 9-23 aged months who receive meals $\geq 3$ times (n=130)	126	25.0
Minimum dietary diversity;		
Children 6-23 months of age who received $\geq 4$ food groups	344	55.7

#### 3.3.2 Minimum meal frequency indicator

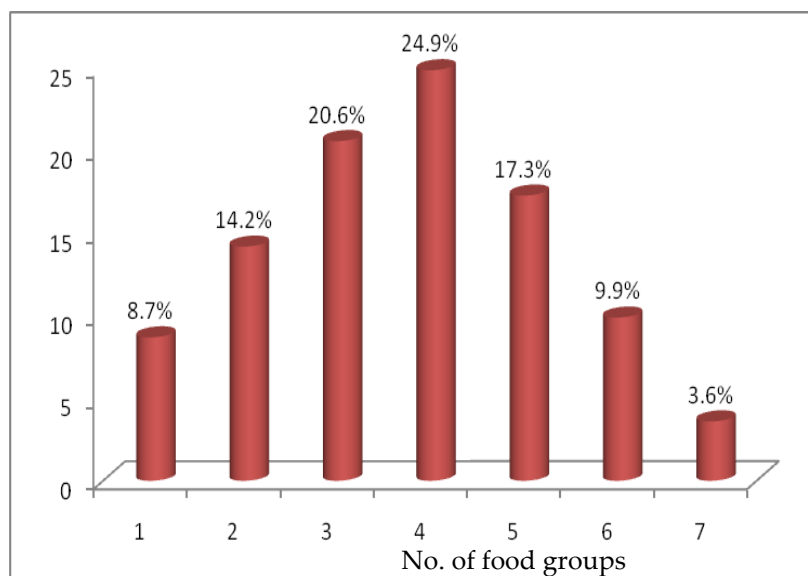
This indicator is based on the breastfeeding status of the children. The minimum meal frequency indicator is 2 times per day inclusive of snacks for the breastfed children 6-8.9 months of age. In this survey, the proportion of breastfed children less than 9 months (6-8.9 months of age) who ate  $\geq 2$  meals a day is shown in Table 3.2. About 5.1%, 7.8% and 3.3% of the breastfed children less than 9 months were fed

three, four and five times. The indicator for the minimum meal frequency for breastfed children 9-23.9 months of age is 3 times per day inclusive of snacks. It should be noted that 23% of breastfeeding children were aged 6 to <9 months while the rest 77% were aged 9-23 months. Thirty nine children (8%) aged 6 to <9 months and twenty eight children aged 9-23 months did not meet the minimum meal frequency.

### 3.3.3 Minimum dietary diversity

Minimum dietary diversity was considered to be consumption of foods from  $\geq 4$  food groups out of 7 food groups.<sup>15</sup> The food groups were as follows: (1) Grains, roots and tubers, (2) Legumes and nuts (3) Dairy products (milk, yoghurt, cheese) (4) Flesh foods (meat, fish, poultry and liver/organ meats) (5) Eggs (6) Vitamin A-rich fruits and vegetables and (7) Other fruits and vegetables.

The minimum dietary diversity was analyzed for all survey children 6-23 months of age. The findings showed that 55.7% attained the minimum dietary diversity of four food groups and more. Figure 3.1 shows a distribution of survey children by number of food groups consumed.



**Figure 3.1 Number of food groups consumed in 24 hours**

In 24 hours prior to the survey, nearly all children (93%) had consumed foods from grains, roots and/or tubers while 41.4% had consumed foods from nuts and legumes. Nearly three quarters of the children (71%) had consumed dairy products while 29.2% had consumed flesh foods. A quarter, 25.5% of them had consumed eggs, 57.6% had consumed vitamin A rich fruits and vegetables while 79.6% had consumed other vegetables and fruits. Only 3.4% of children 6-23 months consumed

<sup>15</sup> Ruel M. T. (2002): Is dietary diversity an indicator of poor food security or diversity quality? A review of measurement issues and research needs. Food Consumption and Nutrition Division, International Food Policy Research Institute (IFPRI). FCND Discussion Paper NO. 140

tinned or powered milk. The consumption patterns were not significantly different from a seven day food frequency. Nearly all the caregivers (94.8%) reported that the food consumption patterns for the child the yesterday of the interview day was the normal pattern.

### **3.3.4 Results from Focus Group Discussion and Observation Checklist on IYCF**

Results from the Focus Group Discussion and Observation Checklist on IYCF status revealed that mothers were aware of exclusive breastfeeding but did not practice such. This confirmed that mothers are not likely to practice what they know. Similarly measuring practices adds value to just measuring knowledge. Caregivers also knew (from what they had been taught at the health clinic) how to feed a young child but added that provision of diversified diets was constrained by lack of resources.

Observation checklist revealed that a lot of street foods were sold in the survey area. Leading this list was fried foods; *Chapatti*, *Mandazi*, potato fries (chips) and some fruits. Observation revealed that children bought the fried foods rather than the fruits. The street foods were also sold in small affordable measures such as ksh.10 which could be afforded than a mango selling Ksh. 20.

### **3.4 Children's nutritional and vitamin A supplementation status**

Most of the survey children (81.9%) had a normal MUAC while 0.8% and 2.8% were severely and moderately wasted respectively. In a normal situation, the acceptable levels of acute malnutrition should be 5%<sup>16</sup> and below and therefore the survey area was within normal/acceptable range. Another 14.6% were at risk of wasting. This justifies the need for nutrition interventions such as MNP supplementation as wasting (acute malnutrition) is often accompanied by micronutrient deficiencies. Nearly all the children (96.9%) had received vitamin A capsule in the past 6 months prior to the interview while three respondents did not know or could not remember whether the child had received vitamin A capsule.

### **3.5 Caregivers/maternal dietary diversity**

This indicator reflects consumption of at least five (5) of ten (10) food groups namely (1) All starchy foods (2) Beans and peas (3) Nuts and seeds (4) Dairy (5) Flesh foods (6) Eggs (7) Vitamin A rich greenly leafy vegetables (8) Other vitamin A rich vegetables and fruits (9) Other vegetables and (10) Other fruits. In this survey, 96.4% and 96.1% of the caregivers reported that their dietary consumption patterns were normal the day before the interview (24 hour recall) and in the previous seven days

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<sup>16</sup> WHO (2006) Classification of malnutrition and corrective actions; Child Growth Standards. WHO. Available at: <http://who.int/childgrowth>

respectively. About three quarters of the caregivers (71%) reported to have consumed  $\geq 5$  out of 10 food groups the day before the interview. About 31.6% eggs, 80.1% dairy products, 71.5% flesh foods, 85.1% other vegetables, 54.7% legumes 68.8% green leafy vegetables, 61.6 vitamin A orange fleshed vegetables and 97.6% starchy foods. These findings indicate that the caregivers consumed a more diversified diet than their children.

### **3.6 Household food security based on the household hunger scale**

When asked whether in the past four weeks/30days (prior to the survey), there was ever no food to eat of any kind in the household because of lack of resources to get food, 13.8% reported in the affirmative. About 4.2% of these reported that this happened 3-10 times within that period. About 11.5% and 4.2% further reported that a member of the household went to sleep hungry and a member went the whole day and night without eating because there was not enough food respectively. Only 3.4% and 1% reported this happened 3-10 times.

### **3.7 Home fortification with vitamin and mineral powder (MNP)**

#### **3.7.1 Caregiver's knowledge on MNPs**

There was generally low caregiver's knowledge of MNPs in the survey area. Findings from the health facilities showed that November 2014, the data collection month, was the first month of distributing 'Mix Me' MNP brand. Other health facilities such as in Kayole were already distributing NutriSupple, another MNP brand. There were no MNPs distributed from the private health facilities as reported by those caregivers who reported to visit private health facilities. When asked whether or not they had heard or seen vitamin and mineral powder (MNPs), only 28.5% responded in the affirmative. Of these, 11.3% (38.9% of those that had heard) and 10.2% (35.8% of those that had heard) reported to be aware of Mix Me and NutriSupple MNP brands respectively. Four percent knew about and could describe MNPs but could not remember a brand name.

When asked where they heard of MNP from, 24.1% of caregivers reported to have heard from the health clinic and or health worker. This was 84.7% of those that had seen or heard. While it would be assumed that those who have heard about MNPs were caregivers with children aged below one year, by the fact that these children were still being taken to the MCH clinic for immunization, a cross tabulation of the child's age and caregiver having heard about MNP revealed otherwise. Less than 6% of the caregivers heard about MNPs from other sources such as relatives, friends, neighbours, religious meetings and the social media. None of the caregivers reported to have heard from the crèche/nursery unit, pharmacy or shops/market place. At least 12% of the caregivers (42% of those who had heard or seen MNPs) identified the appropriate child's age (6 months) to start giving MNPs (Table 3.3).

**Table 3.3 Percent distribution of caregivers by MNP knowledge**

Indicator for knowledge on MNPs	% <sup>a</sup> n=618	% <sup>b</sup> n=176
• Caregivers who have heard of MNPs	28.5%	
• Caregivers who can identify at least one benefit of using MNP	20.1%	70.5%
• Caregivers who know that MNP should not be added to foods that are cooking or hot	17.0%	59.7%
• Caregivers who know that children should consume no more than 1 MNP sachet per day	15.4%	54.0%
• Caregivers who identify the appropriate types of foods MNPs should be added to; Solid and semi-solid foods	15.4%	54.0%
• Caregivers who know that MNP should be added to a small portion of one meal food that a child can eat all of it	15.4%	54.0%
• Caregivers who accurately identify the appropriate age to start MNP (6months)	12.0%	42.0%
• Caregivers knowledge on the benefits of MNPs		
• Increased appetite	13.1%	46.0%
• Makes child health	7.6%	26.7%
• Increased energy and activity	4.0%	14.2%
• Increased immunity	2.4%	8.5%
• Makes child stronger	2.3%	8.0%
• Physical growth	1.1%	4.0%
• Mental development	0.5%	1.7%
% <sup>a</sup> of Survey sample		
% <sup>b</sup> of those that had heard of or seen MNPs		

When asked if they had ever received any advice on how to use MNPs, 22% of caregivers, (77.3% of those that had heard) responded in the affirmative. About 5%, 15%, 9.5% and 2.4% of the caregivers (17.6%, 52.5%, 33.5% and 8.5% of those who had heard or seen MNPs) reported that the advice given was give 60 sachets within 6 months, mix with semi solid foods, mix just before feeding and feed children 6-59months respectively. Table 3.4 shows other kinds of advice given irrespective of the source of advice, most of which are incorrect.



**Table 3.4 Distribution of caregivers by other advice given on MNPs**

Other advice given on MNPs (not necessarily correct)	Frequency n=176*	%
• Skip two days	103	58.5
• Give one sachet in half/bits in baby's hot food just before serving	13	7.4
• Give after three days (fourth day)	5	2.8
• Child to eat within 30 minutes after mixing	4	2.3
• Use one sachet in three meals	3	1.7
• Mix in baby's cooked food	2	1.2
• Give two consecutive days then skip two days mix with warm food	1	0.6
• Mix it in adult food	1	0.6
• Add in small amount of food	1	0.6
• Mix with soup	1	0.6
• Given when not too hot	1	0.6

\*Caregivers who had heard or seen MNPs

### **Caregivers' attitude towards MNPs**

Since majority of the caregivers had not heard or seen the MNPs, they could not like/dislike what they did not know. It was also challenging to establish the attitude (like/dislike MNPs) from those who had been given freely from the health facility due to a common belief that whatever product is given in the health facility is good for the child whether the caregiver likes or dislikes it. As such, 10.8% (38.1% of those that had heard) reported that they liked MNPs in the assumption that it was good for the health of the child while 19.7% caregivers (69% of those that heard) reported that they liked MNPs since the product improved their child's appetite. About 1.6% of the caregivers (5.7% of those that had heard or seen MNPs) reported that they disliked MNPs because of the way the product was promoted or advertised. No one of those who had heard of or consumed MNPs had issues with the taste of MNPs or the packaging.

### **3.7.2 MNP Coverage**

#### **Source of information on MNPs**

The major source of information about MNPs was the health worker 21.6% (75.6% among those who had heard about MNPs). None of the caregiver respondents reported to have received advice from door-to-door sales agent, TV, Radio, Billboards, from community leaders, pharmacy or shops. In the section 3.7.1, it is reported that those who had heard about MNPs from the health clinic were 24.1%. Of these, 21.5% reported to have received advice while 2.6% just heard about MNPs from the health facility.

### Community Outreach by Community Health Volunteers and IYCF

When all the 618 surveyed caregivers were asked whether they have ever been visited at home by a community health volunteer, about half (50.3%) reported that they had been visited in less than a month (<30days) before the survey interview day. Asked on what advice the CHV gave related to feeding the child on the last home visit, only 0.9% of the respondents reported to have been advised on breastfeeding positioning and attachment and complementary feeding after 6 months respectively. Another two (0.3%) reported that they were given advice on family planning. One reported to have been advised on washing hands. About 33.7% and 4.6% of the caregivers reported that on the last home visit, the caregiver had visited for polio vaccination and vitamin A supplementation. None of the caregivers reported to have been given any advice on breastfeeding immediately after birth, giving colostrum, not to give pre or post lacteals, feeding animal source foods, cooking with/adding fortified oils and using MNPs.

None of the caregivers reported to have paid 2, or more shillings per sachet. This could be explained by the fact that 108 out of 114 (95%) who have ever obtained MNPs for their children had received the MNPs as a gift, freely given from the health facilities. Table 3.5 gives more information on use MNPs in the survey area.

