



NAIROBI COUNTY

SMART SURVEY REPORT

FEBRUARY 2020

Supported by



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ACRONYMS

AMTSL:	Active Management of Third Stage of Labor
ANC:	Antenatal Care
APHRC:	African Population Health Research Centre
BCG:	Bacillus Calmette – Guerin
BFCI	Baby Friendly Community Initiatives
CHW	Community Health Workers
CHEW	Community Health Extension Workers
C.I.:	Confidence Interval
DMOH:	District Ministry of Health
DNO:	District Nutrition Officer
DPT:	Diphtheria, Pertussis and Tetanus
EBF:	Exclusive Breastfeeding Rate
ENA:	Emergency Nutrition Assessment
FTC:	Feed the Children
GAM:	Global Acute Malnutrition
HiNi:	High Impact Nutrition Intervention
IMR:	Infant Mortality Rate
IYCN:	Infant and Young Children Nutrition
KPC:	Knowledge, Practice and Coverage
MAM:	Moderate Acute Malnutrition
MIYCN:	Maternal Infant and Young Children Nutrition
MNCH:	Maternal and New-Born Child Health
MoH:	Ministry of Health
MoH:	Ministry of Health
MUAC:	Mid-Upper Arm Circumference
SAM:	Severe Acute Malnutrition
SMART:	Standardized Measurement of Relief and Transition
SPSS:	Statistical Package for Social Sciences
TBA:	Traditional Birth Attendants
UNICEF:	United Nations Children Fund
VAD:	Vitamin A Deficiency
WFA:	Weight for Age
WFH:	Weight for Height
WHO:	World Health Organization

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EXECUTIVE SUMMARY

Nairobi County borders Kiambu County to the North and West, Kajiado to the South and Machakos to the East. The County has experienced very rapid population growth over the last 30-40 years. According to the 2019 Kenya National Population and Housing Census, the County has population estimate of 4.39 million. Significantly, 60% of this population live in the informal settlements covering about only 5% of the land (UN Habitat and the Kenya Slum Upgrading Programme). In addition, the County has the largest informal settlements in East and Central Africa namely; Kibra, Kawangware, Mathare, Kangemi, Korogocho, Majengo, Mukuru and Kiambiu with limited access to appropriate housing, electricity and sanitation. The precarious physical, social and economic conditions of these settlements heavily affect residents' health and environment in addition to severely constraining the local economic development.¹

This survey was proposed after February 2019 Kenya Food Security Steering Group report where the County was rated third highest in estimated Caseloads for Children 6-59 months that require treatment for acute malnutrition. Persistent drought and food prices inflation during the past years led to increased food insecurity and likelihood of increased malnutrition rate. Therefore, the information collected will support the Nairobi County government in decision making and nutrition programming.

The overall objective of the survey is to determine the nutrition status of children aged 6- 59 months old and Women of reproductive age 15-49 Years in the informal settlements within Nairobi County. Specific objectives of the survey were : To estimate the current prevalence of acute malnutrition in children aged 6 – 59 months, to estimate the nutritional status of women of reproductive age 15-49 years using MUAC measurements, to estimate Measles, de-worming, BCG vaccination and 'Vitamin A' supplementation coverage for children 9-59 months and 6-59 months respectively, to establish the Morbidity rates of children 6-59 months 2 weeks prior to the survey and to collect information on household food security, water, sanitation, and hygiene practices.

The target geographical area was the informal settlement covering ten sub counties including Ruaraka, Makadara, Lang'ata, Dagoretti, Kamukunji, Starehe, Kasarani, Embakasi East, Embakasi West and Westlands. Due to the complex nature of the urban population, the survey adopted a 3 stage sampling technique where mapping of all the informal settlements was done before the survey. *The First stage sampling* involved the selection of blocks using Simple Random Sampling (SRS) where all the target informal settlements were divided into blocks of approximately 1000 HHs per block. *The second stage sampling* involved selection of segments which was considered to be the clusters using SRS. The sampled blocks were further divided into 10 segments of approximately 100 HHs per segment. Lastly, *the third stage* was led by the village guide and a systematic sampling method was used in household selection whereby survey teams developed a sampling frame in each of the village sampled during the second stage sampling covering 16 households per cluster.

The survey team were trained for 4 days including pretesting of the survey tools thereafter they proceeded for a 7 day data collection. Subsequently, daily data entry and analysis was done using ENA for SMART (July, 2015 Version). Further analysis was also done with Ms. Excel and SPSS version 20. Daily quality of data was monitored through running the plausibility results for the anthropometric data and results feedback was provided to the team on every morning before leaving for the field.

The survey findings indicated a global acute malnutrition (GAM) prevalence rate of 3.9 % (2.7 - 5.6 95% C.I.) while the prevalence for severe malnutrition was at 0.0 % (0.0 - 0.0 95% C.I.). This is generally classified as low by the WHO classification of malnutrition. However, going by the number of acute malnutrition caseloads, there is need of urgent concern and centered efforts to tackle malnutrition. In addition, the prevalence of underweight is at 9.6 % (7.6 - 12.0 95% C.I.) with 2.5 % (1.5 - 4.1 95% C.I.) severely underweight. Significantly, the stunting prevalence is high at 24.0 % (20.9 - 27.5 95% C.I.) with 4.4 % (3.1 - 6.2 95% C.I.) of the children severely stunted. About 26.8% (212) of children aged 6-59 months reported to have been ill two weeks prior to survey. The most prevalent illness during this period was acute respiratory illnesses/ cough at 65.1%, fever

¹ Nairobi County Development Plan 2018

with chills (35.4%) and watery diarrhea (23.1%). However, only 72.2% (153) of children visited health facility during with illness two weeks prior to the survey with majority attending public clinics (51.0%).

Only 46.4% of children aged 12-59 Months received twice yearly Vitamin A supplementation while 60.3% received zinc supplement and oral rehydration salts (ORS) during episode of diarrhea. Additionally, 89.1% (n=659) of children were reported to have received BCG vaccine. With regards to water, sanitation and hygiene 47.0% (n=469) of the households reported treating water before drinking with only 12.5% (n=125) practicing proper hand washing at the 4 critical times. The Women dietary diversity was optimal with 60 % receiving more than five food groups. However, iron folic supplementation coverage for more than 90 days was low at 53.8%.

The following table presents the summary of the indicators

TABLE 1: SUMMARY FINDINGS

	February 2020			
	All (n = 717)	Boys (n = 360)	Girls (n = 357)	
Prevalence of global malnutrition (<-2 z-score and/or Oedema)	(28) 3.9 % (2.7 - 5.6 95% C.I.)	14) 3.9 % (2.4 - 6.3 95% C.I.)	(14) 3.9 % (2.2 - 6.8 95% C.I.)	
Caseload	23,438			
Prevalence of severe malnutrition (<-3 z-score and/or Oedema)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	
Caseload	0			
Prevalence of global malnutrition by MUAC (< 125 mm and/or Oedema)	(20) 2.7 % (1.8 - 4.1 95% C.I.)	(11) 3.0 % (1.8 - 5.1 95% C.I.)	(9) 2.5 % (1.3 - 4.6 95% C.I.)	
Prevalence of severe malnutrition by MUAC (< 115 mm and/or Oedema)	(1) 0.1 % (0.0 - 1.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(1) 0.3 % (0.0 - 2.0 95% C.I.)	
Prevalence of underweight (<-2 z-score)	(69) 9.6 % (7.6 - 12.0 95% C.I.)	(38) 10.5 % (7.5 - 14.6 95% C.I.)	(31) 8.6 % (6.0 - 12.2 95% C.I.)	
Prevalence of severe Underweight (<-3 z-score)	(18) 2.5 % (1.5 - 4.1 95% C.I.)	(10) 2.8 % (1.3 - 5.6 95% C.I.)	(8) 2.2 % (1.1 - 4.5 95% C.I.)	
Prevalence of Stunting (<-2 z-score)	(170) 24.0 % (20.9 - 27.5 95% C.I.)	(99) 28.3 % (23.7 - 33.4 95% C.I.)	(71) 19.9 % (16.0 - 24.4 95% C.I.)	
Prevalence of severe stunting (<-3 z-score)	(31) 4.4 % (3.1 - 6.2 95% C.I.)	(22) 6.3 % (4.3 - 9.2 95% C.I.)	(9) 2.5 % (1.3 - 5.0 95% C.I.)	
Category	Indicator	Nairobi County		
		n	N	%
Immunization /vaccination and supplementation	Deworming (12-59 Months)	430	619	69.5%
	Measles at 9 Months (Yes by Card)	306	675	60.3%
	Measles at 9 Months (Yes by Recall)	350	507	36.7%
	Measles at 18 Months (Yes by Card)	189	740	47.9%
	Measles at 18 Months (Yes by Recall)	239	740	35.9%
	BCG by Scar	659	740	94.2%
	OPV 1 (Yes by Card)	372	740	63.0%
	OPV 1 (Yes by Recall)	740	740	36.3%
	OPV 3 (Yes by Card)	363	740	60.8%
OPV 3 (Yes by Recall)	353	740	35.7%	
Supplementation	Zinc Supplementation	35	58	60.3%

	Vitamin A Supplementation (12-59 Months) - Once	498	731	80.2%
	Vitamin A Supplementation (6-11 Months) - Once	101	117	83.5%
	Vitamin A Supplementation (6-11 Months) - Once verified by card	75	121	62.0%
	Vitamin A Supplementation (12-59 Months) - Twice	287	619	46.4%
	Vitamin A Supplementation (6-59 Months) - Once	599	740	80.9%
Morbidity	Prevalence of Fever	75	212	35.4%
	Prevalence of ARI	138	212	65.1%
	Prevalence of Watery Diarrhea	49	212	23.1%
	Prevalence of Bloody Diarrhea	0	212	0 %
Health Seeking behavior	Health Seeking Behavior	153	212	72.2%
Hygiene				
Household Which wash Hands			860	89.9%
After Toilet			805	93.6%
Before cooking			416	49.5%
Before Eating			714	83.0%
After taking children to the toilet			286	33.3%
Hand washing by Soap and water			741	86.2%
hand washing 4 critical times			161	18.7%
Total weighted Coping Strategy Score				13.07

The acute malnutrition situation in the Nairobi informal settlements is low according to the World Health Organization classification. However, in terms of caseloads due to high population density in the Nairobi County, the number remains considerably high. Despite reduction in the stunting and underweight level, the rate still remains high at 24% and 9.6% respectively. However, there was notable difference in underweight distribution among boys and girls with underweight rates at 10.5% and 8.6% respectively.

In terms of morbidity as a major contributor to malnutrition, the situation improved significantly compared to the previous year. The proportion of children reported ill 2 weeks before the study significantly dropped from 46.1% in 2017 to 38.9% in 2020 indicating a relatively more healthy population. Among the children reported ill, the major ailments included ARIs at 53.5%, Fever at 29.5% and watery diarrhea at 20.1%. Significantly, poor water and sanitation hygiene conditions in informal settlements were major contributor to childhood illnesses such as diarrhea. Only 12.5% of the population practice hand washing at 4 critical times. This depicts a deterioration in appropriate hygiene practices hence contributing highly to high malnutrition rates in the county. As a recommendation, there is need to adopt the recently developed County nutrition action plan (2018-2022). In addition, the County should procure IFAS to increase the supplementation coverage

1.0: INTRODUCTION

1.1: Background Information

According to the Kenya National Bureau of Statistics (KNBS) population census projection 2018, Nairobi County has a population estimate of 4,397,073. It borders Kiambu to the North, Kajiado to the South and Machakos to the East with a total area of 696.1 Km². It is located between longitudes 36° 45' East, latitudes 1° 18' South and an altitude of 1,798 meters above the sea level. This population is distributed in 17 administrative Sub Counties which have been merged to 10 health administrative units. Moreover, about 60% of the Nairobi population is estimated to be living in the informal settlements, covering only 5% of the Nairobi land.