**Table 3.5 MNP Coverage Indictors**

MNP Coverage Indicator	Frequency n=618	% <sup>a</sup> n=618	% <sup>b</sup> n=176
• Caregivers reporting that MNP sachets are affordable	124	20.1	70.5
• Source of MNPs <sup>a, b</sup>			
Caregivers who have obtained MNPs from health facility	116	18.8	65.9
• Caregivers who have ever obtained MNPs for one or more of their children	114	18.4	64.8
• Caregivers who received free sachets*	108	17.5	61.4
• Caregivers who have obtained MNPs for one or more of their children in the past month, 2 months or more	98	15.9	55.7
• Number of MNP sachets obtained last time: 1-8 sachets	28	4.5	15.9
10 sachets	68	11	38.6
11-20 sachets	19	3.1	10.8
Above 20 sachets	11	1.8	6.3
• Caregivers who can afford to purchase MNPs			
Every day	19	3.1	10.8
2-3 times per week	93	15	52.8
≤Once per week	12	2.0	6.8

<sup>a</sup> of Survey sample, <sup>b</sup> of those that had heard of or seen MNPs

Source of MNPs<sup>a</sup> None of the caregivers reported to have obtained MNPs from stores/chemist or sales agent

Source of MNPs<sup>a, b</sup> 0.2% and 0.3% reported to have obtained either from neighbor/relative or NGO/religious group

A number of respondents reported that they cannot buy MNPs unless under a doctor's prescription arguing that self prescription is not appropriate. Others reported that buying would be determined by the availability of money at the point of need.

Only 20.9 of caregivers (73.3% of those that had heard of or seen MNPs) had obtained MNPs for one or more of their children in the past 2 or more months prior to the survey. About 8.9%, 6.5% and 5.5% of caregivers (31.3%, 22.7% and 19.3% of those that had heard or seen MNPs) reported to have obtained MNPs within the previous 2 weeks, 3-4 weeks and over one month prior to the survey respectively.

When those who had heard of or seen MNPs but their children had never taken the product were asked the reasons their children had never taken, none reported that failure to take MNPs was because; MNPs were too expensive, due to bad experience of someone else or advised not to use it. Only four respondents reported that the MNP product was not available in the market while another four reported that or they did not see the need of giving the child. One caregiver reported that she did not see other mothers use it while another one reported that she did not trust the product. Fifteen caregivers reported that child was young while another one respondent reported to have been discouraged by family members.

### 3.7.3 Use of MNPs at the household level

Only 13.3% of the caregivers were found to be having MNPs in the household. This formed 46.6% of the caregivers who had heard of or seen MNPs. Some respondents were able to describe how they used the vitamin and mineral powder.

*“This is how I use the MNP. I mostly use it on baby's porridge, one sachet a day, on every third day. In a week I give three sachets. I cook the porridge and serve it halfway or three quarter in this cup. I cool the porridge then add the MNP powder from the sachet, stir with a spoon and then feed the baby. The baby is now sick so I only serve half of this cup”*  
(mother shows a 300ml mug).

Respondent, Kayole, Nairobi



It was challenging to observe use of MNPs in most households since the research team arrived at the household when the child was either asleep or it was not meal time. In some clusters such as in Kayole, Dandora and Mathare, the research team was not allowed to conduct the interview inside the household.

About 5.5% of caregivers (19.3% of those that had heard of or seen MNPs) reported the products had ran-out. A few others reported that the loose-piece MNPs were getting lost in the household; others reported they did not have because of the long waiting queues at the health facility. Table 3.6 gives more information on the use of MNPs at the household level. From the survey there is a clear indication that there is mixed information on the directions of using MNPs.

**Table 3.6 Distribution of households by MNP use at the household level**

MNP Practices		% <sup>a</sup>	% <sup>b</sup>
		n=618	n=176
Index child had ever taken vitamin and mineral powder		18.4	64.8
Caregivers who had MNPs in the household at time of survey		13.3	46.6
Caregivers reporting that MNPs had run out/consumed		5.5	19.3
Number of sachets given to the child on the <u>most recent day</u>	Less than one sachet	2.9	10.2
	One full sachet	15.4	54.0
	Two sachets	0.5	1.7
	Three sachets	0.2	0.6
MNP Consumption the previous week	Children 6-23 months consuming at least 3 MNP sachets within the last week	4.9	17.0
How MNP sachet was used the last time child was given it	Mixed the sachet into one meal	15.4	54.0
	Split the sachet into more than one meal	3.1	10.8
	Mix with warm water	0.2	0.6
	Added to porridge to be taken for whole day	0.2	0.6
Foods into which MNP was added the last time it was given	Added to separately mashed family food	3.1	10.8
	Semi solid food prepared for the infant	15.4	54.0
	Mixed with the family pot of food	0.2	0.6
	Mixed with water or liquid/tea	0.7	2.3
Stage of food preparation when MNP was added the last time it was given	While cooking the food	0.2	0.6
	At the end of cooking	0.6	2.3
	Just before feeding the food to the child	17.0	59.7
Mealtime when MNP was last given	Breakfast	2.3	8.0
	Morning snack	8.1	28.4
	Lunch	1.3	4.6
	Afternoon snack	2.6	1.5
	Dinner	1.0	3.4
% <sup>a</sup> of Survey sample			
% <sup>b</sup> of those that had heard of or seen MNPs			

Unfortunately, those caregivers who reported that the MNP products had ran out could not clarify whether the MNPs were consumed only by the child as expected. Only seven respondents (1.1%) reported that someone else apart from the index child in the household used MNPs of which six were children and one caregiver.

### **3.7.4 Results on MNP from Focus Group Discussions, Key informant Interviews and observation checklist**

Results from Focus Group Discussion indicated that most of the mothers had not received or seen the MNPs and therefore did not also know the benefits. After the benefits of the MNPs were explained to them, they looked forward to obtaining them from the health facilities. Some caregivers however, reported that they had received the MNPs from the health facility. Some had correct information on benefits and directions of MNP use while others had no idea despite having received the vitamin and mineral powder.

Key informant interview established that there were door-to-door agents who sold MNPs on commercial basis. It was reported that the agents were more in Korogocho, Kariobangi and Umoja Estates. It was also reported that the agents were given a retail price of Ksh.20 per 3 MNP sachets. This guideline was not quite followed as it was reported that some agents sold MNPs at ksh.40 per 3 sachets. Asked how effective the platform was, the respondent reported that the agents sold all kinds of wares available at Living Goods depending on the profit the agents got from the commodities. Asked on whether the agents were trained on MNPs; benefits and directions for use, the respondent reported that trainings were held especially for new agent. When asked what was the main challenge concerning the consumption of MNPs, the respondent reported that low consumer awareness was the key challenge. The survey findings revealed that none of the caregivers had heard or seen MNPs from door-to-door agents implying that this platform may not be effective as the health facilities or that there were challenges. A check in the shops and some pharmacies in the survey area indicated that there were no MNPs and specifically MixMe brand in the market.

### **3.7.5 Distribution and Monitoring of MNP by the Health Facilities**

A check at the health facilities in the survey area established that the nutrition focal person distributing the MNPs was overwhelmed by workload, did not quite communicate all the benefits and directions for MNP use and therefore some opted to use a health talk while others distributed the MNP flyer to communicate MNP messages. Some mothers did not carry the flyers even after the nutritionist asked them to take home. Some who took dropped the flyers not far from the facility. What is not known is whether those who took the flyers home read or made use of them as expected. Those nutritionists who opted to use health talk to communicate MNP messages argued that this approach covered many caregivers including those whose children were aged above 9 months and completed immunization. Aspects covered in the health talk included the benefits of MNPs, directions for use. Some of the nutrition focal staff at the health facility reported to have been trained on the benefits and use of MNPs.

When asked about the distribution process, some nutritionists mentioned (indicating that they knew) that malnourished children should not be supplemented with MNPs and hence the need for nutrition assessment. Malnourished children were reportedly referred to a higher facility for nutrition management. Some of the nutritionists reported that distribution of NutriSupple brand was easy since each sachet was joined to another, unlike Mix Me MNP brand making it easy to dispense. One nutritionist re-packed them as shown next page in 10 sachets, enough for one child in a month. Repacking was reportedly in advance.



**GAIN Mix me (MNP) pack**



**Repackaged MNPs in to 10 sachets**



**NutriSupple packing**

It was observed that some facilities used the Child Health and Nutrition Information Systems (CHANIS) register for monitoring. The MOH 511 child Welfare Clinic (CWC Register) of March 2014 captured information on whether the children 6-23months old were supplemented with MNPs and the response to record was either a 'yes' or 'no' (Y/N). The MOH 711: Integrated Summary Tool also had a provision for recording utilization of MNPs (See Appendix 3). In one of the facilities, these registers were not available and the nutritionist recorded child's nutrition and health information on a sheet of loose paper.

### **3.8 Food fortification status: salt, oil, flour and milk consumption**

This survey also established the types and brands of salt, oil, flour and milk and whether these food commodities were fortified or not. Although most caregivers in a focus group discussion in Umoja indicated that food prices determined what their households purchased rather than whether the foods were fortified or not, results indicated that most oils, fats and flour consumed were fortified as evidenced by the food fortification logo. All caregivers in a focus group discussion in Mathare had no idea about food fortification.

### **3.8.1 Salt consumption**

Nearly all the respondents (92.2%) reported to use Kensalt and 4.7% Kaysalt both of which are iodized table salt brands. About 99.5% of the caregivers reported that the salt is purchased packaged.

### **3.8.2 Oil/fat consumption**

Slightly more than three quarters of the caregivers (77.5%) reported to use oils while 22% reported to use vegetable fat. Only 0.5% reported to use animal fat. About 68.3% of the respondents reported that the oil and/or fat they consumed was purchased packaged while 31.6% reported that it was purchased open. The oil type commonly consumed was vegetable blend oil (36.9%), sunflower oil (7%) while refined palm oil, soybean oil, groundnut oil and olive oil were consumed by 2% of the respondents. About half of the respondents (50.2%) purchased cooking oil/fat from supermarket while 48.1% purchased from shops/kiosks and 1.6% from market/Street vendor. From the oil and fat brands listed in Appendix 4, a check in the supermarkets/shops within the neighbourhood showed that most of them had the food fortification logo/mark. About half of the respondents (56.3%) purchase a liter or less of oil which they reported lasted them from a few days to a month. Only those who were running street food businesses, reported to purchase more than 10 liters of oil per month.

### **3.8.3 Flour consumption**

The most consumed flour at the household level was maize flour at 98.1%. Only 2% mentioned wheat, millet or sorghum as the main flour used in the household. The main source of flour was supermarkets (38.7%) and local shops (42.7%). About 17.6% of the flour was homemade and therefore not likely to have been fortified. Appendix 4 shows the different flour brands consumed by the caregivers of which most had the food fortification logo.

### **3.8.4 Milk consumption**

About 81.2% of the caregivers reported to use fresh processed milk while 11.5% and 5% and reported to use unprocessed milk and UHT/Long life milk respectively. Other types such as powdered milk, flavoured milk and yoghurts were not popular. When asked about the source of their dairy products, majority reported to obtain their milk from shop/kiosk (79.9%). The cost of a liter of processed milk ranged between ksh. 60-90 as reported by the respondents. A check at the supermarkets and shops by the researcher confirmed the price of processed milk to be Ksh. 45 for half a litre. About 88.8% of the caregivers reported that they purchased fresh milk more often than 2 times a week. When asked about the type of fortified brands they knew, 12.1% mentioned Daima brand while most of the respondents did not seem to comprehend the aspect of milk fortification. When asked whether they considered using or giving fortified milk to the household members in the future, 81.4% reported in the affirmative, adding that they needed explanations on food fortification. Slightly more than a quarter (76.5%) reported that they would consider

using fortified milk for health benefits. Others felt that the fortified products would be expensive than ordinary milk while another 7.4% reported that they would use the product for curiosity. A check on several brands in the nearby supermarkets and shops revealed that none of the milk brands was fortified.



## 4.0 Chapter Four: Discussion

Breastfed children aged 6-8.9 months who received the recommended meals  $\geq 2$  times a day were 20.7% while breastfed children 9-23 aged months who received the recommended meals  $\geq 3$  times a day were 71.3%. Only half of the children (55.7%) met the recommended dietary diversity of four or more food groups in a day out of 7 food groups. About 3.6% of the survey children were malnourished while 14.6% were at risk of malnutrition. Low individual dietary diversity score (IDDS) has been strongly correlated with low micronutrient intake. Further, an eighth of the survey children were at risk of malnutrition. Caregivers need to feed their children at least more than three times a day (including snacks) and on more diversified foods. Interestingly, nearly three quarters of the caregivers (71%) met the recommended dietary diversity of five out of ten food groups and that food insecurity (by use of the hunger scale) was not a major problem to more than three quarters of the caregivers as only 13.8% reported that in the past four weeks prior to the survey, there was ever no food to eat of any kind in the household because of lack of resources to get food. This could imply that the problem may not be household food insecurity but poor feeding and care practices compounded by low nutrition knowledge. Maternal or caregiver's nutrition knowledge (or lack of it) influences IYCF practices.

IYCF practices should also include information on water, hygiene and sanitation practices. Lack of clean, safe water, poor sanitation and hygiene contributes to diseases such as diarrhea, vomiting and malabsorption. Although this study did not establish morbidity patterns of survey children, the findings on sanitation practices agree with those of other studies in similar urban settings. Presence and type of toilet facilities, and sharing status influence human waste disposal practices. Findings in this survey drum up the need for improving the diet quality of young children and care practices. Supplementation with MNPs in addition to IYCF awareness can be used to improve children's nutritional status.

Although MNPs are beneficial, findings from this survey show that MNP coverage and utilization was low mainly because the public, especially the caregivers were not aware of the benefits, availability and directions for MNP use. Only about a quarter of the caregivers (28.5%) reported to have heard of or seen MNPs implying the need for continued communication on the same. Of the 28.5%, 24.1% of the caregivers (84.7% of those that had heard of or seen MNPs) had heard and received advice from the health clinic or health worker. Further, 108 out of 114 (95%) who had ever obtained MNPs for their children had received the MNPs freely given from the health facilities. Indeed, if free distribution from the health facility were excluded, the MNP coverage goes down substantially. The market based approach is not successful. This is further evidenced by the findings that none of the caregivers reported to have heard of or seen MNPs from sales agents. Of the 28.5% that had heard of or seen, 70.5%, 42%, 54% could identify at least one benefit of using MNPs, identify the appropriate age to start MNPs and knew that children should consume

no more than one MNP sachet per day. Another 54% and 59.7% of the 28.5% who had heard or seen MNPs knew that MNPs should be added to solid and semi solid foods and that MNPs should be added to a small portion of food that a child can eat all of it. 20.5% of the 28.5% who had heard of or seen MNPs reported to have received the MNPs within 7 days prior to the survey. These findings indicate the need for communicating MNP messages.

The respondents who had received MNPs had mixed information, wrong messages and evidently caregivers who did not quite know the benefits of MNPs. Studies have shown that nutrition knowledge has the potential of improving the nutritional status of a population. This study measured caregiver's knowledge on MNPs and the results have brought out the knowledge gap. To realize the success of MNP supplementation, it is necessary that wrong messages are corrected with sustained communication of the right messages. As earlier observed, studies have linked knowledge to practice. When people understand the rationale (the why) a practice such as using MNP is important, the practice (the how) is easily adopted. Similarly the attitudes are likely to be positive. The fortunate aspect in this study was that much of the MNPs were dispensed from health facilities, implying that thorough training of health staff would improve the situation. This may however still continue to be constrained by heavy workload at the health facilities. Even then, strategies such as health talks in the health facility can be optimized to communicate nutrition including MNP messages.

The community health volunteers (previously workers) can also be used to communicate messages on MNPs during community outreach programmes and follow up. This could be constrained by the fact that the community health volunteers cover general health including family planning and not necessarily nutrition. Investigations on visit by health worker at home implied that if nutrition counselling and including MNP distribution and directions for use, was part of community outreach that covers polio vaccination and vitamin A supplementation, many caregivers could be reached and possibly result to improved nutrition and IYCF knowledge and practice including that on MNPs. From this survey it was not clear whether the community volunteers themselves had any (or correct) information on MNPs, another MNP training opportunity.

Opportunities for improving the awareness and distribution of MNPs emerged in this survey. None of the caregivers reported to have heard of or seen MNPs from TV or radio. Considering more than three quarters of them had radio and TVs in their households and 93.9% owned mobile phones, MNP messages and behaviour change on infant and young child feeding could be communicated through radio and TV and social platforms such as use of mobile phone calls and SMS. Most of the caregivers were young, had secondary and college/university education and had electricity all thought can contribute to their willingness to learn. Besides more than three quarters of them

were married introducing another opportunity of exploring communicating MNP messages through their spouses whom majority were the fathers of the survey children.

Although the survey did not establish the caregivers' knowledge on food fortification, a spot check from supermarkets indicated that most of the oils and flours consumed had the national food fortification mark/logo. It would be important to establish whether caregivers comprehend the food fortification concept as this would also indicate their knowledge on micronutrient deficiencies.

## 5.0 Chapter Five: Conclusions and Recommendations

### 5.1 Conclusions

In conclusion, there was low awareness on the use and benefits for use of micronutrient powder in the survey area. In addition, although, there seemed to have been efforts to inform the health workers on the benefits and use of MNPs, it seems the MNP messages have not translated to increased awareness in the community. This could be because fewer health workers, one in a facility had been trained and were overwhelmed with daily routine duties or possibly because of the communication channels used were not effective. It could also be that the training provided need to be evaluated to ensure that those trained communicated the correct messages. Besides, community health volunteers could also be trained to reach more caregivers at community and household level to complement what the health workers based at the facility are doing.

The strategy of distributing MNPs by sales agents seemed inadequate. For consumers/caregivers to attempt to obtain or purchase MNPs from a self initiative, they must understand the rationale, which would result to a pull rather than push approach. Sustained communication of appropriate messages needs to accompany distribution of MNPs program.

### 5.2 Recommendations

From the observations made in this survey, the following recommendations are made;

- Findings on infant and young child feeding practices and caregivers' dietary diversity indicate that caregivers need information on IYCF. It is recommended that caregivers be encouraged to feed their children on as many food groups as possible.
- Strategies should be put in place to help caregivers with incorrect information to unlearn the wrong MNP messages. This can be specific in the survey areas before reaching other communities.
- More health workers and possibly more than one staff in each health facility and community health volunteers should be trained on the benefits and directions for MNP use.
- Since nearly all the respondents had mobile phones, use of social mobilization platforms for behaviour change communication on infant and young child feeding practices and MNPs is recommended. This could include; telephone calls and use of SMS among others.
- To improve the distribution at the health facilities, the packaging of MNPs in packs of 10 sachets for one client, could be considered as this reduces the workload for the health workers.

- It is recommended that all the health facilities use common reporting tools. MNP trainings should stress on the use of reporting tools. Facilities without the reporting tools are encouraged to obtain the tools.
- Not all health facilities were found to distribute the MNP flyers. It is recommended that the flyers and any other written communication material should be made available and used in all the health facilities. The effectiveness of the flyers could also be measured.
- The Ministry of Health and GAIN could also consider distribution of MNPs in private facilities as a number of respondents reported that they sought services from private than public health facilities.
- The Ministry of Health and GAIN should attempt and communicate MNP messages and directions for use on short, TV or Radio commercials. This would complement the messages given at the health facilities.
- For health facilities where TV screens are available a short (less than five minutes) video clip on MNPs should be developed and can be played for caregivers to watch as they wait to be attended and given MNPs.
- More efforts to engage the private sector in the distribution and social marketing of MNPs should be sought by both GAIN and the Ministry of Health.
- A food fortification knowledge, attitude and practice (KAP) survey is also recommended to establish whether the food fortification concept influences consumer food purchasing patterns.

## Appendices

### Appendix 1: Baseline Survey Authorization

#### Appendix 1.1: Authorization by the Ministry of Health (National government)



## MINISTRY OF HEALTH

Telephone: Nairobi 254-020-2717077  
Fax: 254-2719008  
Email: [ms@health.go.ke](mailto:ms@health.go.ke)

AFYA HOUSE  
CATHEDRAL ROAD  
P. O Box 30016-00100  
NAIROBI

When replying please quote

Ref: DNUT/ADMIN/12/1  
Dr. Dorcus Mbithe Kigaru  
Department of Foods, Nutrition & Dietetics  
Kenyatta University,  
PO BOX 43844-00100 GPO  
Nairobi

04<sup>th</sup> November, 2014

Dear Madam,

**RE: AUTHORIZATION TO CONDUCT A BASELINE SURVEY IN NAIROBI COUNTY**

Following your request for authorization to conduct a Baseline survey on behalf of Global Alliance for Improved Nutrition (GAIN) Home Fortification with Micronutrient Powder Project, I am pleased to inform you that you have been authorized to conduct research in Nairobi County for a period ending March 2015.

You are advised to report to the County Nutrition Officer, Nairobi County and make necessary arrangements with the local administration before embarking on the research project.

On completion of the baseline survey, you are expected to include this office in the dissemination forums.

A handwritten signature in black ink, appearing to read 'Gladys Mugambi'.

**Gladys Mugambi**  
**Head: Division of Nutrition and Dietetics**

Copy to:

1. The Global Alliance for Improved Nutrition (GAIN)
2. County Nutritionist – Nairobi County
3. County Commissioner – Nairobi County

## Appendix 1.2: Authorization by the County Government (Nairobi City County)

# NAIROBI CITY COUNTY

Telegrams: "PRO-MINHEALTH", Nairobi  
Telephone: Nairobi 217131/313481  
Fax: 217148  
E-mail: [pmonairobi@yahoo.com](mailto:pmonairobi@yahoo.com)



COUNTY HEALTH OFFICE  
NAIROBI COUNTY  
NYAYO HOUSE  
P.O. Box 34349,GPO  
NAIROBI

When replying please quote

CMO/NRB/OPR/VOL1-2/106  
Ref. No. ....

## COUNTY HEALTH SERVICES OFFICE

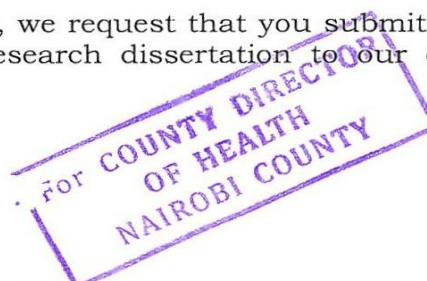
17<sup>th</sup> November, 2014

Dr. Dorcus Mbithe Kigaru  
Department of Foods, Nutrition & Dietetics  
Kenyatta University  
P.O. Box 43844-00100  
**NAIROBI**

### RE: RESEARCH AUTHORIZATION

Following your letter dated 4<sup>th</sup> November, 2014 for conducting research on "**Food fortification in selected households in Nairobi City County**", I am pleased to inform you that you have the support of the County Health Operational Research Technical working group to undertake research in Nairobi County Health Facilities.

On completion of your study, we request that you submit **one hard copy and one copy in PDF** of the research dissertation to our operational research technical working group.



**MR. RAPHAEL K. MULI**  
**FOR: COUNTY DIRECTOR MEDICAL SERVICES – NAIROBI CITY COUNTY**

**C.c.**

- Sub-County MOH
  - Kamukunji
  - Njiru
  - Kasarani
  - Lang'ata
  - Makadara

Appendix 2: Data Collection tools

Appendix 2.1 Structured Questionnaires for Caregivers of children 6-23 months

AIM B3  
HOME FORTIFICATION PROJECT  
BASELINE SURVEY 2014

QUESTIONNAIRE<sup>17</sup>

*Questions to be asked of caregivers with children age 6-23 months of age. If the caregiver has more than one child between 6-23 months of age, ask the questions about the child who is the youngest. If the caregiver has twins, randomly choose 1 child to ask the questions about.*

**INFORMED CONSENT**

Hello. My name is \_\_\_\_\_. We are conducting a survey about **HOME FORTIFICATION WITH MICRONUTRIENT POWDER IN KENYA** among women with children 6-23 months old. The information we collect will help **GAIN** design better programs to reach women and young children. You were selected for the survey. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. We hope you will agree to answer the questions since your views are important.

Do you have any questions? May I begin the interview now?

Signature of Interviewer: \_\_\_\_\_ Signature of Respondent \_\_\_\_\_

Date \_\_\_\_\_ Date \_\_\_\_\_

Oral consent obtained? ( <i>Je? Mmeruhusiwa kuhoji?</i> )	1=Yes (Ndio) 2= No ( <i>La</i> )	If <b>yes</b> , begin ( <i>kama umeruhusiwa endelea</i> ) If <b>no</b> , end ( <i>Kama haujaruhusiwa usiendeleee</i> )
---	-------------------------------------	---

Respondent agrees to be interviewed?

Respondent does not agree to be interviewed → End

↓  
Continue next page

**HOUSEHOLD QUESTIONNAIRE (DODOSO YA NYUMBA)**

Date of interview ( <i>Siku ya mahojiano</i> )	DD / MM / YY ( <i>Siku/mwezi/mwaka</i> ) <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/>		
Team identifier ( <i>mtambulizi wa kikundi</i> )	<input type="text"/> <input type="text"/>	Interviewer identifier ( <i>Anayeamua wa kuhoji</i> )	<input type="text"/> <input type="text"/>
Area ( <i>mahali</i> )	1=Dandora 2=Umoja 3=Kayole 4=Mathare 5=Ruaraka 6=Bahati 7=Obama/Njiru		<input type="text"/> <input type="text"/>
Household identifier ( <i>Mtambulizi wa nyumba</i> )	<input type="text"/> <input type="text"/> <input type="text"/>		

<sup>17</sup> Includes questions from Fortification Assessment Coverage Toolkit (FACT) questionnaire



## HOUSEHOLD ROSTER(RATIBA YA NYUMBA)

No.	A. Name ( <i>Jina</i> )	B. Sex ( <i>Jinsia</i> ) 1=male (mme) 2=female (mke)	C. Age ( <i>in years OR months</i> )( <i>Umri: kimiaka au kimwezi</i> )		For persons aged over 5 years ( <i>Kwa watu walio juu ya miaka tano</i> )			
			Years ( <i>Miaka</i> )	Months ( <i>Miezi</i> )	D. Marital status 1=single 2=married 3=widowed 4=divorced 5= < 15 yrs & in school	E. Currently attending school/college ( <i>Kwa sasa, unaenda shule au chuo?</i> ) 1=Yes ( <i>Ndio</i> ) 2= No ( <i>La</i> )	F. Highest Education level Attained ( <i>kiwango cha juu cha masomo</i> ) 1=not completed Primary 2=completed primary 3= not completed Secondary 4=completed secondary 5=Vocational 6=College 7=University 77=under 5 years	G. Main occupation ( <i>kazi</i> ) 1=Casual labour ( <i>kibarua</i> ) 2=Farmer ( <i>ukulima</i> ) 3=labour(salaried) ( <i>umeandikwa</i> ) 4= Business( <i>biashara</i> ) 5=Student( <i>mwanafunzi</i> ) 6= Housewife( <i>mama wa nyumba</i> ) 7=<18 years 8= other ( <i>kazi nyingine</i> ) -----
Care giver ( <i>mama ya mtoto</i> )			<input type="text"/>	<input type="text"/>				
Child			<input type="text"/>	<input type="text"/>				
3			<input type="text"/>	<input type="text"/>				