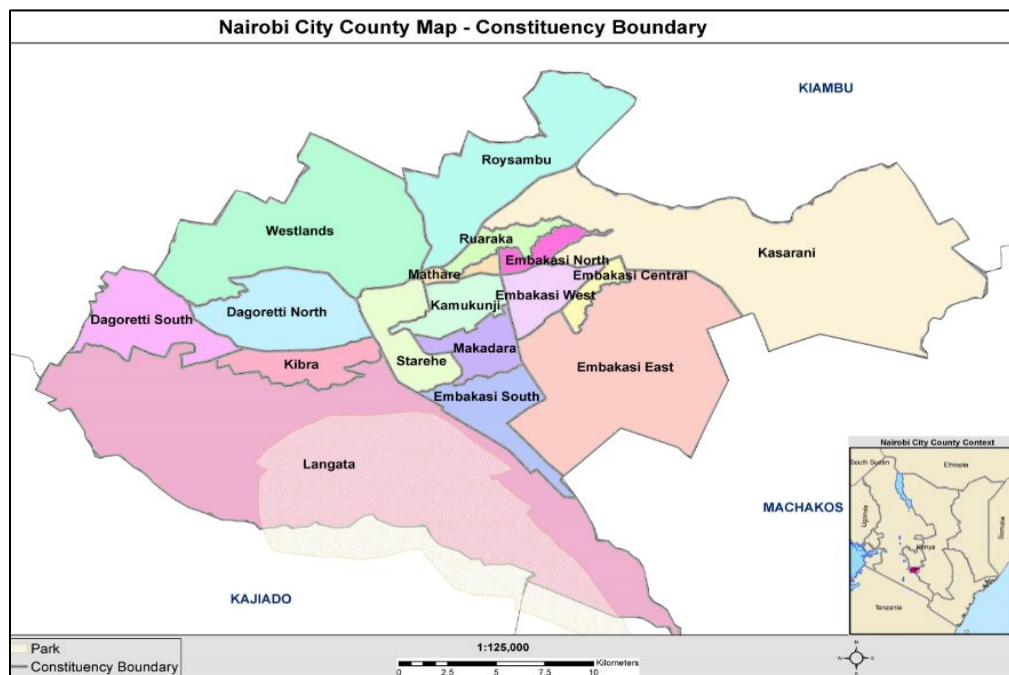


FIGURE 1: ADMINISTRATIVE MAP

The County typifies the rapid urbanization and population explosion in Sub-Saharan Africa. As the capital and largest city of Kenya, Nairobi has always been the major attraction of various segments of the Kenyan population, from both rural and other urban areas in search of better livelihood opportunities. The consequences of the rapid and uncontrolled population explosion is the proliferation of the informal settlements. Therefore, meeting the increasing demand of this new population for basic services is a daunting challenge for policy makers and specifically, for the Nairobi County Government.

These informal settlements are complex: economic, social and governing structures are more complicated than rural localities. They also contain fragmented and less cohesive communities.² Informal settlement conditions create greater exposure to violence (often sexual and gender based), unwanted pregnancy and adverse health and nutrition outcomes, particularly for women and their children.

² Zulu, E.M., Beguy, D., Ezeh, A.C., Bocquier, P., Madise, N.J., Cleland, J. and J. Falkingham, 2011, *Urbanisation, Poverty, and Health Dynamics in sub-Saharan Africa: Insights from Nairobi Slum Settlements*, Journal of Urban Health, Bulletin of the New York Academy of Medicine, Vol 88, Supplement 2.

The livelihood of most informal settlement inhabitants' income comes from informal economic activities and formal wage employment. This has been decreasing, as the public sector continues to retrench its employees. With adverse poverty and under employment the populations are highly vulnerable to shocks from price increase, disease outbreaks and political unrest. This results into a high disease burden, food insecurity and ultimately high levels of malnutrition and mortality.³

1.2: Rationale of Survey

The survey was proposed after February 2019 Kenya Food Security Steering Group (KFSSG) report where the Nairobi County was rated third highest among the 47 Counties with the estimated caseloads for Children 6-59 months that require treatment for acute malnutrition. Significantly, over the last year's inflation rates have increased among the urban dwellers with most affected populations are people living in the informal settlement. Therefore, the survey determined the extent of the effects of inflation.

In the year 2019 most parts of the Country experienced drought. Consequently, this had effects on food production and as a result many household in both rural and urban areas experienced food insecurity. Additionally, looking at the admission trends for both Supplementary Feeding Program and Out Patient Therapeutic Program from March 2019 to February 2020 there are fluctuations across the months. As a result, this survey was designed to give a clear picture of the nutrition situation in the County. More importantly, the information collected will support the Nairobi County government for decision making and nutrition programming.

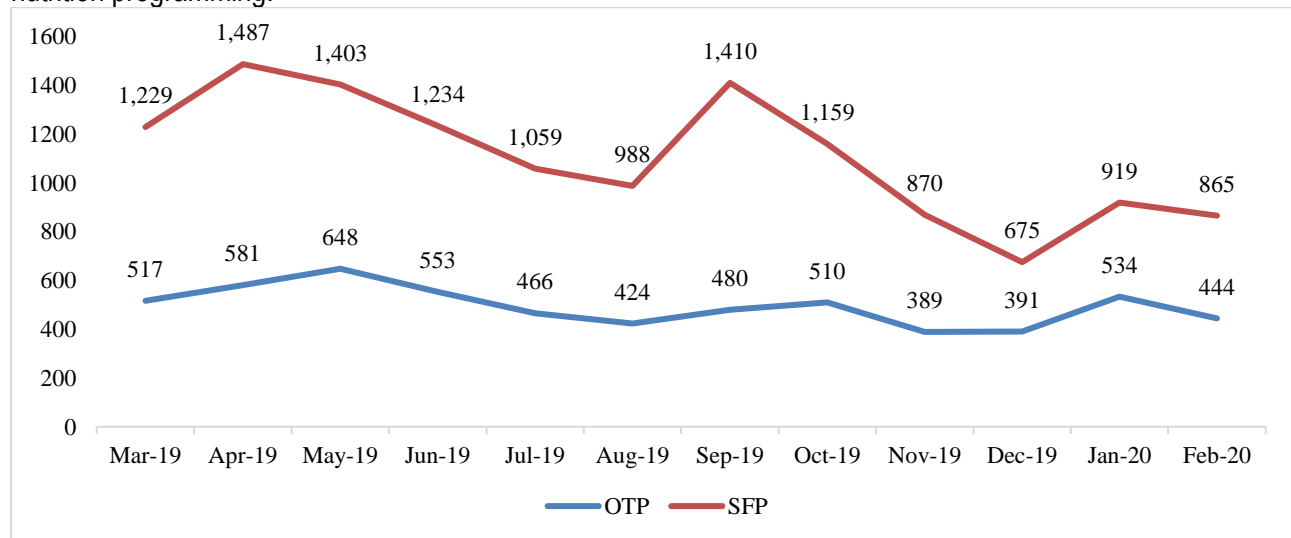


FIGURE 2: ADMISSION TRENDS OF OTP AND SFP

1.3 Survey Objectives

- The overall objective of the survey is to determine the nutrition status of children aged 6- 59 months and Women of reproductive age 15-49 Years in the urban informal settlement of Nairobi County.

1.4: Specific objectives of the Survey:

- To assess current prevalence of acute malnutrition in children aged 6-59 months.
- To compare the Overall nutrition changes with the previous GAM and SAM.
- To determine the nutritional status of women of reproductive age (15-49 years)
- To determine immunization coverage for OPV1 & 3 for children aged 6-59 months.
- To determine Vitamin A supplementation Coverage for children aged 6-59 Months.

³ Concern Worldwide Situation Analysis 2017.

- To determine deworming coverage for children aged 12 - 59 months.
- To determine Measles Coverage for the children aged 9-59 Months.
- To determine the prevalence of common illnesses (diarrhea, Fever and ARI).
- To establish the coverage of iron/folic acid supplementation and consumption during pregnancy among lactating women
- To collect information on possible underlying causes of malnutrition such as household food security, water, sanitation, and hygiene practices

2.0: SURVEY METHODOLOGY

2.1 Study Population

The target population were children aged 6 – 59 months and the women of reproductive age 15-49 years. The survey subject included the target population in the Nairobi Urban informal settlements. It was estimated that the County had 4.39 Million people based on the Census 2019. The same projections for children aged 0 -59 months indicated an estimated population of 219,500. All the villages (clusters/sampling units) in Nairobi County which were accessible, secure or not deserted were included in the primary sampling frame.

2.2: SURVEY AREA

The target geographical area was the informal settlements in the Nairobi County. Specifically, the survey covered the following 10 sub counties; Ruaraka, Makadara, Lang'ata, Dagoretti, Kamukunji, Starehe, Kasarani, Embakasi East and Embakasi West and Westlands.

2.3: Survey Design

The survey adopted a three stage cluster sampling.

The First stage sampling:

This involves selection of blocks using Simple Random Sampling (SRS). All the target informal settlements were divided into block of approximately 1000 HHs per block.

The second stage sampling:

This involves selection of segments which was considered to be the clusters using SRS. The sampled blocks were further divided into 10 segments of approximately 100 HHs per segment.

The Third stage:

Led by the village guide, systematic sampling method was used in household selection. The survey teams developed a sampling frame in each of the village sampled during the 2st stage sampling. All the households were listed. From the list the survey teams systematically selected 16 households where they administered household questionnaire (in all households). In addition, anthropometric, morbidity and immunization questionnaire was administered in the households with children aged 6 to 59 months.

2.4: Anthropometric Sample Size

The anthropometric survey sample size was calculated using the SMART survey calculator. The parameters of interest were captured in the ENA July 2015 software and the respective number of children required for the survey computed as indicated below.

2.5 Sample Size Calculation

TABLE 2: SAMPLE SIZE PARAMETERS

Parameter	Value	Source/Rationale
Estimated Prevalence (Wasting)	4.6%	2017 Nairobi slums Nutrition Survey(Concern)
Precision	2.9	From SMART Global project
Design Effect	1.5	To cater for heterogeneity that may arise
Children to be included in Sample	327	
Average Household Size	2.9	2019 KNBS
Population of Under-5	12.7%	DHIS
Non-Response Rate	5%	To cater for the non-response
Households to be included	1039	

The targeted number of children for this survey was 327 children, during the survey 729 children were reached. In the sampled households, anthropometric measurements for children aged between 6 and 59 months were taken. In total, 64 sample clusters were covered and 16 households were systematically sampled in each cluster. Please find below cluster distribution table

TABLE 3: CLUSTER DISTRIBUTION

Informal Settlement	Sub County	Sub County Population	Estimated Slum Population	Proportion Population	Cluster Distribution
Korogocho	Ruaraka	780656	468394	18.65%	12
Viwandani/ Kaloleni	Makadara	189536	113722	4.53%	3
Kibera	Lang'ata	383266	229960	9.15%	6
Kawangware/Gatina	Dagoretti	434208	260525	10.37%	7
Majengo/Kiambiu	Kamukunji	268276	160966	6.41%	4
Mathare	Starehe	206564	123938	4.93%	3
Gitare Marigu/Njiru	Kasarani	626482	375889	14.96%	10
Mukuru/Kayole Soweto	Embakasi	988808	593285	23.62%	15
Githogoro	Westland	308854	185312	7.38%	5
Total		4,186,650	2,511,991	100%	65

2.6: Survey Organisation

Coordination/Collaboration: Before the survey exercise was conducted, meetings were held with the key stakeholders where they were briefed about the purpose, objectives and survey methodology. This included validation of the methodology at the National Nutrition Information Technical Working Group (NITWG).

Selection of the Survey Team: To collect reliable and quality data, a clearly criteria for enumerators selection was developed. Enumerators were finally selected based on past experience, ICT knowledge and availability during training to the entire data collection period. This was done on competitive basis.

Training of the Survey Team: The data collection teams were given 4-days training prior to field work. This included tests to ensure standardization of measurement and recording practice. All data collectors were trained on taking anthropometric measurements, completion of questionnaires and sampling methodology. The data collection forms and questionnaires were pilot tested in clusters not selected to be part of the larger SMART survey. This was done to ensure that the interviewers and respondents understood the questions and hence follow the correct protocols. In addition, the teams were also trained on the digital data collection methods.

Team work in the field: Ten Teams each with three members who had experience in data collection were paired with each team consisting of 1 Team Leader and 2 Measurers. In addition, 10 Sub County supervisors and County team leaders with extensive knowledge and experience on the surveys formed part of the team to oversee the execution of the survey at the field level. The Survey Supervisors were the SCNOs; there were also two overall Survey Coordinators, Nutrition officer from UNICEF and five staff from Concern Worldwide. Finally, the movement from one sampled household to another in every enumeration areas was facilitated by the Community Health Volunteers (CHVs) who were seconded by the Sub County Community Strategy Focal persons and the CHAs.

Quality Assurance: Quality assurance was integrated in all phases of the survey process. Comprehensive guidelines were developed and shared with the survey team members. The team leaders provided adequate support, real-time response to emerging issues and feedback during data collection period. In addition, enumerators reporting schedules and control forms were used to facilitate monitoring of activities. Field monitoring teams provided technical, logistic and administrative aspects of enumeration in each cluster.

Selection of children for anthropometry: All children between 6-59 months of age staying in the selected household were included in the sample. The respondent was the primary caregiver of the index child/children. If a child and/or the caregiver were temporarily absent, then the survey team re-visited the household to collect the data at an appropriate time.

Selection of women for determination of nutritional status: The mother of the index child within the reproductive age (15-49years) in the identified households and any other household member within the age bracket was enlisted in the study and their MUAC measurements taken.

2.7: Questionnaire

The survey adopted the data collection tools validated by the Nutrition Information Working Group.

2.8: Data collection.

The data collection took 7 days. Sub County Nutrition Officers with support from implementing partner's staff supervised the teams throughout the data collection period. Teams administered the standardized questionnaire to the mother or primary caregiver. Each survey team explained the purpose of the survey exercise, issues of confidentiality and thereafter obtained verbal consent before proceeding with the interview. The teams used ODK questionnaire in tablets to record the responses. In addition, the data was uploaded to Kobo Humanitarian servers at the end of each day. Subsequently, the anthropometric data was downloaded daily, reviewed/analyzed for plausibility and feedback provided to the teams, using daily customized scorecards

2.9: Data Analysis

The data entry and analysis was done using ENA for SMART (July, 2015 Version). Further analysis was done with Ms. Excel and SPSS version 20. Daily quality of data was monitored through running the plausibility results for the anthropometric data and results were feedback to the team on every morning before leaving for the field.

3.0: SURVEY FINDINGS

Section three presents the results and findings from the survey.

3.1: HOUSEHOLD DEMOGRAPHICS

3.1.1 Characteristics of Respondents

We had targeted 1039 households living in the informal settlements with children aged between 6 and 59 months inclusive of a 5% non-response rate. However, only 997 households were interviewed, contributing to a response rate of 96%. Insecurity was a major challenge faced by the team during data collection forcing some team to move out of their respective clusters before achieving the daily targets.

TABLE 4: RESPONSE RATE

Household	Number of Households
Targeted household	1039
Sampled household	997
Response rate	96%

3.1.2 Gender of the children in the survey

In overall, anthropometric measurements of 729 children aged 6-59 months were taken, with 527 being children aged between 6-23 months and 202 being children aged 24-59 months. The sex ratio of male to female was 0.85. This is within the recommended range of 0.8 to 1.2 and hence the sample was unbiased for gender.

3.1.3 Caregivers' level of education and school enrolment

Maternal education is a strong predictor of child stunting. Very often, a caregiver's knowledge, attitude and actions towards proper child caring practices are very important for development of a child. Poor child caring practices increases morbidity and malnutrition levels. It is worth noting that Nairobi County has high literacy levels. As shown in the graph below, 39.3% of caregivers were primary school education holders while 42% were secondary school education holders with only 1.4 % of the caregivers having no formal education and 5.6% having pre-primary education.

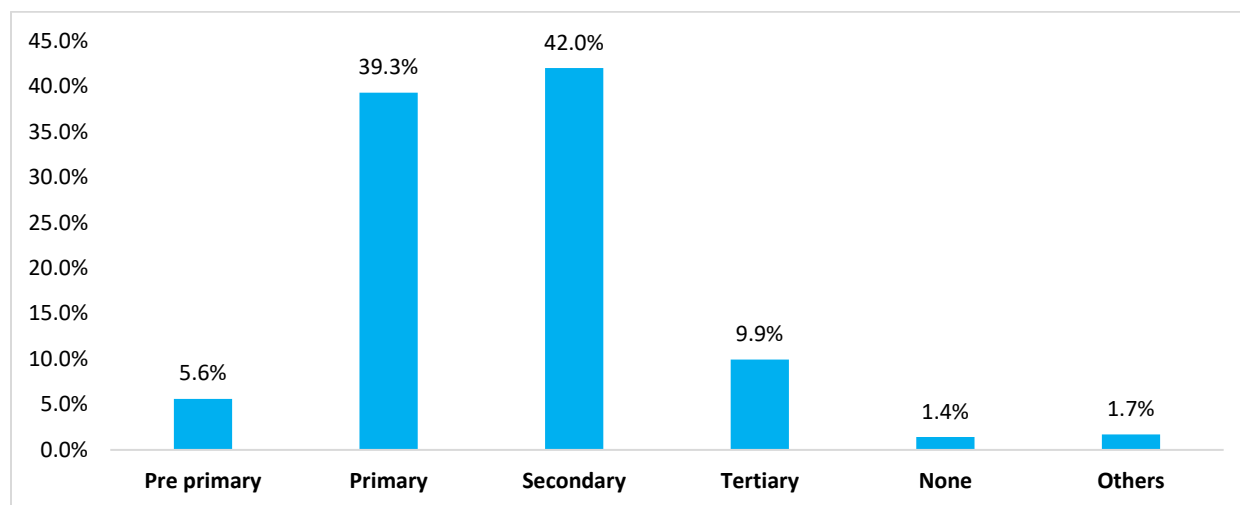


FIGURE 3: HIGHEST LEVEL OF EDUCATION OF THE HOUSEHOLD HEAD

3.1.4: Reasons for non-school enrollment

The main reasons why some of the children were not in school were as follows: 66.7% had not attained the age, 17% due to lack of school fees and other school related cost with 4.3% reported to be providing labor to the family.

TABLE 5: REASON FOR BEING NOT IN SCHOOL

Reason For being not in School	n	%
Chronic Sickness	2	1.7%
Family Labor responsibilities	5	4.3%
Fees or Cost	20	17.1%
No school nearby	6	5.1%
Migrated/moved from schools area	4	3.4%
Teacher Absenteeism	2	1.7%
Others i.e. Young to go to School	78	66.7%

3.1.5: Marital Status

Majority of the respondents (78.9%) were married, 1.4% were widowed while 15.4% were single with only 0.6% divorced.

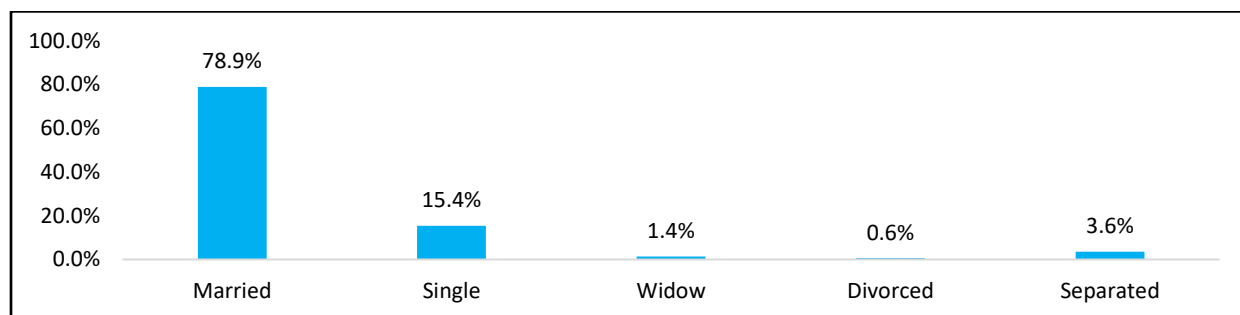


FIGURE 4: MARITAL STATUS

3.1.5: Households' head main source of income and livelihood

The main source of income and livelihood for the household heads in the urban informal settlement was casual labor (61.4%), followed by employment at 15.7% and petty trade at 10.0%.

TABLE 6: HOUSEHOLDS' HEAD MAIN SOURCE OF INCOME AND OCCUPATION

Indicators	Occupation	n	%
Main Occupation	Livestock Herding	1	0.1%
	Own Farm labor	4	0.4%
	Employed	157	15.7%
	Waged (Casual labor)	612	61.4%
	Petty trade	100	10.0%
	Merchant/Trader	50	5.0%
	Firewood/Charcoal	2	0.2%
	Others	71	7.1%
Main source of income	Sale of livestock	1	0.1%
	Sale of livestock products	2	0.2%
	Sale of crops	8	0.8%
	Petty trading	109	10.9%
	Casual labor	621	62.3%
	Permanent Job	140	14.0%
	Sale of Personnel assets	14	1.4%
	Remittance	2	0.2%
	Income earned by Children	2	0.2%
	Others	98	9.8%

3.2 NUTRITION STATUS OF CHILDREN

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

Malnutrition by Z-Score: WHO (2006) Standard (summary)

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

Malnutrition by MUAC (Summary)

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

3.2.1 Prevalence of acute malnutrition based on weight-for-height z-score.

The overall GAM Rate for children aged 6-59 months was low at **3.9 % (2.7 - 5.6 95% C.I.)**. Additionally, the prevalence of SAM among the same age bracket was very low at **0.0%** based on the WFH and/or edema. Moreover, there was no GAM prevalence variance in gender between girls and boys affected.

When compared with the SMART survey conducted in 2017(**GAM 4.6%**), the results shows that the GAM Rate from this survey is relatively lower, although no statistically significant difference. SHowever, there is need for concerted efforts by all stakeholders to address the major drivers of malnutrition in the informal settlements.

TABLE 7: PREVALENCE OF ACUTE MALNUTRITION BASED ON WEIGHT FOR HEIGHT Z-SCORE(AND/OR OEDEMA)AND BY SEX

	All n = 717	Boys n = 360	Girls n = 357
Prevalence of global malnutrition (<-2 z-score and/or Oedema)	(28) 3.9 % (2.7 - 5.6 95% C.I.)	(14) 3.9 % (2.4 - 6.3 95% C.I.)	(14) 3.9 % (2.2 - 6.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no Oedema)	(28) 3.9 % (2.7 - 5.6 95% C.I.)	(14) 3.9 % (2.4 - 6.3 95% C.I.)	(14) 3.9 % (2.2 - 6.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or Oedema)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

3.2.2 Prevalence of Acute malnutrition by MUAC

Malnutrition can also be diagnosed using MUAC which is also a very good predictor of the risk of death. Analysis of the nutrition status for children aged 6 to 59 months based on MUAC and /or presence of Oedema resulted to GAM of **2.7 % (1.8 - 4.1 95% C.I)** and SAM of **0.1 % (0.0 - 1.0 95% CI)**

TABLE 8: PREVALENCE OF ACUTE MALNUTRITION BASED ON MUAC

	All n = 729	Boys n = 367	Girls n = 362
Prevalence of global malnutrition (< 125 mm and/or Oedema)	(20) 2.7 % (1.8 - 4.1 95% C.I.)	(11) 3.0 % (1.8 - 5.1 95% C.I.)	(9) 2.5 % (1.3 - 4.6 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no Oedema)	(19) 2.6 % (1.7 - 3.9 95% C.I.)	(11) 3.0 % (1.8 - 5.1 95% C.I.)	(8) 2.2 % (1.1 - 4.3 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or Oedema)	(1) 0.1 % (0.0 - 1.0 95% C.I.)	(0) 0.0 %	(1) 0.3 %

		(0.0 - 0.0 95% C.I.)	(0.0 - 2.0 95% C.I.)
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In comparison with the previous SMART survey results in 2017, the GAM by MUAC was 2.6% (1.5- 4.3 95%) therefore, there was no significant difference.