**Check the roster regarding completion! (HAKIKISHA RATIBA HII IMEKAMILIKA)**

## HOUSEHOLD CHARACTERISTICS (SIFA ZA NYUMBA)(1)

N°	QUESTIONS ( <i>Maswali</i> )	ANSWERS ( <i>Majibu</i> )	SKIPS
mpi1	Does your household have electricity? ( <i>Mna stima katika nyumba hii?</i> )	1= Yes ( <i>ndio</i> ) 2= No ( <i>La</i> )	
mpi2	What fuel does your household mainly use for cooking? ( <i>mnapika kutumia nini?</i> )  <i>Circle only <u>one</u> choice.(Chagua jibu moja kwa alama ya mviringo)</i>	Electricity ( <i>stima</i> ).....1 LPG ( <i>gesi</i> ).....2 Biogas .....3 Kerosene ( <i>mafuta taa</i> ).....4 Charcoal ( <i>makaa</i> ).....5 Wood ( <i>kuni</i> ).....6 Straw / Shrubs / Grass ( <i>nyasi</i> ).....7 No food cooked in household ( <i>hatupiki</i> ).....8 Don't know( <i>sijui</i> ).....88 Other( <i>nyingine</i> ): .....99	
mpi3	What is the main material of the floor of the welling? ( <i>Sakafu ya nyumba yenu imetengenezwaje</i> ) <i>Observation(kutazama).</i> <i>Circle only <u>one</u> choice.(Chagua jibu moja tu na ionyeshe kwa alama ya mviringo)</i>	Earth / sand ( <i>mchanga/udongo</i> ).....1 Wood( <i>mbao</i> ) .....2 Cement/ Ceramic tiles( <i>simiti/taili</i> ).....3 Other( <i>zinginezo</i> ): .....99	
dhs1	What is the main material of the roof of the welling? ( <i>paa la nyumba limetengenezwa na nini?</i> ) <i>Observation. Circle only <u>one</u> choice. (Chagua jibu moja kwa alama ya mviringo)</i>	1. Thatch / Makuti ( <i>nyasi/makuti</i> ) .....1 Iron sheets( <i>mabati</i> ).....2 Cement( <i>simiti</i> ).....3 Tiles ( <i>taili</i> ) .....4 Asbestos .....5 Other ( <i>nyinginezo</i> ): .....99	

dhs2	<p>What is the main material of the exterior walls of the dwelling? (<i>kuta za nyumba zimetengenezwa na nini</i>)</p> <p>Observation (<i>maoni</i>).</p> <p>Circle only <b>one</b> choice. (<i>Chagua jibu moja kwa alama ya mviringo</i>)</p>	<p>Stone with mud (<i>maawe na udongo</i>).....1</p> <p>Wood (<i>mbari</i>).....2</p> <p>Stone with lime / cement (<i>maawe na simiti</i>).....3</p> <p>Bricks(<i>matofali ya udongo</i>).....4</p> <p>Cement blocks (<i>matofali ya simiti</i>).....5</p> <p>Iron sheets (<i>mabati</i>) .....6</p> <p>Other(<i>nyinginezo</i>): .....99</p>																	
mpi4	<p>Does your household or anyone in the household have... ? (<i>Je? Mna vitu vifuatazo kati ya hizi?</i>)</p> <p><b>Prompt for each item; record all items owned by household or a member...(waelekeze kwa kila jawabu: rekodi vitu vyote walivyonavyo)</b></p> <p>Circle 1=Yes (<i>ndio</i>) or 2= No (<i>la</i>) for every item</p>	<table border="1"> <tr> <td>Radio (<i>radio</i>)</td> <td>1 =yes 2=no</td> </tr> <tr> <td>Television (<i>televisheni</i>)</td> <td>1 =yes 2=no</td> </tr> <tr> <td>Mobile telephone/telephone (<i>simu ya rununu/simu ya mkononi</i>)</td> <td>1 =yes 2=no</td> </tr> <tr> <td>Motorcycle, scooter(<i>pikipiki/ tuktuk</i>)</td> <td>1 =yes 2=no</td> </tr> <tr> <td>Car, truck, or tractor (<i>gari ndogo/ tingatinga/gari kubwa</i>)</td> <td>1 =yes 2=no</td> </tr> <tr> <td>Refrigerator (<i>Friji</i>)</td> <td>1 =yes 2=no</td> </tr> <tr> <td>Computer / laptop (<i>komputa, tarakilishi</i>)</td> <td>1 =yes 2=no</td> </tr> <tr> <td>Animal-drawn cart (<i>mkokoteni</i>)</td> <td>1 =yes 2=no</td> </tr> </table>	Radio ( <i>radio</i> )	1 =yes 2=no	Television ( <i>televisheni</i> )	1 =yes 2=no	Mobile telephone/telephone ( <i>simu ya rununu/simu ya mkononi</i> )	1 =yes 2=no	Motorcycle, scooter( <i>pikipiki/ tuktuk</i> )	1 =yes 2=no	Car, truck, or tractor ( <i>gari ndogo/ tingatinga/gari kubwa</i> )	1 =yes 2=no	Refrigerator ( <i>Friji</i> )	1 =yes 2=no	Computer / laptop ( <i>komputa, tarakilishi</i> )	1 =yes 2=no	Animal-drawn cart ( <i>mkokoteni</i> )	1 =yes 2=no	
Radio ( <i>radio</i> )	1 =yes 2=no																		
Television ( <i>televisheni</i> )	1 =yes 2=no																		
Mobile telephone/telephone ( <i>simu ya rununu/simu ya mkononi</i> )	1 =yes 2=no																		
Motorcycle, scooter( <i>pikipiki/ tuktuk</i> )	1 =yes 2=no																		
Car, truck, or tractor ( <i>gari ndogo/ tingatinga/gari kubwa</i> )	1 =yes 2=no																		
Refrigerator ( <i>Friji</i> )	1 =yes 2=no																		
Computer / laptop ( <i>komputa, tarakilishi</i> )	1 =yes 2=no																		
Animal-drawn cart ( <i>mkokoteni</i> )	1 =yes 2=no																		

### WASH, SANITATION, AND HYGIENE (KUOSHA NA USAFI) (1)

N°	QUESTIONS(MASWALI)	ANSWERS(MAJIBU)	SKIPS
w1	<p>What is the main source of drinking water for you and your child? (<i>mnatoa wapi maji ya kunywa?</i>)</p> <p>Circle only <b>one</b> choice.(<i>Chagua jawabu moja tu na uiviringe</i>)</p>	<p>Piped water (<i>maji ya mfereji</i>)</p> <p>Piped into dwelling (<i>mfereji ndani ya nyumba</i>) .....1</p> <p>Piped to compound / plot (<i>mfereji kwa ploti</i>).....2</p> <p>Public tap / standpipe(<i>mfereji moja ya watu wote</i>).....3</p> <p>Tube well / borehole (<i>kisima</i>).....4</p> <p>Dug well (<i>Birika</i>)</p> <p>Protected well (<i>kisima kilichofunikwa</i>).....5</p> <p>Unprotected well (<i>kisima kilicho wazi</i>).....6</p> <p>Water from spring (<i>maji kutoka kijito/chemichemi</i>)</p> <p>Protected spring (<i>chemichemi iliyozingirwa ua</i>).....7</p> <p>Unprotected spring(<i>Chemichemi ambayo haijazingirwa</i>).....8</p> <p>Rainwater(<i>maji ya mvua</i>).....9</p> <p>Tanker truck (<i>maji ya kununua kutoka kwa gari la maji</i>).....10</p> <p>Cart with small tank (<i>maji ya mkokoteni</i>).....11</p> <p>Surface water (river / dam / lake / pond / stream / canal ) (<i>mtol/buuka/maji ya kunyunyiza</i>).....12</p> <p>Bottled / sachet water(<i>maji ya chupa/imefungwa kwa kartasi</i>).....13</p> <p>Don't know(<i>sijui</i>).....88 Other(<i>zinginezo</i>): .....99</p>	
w2a	<p>Do you <b>usually</b> do anything to your drinking water to make it safer to drink? (<i>kabla ya kunywa maji unafanya lolote ndio yawe safi?</i>)</p>	1= Yes ( <i>ndio</i> ) 2= No ( <i>La</i> )	If No, skip to w3
w2b	<p>What do you <b>usually</b> do to the water to make it safer to drink? (<i>unayafanyia nini?</i>)</p> <p>Do <b>not</b> prompt. Probe "Anything else?".</p>	<p>A. Boil (<i>kuchemsha</i>) 1 =yes 2=no 77=skipped</p> <p>B. Add bleach /chlorine tablet(<i>kuongeza chlorine</i>) 1 =yes 2=no 77=skipped</p> <p>C. Strain through a cloth (<i>kupitisha kwa nguo</i>) 1 =yes 2=no 77=skipped</p>	

<p>(usiwaelekeze, chunguza kama kuna njia zingine za kusafisha maji)</p> <p>Circle 1=Yes for each item mentioned (viringa 1 =ndio kwa zile zitakazotajwa na 2=La kwa zile hazitatajwa)</p>	D. Use a water filter( <i>ukitumia kichungi</i> (Ceramic / sand / composite etc) 1 =yes 2=no 77=skipped
	E. Solar disinfection ( <i>kusafisha na miale ya jua</i> ) =yes 2=no 77=skipped
	F. Let it stand & settle ( <i>kungoja uchafu utulie</i> ) 1 =yes 2=no 77=skipped
	G. Don't know ( <i>sijui</i> ) 1 =yes 2=no 77=skipped
	H. Other ( <i>nyingine</i> ): _____ 1 =yes 2=no 77=skipped

### WASH, SANITATION, AND HYGIENE (WASH) (2) KUOSHA NA USAFI (2)

N°	QUESTIONS(MASWALI)	ANSWERS(MAJIBU)	SKIPS
w3	<p>What kind of toilet facility do members of your household usually use?(<i>mnamumia choo ainagani?</i>) Do <b>not</b> prompt.(<i>usiwaelekeze</i>) Circle only <b>one</b> answer.(<i>chagua jawabu moja na uiviringe</i>)</p>	<p>Flush toilet (<i>choo ya maji</i>).....1            Ventilated improved pit latrine(<i>shimo lililofunikwa</i>).....2            Pit latrine <b>without</b> slab / open pit (<i>shimo lililowazi</i>).....3            Bucket toilet (<i>Choo ya ndoo</i>).....4            No facilities / bush / field (<i>hakuna choo</i>).....5            Other(<i>nyingine</i>): _____.....99</p>	
w4	Do you share this facility with other households?( <i>mnamumia choo na nyumba nyingine</i> 1= Yes (ndio) 2= No (La)		
w5	<p>The <b>last time</b> [NAME OF CHILD] passed stool, what was done to dispose the stool? (<i>mara ya mwisho mtoto kuenda haja kubwa, Choo mliipeleka wapi?</i>) Do <b>not</b> prompt.(<i>usimuelekeze</i>) Circle only <b>one</b> answer.(<i>chagua jawabu moja na uiviringe</i>)</p>	<p>Child used toilet / latrine (<i>mtoto alitumia choo</i>).....1            Put into toilet / latrine (<i>tuliitupa chooni</i>).....2            Put into drain or thrown into garbage (<i>tuliitupa pamoja na takataka</i>).....3            Nothing / left in open(<i>tuliacha nje</i>).....4            Don't know / Don't remember (<i>sijui/sikumbuki</i>) .....5            Other (<i>kwengine</i>): _____ .....6</p>	
w6	<p>Please tell me all of the occasions when it is important for you to wash hands... (<i>tafadhali niambie ni muhimu kuosha mikono wakati upi?</i>) Do <b>not</b> prompt (<i>usimuelekeze</i>). Probe (<i>muulize</i>)“Anything else?”.(kuna wakati mwingine?) Circle 1=Yes for each item mentioned and 2=No for each item not mentioned.(<i>viringa 1 kwa kila wakati anataja anaosha mikono na 2 kwa ile haijatajwa</i>)</p>	<p>Before eating (<i>kabla ya kula</i>) 1= yes 2=no            Before feeding a child (<i>kabla ya kulisha mtoto</i>) 1= yes 2=no            Before cooking/ preparing food (<i>kabla kupika</i>) 1= yes 2= no            After defecation/urination(<i>baada ya kuenda choo</i>)1=yes 2=no            After cleaning a child that has Defecated/changing nappies / washing diaper (<i>baada ya kumsafisha na kumwosha mtoto ambaye amejikunyia</i>) 1= yes 2= no            Don't know (<i>sijui</i>) 1= yes 2= no            Other (<i>wakati mwingine</i>) _____ 1= yes 2= no</p>	

**SHORT BIRTH HISTORY (MPI MORTALITY) (HISTORIA FUPI YA KUZALIWA)  
IF THE RESPONDENT IS THE MOTHER OF INDEX CHILD (KAMA MHOJIWA IN MAMA YA MTOTO)**

N°	QUESTIONS(MASWALI)	ANSWERS(MAJIBU)	SKIPS
d1	<p>The purpose of the short birth history (SBH) component is to determine whether any child that was recently born to the respondent has died. ( Madhumuni ya historia fupi ya kuzaliwa ni kuweza kujua kama mtoto yeyote aliyezaliwa kitambo kidogo amekufa).</p> <p>Tell the mother (mwambie mama):</p> <ul style="list-style-type: none"> <li>- I will be asking about your recent births (nitakuuliza kuhusu uzazi wa kitambo kidogo).</li> <li>- I am interested in the three most recent births (nina haja na uzazi tatu za mwisho).</li> <li>- I am interested in all children that were <u>born alive</u> (nina haja na watoto wako waliozaliwa hai).</li> </ul> <p>Ask the following questions (uliza maswali yafuatayo)</p>		Skip if caregiver is not the mother of the child
d1a	<p>When was your most recent birth (ulijifungua mwisho lini?) Where is this child now (huyu mtoto yuko wapi sasa?)</p>	<p>When? (years/months) Where is child now.....</p>	
d1b	<p>Did you have a birth before this most recent one? (ulizaa mtoto mwingine kabla ya huyu?) If yes, where is this child now? (yuko wapi sasa hivi?)</p>	<p>1=yes (ndio) 2=no(La) 77=skipped Where is child now?.....</p>	
d1c	<p>Did you have a birth before that one? (na kabla ya huyo je?) If yes where is this child now? (yuko wapi huyo mtoto?)....</p>	<p>1=yes (ndio) 2=no(La) 77=skipped Where is child now.....</p>	
d1d	<p>Has a recently born child died (Je? Hivi majuzi, kuna mtoto aliyezaliwa ambaye amefariki?)</p>	<p>1=yes (ndio) 2=no(La) 77=skipped</p>	

**INFANT AND YOUNG CHILD FEEDING (IYCF) (LISHO LA MTOTO)**

N°	QUESTIONS(MASWALI)	ANSWERS	SKIPS
F1	<p>Is [NAME OF CHILD] currently breastfeeding? (na mtoto unamnyonyesha kwa sasa?)</p>	<p>1=Yes (Ndio) 2= No (la)</p>	<p>If yes skip to f3 (kama ndio enda f3)</p>
F2	<p>If No what was the <b>main</b> reason to stop breastfeeding? (kama humnyonyeshi ni kwa nini?)?  Do <b>not</b> prompt (usimuelekeze)  Circle only <b>one</b> answer.(chagua jawabu moja na uiviringe)</p>	<p>1 = No milk (sina maziwa) 2 = Mother didn't want to breastfeed (sikutaka) 3 = Traditional beliefs (tamaduni haziruhusu) 4 = Mother going back to work (nilirudi kazi) 5 =Had no time (sikuwa na wakati) 6 = Mother with chronic illness (mama ana ugonjwa sugu) 7=Death of the mother (mama aliaga) 99=Other (nyinginezo) (Specify(zieleze)-----) 77=skipped</p>	
F3	<p>Does [NAME OF CHILD] take any food or drink other than breast milk? (na (jina la mtoto) anakula kitu chochote kingine)</p>	<p>1=Yes (Ndio) 2= No (La)</p>	
F4	<p>At what age (months) did you introduce semi-solid and solid foods to the child (ulianza kumpa chakula kingine akiwa miezi mingapi)</p>	<p>----- Months(miezi)</p>	
F5	<p>How many times was [NAME OF CHILD] fed on solid or semi-solid food as a meal or a snack since this time yesterday? (Tangu jana masaa haya, (mtoto) umemlisha hicho chakula kingine mara ngapi?)</p>	<p>Number of times (mara ngapi) <input type="text"/> <input type="text"/></p>	

**CAREGIVER AND CHILD DIETARY DIVERSITY (AINA TOFAUTI TOFAUTI YA CHAKULA CHA MHOJIWA NA MTOTO)**

**Since this time yesterday**, and in the **last 7 days** what food did you and [NAME OF CHILD] eat? ( *Tangu jana na tangu siku 7 zimepita, wewe na mtoto mlíkula chakula gani*). Probe for items not mentioned: Did you and [NAME OF CHILD] have any of the following things to eat or drink? (*Wewe na mtoto mlíkula vyakula hivi?*) (*chunguza ujue kama kuna chakula hajataja*).