3.2.3 Prevalence of underweight

Percentage of children underweight describes how many children under five years have a weight for-age below -2 Z score standard deviations of the WHO reference median. In addition, children whose weight for age falls below -3 standard deviation of the WHO reference population were classified as severe underweight. The measure of underweight gives a mixed reflection of both the current and past nutrition experience by a population and is very useful in growth monitoring. According to Nairobi Cross Sectional survey conducted in 2012, children born in the informal settlements had lower birth weights relative to their counterparts at the national level and in Nairobi as a whole. This has been associated with preterm delivery or restricted fetal growth resulting largely from poor maternal health and nutrition.

TABLE 9: PREVALENCE OF UNDERWEIGHT BASED ON WEIGHT FOR AGE

	All n = 720	Boys n = 361	Girls n = 359
Prevalence of underweight (<-2 z-score)	(69) 9.6 % (7.6 - 12.0 95% C.I.)	(38) 10.5 % (7.5 - 14.6 95% C.I.)	(31) 8.6 % (6.0 - 12.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(51) 7.1 % (5.4 - 9.3 95% C.I.)	(28) 7.8 % (5.2 - 11.3 95% C.I.)	(23) 6.4 % (4.1 - 10.0 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(18) 2.5 % (1.5 - 4.1 95% C.I.)	(10) 2.8 % (1.3 - 5.6 95% C.I.)	(8) 2.2 % (1.1 - 4.5 95% C.I.)

The results in the above table shows that the prevalence of underweight using the weight-for-age z-score was **9.6% (7.6 - 12.0 95% C.I.)**. This prevalence of underweight was classified as medium using the WHO classification of underweight⁴. On the other hand, the overall prevalence of severe underweight was found to be **2.5 % (5.4 - 9.3 95% C.I.)** which is considered normal.

When compared with the SMART survey conducted in 2017 where underweight was 11.4 % (8.8 - 14.7 95% C.I.) , there was a reduction in underweight rate but with no insignificant difference.

3.2.4 Prevalence of stunting.

The prevalence of stunting is the conventional anthropometric measure that reflects a long-term chronic undernutrition, failure of linear growth and multifactorial social deprivation. Unlike wasting, stunting is not affected by seasonality but rather related to the long-term effect of socio-economic development and long-standing food insecurity situation.

Stunting represent poor nutrition in the first 1,000 days of a child’s life. In these crucial days, the building blocks are established for the development of the brain and for future growth. Any alteration in this stage has long-term implications, and the damage caused by undernutrition in the early years of life is largely irreversible and associated with impaired cognitive ability and reduced school and work performance.

TABLE 10: PREVALENCE OF STUNTING BASED ON HEIGHT FOR AGE

	All n = 707	Boys n = 350	Girls n = 357
Prevalence of stunting (<-2 z-score)	(170) 24.0 % (20.9 - 27.5 95% C.I.)	(99) 28.3 % (23.7 - 33.4 95% C.I.)	(71) 19.9 % (16.0 - 24.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(139) 19.7 % (16.7 - 23.0 95% C.I.)	(77) 22.0 % (17.8 - 26.8 95% C.I.)	(62) 17.4 % (13.7 - 21.8 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(31) 4.4 % (3.1 - 6.2 95% C.I.)	(22) 6.3 % (4.3 - 9.2 95% C.I.)	(9) 2.5 % (1.3 - 5.0 95% C.I.)

Analysis of stunting prevalence based on height for age revealed an overall stunting rate of **24% (20.9-27%, 95% C.I.)** and a severe stunting **4.4 % (3.1 - 6.2 95% C.I.)**.

When compared with the SMART survey conducted in 2017, the results shows that the stunting from this survey is relatively lower than the 2017 survey which recorded a stunting of **26.1%**. The decline in the stunting rates can be attributed to the increase in number of nutrition interventions in the informal settlements.

3.2.5 Prevalence of Overweight.

Child growth is an internationally accepted outcome area reflecting child nutritional status. Child overweight refers to a child who is too heavy for his or her height. This form of malnutrition results from expending too few calories for the amount of food consumed and increases the risk of non-communicable diseases later in life. Child overweight is one of the World Health Assembly nutrition target indicators. Child growth is the most widely used indicator of nutritional status in a community and is internationally recognized as an important public-health indicator for monitoring health in populations. Prevalence of overweight (weight for height >+2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age. In Nairobi County informal settlements, the prevalence was 2.6% (1.7-4.2) with girls being more overweight than boys.

TABLE 11: PREVALENCE OF OVERWEIGHT

	All n = 717	Boys n = 360	Girls n = 357
Prevalence of overweight (WHZ > 2)	(19) 2.6 % (1.7 - 4.2 95% C.I.)	(8) 2.2 % (1.1 - 4.6 95% C.I.)	(11) 3.1 % (1.6 - 5.9 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

3.3 ACCESS AND UTILIZATION OF HEALTH AND NUTRITION SERVICES

3.3.1 Vitamin A supplementation

Vitamin A deficiency is a major contributor to the mortality of children under five years of age. Therefore, improving the vitamin A status of children aged 6-59 months through supplementation enhances their resistance to disease and can reduce mortality from all causes by approximately 23 %⁴. Thus high supplementation coverage is critical not only to eliminating vitamin A deficiency as a public-health problem but also as a central element of the child survival agenda. Additionally, this is an essential micronutrient for the immune system and that plays an important role in maintaining the epithelial tissues in the body. Severe Vitamin A Deficiency (VAD) can cause eye damage and increase severity of infections such as measles and diarrheal diseases in children in addition to slow recovery from illnesses.

The survey results showed that the overall proportion of children (12-59 Months) supplemented with Vitamin twice in the period of one year preceding the survey was 46.4%. This is way below a national target of 80% with 80.5% reported to have received only once. However, 83.5 % children aged 6-11 months had received Vitamin A supplements once. Overall, 80.9% of children aged 6-59 months had received vitamin A at least once however this does not meet the required recommendation of twice yearly supplementation.

⁴ Beaton, George H., et al., 'Effectiveness of Vitamin A Supplementation in the Control of Young Child Morbidity and Mortality in Developing Countries', ACC/SCN State-of-the-Art Series, Nutrition Policy Paper No. 13, Geneva, 1993.

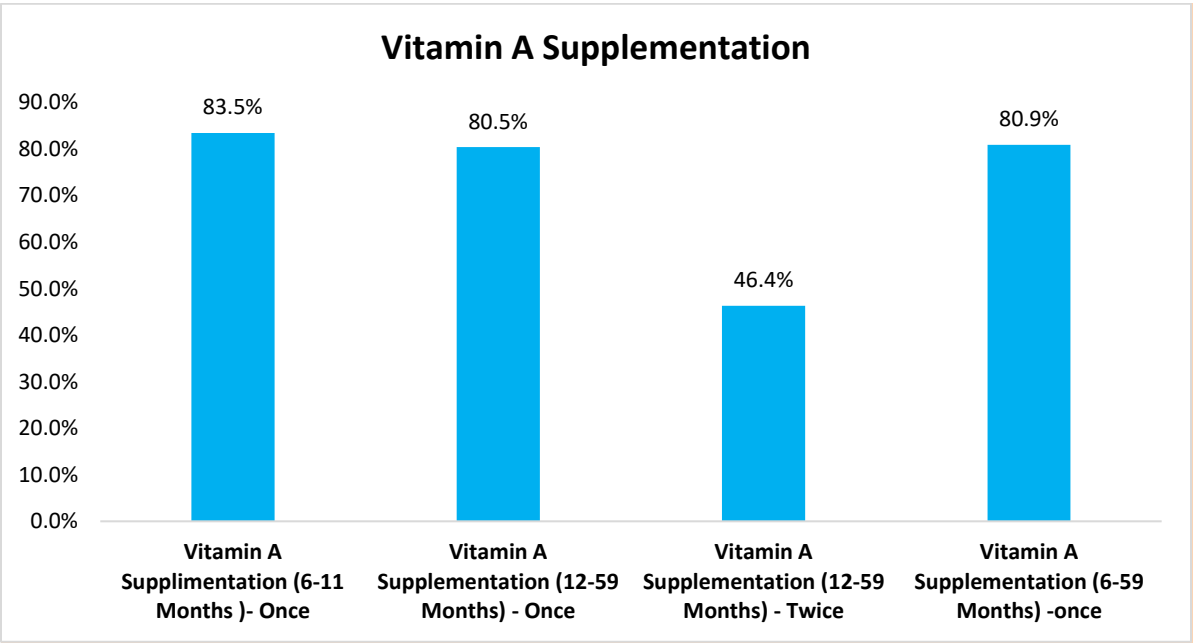


FIGURE 5: VITAMIN A SUPPLEMENTATION (6-59 MONTHS)

3.3.2 Deworming

Periodic deworming for organisms like helminthes and schistosomiasis (bilharzia) can improve children’s micronutrient status. On deworming coverage, the results showed only 69.5%. Children aged 12-59 months were dewormed

3.3.2 Child Immunizations

According to the guidelines developed by the World Health Organization, children are considered to have received all basic vaccinations when they have received a vaccination against tuberculosis (also known as BCG), three doses each of the DPT-Hep B-Hib (also called pentavalent), polio vaccines and a vaccination against measles. The BCG vaccine is usually given at birth or at first clinical contact, while the DPT-Hep B-Hib and polio vaccines are given at approximately age 6, 10, and 14 weeks. Measles vaccinations should be given at or soon after age 9 months and 18 months.

Information on immunization coverage was obtained in two ways: from written vaccination records, including the Mother and Child Health Booklet, other health cards and from mothers’ verbal reports. All mothers were asked to show the interviewer health cards used for the child’s immunization. From the survey results, 89.1% (n=659) of children were reported to have received BCG as confirmed by the Scar. Overall, In terms of Measles vaccination at 9 months, 97.2% of the children had received the vaccination where 45.3% confirmed by card while 51.9% confirmed by recall. At 18 months, 84.4% had received measles vaccination where 37.3% were confirmed by card while 47.1% was by mothers recall. In terms of OPV 1, 99.2% had received the immunization where 50.3% was confirmed by card while 48.9% was by recall. For OPV 3, 96.8% had received the immunization where 49.1% was confirmed by card while 47.7% was confirmed by recall. This is as shown in the graph below:

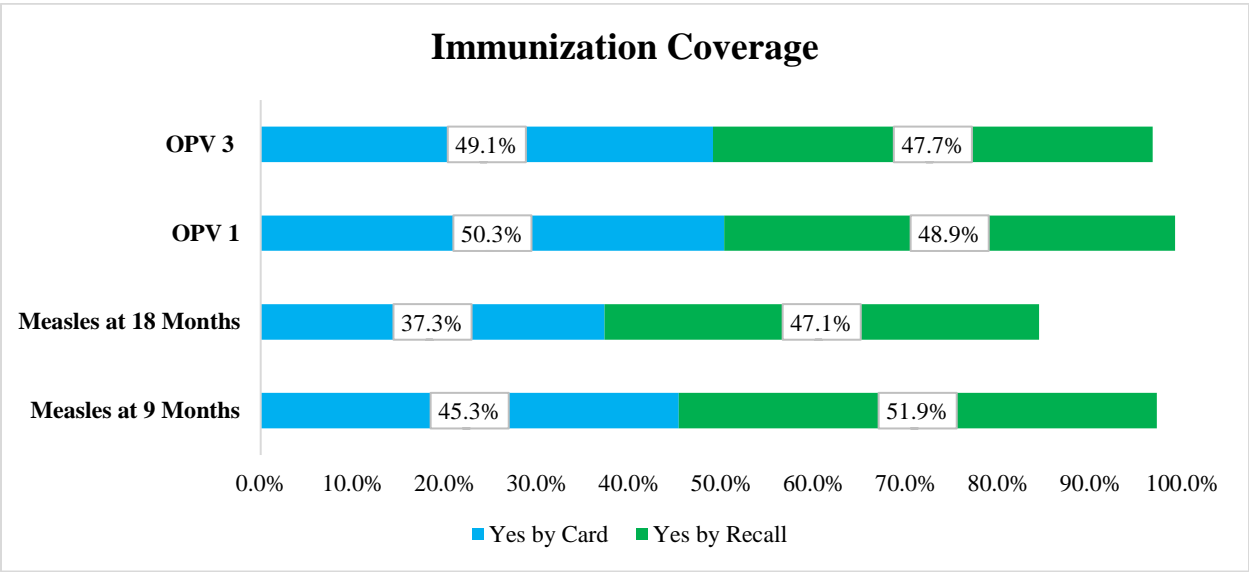


FIGURE 6: MEASLES, OPV1 AND OPV3 COVERAGE

3.3.3 Morbidity

Undernutrition and childhood morbidity have a synergistic relationship. The interrelationship of the two is in such a way that illness can suppress appetite precipitating undernutrition of a child while, on the other hand, nutritional deficiencies increase the susceptibility of the child to infectious diseases. Only 26.8% (212) of children aged 6-59 months in Nairobi County were reported to have been ill two weeks prior to survey with the most prevalent illness during this period was acute respiratory illnesses/ cough at 47.9%, fever with chills (26.0%) and watery diarrhea (17.0%) as shown in the graph below:

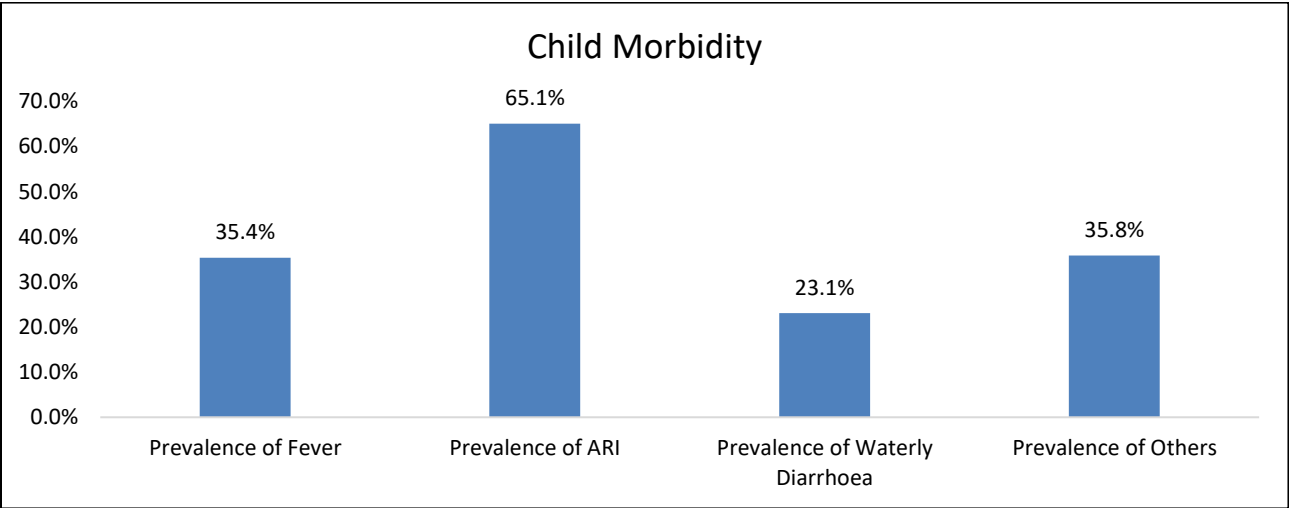


FIGURE 7: CHILD MORBIDITY

Further analysis on the children who had diarrhea showed that the prevalence of watery diarrhea was 20.1% (n=58) and for bloody diarrhea at 0.0% (n=0). For the children with watery diarrhea only 60.3% were supplemented using zinc which is below the national target of 80%. This is as highlighted in the table below:

Table 11: Diarrhoea cases

	n	N	%

Prevalence of Watery Diarrhea	49	212	20.1%
Zinc Supplementation/ORS	29	49	59.2%

3.3.4 Health Seeking Behaviour

Prompt and appropriate health seeking is critical in the management of childhood illnesses and prevention of mortality. A number of factors have been identified as the leading causes of poor utilization of primary health care services. These include but not limited to poor socio-economic status, lack of accessibility, cultural beliefs and perceptions, low literacy level of the mothers and large family size.

Among the children who were reported sick in the past 2 Weeks, 72.2% were able to seek for medical attention with majority seeking from private clinics and public clinics at 48.9% and 43.9% respectively. Moreover others seek medical attention from the NGOs (2.2%) and from the community health volunteers (1.3%). This is as shown in the graph below.

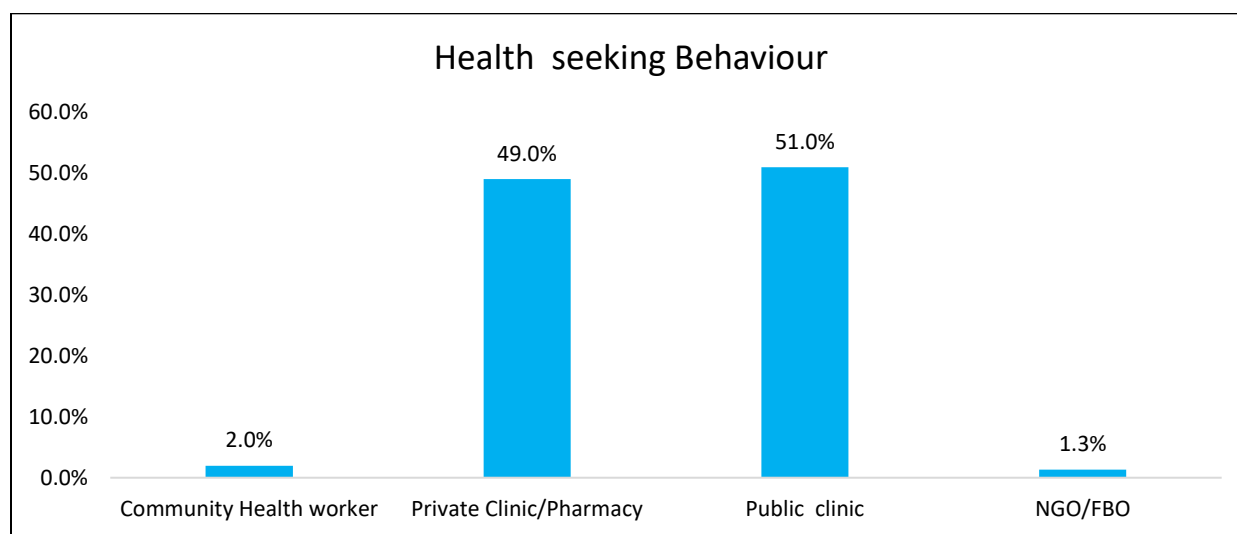


FIGURE 8: HEALTH SEEKING BEHAVIOUR

3.4 WATER AND SANITATION

3.4.1 Main source of water

The Kenya's 2010 Constitution acknowledges access to clean and safe water as a basic human right. It assigns the responsibility for water supply and sanitation service provision to the County government. This provides rights for citizens to access sufficient, safe, acceptable and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, to reduce the risk of water-related diseases and for consumption, cooking, personal use and domestic hygienic requirements.

Water and sanitation are deeply interrelated. Sanitation is essential for the conservation and sustainable use of water resources, while access to water is required for sanitation and hygiene practices. Furthermore, the realization of other human rights, such as the right to the highest attainable standard of health, the right to food, right to education and the right to adequate housing depends very substantially upon the implementation of the right to water and sanitation. Increasingly current evidence on poor WASH indicators

is being linked to under nutrition and more so on high stunting levels. Diarrheal, the leading killer of young children is closely linked to poor/inadequate⁵ WASH service.

According to the survey, 89.5% of the households have piped water (yard, tap, dwelling), 6.0 % got water from the water kiosk, 2% from borehole, 1%from Tanker and 0.4% from the Cart. This is shown in the graph below:

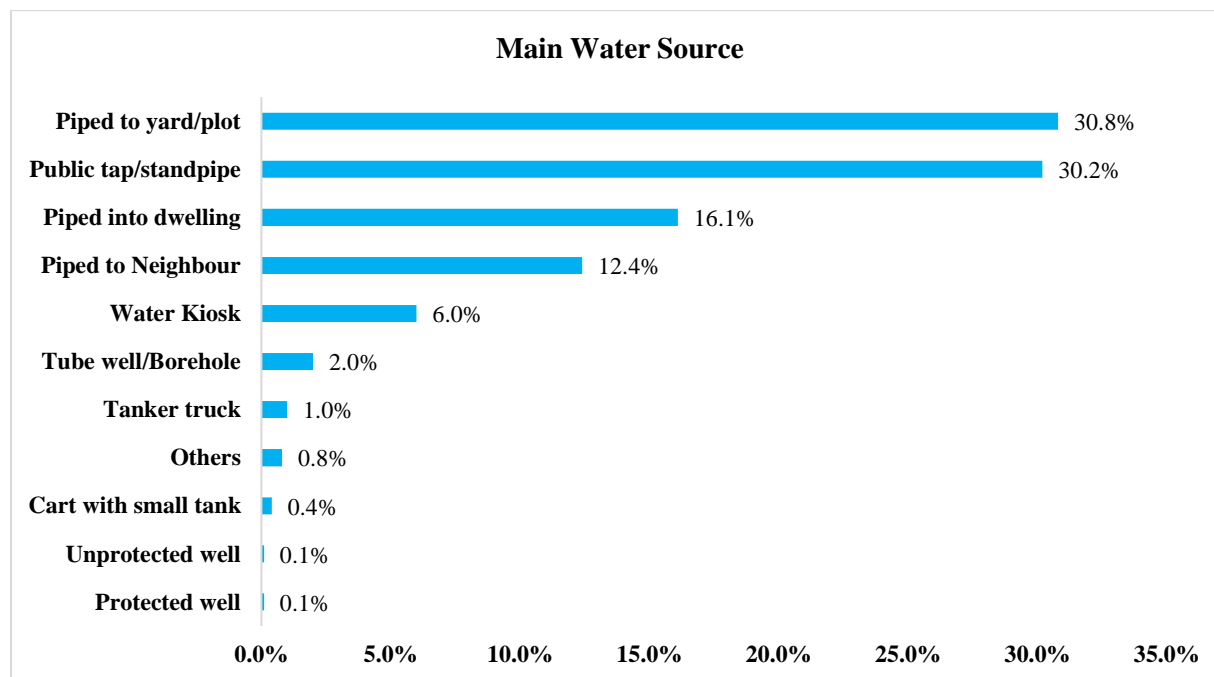


FIGURE 9: MAIN WATER SOURCES

FIGURE 10: MAIN SOURCE OF WATER

3.4.2 Water Consumption

According to the Sphere standards for WASH, the average water use for drinking, cooking and personal hygiene in any household should be at least 15 liters per person per day. Overall, 55.1% the household consumed more than 15 liters per day with the mean water consumption per household being 63.6 liters. The water rationing by the Nairobi Water Services was a major contributor to the low level of water consumption in addition to the cost of buying water from vendors. Therefore many households in the informal settlements could not afford. This is as highlighted in the table below:

TABLE 12: WATER CONSUMPTION

Water Quantity Consumption	Nairobi	Mean water consumption per HH
HH consuming <15litres per day	44.9%(448)	63.6 Liters
HH consuming >15litres per day	55.1%(549)	

⁵ KDHS 2009

3.4.3 Access of Water

According to the minimum Sphere standards for WASH, the maximum distance from any household to the nearest water point should be 500 meters with the maximum queuing time at a water source for not more than 15 minutes .in addition should not take more than three minutes to fill a 20-litre container.

The survey results showed that 97.9% (976) of the households had a trekking distance of less than 500m or less than 15 minutes to get water point while 2.1% trekked for 500m to 2km or 15 minutes to 1 hour to get water. In terms of queuing at water points, the majority 70.4%(421) indicated that the queued for less than 30 minutes while 18.1% queued for between 30 minutes to 1 hour. It worth noting 11.5% (69) of the household residence queued for more than 1 hour at the water point. This is as shown in the below table.

TABLE 13: TREKKING AND QUEUEING FOR WATER

Indicator	Category	n	%
Trekking distance to the Water Point	Less than 500m (<15min)	976	97.9%
	>500m to <2km(15 to 1 hour)	3	0.3%
	More than 2 km	18	1.8%
Queueing time at the water point	Less than 30 minutes	421	70.4%
	30-1 hour	108	18.1%
	More than 1 hour	69	11.5%

3.4.4 Access to Sanitation Facility

Appropriate sanitation practices are crucial in reducing food and waterborne diseases. Poor sanitation such as open defecation has been linked to increase in chronic malnutrition in children.⁶ Hygienic sanitation facilities are crucial for public health. Overall, 99.9% of the households reported that they have access to toilets where 22% reported to have access to pit latrine with slab, 46% had flush to piped sewer system, 6% had pit latrine without slab while 5% had flush to septic tank.