N°	<p><i>A=write 1=Yes if respondent ate since this time yesterday, and 2=No if not eaten (andika1 kama mama aliikula tangu jana masaa haya na kama haukula andika 2).</i>  <i>B =write 1=Yes if eaten by child since this time yesterday, and 2=No if not eaten by child (andika 1 kama mototo alikula tangu jana masaa haya na kama hajakula vandika 2).</i>  <i>C= write 1=Yes if respondent ate in the last 7 days and 2=No if not eaten (andika1 kama mama alikula siku 7 zimepita na kama hakula andika 2).</i>  <i>D= write 1=Yes if child ate in the last 7 days &amp; 2=No if child didn't eat (andika1 kama mototo alikula siku 7 zimepita na kama hakula andika 2).</i></p>				
	ITEMS(VYAKULA AMEKULA)	A (R-24)	B (C-24)	C (R-7)	D (C-7)
dd01	Plain water? ( <i>maji pekee yake</i> )				
dd02	Tinned, powdered, infant formula such as Nan, Nido, (excluding breast milk) ( <i>chakula ya mkebe, pauda ama formula</i> ) ( <i>bila kuhesabu maziwa ya titi</i> )				
dd03	Sweetened or flavoured water, minerals, tea, coffee, soda ( <i>maji ya rangi, soda chai, kahawa</i> )				
dd04	Any food made from grain such as maize, millet, wheat, sorghum, rice (e.g ugali, mandazi, rice, chapatti, uji) ( <i>chakula kilicho na vitu kama mahindi, mtama, ngano, wimbi, mchele</i> )				
dd05	Any food made from fruits or vegetables that have yellow or orange flesh (carrots, mangoes, papaya, melon) ( <i>chakula chochote kilicho na karoti, maembe, papaya</i> )				
dd06	Any dark green leafy vegetables (spinach, cassava leaves, amaranth, potato leaves) ( <i>mlíkula mboga kama vile spinachi, majani ya mhogo, managu, majani ya viazi</i> )				
dd07	Any food made from roots or tubers (potatoes, sweet potatoes, yams, cassava) ( <i>mmekula chakula viazi tamu, za kawaida, malenge, mhogo</i> )				
dd08	Any food made from beans, peas, nuts, or seeds (peanuts, cowpeas, soybeans, ndengu, lentils) ( <i>mmekula chakula kilicho na maharagwe, njugwa, soya ndengu n.k</i> )				
dd09	Any other fruits or vegetables (coconut, eggplant, tomatoes, peppers, avocado, banana, orange, apple, cucumber, onion) and fruit juices (e.g. orange, passion) ( <i>matunda mengine au mboga k.v nazi, pilipili, nyanya, ndizi na kadhalika ama maji ya matunda kama machungwa</i> )				
dd10	Liver, kidney, heart, or other organ meats ( <i>maini, figo</i> )				
dd11	Any meat such as beef, pork, lamb, mutton, goat, chicken, duck ( <i>nyama ya ngombe, nguruwe, mbuzi, kondoo, kuku,bata</i> )				
dd12	Fresh or dried fish, shellfish, or seafood ( <i>samaki au mnyama yeyote wa majini</i> )				
dd13	Cheese, yoghurt, ghee or other milk products ( <i>maziwa lala au kilichotengenezwa na maziwa</i> ) ( <i>probe if milk was taken in tea or drank plain</i> ) <b>1=in tea 2=plain milk</b>				
dd14	Eggs (chicken and quail) ( <i>mayai ya kuku au ya ndege</i> )				
dd15	Sugary foods e.g sugar cane, sweets, chocolate, cakes, biscuits ( <i>vitamu kama miwa, sweet, biskuti keki</i> )				
dd16	Any food made with oil, fat, or butter ( <i>chakula chochote kulicho kaangwa na mafuta</i> )				
dd17	Red palm oil				
dd18	Were days normal for the households ( <i>Hebu uliza kama maankuli haya ni kawaida kwa hii nyumba?</i> ) <b>1=Normal (kawaida) 2= Not normal (Sikawaida)</b>				

**HOUSEHOLD HUNGER SCALE (FOOD SECURITY)(KIPIMO CHA BAA LA NJAA KWA NYUMBA)**

N°	QUESTIONS(MASWALI)	ANSWERS(MAJIBU)	SKIPS
hh1a	In the past [4 weeks/30 days], was there ever no food to eat of any kind in your house because of lack of resources to get food? ( <i>Wiki nne/siku 30 zimepita, mlikosa chakula kwa kukosa jinsi ya kupata chakula?</i> )	0 = No ( <i>la</i> ) 1 = Yes ( <i>ndio</i> )	If No skip to Hh2 ( <i>Kama la ruka hadi Hh2</i> )
hh1a	How often did this happen in the past [4 weeks/30 days]? ( <i>Hii ilifanyika mara ngapi?</i> )	1 = Rarely (1–2 times) ( <i>mara 1-2</i> ) 2 = Sometimes(3–10 times) ( <i>mara 3-10</i> ) 3 = Often(more than 10 times) ( <i>zaidi ya mara 10</i> ) 77-skipped	
Hh2	In the past [4 weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food? ( <i>Wiki nne/siku 30 zimepita, wewe au yeyote kwa hii nyumba alienda kulaja njaa kwasababu hakukuwa chakula ya kutosha?</i> )	0 = No ( <i>la</i> ) 1 = Yes ( <i>ndio</i> )	If No skip to Hh3 ( <i>kama la, ruka hadi Hh3</i> )
Hh2a	How often did this happen in the past [4 weeks/30 days]? ( <i>Hii ilifanyika mara ngapi?</i> )	1 = Rarely (1–2 times) ( <i>mara 1-2</i> ) 2 = Sometimes(3–10 times) ( <i>mara 3-10</i> ) 3 = Often(more than 10 times) ( <i>zaidi ya mara 10</i> ) 77-skipped	
Hh3	In the past [4 weeks/30 days], did you or any household member go a whole day and night without eating anything at all because there was not enough food? ( <i>Wiki nne/siku 30 zimepita, wewe au yeyote kwa hii nyumba alikaa bila kula mchana na usiku kwa kukosa chakula cha kutosha?</i> )	0 = No ( <i>la</i> ) 1 = Yes ( <i>ndio</i> )	If No skip to the next module ( <i>kama la, ruka hadi sehemu inayofuata</i> )
Hh3a	How often did this happen in the past [4 weeks/30 days]? ( <i>Hii ilifanyika mara ngapi?</i> )	1 = Rarely (1–2 times) ( <i>mara 1-2</i> ) 2 = Sometimes(3–10 times)( <i>mara 3-10</i> ) 3 = Often(more than 10 times) ( <i>zaidi ya mara 10</i> ) 77-skipped	

**HOME FORTIFICATION URUTUBISHAJI (YAANI, KUONGEZEA MWILI ROTUBA) NYUMBANI**

N°	QUESTIONS (maswali)	ANSWERS (jibu)	Jaza hapa	SKIPS
Hf1	Have you ever heard of or seen vitamin and mineral powder (MNPs) ( <i>umewahi kusikia ama kuona pauda ya vitamin na madini?</i> )	1=Yes (Ndio) 2= No (La) <i>If no, show sachet and reconfirm before skipping to the next module</i>		If NO, skip to NEXT module ( <i>kama la, ruka mpaka sehemu inayofuata</i> )
Hf2	Which Micronutrient Powder (MNP) brands are you aware of ( <i>ni pauda gani ya kuongeza vitamin na madini unajua?</i> ) (Circle all mentioned)	1. Sprinkles 2. MixMe 3. Other Brand ( <i>nyingine</i> ) 4. None, but describes the product ( <i>sijui lakini anaweza kuelezea aliyo ona</i> ) 5. None and cannot describe product ( <i>hajui na havezi eleza yeyote</i> ) 77= skipped		
Hf3	Where did you hear of vitamin and	Religious meeting ( <i>pahali pa kuabudu</i> )	1=yes 2=no 77=skipped	
		Crèche / nursery ( <i>shule ya chekechea</i> )	1=yes 2=no 77=skipped	

	mineral powder from? ( <i>uliiskia wapi kuhusu hii pauda ya vitamin na madini</i> ) Do <b>not</b> prompt. Probe "Anything else? (Kuna pengine?) Circle 1=Yes for each item mentioned and 2=No for each item not mentioned. ( <i>viringa 1 kwa kila jawabu anataja na 2 kwa ile haijatajwa</i> )	Health clinic / health worker ( <i>kliniki ya afya</i> )	1=yes 2=no 77=skipped	
		Community leaders ( <i>viongozi mtaani</i> )	1=yes 2=no 77=skipped	
		Relative /friend/ neighbour ( <i>jamaa/rafiki/jirani</i> )	1=yes 2=no 77=skipped	
		Pharmacy ( <i>duka la dawa</i> )	1=yes 2=no 77=skipped	
		Social media ( <i>kwa facebook, twitter</i> )	1=yes 2=no 77=skipped	
		Shopkeeper/Market place ( <i>dukani/sokoni</i> )	1=yes 2=no 77=skipped	
		Don't know / remember ( <i>sijui/sikumbuki</i> )	1=yes 2=no 77=skipped	
		Other ( <i>pahali pengine</i> ): _____	1=yes 2=no 77=skipped	
Hf4	Have you ever received any advice about how to use vitamin and mineral powder? (Je, <i>umewahi kuelezwa kuhusu jinsi ya kuitumia hii pauda?</i> )		1=Yes( <i>Ndio</i> ) 2= No( <i>la</i> )	If no, skip to hf7
Hf5	What advice did you receive about vitamin and mineral powder? ( <i>ulipewa mawaidha gani?</i> ) Do <b>not</b> prompt ( <i>usimuelekeze</i> ) Probe "Anything else?" Circle 1=Yes for each item mentioned ( <i>viringa 1 =ndio kwa zile zitakazotajwa na 2 kwa zile hazitajwa</i> )	Give 60 sachets within 6 months ( <i>mpe pakiti 60 wa miezi 6</i> )	1=yes 2=no 77=skipped	
		Mix with semi-solid foods ( <i>changanya na chakula</i> )	1=yes 2=no 77=skipped	
		Mix just before feeding ( <i>changanya kabla ya kumpa</i> )	1=yes 2=no 77=skipped	
		Feed to children between 6-59 months ( <i>umlishe mtoto kati ya miezi 6-59</i> )	1=yes 2=no 77=skipped	
		Don't know / Don't remember ( <i>sijui/sikumbuki</i> )	1=yes 2=no 77=skipped	
		Other ( <i>mawaidha mengine</i> ): _____	1=yes 2=no 77=skipped	
Hf6	Who gave you the advice? ( <i>nani alikupa mawaidha</i> ) Do <b>not</b> prompt ( <i>usimwelekeze</i> ) Probe "Anything else?" ( <i>uliza kama kuna njia nyingine alipata mawaidha</i> ) Circle 1=Yes for each item mentioned ( <i>viringa 1 =ndio kwa zile zitakazotajwa na 2=La kwa zile hazitajwa</i> )	Health facility staff ( <i>mhuduma wa afya hospitalini</i> )	1=Yes 2=No	
		Community health worker ( <i>mhuduma wa afya hapa mtaani</i> )	1=Yes 2=No	
		NGO worker ( <i>mfanyikazi wa shirika lisilo la serikali</i> )	1=Yes 2=No	
		Door-to-door sales agent/ ( <i>wauzaji wanaotembeza</i> )	1=Yes 2=No	
		TV ( <i>televisheni</i> )	1=Yes 2=No	
		Radio ( <i>radio</i> )	1=Yes 2=No	
		Billboards / wallpapers / painted walls ( <i>nlisoma tangazo</i> )	1=Yes 2=No	
		Church meeting ( <i>kanisani</i> )	1=Yes 2=No	
		Community leaders ( <i>viongozi mtaani</i> )	1=Yes 2=No	
		Relative / friend / neighbour ( <i>jamaa/rafiki/jirani</i> )	1=Yes 2=No	
		Pharmacy ( <i>duka la dawa</i> )	1=Yes 2=No	
		Social media –face book, twitter ( <i>mtandao</i> )	1=Yes 2=No	
		Shopkeeper/Market place ( <i>duka la kawaida/sokoni</i> )	1=Yes 2=No	
		Don't know / Don't remember ( <i>sijui/sikumbuki</i> )	1=Yes 2=No	
		Other ( <i>kwingine</i> ): _____	1=Yes 2=No	

Hf7	At what age should you start giving a child <Brand of MNP from Qhf2> or MNPs in general? ( <i>unafaa kuanza kumpa mototo hii pauda akiwa na miezi ngapi</i> )	1. Month (completed) ( <i>mwezi imekamilika</i> ) ----- 88. Do not know ( <i>sijui</i> )		
Hf8	Has [NAME OF CHILD] ever taken vitamin and mineral powder? ( <i>je? Mtoto amewahi pewa pauda ya vitamin na madini?</i> )	1=Yes (ndio) 2= No (la)	If yes, skip to Hf 10	
Hf9	Why has [NAME OF CHILD] never taken vitamin and mineral powder? ( <i>Mbona hujawahi kumpa pauda hiyo</i> ) Do <b>not</b> prompt. ( <i>usimuelekeze</i> ) Probe "Anything else?" Circle Yes for each item mentioned and No for each item not mentioned.	Too expensive ( <i>ni ghali mno</i> )	1=yes 2=no 77=skipped	Skip to hf 17
		Not available in the market ( <i>haiuzwi</i> )	1=yes 2=no 77=skipped	
		Do not see a need giving MNP ( <i>sioni maana ya kumpa</i> )	1=yes 2=no 77=skipped	
		Heard of bad experience of someone else ( <i>nimeambiwa ina madhara</i> )	1=yes 2=no 77=skipped	
		Advised not to use it ( <i>nimeambiwa nisitumie</i> )	1=yes 2=no 77=skipped	
		Not see other mothers use it( <i>sijaona wamama wengine akitumia</i> )	1=yes 2=no 77=skipped	
		Don't trust the product ( <i>siamini pauda</i> )	1=yes 2=no 77=skipped	
		Haven't seen it ( <i>sijaona</i> )	1=yes 2=no 77=skipped	
		Child too young ( <i>mtoto ni mchanga sana</i> )	1=yes 2=no 77=skipped	
		Other family members discourage using it ( <i>watu hapa nyumbani wananiambia nisitumie</i> )	1=yes 2=no 77=skipped	
		Don't know / Don't remember ( <i>sijui/sikumbuki</i> )	1=yes 2=no 77=skipped	
Other ( <i>nyingine</i> ): _____	1=yes 2=no 77=skipped			
Hf10	When is the last time you bought/received vitamin and mineral powder (ulinunua/ulipewa hii pauda mwisho lini?)	1. Within the last 7 days ( <i>siku saba zilizopita</i> ) 2. 2 weeks ago ( <i>wiki mbili zilizopita</i> ) 3. 3 weeks ago ( <i>wiki tatu zilizopita</i> ) 4. 4 weeks ago ( <i>wiki nne zilizopita</i> ) 5. 2 months ago ( <i>miezi miwili iliyopita</i> ) 6. More than 2 months ago ( <i>zaidi nya miezi 2 iliyopita</i> ) 88. Don't know / Don't remember ( <i>sijui/sikumbuki</i> )		
Hf11	The <u>last time</u> you got vitamin and mineral powder, where did you get it from? ( <i>mara ya mwisho ulipata hii pauda ulipata wapi?</i> )  Circle only <u>one</u> answer. ( <i>Chagua jawabu moja</i> )	1. Health facility ( <i>kituo cha afya</i> ) 2. Supermarket/Shop / Kiosk ( <i>dukani</i> ) 3. Market / Street stand ( <i>sokoni/barabarani</i> ) 4. Moving street vendor ( <i>mtu wa kuuza vitu barabarani</i> ) 5. Chemist ( <i>duka la dawwa</i> ) 6. Neighbour / relatives / friends ( <i>jamaa/rafiki/jirani</i> ) 7. Health worker ( <i>mhudumu wa afya</i> ) 8. NGO / religious association ( <i>shirika la dini</i> ) 88. Don't know / Don't remember ( <i>sijui/sikumbuki</i> ) 99. Other ( <i>mahali pengine</i> ): _____		
Hf12	The <u>last time</u> you got vitamin and mineral powder, how many sachets did you get? ( <i>mara ya mwisho kupata hii pauda, ulipata pakiti kiasi gani ya hii pauda</i> ) Write in the number of sachets.If respondent doesn't know, record 88. ( <i>andika ni sachet ngapi</i> ) ( <i>kama mhojiwa hajui rekodi 88</i> )	Number of sachets :(pakiti ngapi) <input type="text"/> <input type="text"/>		



hf13	The <u>last time</u> you got vitamin and mineral powder, how much did you pay? ( <i>ulilipia shilingi ngapi hiyo pauda</i> ) If 'gift', record 00000.( <i>kama alipewa zawadi andika 00000</i> ) If 'don't know', record 88888.( <i>Kama hajui rekodi 88888</i> )	Kenya Shillings <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
Hf14	How often can you afford to purchase MNPs if you were to buy at <current sales cost of MNP>? ( <i>unaweza kuinunua mara ngapi hii pauda hii kwa bei ya sasa?</i> )	1. Every day I( <i>kila siku</i> ) 2. 2-3 times/week ( <i>mara mbili au tatu kwa wiki</i> ) 3. Less than once per week( <i>mar moja kwa wiki</i> ) 88. Don't know ( <i>sijui</i> )	
hf15	In the <u>last week</u> , how many times did you give vitamin and mineral powder to [NAME OF CHILD]? ( <i>wiki iliyopita ulimpa mtoto hii pauda mara ngapi</i> ) If 'don't know', record 88. ( <i>kama hajui rekodi 88</i> )	Number of times ( <i>mara ngapi</i> ) <input type="text"/> <input type="text"/>	
hf16	On the <u>most recent day</u> you gave vitamin and mineral powder to [NAME OF CHILD], how many sachets did you give? ( <i>Siku ya mwisho kumpa mtoto hii pauda ulimpa pakiti ngapi?</i> ) Circle only <u>one</u> answer.( <i>viringa jibu moja</i> )	1. Less than one sachet ( <i>haikujaa moja</i> ) 2. One full sachet ( <i>moja</i> ) 3. Two sachets ( <i>mbili</i> ) 4. Three sachets ( <i>tatu</i> ) 88. Don't know / Don't remember ( <i>sijui/sikumbuki</i> ) 99. Other ( <i>kiasi kingine</i> ): _____	
hf17	The <u>last time</u> you gave vitamin and mineral powder to your child, how did you use the sachet(s) for [NAME OF CHILD]? ( <i>mara ya mwisho kumpa mtoto hii pauda ulimpa kwa njia gani?</i> ) Circle only <u>one</u> answer ( <i>viringa jibu moja</i> )	1. Gave sachet without mixing in a meal( <i>hukuchanganya na chakula</i> ) 2. Mixed the sachet into one meal ( <i>ulichanganya na chakula</i> ) 3. Split the sachet into more than one meal ( <i>uligawanya pakiti na kuweka kwa chakula zaidi y moja</i> ) 88. Don't know / Don't remember 99. Other: _____	
hf18	The <u>last time</u> you gave vitamin and mineral powder to your child, to what food(s) did you add vitamin and mineral powder to?( <i>Mara ya mwisho kumpa mtoto hii pauda uliichanganya na chakula gani?</i> )  Do not prompt ( <i>usimuelekeze</i> )	Separately for child with mashed family food ( <i>Chakula ya mtoto peke yake ambayo imetolewa kwa ile watu wote wanakula.</i> )	1=Yes 2=No
		With semi-solid food prepared for the infant ( <i>chakula ya mtoto iliyopikwa kando iliyo rojo rojo</i> )	1=Yes 2=No
		Mixed with the family pot of food ( <i>changanya na chakula ya watu wote</i> )	1=Yes 2=No
		With water or other liquid ( <i>Nilichanganya na maji au vinyuaji vingine</i> )	1=Yes 2=No
		Don't know / Don't remember ( <i>Sijui/sikumbuki</i> )	1=Yes 2=No
		Other:( <i>Chakula aina nyingine</i> ) _____	1=Yes 2=No
Hf19	The <u>last time</u> you gave vitamin and mineral powder to your child, at what step of the food preparation did you add vitamin and mineral powder to the food? ( <i>Ulipompa mtoto hii pauda mara ya mwisho uliiongeza kwa chakula wakati gani wa kupika?</i> ) Circle 1=Yes for each item	Before cooking the food ( <i>Kabla ya kupika</i> )	1=Yes 2=No
		While cooking the food ( <i>Nikipika hicho chakula</i> )	1=Yes 2=No
		At the end of the cooking of food( <i>nikimaliza kupika</i> )	1=Yes 2=No
		Just before feeding the food to the child(	1=Yes 2=No

	mentioned and 2=No for each item not mentioned.(viringa 1 kwa kila jawabu anataja na 2 kwa ile haijatajwa)	Kabla kumpa mtoto chakula)	
Don't know / remember (Sijui)(sikumbuki)		1=Yes 2=No	
Other: (wakati mwingine wowote ) _____		1=Yes 2=No	
Hf20	This <u>last time</u> you fed [NAME OF CHILD] with vitamin and mineral powder, at which mealtime did you, give it?(Hiyo mara ya mwisho ulimpa mtoto hii pauda ulimpa na chakula ya saa ngapi?  Circle 1=Yes for each item mentioned and 2=No for each item not mentioned.(viringa 1 kwa kila jawabu anataja na 2 kwa ile haijatajwa)	Breakfast (Chakula cha kiamsha kinywa)	1=Yes 2=No
		Morning snack(saa nne)	1=Yes 2=No
		Lunch(Mchana)	1=Yes 2=No
		Afternoon snack(Saa kumi)	1=Yes 2=No
		Dinner(Chakula cha usiku)	1=Yes 2=No
		Don't know / Don't remember(Sijui/sikumbuki)	1=Yes 2=No
		Other: (Masaa tofauti na haya) _____	1=Yes 2=No
Hf21	What do you like about vitamin and mineral powder?(Unapendea nini pauda hii?) Do <b>not</b> prompt. Probe "Anything else?" Circle 1=Yes for each item mentioned and 2=No for each item not mentioned.(viringa 1 kwa kila jawabu anataja na 2 kwa ile haijatajwa)	Taste (Inavyoonja)	1=Yes 2=No
		Packaging(Iliyofungwa)	1=Yes 2=No
		Price(Bei yake)	1=Yes 2=No
		How it is promoted/advertised(Inavyotangazwa)	1=Yes 2=No
		Good for the health of children (nzuri kwa afya yake)	1=Yes 2=No
		Easy availability(Ni rahisi kuipata)	1=Yes 2=No
		Trustworthy source(inatoka pahali pa kuaminika)	1=Yes 2=No
		Nothing(Sina sababu)	1=Yes 2=No
		Other:(Sababu nyingine) _____	1=Yes 2=No
Hf22	What do <b>you not</b> like about vitamin and mineral powder?(Kwa nini huipendi pauda hii?) Do <b>not</b> prompt (usimuelekeze) Probe "Anything else?" Circle 1=Yes for each item mentioned and 2=No for each item not mentioned.(viringa 1 kwa kila jawabu anataja na 2 kwa ile haijatajwa)	Taste (Inavyoonja)	1=Yes 2=No
		Packaging(Jinsi ilivyofungwa)	1=Yes 2=No
		Price(Bei yake)	1=Yes 2=No
		How it is promoted / advertised(Inavyotangazwa)	1=Yes 2=No
		Not good for the health of children(Si nzuri kwa afya ya watoto)	1=Yes 2=No
		Not easily availability(Haipatikani kwa urahisi)	1=Yes 2=No
		Untrustworthy source(Inatoka pahali hapaaminiki)	1=Yes 2=No
		Nothing(Sina sababu yoyote)	1=Yes 2=No
		Other:(Sababu nyingine) _____	1=Yes 2=No

Hf23	<p>What are the benefits of using &lt;Brand of MNP from Q2&gt; or MNPs in general?(Kutumia pauda hii ina manufaa gani?)</p> <p>Circle all of the benefits that the respondent mentions, Viringalandika 1=yes (ndio) au 2=no (la) kwa kila manufaa</p> <p><b>DO NOT</b> prompt (usimuelekeze) If yes, probe 'heard' or from of 'experience' and write 'heard' or 'experience' next to the yes benefit (akitaja jibu sawa uliza ' ulisikia au umejionea, kisha andika 'sikia' au 'kuona'</p>	No benefits ( <i>Hakuna faida</i> )	1=Yes 2=No	
		Increased appetite ( <i>Inaongeza hamu ya chakula</i> )	1=Yes 2=No	
		Increased energy and activity ( <i>Inaongeza nguvu</i> )	1=Yes 2=No	
		Mental development/make child clever ( <i>Inaboresha akili ya mtoto</i> )	1=Yes 2=No	
		Increased immunity ( <i>Mtoto anakuwa amekingwa kutoka kwa maradhi</i> )	1=Yes 2=No	
		Make child healthy ( <i>Mtoto anakuwa na afya bora</i> )	1=Yes 2=No	
		Make child stronger ( <i>Mtoto anakuwa mwenge nguvu zaidi</i> )	1=Yes 2=No	
		Physical growth ( <i>Kimo cha mtoto kinaongezeka</i> )	1=Yes 2=No	
		Do not know ( <i>Sijui</i> )	1=Yes 2=No	
Others:( <i>Sababu zingine</i> )-----	1=Yes 2=No			
Hf24	Can you show me some vitamin and mineral powder? ( <i>Unaweza kunionyesha hiyo pauda unampa mtoto?</i> ). Circle 1=Yes if vitamin and mineral powder is seen.( <i>Weka alama ya mwingo kwa 1= ndio kama pauda umeiona</i> )	1=yes 2= No	If yes, skip to hf 26	
hf25	<p>Why don't you have vitamin and mineral powder at home ?(<i>Mbona huna hiyo pauda hapa nyumbani</i>)</p> <p>Circle 1=Yes for each item mentioned and 2=No for each item not mentioned.(<i>viringa 1 kwa kila jawabu anataja na 2 kwa ile haijatajwa</i>)</p>	1. Ran out( <i>Imeisha</i> )	1=Yes 2=No	
		2. Too expensive to buy more ( <i>ni ghali sana kununua</i> )	1=Yes 2=No	
		3. Not available in the market( <i>Sikuipata madukani</i> )	1=Yes 2=No	
		4. Do not see a need for it ( <i>Sioni maana ya kuwa nayo</i> )	1=Yes 2=No	
		99. Other:( <i>Sababu nyingine</i> ) _____	1=Yes 2=No	
hf26	<p>Does anybody else in the household use vitamin and mineral powder? (<i>kuna mwingine hutumia hii pauda?</i>) Do not prompt. Probe "Anybody else?" (<i>usimwelekeze.umuulize kama kuna mtu mwingine</i>) Circle 1=Yes for each item mentioned and 2=No for each item not mentioned.(<i>viringa 1 kwa kila jawabu anataja na 2 kwa ile haijatajwa</i>)</p>		1=Yes 2=No	If yes specify and circle all mentioned
		Other children in the household ( <i>watoto wengine</i> )	1=Yes 2=No	
		Adolescents in the household ( <i>vijana</i> )	1=Yes 2=No	
		Me (i.e. mother/principal caregiver) ( <i>mimi</i> )	1=Yes 2=No	
		Other adults in the household ( <i>watu wazima</i> )	1=Yes 2=No	
		Don't know / Don't remember ( <i>sijui/sikumbuki</i> )	1=Yes 2=No	