This is as summarized in the graphs below:

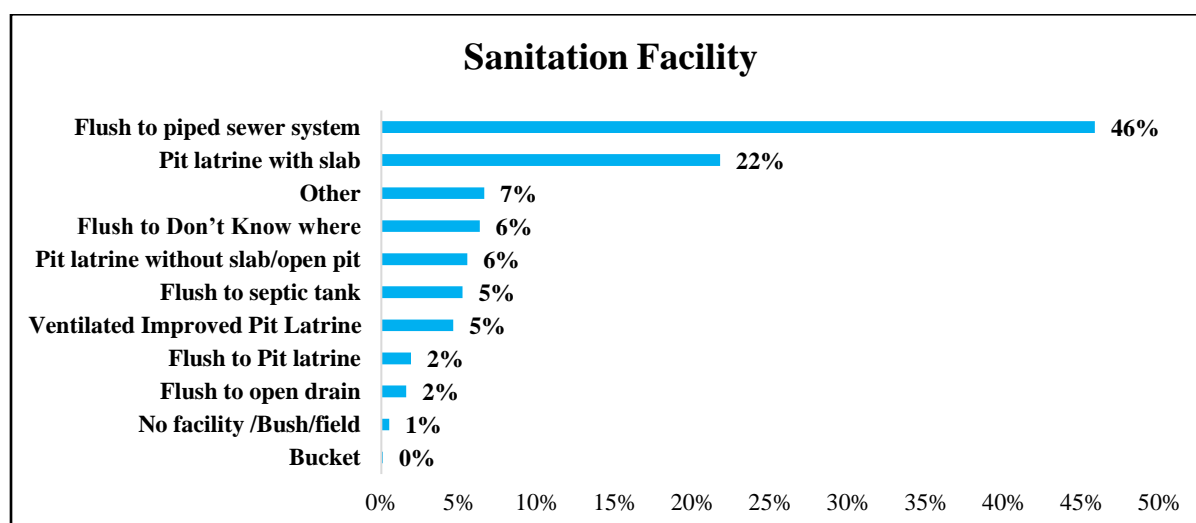


FIGURE 11: SANITATION FACILITY

⁶ 9 UNICEF “Fast Facts And Figures About Hand washing”

3.4.5 Water Treatment and Hand washing

Handwashing with soap is one of the most effective and inexpensive interventions for preventing diarrheal diseases and pneumonia which account for 3.5 million child deaths annually worldwide. Overall, interventions to promote handwashing might save a million lives a year. Each person should be able to wash hands with water and soap after toilet use, before food preparation, before eating and after cleaning babies.

The results of the survey showed that only 47.0% (n=469) of the households reported treating water before drinking with majority of the respondent 64.8% (304) use boiling the water, 42.5% (198) used chemicals while only 0.8% (4) used pot filters. Moreover, the results for handwashing at four critical times showed that among the caregivers interviewed only 12.5% (n=125) reported practicing proper hand washing at the 4 critical times.

TABLE 14: HANDWASHING AT CRITICAL TIMES AND WATER TREATMENT

Indicator	n	%
Water Treatment		
Water Treatment	469	47.0%
Boiling	304	64.8%
Chemicals	198	42.2%
Pot filters	4	0.9%
Hygiene		
Household Which wash Hands	946	94.9%
After Toilet	849	89.7%
Before cooking	418	44.2%
Before Eating	831	87.8%
After taking children to the toilet	158	34.1%
Hand washing by Soap and water	812	81.4%
hand washing 4 critical times	125	12.5%

3.4.6 Payment and Water Storage

To avoid physical contamination of water, households are encouraged to use close containers to store water. With regard to water storage, over 90% of the resident in Nairobi County store water in closed container/Jerri can. Significantly, overall, 65.7% (655) pay for water with 82.7% (542) paying per 20Litre Jerri can while only 17.3% (113) paying on monthly basis.

TABLE 15: WATER STORAGE AND PAYMENT

Indicator	Category	n	%
Water Storage	Open Container/Jerri can	96	9.6%
	Closed Container/Jerri can	901	90.4%
Pay for Water	Pay for Water	655	65.7%
Mode of Payment	Per 20L Jerri can	542	82.7%
	Per month	113	17.3%

3.5: Ownership of mosquito net

Mosquito net are known to be highly effective in reducing malaria morbidity and mortality. However, usage varies among households, and such variations in actual usage may seriously limit the potential impact of nets. The survey sought to know on ownership and results showed that in terms of mosquito net ownership, 65.2% of the households had the mosquito net while only 33.8% did not have the mosquito nets. This is as shown in the graph below:

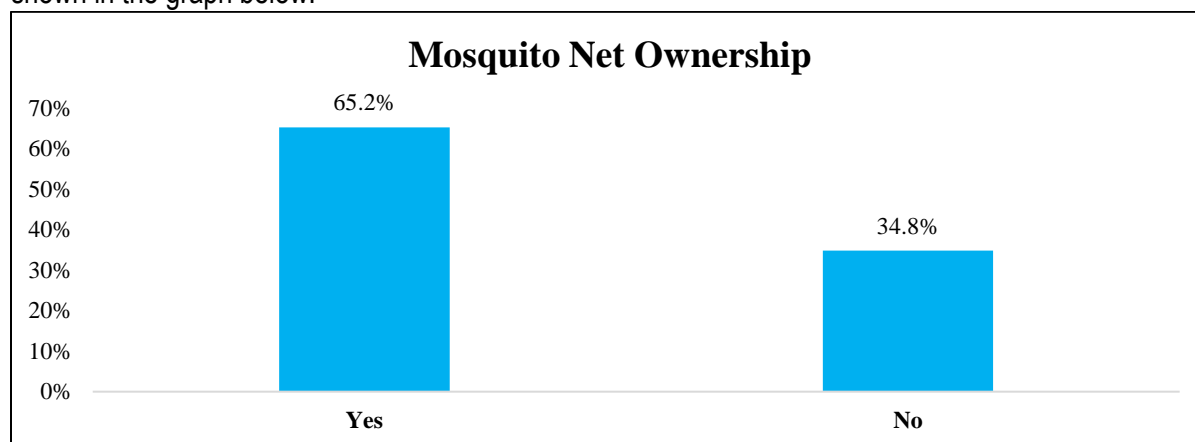


FIGURE 12: MOSQUITO NET OWNERSHIP

3.6 MATERNAL NUTRITION

3.6.1: Maternal Nutrition Status

Maternal malnutrition is usually associated with high risk of low birth weights therefore, it is recommended that before, during and after birth, the maternal nutrition status should be optimal because it has direct impact on child survival.

The maternal malnutrition was defined as women whose MUAC measurements were < 21.0cm while women whose MUAC measurements were between 21.0 <23.0cm were classified as at risk of malnutrition. The proportion of malnourished Women of Reproductive Age was at only 1.1% while 4.1% were at risk of malnutrition. Moreover only 0.6% of the pregnant and lactating women malnourished as shown in the table below.

TABLE 16: MATERNAL NUTRITION MUAC

Indicator	n	N	%
MUAC <21.0 cm for all women	10	920	1.1%
MUAC (210 - <230 mm) for all	38	920	4.1%
MUAC <21.0 cm for PLW	3	472	0.6%

3.6.2 IFAS Supplementation

Iron deficiency is caused by inadequate iron intake to meet normal requirements or increased requirements due to excessive blood loss and reproduction. Among the mother with children less than 24 months, 88.4% (n=403) of had been supplemented with Iron Folic acid in their last pregnancy. However, the mean number of days IFAS was consumed by the women was on 9.9 days. In addition, 42.2% (n=170) of the women

consumed the IFAS less than 90 days while 53.8% consumed between 90 and 180 days while only 4.0% consumed for more than 180 days. This is as summarized in the graph below:

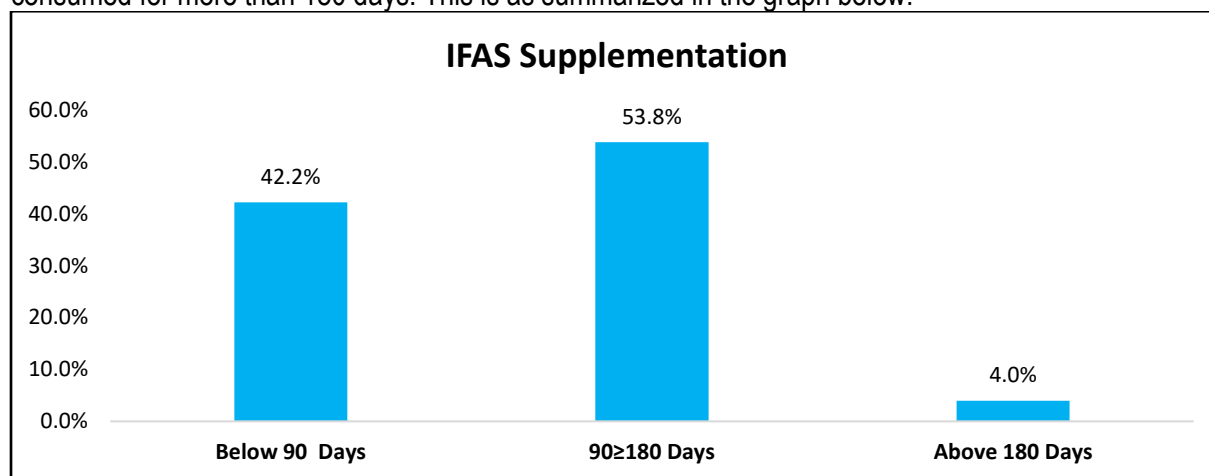


FIGURE 13: IFAS SUPPLEMENTATION

3.7 FOOD SECURITY

3.7.1 Minimum Dietary Diversity (24-Hour Recall)-Women

Women of reproductive age (WRA)⁷ are often nutritionally vulnerable because of the physiological demands of pregnancy and lactation. Sub optimal nutrient intakes before and during pregnancy and lactation can affect both women and their infants. Yet in many resource poor environments, diet quality for WRA is very poor and there are gaps between intakes and requirements for a range of micronutrients⁸. In assessing the nutritional quality and quantity of the food consumed by the women of reproductive age, a 24 hour recall period household dietary diversity questionnaire was administered and consumption of 10 food groups. In terms of maternal nutrition practices, the survey results showed that majority of the women aged 15-49 years consumed starchy foods (97.0%), other vegetables (56.0%), vitamin A vegetables (77.6%), dairy products (38.0%) and other fruits (43.8%). This is as summarized in the graph below:

⁷ For the purposes of this document and indicator, WRA are defined as those 15–49 years of age.