### HEALTH WORKER (MHUDUMA WA AFYA)

N°	QUESTIONS	ANSWERS(MAJIBU)	SKIPS	
hw1	Have you ever been visited at home by a community health worker? ( <i>umewahi kutembelewa na mhudumu wa afya nyumbani</i> )	1=Yes (ndio) 2= No (La)	If NO, skip to next module	
hw2	How many days or months ago were you last visited by a community health worker? ( <i>Ni miezi au siku ngapi iliyopita tangu utembelewe na mhuduma wa afya.</i> ) <i>Write in 88, if 'don't remember'.(Andika 88 kama hakukumbuki)</i>	Days( <i>siku</i> )..... Months( <i>miezi</i> )..... 77=skipped		
hw3	During <u>the last visit</u> , what advice did the community health worker give you related to feeding your child? ( <i>alipokutembelea mara ya mwisho mhuduma wa afya alikupa mawaidha gani?</i> ) <b>Do <u>not prompt</u></b> ( <i>usimuelekeze</i> ) Probe "Anythingelse?" ( <i>muulize kama kuna jambo lingine aliloliambiwa</i> )  Circle 1=Yes for each item mentioned and 2=No for each item not mentioned.(viringa 1 kwa kila jawabu anataja na 2 kwa ile haijatajwa)	1. Putting baby to breast immediately after birth ( <i>kumnyonyesha mtoto mara tu anapozaliwa</i> ) 2. Giving only colostrum ( <i>kumpa maziwa ya kwanza</i> ) 3. No pre-or post-lacteals( <i>usimpe chakula chochote</i> ) 4. Positioning&attachment( <i>Jinsi ya kumshika anaponyonya</i> ) 5. Feeding mashed family food after 6 months ( <i>kumbondea chakula cha watu wote baada ya miezi6</i> ) 6. Feeding animal source foods( <i>kumlisha chakula inayotoka kwa wanyama kama maziwa au nyama</i> ) 7. Cooking with /adding fortified oil( <i>kupika na au kuongezea mafuta yaliyorotubishwa</i> ) 8. Using MNPs( <i>kutumia pauda ya vitamin na madini</i> ) 9. Washing hands( <i>kuosha mikono</i> ) 10. Nothing( <i>hakuniambia lolote</i> ) 88. Don't know ( <i>sijui</i> ) / Don't remember ( <i>sikumbuki</i> ) 99. Other(kitu kingine likuambia)_____	1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped 1=yes 2=no 77=skipped	

### SALT FORTIFICATION COVERAGE)

N°	QUESTIONS(MASWALI)	ANSWERS(MAJIBU)	SKIPS
sf1	Can you tell me the brand?( <i>Niambie aina ya chumvi unayoitumia</i> )  <i>Specify</i>	Kensalt.....1 Kaysalt.....2 Sea salt .....3 Herbal salt.....4 Don't know( <i>sijui</i> ) / remember ( <i>sikumbuki</i> ).....88 Other <i>aina nyingine</i> )_____99	
sf2	The <u>last time</u> your household purchased <u>salt</u> , how was it packaged?( <i>chumvi uliyonunua mwisho ilikuwa imefungwaje</i> )	Packaged salt( <i>ya pakiti</i> ).....1 Open salt( <i>ya kupima</i> ).....2 Don't know( <i>sijui</i> )/Don't remember ( <i>sikumbuki</i> )...88	

### OIL FORTIFICATION COVERAGE (UROTUBISHAJI WA MAFUTA)

N°	QUESTIONS	ANSWERS	SKIPS
of1	What is the <u>main</u> edible <u>oil</u> consumed by your household ( <i>clarify with: the oil that you use on most days in most meals in the home</i> )?( <i>Ni mafuta</i> )	Fat or oil? (Fats are solids while <i>oils are liquid at room temperature</i> ) 1=vegetable fat, 2=animal fat 3=oil. If oil which one? ( <i>Kama ni mafuta ya maji, ni yapi?</i> )	

	<p><i>gani kati ya hizi mnakula hapa nyumbani</i></p> <p>Circle only <b>one</b> answer. (weka alama ya duara kwa jibu moja tu)</p> <p><b>Do not enquire brands now as you will do this in of4</b></p>	<p>Refined palm oil (<i>mafuta ya nazi yaliyochujwa</i>).....1</p> <p>Soybean oil (<i>mafuta ya soya</i>).....2</p> <p>Groundnut oil (<i>mafuta ya njugu</i>).....3</p> <p>Sunflower oil (<i>mafuta ya sunflower</i>).....4</p> <p>Olive oil (<i>mafuta ya olive</i>).....5</p> <p>Vegetable blend oil (<i>mafuta ya mboga ya mchanganyiko</i>).....6</p> <p>Don't know (<i>sijui</i>) / Don't remember (<i>sikumbuki</i>).....88</p> <p>Other (<i>nyingine</i>) .....99</p>		
of2	<p>Can you tell me where you usually get this [MAIN OIL TYPE]? (<i>Hebu niambie haya mafuta unayatoa wapi?</i>)</p> <p>Circle only <b>one</b> answer. (<i>viriga jibu moja</i>)</p>	<p>Purchased from supermarket. (<i>nanunua supamaketi</i>).....1</p> <p>Purchased from shop / kiosk (<i>Nanunua dukani</i>).....2</p> <p>Purchased from market / street vendor (<i>nanunua sokoni/kandokando ya barabara</i>) .....3</p> <p>Made it at home (<i>nimeitengeneza hapa nyumbani</i>).....4</p> <p>Received from food aid (<i>nilipewa kama msaada</i>).....5</p> <p>Don't know (<i>sijui</i>) / Don't remember (<i>sikumbuki</i>).....88</p> <p>Other: .....99</p>	<p>If 'Made at one, skip to ff1 (Kama imetengezwa wa nyumbani enda ff1)</p>	
of3	<p>This [MAIN OIL TYPE] that you consume, when you get it, is it usually packaged or open? (<i>Haya mafuta yakupikia unapoyapata huwa yamefungwa au yako wazi</i>) Open means packaged in another bottle than the original one, in a sachet or from a big container.</p>	<p>Packaged (<i>yamefungwa</i>).....1</p> <p>Open (<i>yako wazi</i>).....2</p> <p>Don't know (<i>sijui</i>) / Don't remember (<i>sikumbuki</i>).....88</p> <p>Other (<i>mengine</i>) .....99</p>		
of4	<p>Can you tell me the brand of this oil? (<i>niambie aina ya mafuta unayoyatumia</i>)</p> <p>Circle only <b>one</b> answer.</p>	<p>Solid fats (<i>mafuta magumu</i>)</p> <p>Animal fat.....0</p> <p>Kimbo.....1</p> <p>Kasuku.....2</p> <p>Chipo.....3</p> <p>Mallo.....4</p> <p>Tilly.....5</p> <p>Chipsy.....6</p> <p>Mafuta ya carton/kroma..7</p> <p>Other (Mafuta mengine).....99</p>	<p>Liquid Oils (<i>mafuta ya maji</i>)</p> <p>Elianto.....1</p> <p>Golden fry .....2</p> <p>Rina.....3</p> <p>Soybean oil .....4</p> <p>Fresh fri.....5</p> <p>Olive oil.....6</p> <p>Groundnut oil.....7</p> <p>Other (<i>Mafuta mengine</i>) .....99</p>	
of5	<p>The <b>last time</b> your household bought [MAIN OIL TYPE], how much did you get? (<i>Mara ya mwisho mlinunua mafuta ya kupika mlinunua kiasi gan?</i>) Write in the number <b>and</b> circle the unit. (<i>Andika kiwango</i>)</p> <p>If 'don't know', record 88 (<i>Kama hajui andika 88</i>)</p>	<p>A. Quantity (fats)</p> <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>B. Kg.....1</p> <p>g.....2</p> <p>L.....3</p> <p>mL.....4</p>	<p>A. Quantity (oils)</p> <p><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>B. Kg.....1</p> <p>g.....2</p> <p>L.....3</p> <p>mL.....4</p>	
of6	<p>How long does this amount usually last in your household? (<i>haya mafuta unayatumia kwa kawaida inadumu siku ama miezi ngapi?</i>) Write in the number <b>and</b> circle the unit. If 'don't know', record 88. (<i>kama hajui andika 88</i>)</p>	<p>A. Duration (<i>muda</i>) <input type="text"/> <input type="text"/></p> <p>B. Day(s) (<i>siku</i>).....1</p> <p>Month(s) (<i>miezi</i>).....2</p>		

### FLOUR FORTIFICATION COVERAGE (UROTUBISHAJI WA UNGA)

N°	QUESTIONS	ANSWERS	SKIPS
ff1	<p>What is the <b>main</b> edible <b>flour</b> consumed by your household? (<i>Mnapika unga gani sana hapa nyumbani</i>)</p> <p>Circle only <b>one</b> answer.</p>	<p>Wheat flour (<i>unga wa ngano</i>).....1</p> <p>Maize flour (<i>unga wa ugali</i>).....2</p> <p>Millet flour (<i>unga wa mtama</i>).....3</p> <p>Sorghum flour (<i>unga wa wimbi</i>).....4</p> <p>Don't use (<i>situmii</i>).....77</p> <p>Don't know (<i>sijui</i>) / remember (<i>sikumbuki</i>)...88</p>	

		Other: (Unga aina nyigine).....99	
ff2	Can you tell me where you usually get this [MAIN FLOUR TYPE]?(unaweza kuniambia ni wapi unatoa hii unga unayoitumia zaidi)  Circle only <u>one</u> answer (viringa jibu moja)	Purchased from supermarket(supamaketi) ...1 Purchased from shop / kiosk (dukani).....2 Purchased from market/streetstand (sokoni).3 Made it at home/posho(ninaitengeneza nyumbani au kwa tingatinga).....4 Received from food aid(nilipewa msaada).....5 Don't know / remember.....88 Other: .....99	If 'Made it at home', skip to mf1
ff3	Can you tell me the brand of this flour?(Niambie aina ya unga unayoitumia)  Circle only <u>one</u> answer.	1. Ugali 2. Jogoo 3. Pembe 4. Soko 6. Jimbi Home made/posho (Unga ya kupima).....7 Don't know(sijui) / remember(sikumbuki).....88 Other: (aina nyigine).....99	
ff4	The <b>last time</b> your household bought [MAIN FLOUR TYPE], how much did you get? (mara ya mwisho ulinunua unga ulinunua kiasi gani? Write in the number <b>and</b> circle unit(Andika kiwango). If 'don't know', record 88(Kama hajui andika 88)	A. Quantity (kiasi) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> B. Kg.....1 g.....2	
ff5	How long does this amount usually last in your household?(kiwango hiki unakitumia kwa siku gapi) Write in the number <b>and</b> circle the unit. If 'don't know', record 88 (kama hajui andika 88)	A. Duration (muda) <input type="text"/> <input type="text"/> B. Day(s)(siku).....1 Month(s)(miezi).....2	

#### MILK FORTIFICATION COVERAGE (UROTUBISHAJI WA MAZIWA)

N°	QUESTIONS	ANSWERS	SKIPS
mf1	What are the <b>main</b> dairy products consumed by your household? Circle only <u>one</u> answer.	1. Fresh processed milk 2. Flavoured milk 3. Plain yoghurt 4. Flavoured yoghurt 5. UHT/Long Life milk 6. Unprocessed milk 7. Others (specify)-----	
mf2	Can you tell me where you usually <b>source most</b> of your dairy products? Circle only <u>one</u> answer (viringa jibu moja)	1. Purchased from supermarket (supamaketi) 2. Purchased from shop / kiosk (dukani) 3. Purchased from milk hawker(mtu wa rejareja) 4. Purchased from market (sokoni) 5. Milked at home (ninaikamua nyumbani) 6. Received from food aid (nilipewa msaada)	
mf3	If purchased, how much did it cost in Ksh / litre?	Ksh. _____	
mf4.1	How often do you buy fresh milk Circle only <u>one</u> answer	1. Once a week, 2. Twice a week, 3. More often than 2 times a week. 4. Never	
mf4.2	How often do you buy flavoured milk Circle only <u>one</u> answer	1. Once a week, 2. Twice a week, 3. More often than 2 times a week. 4. Never	
mf4.3	How often do you buy plain Yoghurt Circle only <u>one</u> answer	1. Once a week, 2. Twice a week, 3. More often than 2 times a week. 4. Never	
mf4.4	How often do you buy flavoured yoghurt Circle only <u>one</u> answer	1. Once a week, 2. Twice a week, 3. More often than 2 times a week. 4. Never	
mf4.5	How often do you buy UHT/Long Life milk Circle only <u>one</u> answer	1. Once a week, 2. Twice a week, 3. More often than 2 times a week. 4. Never	
mf5	Which fortified dairy brands are you aware of?	1. Daima 2. Refresh milk drink 3. Others (specify)	If none

	<i>Include all sizes / packages and brands</i>	4. None	skip to mf7
mf6	Do you ever buy this type of fortified dairy product?	1. never 2. Rarely 3. Sometimes 4. Often 5. always	
mf7	Do you consider using or giving fortified milk to your family members sometime in the future?	1. yes 2. no 3. Uncertain	
mf8	Why would you / would you not consider using or giving it again?	1. health reasons 2. Taste 3. Price 4. popularity 5. curiosity / want to try it	

**CHILD HEALTH AND NUTRITION DATA (AFYA NA LISHO LA MTOTO)**

N°	QUESTIONS(MASWALI)	ANSWERS	REMARKS(MAONI)
C1	<i>Does your child have a vaccination card/booklet (check)?Una kadi ya chanjo ya huyu mtoto)</i>		1=yes (ndio) 2=no (la)
C2	Has [NAME OF CHILD] taken a vitamin A capsule in the past 6 months?(Je (taja jina la mtoto) amepewa kapsosi ya vitamin A miezi sita iliyopita) Show vitamin A capsule (Mwonyeshe tembe)	1=Yes (ndio) 2= No (La) 88= Don't know (sijui)	
C3	Take the MUAC of the <b>child</b> on his/her left arm (pima MUAC ya mtoto mkono wa kushoto) If 'refused' (akikataa) write (andika) 666	<input type="text"/> <input type="text"/> <input type="text"/> Cm/mm	If MUAC is < 115 mm (kama MUAC ni chini ya 115mm) → Refer!
C4	Check for BCG scar(alama ya chanjo) on left arm(mkono wa kushoto)	1=yes 2=no	
C5	Check for oedema (angalia kama mtoto amefura)	1=yes 2=no	If oedema is present → refer! (kama amefura mwambie aende hospitali)

**CHECK THE QUESTIONNAIRE & THANK THE RESPONDENT  
(ANGALIA KAMA UMEJAZA DODOSO YOTE NA UMSHUKURU MHOJIWA)**

## Appendix 2.2 Focus Group Discussion Guide

### Focus Group Discussion (FGD) Guide for caregivers of children 6-23 months

#### Breastfeeding practices

1. How long after birth does it take to initiate breast feeding for most mothers in this community?
2. On average how many times in 24 hours (both day and night) do most mothers in this community breastfeed their children?
3. In your opinion, for how long should breastfeeding without giving other solid or liquid foods last?
4. At what age are children introduced to solid foods or semi solid foods in this community?
5. At what age do most women discontinue breastfeeding?
6. Why?

#### Complementary feeding practices

7. At what age do most women in this community introduce semi-solid and solid foods to their children?
8. How many times in a day (24 hours) are children fed on complementary foods.

#### Childcare practices

9. In your opinion, what activities/strategies promote the growth and development of children 6-23 months?
10. What hinders proper growth and development of children of 6-23 months?
11. Have you heard about MNP?
12. If yes from who/where?
13. Were you given instructions on how to use? If yes, state a few instructions
14. In your opinion are MNP useful?
15. What are the factors that influence the use of MNP?
16. Any myths surrounding use of MNP?
17. If MNPs were to be sold at 6-7ksh. Would you buy and why?
18. When you go shopping do you check whether foods you buy are fortified? Flour, Salt, Oil/fat, milk?

#### Thank you



## Appendix 2.3 Observation Check-list

Cluster \_\_\_\_\_

Date: -----

Aspects to be observed: Micronutrient Powders (MNP)	Yes	No	Remark			
1. Presence of MNP in most the household/cluster						
2. Presence of MNP in the nearby shop/Kiosk						
3. Presence of MNP in the nearby health facilities						
4. Use of MNP on food that is cooking						
5. Use of MNP on hot food						
6. Generally use of MNP in the household						
7. Presence of fortified foods in the shops/kiosk						
Other aspects to be observed	5= Best	4= Good	3= Fair	2 = Poor	1= Worst	6= N/A
1. General cleanliness of the compound (No rubbish lying about in the compound, presence of a facility for waste disposal).						
2. Storage of water in clean covered containers						
3. Cleanliness of Child's Utensils (No food stuck on utensils, Utensils washed in clean water)						
4. Mother/care giver with good hygiene practices (Handling of food in clean hands) generally in the cluster						
5. Use of good food preparation methods(Handling and cooking of vegetables) in the cluster						
6. List most common street foods in order of frequency						

## **Appendix 2.4 Key Informant Interview Guide for Living Goods Staff in Kariobangi, Nairobi**

Please tell me more about this; under the following headings;

1. The distribution channel organization
2. Coverage areas
3. Number of sales agents distributing MNPs
4. Are the sales agents trained on MNPs
5. If yes, how are trainings organized and what do they cover?
6. Any incentives for the sales agents
7. Any surveillance/way of checking how agents sell the products, including sms systems?
8. What is the retail price that the agents sell say, 3 sachets at?
9. Any challenges faced by the sales agents?
10. What would be your recommendations to the improvement of MNP (mix me) utilization?

**Thank you**

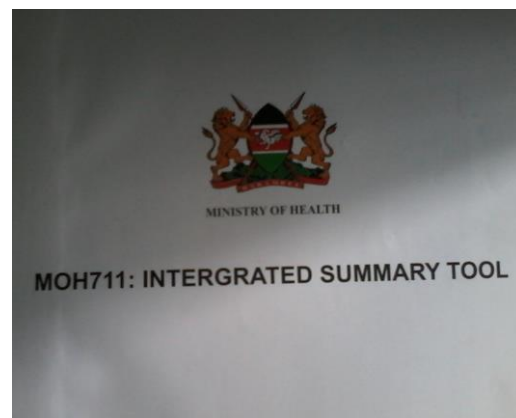
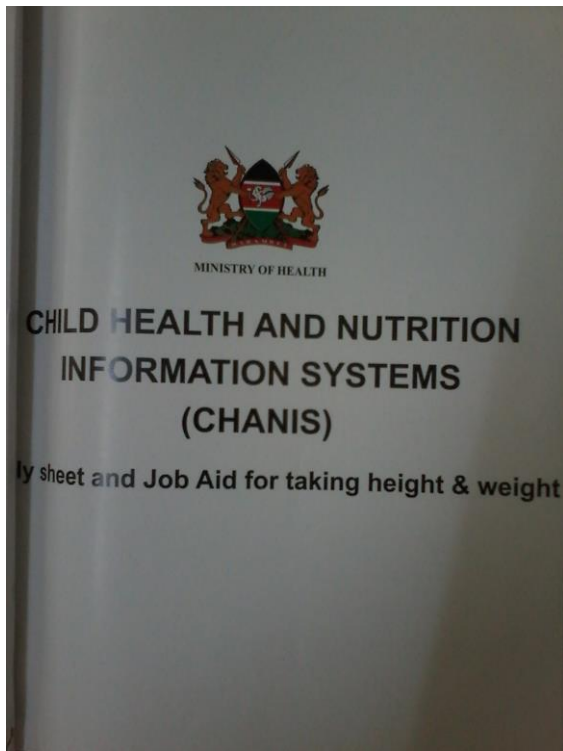
## **Appendix 2.5 Key Informant Interview Guide for Nutrition focal person at health facilities**

Please tell me more about this; under the following headings;

1. For how long have you worked in this facility?
2. Are you trained on the importance and use of MNPs?
3. Does this facility now have MNPs? Can I see them?
4. Briefly describe how you dispense/distribute the MNPs?
5. Are there children of 6-23months who are not supposed to be supplemented with MNPs?
6. Tell me about the reporting and reporting tools of MNPs?
7. What are the challenges that you face in distributing MNPs?

**Thank you**

### Appendix 3: Health Facility MNP Reporting Tools



MOH 511 Child Welfare Clinic (CWC Registers) March 2014 captures information on  
Supplemented with MNPs 6-23 months yes/no (Y/N)

#### Appendix 4: Main Oil, Vegetable fats and Flour Brands Consumed by Survey Households

Oil brands consumed by survey households	Frequency	Percent
• Elianto	16	2.6
• Bahari /Bahari Fry	14	2.3
• Halisi	5	0.8
• Top fry	12	1.9
• Popco	4	0.7
• Pwani	2	0.3
• Pwani life	3	0.5
• Salit/salati	16	2.6
• Sunpride	2	0.3
• Golden fry	142	23.0
• Sun gold	2	0.3
• Salad	1	0.2
• Fry mate	2	0.3
• Safari	1	0.2
• Rina	96	15.4
• Fresh fri	64	10.4
• Olive oil	4	0.6
• Ground nut oil	1	0.2
• Ufuta	19	3.1
• Other oil brands	43	7.0
• Retail measure mls (not sure of brand	24	3.9
<b>Total</b>	<b>473</b>	<b>76.6%</b>

Vegetable fat brands consumed by household	Frequency	Percent
• Kimbo	17	2.8
• Pwani fry	2	0.3
• Cow Boy	3	0.5
• Fry mate	3	0.5
• Somo	2	0.3
• Golden	1	0.2
• Kasuku	33	5.3
• Chipso	10	1.6
• Mallo	21	3.4
• Tilly	10	1.6
• Chipsy	3	0.5
• Mafuta ya carton/kroma	32	5.2
• Other fat brand	11	1.8
<b>Total</b>	<b>148</b>	<b>23.9%</b>

<b>Maize Flour brands consumed by household</b>	<b>Frequency</b>	<b>Percent</b>
• Ugali	2	0.3
• Tajiri	1	0.2
• Kifaru	34	5.5
• Jembe	2	0.3
• Exe	1	0.2
• Special	1	0.2
• Super	1	0.2
• Danmill	1	0.2
• Retail measure	2	0.3
• Mama	1	0.2
• mama's choice	1	0.2
• Jogoo	32	5.2
• Familia(composite)	1	0.2
• Pembe	86	13.9
• Soko	145	23.5
• Ndovu	138	22.3
• Jimbi	3	0.5
• Home made/posho mill	96	15.5
• Hostess	23	3.7
• Cosmo	18	2.9
• other brand of flour	6	1.0
<b>Total</b>	<b>595</b>	<b>96.3%</b>

## Appendix 5: Survey Team

<b>No.</b>	<b>NAME</b>	<b>Responsibility</b>
1.	Dr. Dorcus Mbithe D. Kigaru (Nutritionist)	Consultant
2.	Isaac Onyango O. (Nutritionist)	Supervisor & Data analysis
3.	Mary Kabura Kimani (Nutritionist)	Supervisor
4.	Christopher Onyango	Enumerator
5.	Mary Irungu	Enumerator
6.	Mildred Maingi	Enumerator
7.	Patrick Kamande	Enumerator
8.	Douglas Muthoka	Enumerator
9.	Julie Gogi	Enumerator
10.	Genevieve Ombunda	Enumerator
11.	Eunice Mwikali M.	Enumerator
12.	Raphael Onduso	Enumerator
13.	Grace Akingi Ochieng	Data Clerk
14.	Faith Kimani	Data clerk
15.	Tom Ochieng	Data Clerk

## Appendix 6: Community Health Volunteers as Community Guides

### GAIN MNP AND FOOD FORTIFICATION BASELINE SURVEY

#### NAIROBI COUNTY

NOVEMBER 2014

#### COMMUNITY HEALTH VOLUNTEER (CHVS)

No.	Name	Cluster	Activity
1.	Mary Wambui Thuita	Umoja	Data collection & FGD organization
2.	Wycliffe Mbogo	Umoja	Data collection
3.	Beatrice Odembo	Kayole	Data collection
4.	Winnie Mutheu	Kayole	Data collection
5.	Penina Mbatha	Njiru / Obama	Data collection
6.	Jackline Bitengo	Njiru / Obama	Data collection
7.	Winnie Wariara	Dandora	Data collection
8.	Lucy Njeri N'gang'a	Dandora	Data collection
9.	Grace Mutevu	Njiru / Obama	Data collection
10.	Elizabeth Oduor	Mathare	Data collection & FGD organization
11.	Rachael Gachanja	Mathare	Data collection
12.	Gladwel Wambui	Bahati	Data collection
13.	Juma Lucy Awino	Ruaraka	Data collection
14.	Lilian Atieno	Ruaraka	Data collection
15.	Dorothy Wanjiru	Pipeline	Pre-testing
16.	David Obara	Pipeline	Pre-testing



## Appendix 7: Training Timetable for the research team

Dates: 27<sup>th</sup> to 31<sup>th</sup> October 2014

Time	Monday 27 Oct 2014		Tuesday 28 Oct 2014		Wednesday 29 Oct 2014		Thursday 30 Oct 2014	Friday 31 Oct 2014
	Activity	Facilitator	Activity	Facilitator	Activity	Facilitator	Activity	Activity
9.00-9.30am	Registration & Introductions	Dorcus Mbithe	Recap day 1 & overview of research tools	Dorcus Mbithe	Recap Day 2	Dorcus Mbithe	Preparation for pre-test (Dorcus)	Briefing-
9.30-10.00am	Course overview and training objectives	Dorcus Mbithe	Questionnaire	Dorcus Mbithe Mary Kabura Isaac Ogwayo	Role plays Research team in pairs administer questionnaire to each other	Dorcus Mbithe Mary & Isaac	Pre-test (Dorcus, mary & Isaac)	Plenary Discussion of the pre-test (All)
10.00-10.30am	Tea Break							
10.30am -1.00pm	Problem statement and Survey Objectives	Dorcus Mbithe Mary Kabura Isaac Ogwayo	Questionnaire	Dorcus Mbithe Mary Kabura Isaac Ogwayo	Roles plays and discussion	Dorcus Mbithe Mary & Isaac	Pre-test (Dorcus, Mary & Isaac)	Discussion of the Pre-test (All)
1.00-2.00pm	Lunch							
2.00-4.00 pm	Roles of the respective research teams	Dorcus Mbithe Mary Kabura Isaac Ogwayo	Questionnaire	Dorcus Mbithe, Mary Kabura & Isaac Ogwayo	Discussions: emerging issues	Dorcus Mbithe Mary & Isaac	Pre-test Pretest (Dorcus, Mary & Isaac)	Wrap up (Dorcus Mbithe)
4.00-4.30pm	Logistics	Dorcus Mbithe	Logistics	Dorcus Mbithe	Logistics	Dorcus Mbithe		Logistics Dorcus

**Materials: Handouts, Data collection tools and stationary, Sample MNP sachets, LCD projector**