⁸ Arimond et al., 2010; Lee et al. 2013

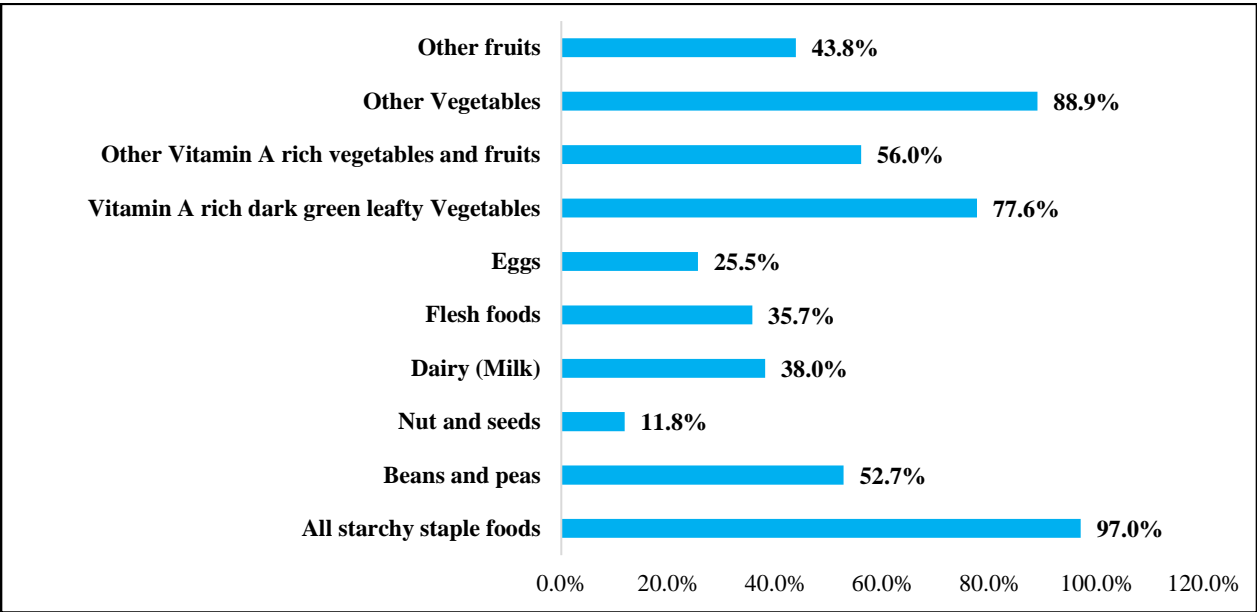


FIGURE 14: WOMEN DIETARY DIVERSITY

3.7.2 Minimum Dietary Diversity for Women

MDD-W⁹ is a dichotomous indicator of whether or not women 15-49 years of age have consumed at least five out of ten defined food groups the previous day or night. The proportion of women 15–49 years of age who reach this minimum in a population can be used as a proxy indicator for higher micronutrient adequacy and an important dimension of diet quality. This indicator constitutes an important step towards filling the need for indicators for use in national and subnational assessments.

It is a population-level indicator based on a recall period of a single day and night so although data are collected from individual women, the indicator cannot be used to describe diet quality for an individual woman. This is because of normal day-to-day variability in individual intakes.

Only 59.6% met the minimum dietary diversity (MDDS).

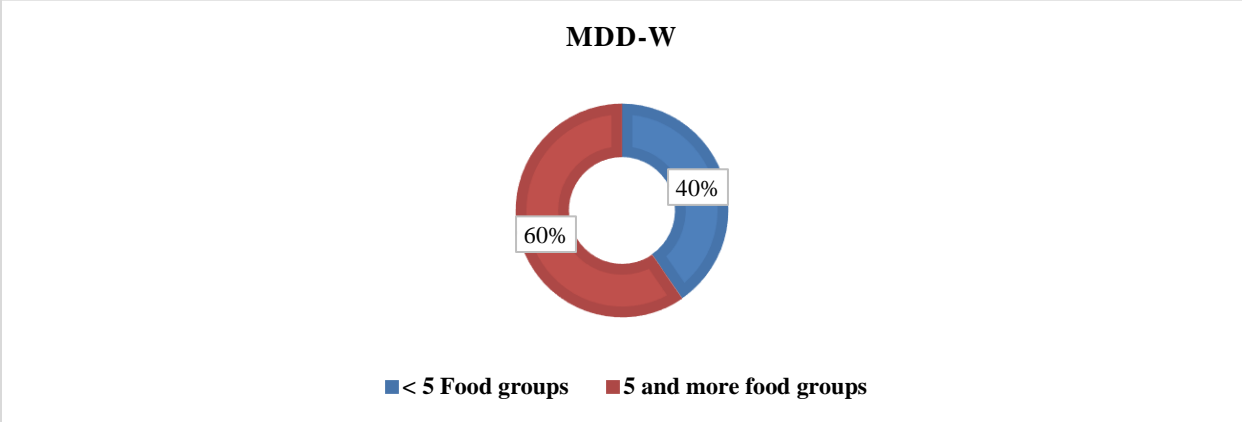


FIGURE 15: MDD-W

⁹ Additional background on the indicator is available at: <http://www.fantaproject.org/monitoring-and-evaluation/minimum-dietary-diversity-women-indicator-mddw>.

3.7.3 Household Dietary Diversity (24 hour Recall)

In assessing the nutritional quality and quantity of the food consumed by the survey population, a 24 hours retrospective household dietary diversity questionnaire was administered that helped to determine the households' economic capacity to consume various foods in the County.

At least >70% of the population within the last 24 hours at the time of the survey consumed five main food groups which include; Vegetables, cereals, Fruits, fats and oils and sweets. In addition, Fish, tubers and Condiments were consumed by at least <50% of the surveyed population.

This is as shown in the graph below

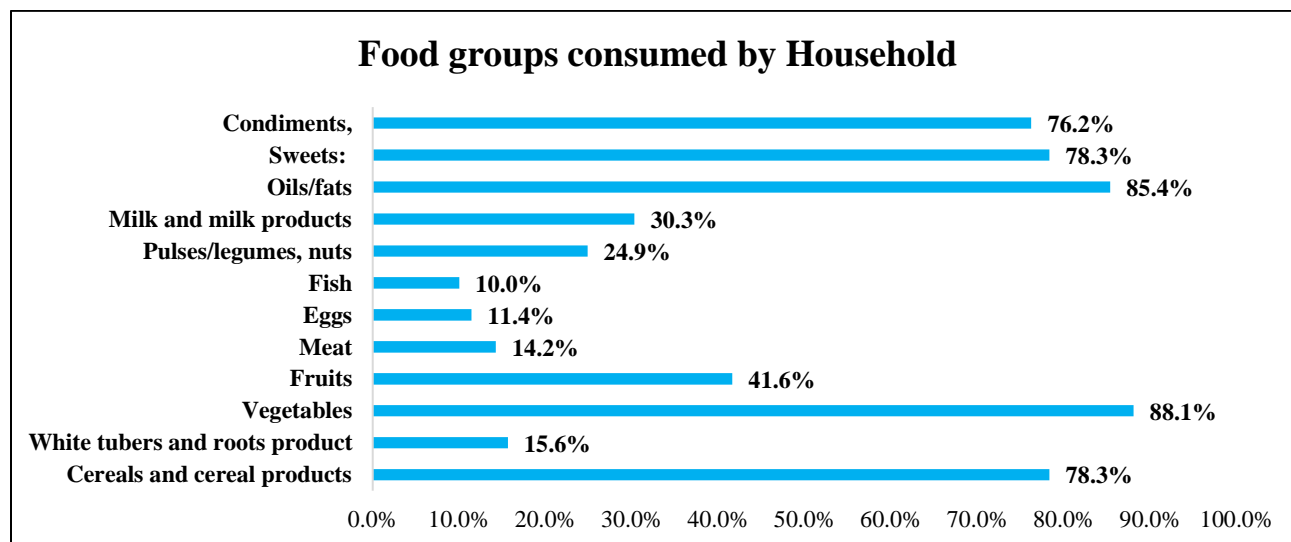


FIGURE 16: HOUSEHOLD DIETARY DIVERSITY

3.7.4 Average days food groups are consumed showing consumption of micronutrients

The poor quality of the habitual diet and the lack of dietary diversity in much of the developing world contribute to deficiencies of micronutrients. Micronutrient malnutrition is a global problem much bigger that imposes enormous costs on societies in terms of ill health, lives lost, reduced economic productivity and poor quality of life. Addressing the global challenge of micronutrient malnutrition requires the need for many strategies – both short- and intermediate-term and long-term sustainable approaches. In addition to the conventional approaches of micronutrient supplementation and fortification, promoting sustainable food based approaches to enable adequate intakes of micronutrients by much of the population includes dietary diversification strategies and agriculture-based approaches.

Survey results on the average day's food groups are consumed highlighting the consumption of micronutrients showed that fruits and vegetables were most consumed at an average of 6.7 days followed by oils and fats at 6.2 days and lastly, vitamin A were the least consumed at an average of 3.4 days. This is as highlighted in the graph below:

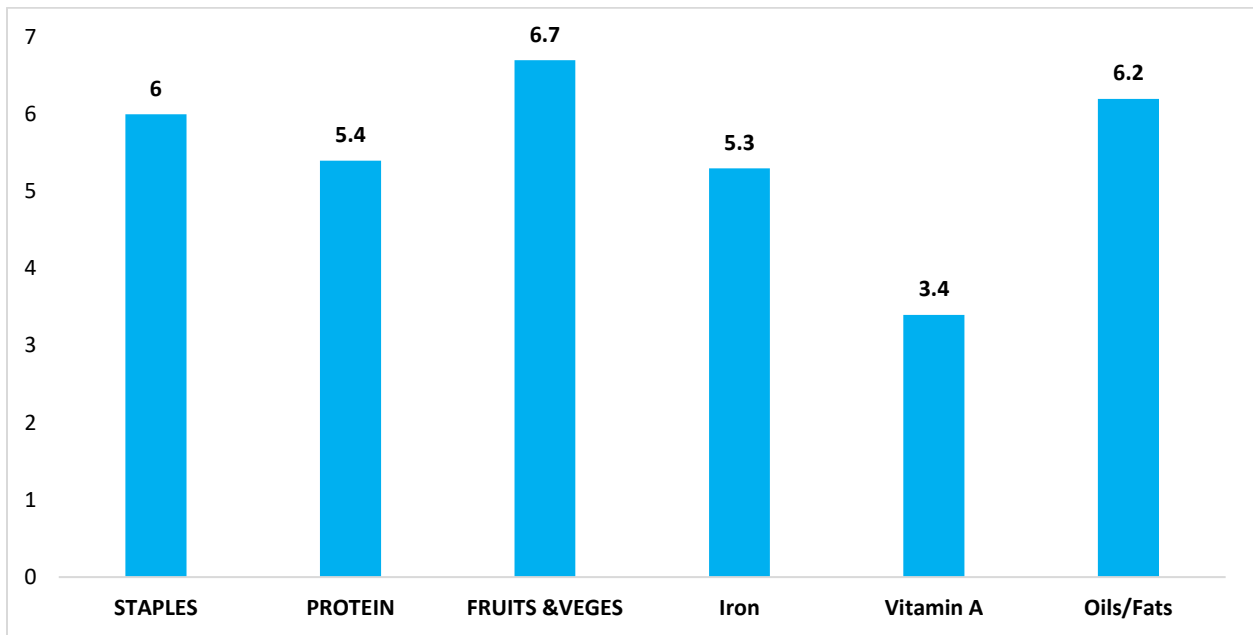


FIGURE 17: AVERAGE NUMBER OF DAYS OF CONSUMPTION OF MICRONUTRIENT RICH FOODS

3.7.5 Food Consumption Score

The food consumption score is an acceptable proxy indicator to measure caloric intake and diet quality at the household level by giving an indication of food security status of the household. It's a composite score based on dietary diversity, food frequency and relative nutritional importance of different food groups. The survey results showed that majority of the households in Nairobi County (83.1%) had a good food consumption score while 12.2% were at the border food consumption score with only 4.6% having poor food consumption score. This is as shown in the graph below:

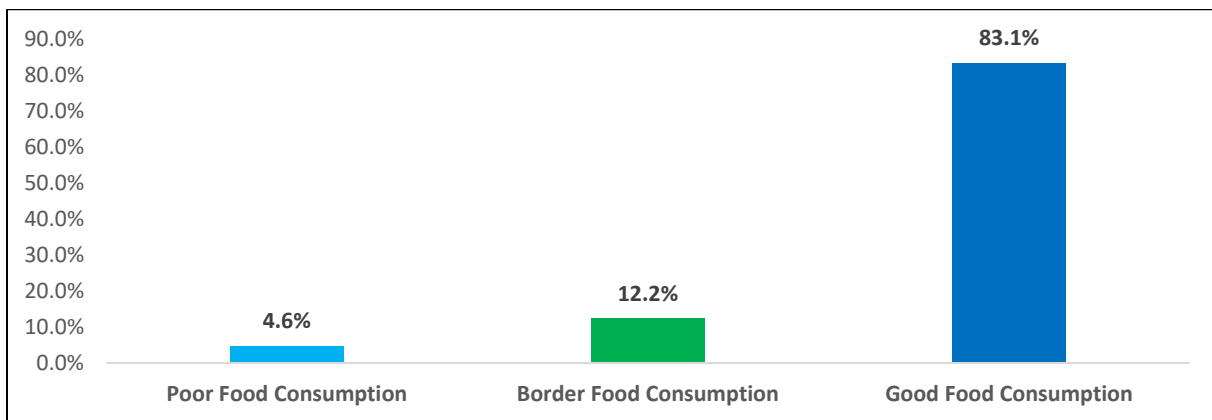


FIGURE 18: FOOD CONSUMPTION SCORE

3.8 Food Fortification

Fortification is adding vitamins and minerals to foods to prevent micronutrients deficiencies. The nutrients are regularly used in grain fortification to prevent diseases, strengthen immune systems and to improve productivity and cognitive development. Wheat flour, maize flour, and rice are primarily fortified to:

- Prevent nutritional anemia

- Prevent birth defects of the brain and spine
- Increase productivity
- Improve economic progress

Only 25.5% (n=254) household reported to have heard about Food fortification with 40.6% having heard through the health talk, 35.8% through the radio and 25.6 % through TV show. This is as shown in the graphs below:

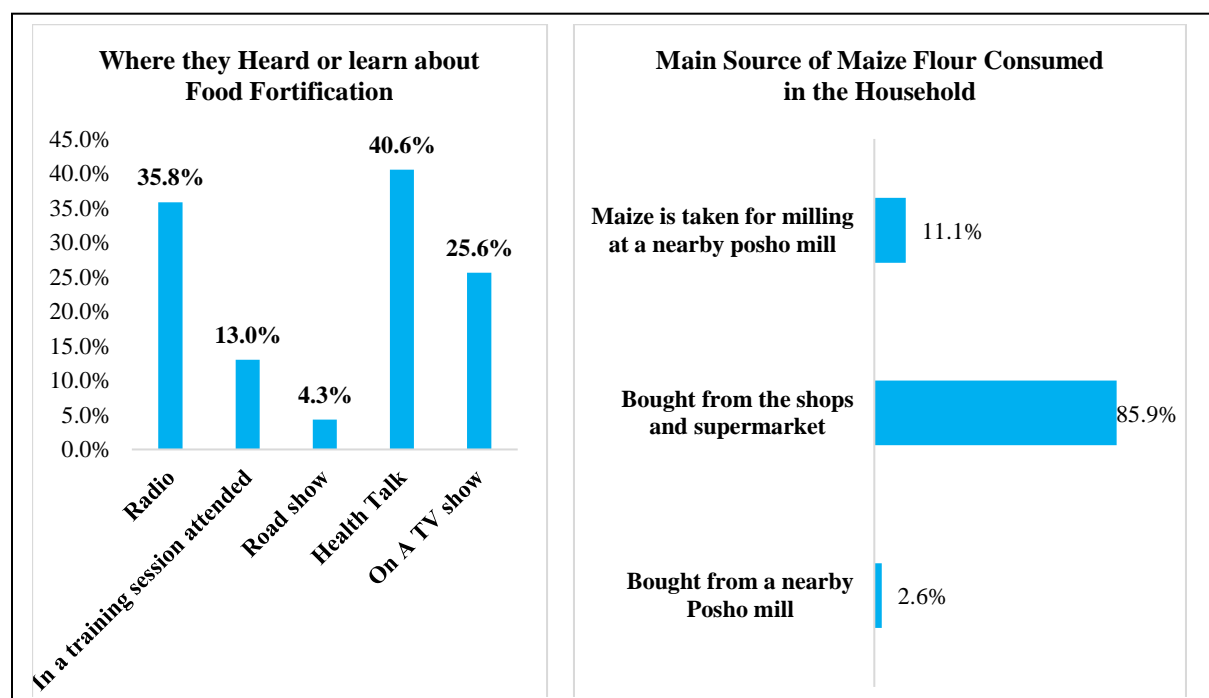


FIGURE 19: FORTIFICATION AND MAIN MAIZE FLOUR CONSUMED

3.9 Coping Strategy Index

The Coping Strategy Index (CSI), a tool developed by the World Food Programme, is commonly used as a proxy indicator for access to food¹⁰. It is a weighted score that allows one to measure the frequency and severity of coping strategies. Data is collected on the number of days in the last seven days a household used a specific coping strategy due to a shortage of food and/or income.

The mean coping strategy Index for Nairobi County was 6.53 this is as summarized in the table below:

TABLE 17: COPING STRATEGY INDEX

Percentage of HH(530)	Frequency score (0-7)	Severity score (1-3)	Weighted score=Freq*weight
Rely less	1.4	1	1.4
Borrow Food	0.55	2	1.1
Limit Portion	0.95	1	0.95

¹⁰ Access to food' is just one of the three pillars of food security. Other pillars include, 'food availability' and 'food utilization'.

Restrict Consumption	0.68	3	2.04
Reduce Meals	1.04	1	1.04
			6.53

4.0: Conclusions

The acute malnutrition situation in the Nairobi informal settlements is low according to the World Health Organization classification. However, in terms of caseloads due to high population density in the Nairobi County, the number remains considerably high.

Despite reduction in the stunting and underweight level, the rate still remain high at 24% and 9.6% respectively. However, there was notable difference in underweight distribution among boys and girls with underweight rates 10.5% and 8.6% respectively.

In terms of morbidity as a major contributor to malnutrition, the situation improved significantly compared to the previous year. The proportion of children reported ill 2 weeks before the study significantly dropped from 46.1% in 2017 to 38.9% in 2020 indicating a relatively more healthy population. Among the children reported ill, major ailments included ARIs at 53.5%, Fever at 29.5% and watery diarrhea at 20.1%. Significantly, poor water and sanitation hygiene conditions in informal settlements were major contributor to childhood illnesses mainly diarrhea, coupled with other poor hygiene practices. Only 12.5% people practice hand washing at 4 critical times. This depict a deterioration in appropriate hygiene practices hence contributing highly to high malnutrition rates in the county.

4.1: Recommendations

TABLE 18: RECOMMENDATIONS

Findings	Recommendation	Who is responsible	Timelines
High Stunting Rates	BFCI Intervention is recommended. This should be integrated with implementation of multisector interventions with emphasizes the linkages with different sectors to address both immediate and underlying causes of malnutrition. -Implement the multi sectoral CNAP.	County Health Team Management and the Implementing Partners.	Continues

Low Knowledge on MNPs	Health education and sensitization on food fortification should be done to be done at both community and health facility level.	County Health Team Management and the Implementing Partners.	Continuous
Low GAM rate, however in terms of caseloads the numbers still remain high	Procure RUSF for management of moderate acute malnutrition	County Health Team Management and the Implementing Partners.	Continues
Low rate of IFAS consumption	Provide health education on importance of IFAS. Procure IFAS	County Health Team Management and the Implementing Partners.	Continues Immediately
Poor hygiene Practices.	Implement WASH SBCC Strategy. Use school health platform to conduct health education on WASH Train more Day care providers/ ECD teachers on WASH Sensitize community on WASH practices		Immediately
Low VAS twice yearly supplementation coverage	Use Day care/ECDE centers to supplement children Sensitize health workers on documentation and reporting of vitamin A	County Health Team Management and the Implementing Partners.	During Malezi Bora PERIOD

APPENDICIES

APPENDIX 1: PLAUSIBILITY RESULTS

Indicator	Acceptable values/range	Nairobi County
Flagged data (% of out of range subjects)	<7.5	0 (1.6 %)
Overall sex ratio (significant CHI square)	>0.001	0 (p=0.853)
Age ratio (6-29vs 30-59) Significant CHI square	>0.001	10 (p=0.000)
Dig. prevalence score-weight	<20	0 (4)
Dig. prevalence score-height	<20	0 (6)
Dig. prevalence score-MUAC	<20	0 (7)
Standard Dev. Height WHZ	>0.80	0 (1.07)
Skewness WHZ	<±0.6	0 (0.00)
Kurtosis WHZ	<±0.6	0 (-0.16)
Poisson WHZ -2	>0.001	0 (p=0.625)
OVERALL	<24	10% (Good)

APPENDIX 2: CALENDAR OF LOCAL EVENTS

	2015		2016		2018		2019	
	Event	Age	Event	Age	Event	Age	Event	Age
January	Two buildings collapsed in Nairobi; Happy New Year	48	New Year	36	Swearing in of Raila; Prime Minister of India visited Kenya	24	New Year; Safaricom Jazz; Dusit attack	12
February	Valentines day;	47	Valentines; NYS Scandal	35	Valentine's Day; Deportation of Miguna	23	Valentine's Day; Nurses Strike	11
March		46		34	Handshake; Heavy Rains	22	Ethiopian air crash	10
April	Garrisa University attack; Easter Holidays; School Holidays	45	Easter Holiday; School Holidays; ICC case Withdrawn	33	Easter Holidays;	21	Easter Holiday; School holidays	9
May	Labour Day; Malezi Bora	44	Labour day; Malezi Bora; Collapse of Huruma building	32	Royal Wedding; Labour Day	20	Huduma number deadline;	8
June	Madaraka Day;	43	Madaraka Day;	31	World Cup, Madaraka Day; IDD Holiday	19	Malikheight fire; New currency	7
July	Obama's Visit; IDD Holiday	42	Deportation of Koffi Olomide; IDD Holiday	30	Obamas Visit	18	Death of Bob collymore, Joyce Laboso and Ken Okoth;	6

August	School Holidays;	41	School Holidays;	29	School Holidays	17	Census; Koen Killing;	5
September		40		28	Sharon Otieno murdered; Jowie and Maribe saga	16	Likoni Tragedy; Precious school accident; Moneyheist	4
October	Mashujaa Day;	39	Teargas Monday	27	Fort Tenan accident;	15	Eneos record	3
November	Malezi Bora; National Exams; School Holiday	38	Malezi bora; Trump won the elections; Release of KCPE Results	26	Detention of OBADO; Doctors strike	14	Unveiling of BBI report	2
December	Jamhuri Day; Death of the former Mayor; Christmass; Boxing Day; New year Eve	37		25	Christmass and Jamhuri Day	13	Christmass and Boxing Day; King Kaka new song; Sonko arrested	1

APPENDIX 4: QUESTIONNAIRES

NAIROBI SLUMS INTEGRATED SMART HEALTH & NUTRITION SURVEY QUESTIONNAIRE

1.IDENTIFICATION		1.1 Data Collector				1.2 Team Leader				1.3 Survey date			
2. Household Demographics													
1.2 County	2.2a.5 Sub County	2.2b Ward	2.3 1.7 Location	2.4 1.8 2.5b- Location	2.6 1.9 Village	2.7a 1.10 Cluster	2.7b 1.11 No	2.8 HH	2.10 Team No.				
Age Group	Please give me the names of the persons who usually live in your household.	Please indicate the household head (write HH on the member's column)	Age (Record age in MONTHS for children <5yrs and YEARS for those ≥ 5 years's)	Child's age verified by	Sex 1= Male 2= Female	If between 3 and 18 years old, is the child attending school?	Main reason for not attending school (Enter one code from list) 1=Chronic 2=Weather (rain, floods, storms) 3=Family labour responsibilities 4=Working outside home 5=Teacher absent/feeism/lack of teachers 6= Fees or costs 7=Household doesn't see value of schooling 8 =No food in the schools	2.7a, What is the child doing when not in school? 1=Working on family farm 2=Herding Livestock 3=Working for payment away from home 4=Left home for elsewhere 5=Child living on the street 6: Other specify	What is the highest level of education attained?(level completed) From 5 yrs and above 1 =Pre primary 2= Primary 3=Secondary 4=Tertiary 5= None 6=others (specify) Go to question to 2.9 ↓	If the household owns mosquito nets, who slept under the mosquito net last night? (Probe- enter all responses mentioned (Use 1 if "Yes" 2 if "No and 3 if not applicable) go to question 2.11			
1.13 Household geographical coordinates	Latitude		Longitude	1=Health card		1 = Yes 2 = No (If yes go to 2.8; If no go to 2.7)							

								9 = Migrated/ moved from school area (including displace ments) 10=Insec urity/viole nce 11-No school Near by 12=Marri ed 13. Pregnant/ taking care of her own child 13=other s (specify)			
< 5 YRS	1										
	2										
	3										
	4										
>5 TO <18 YRS	5										
	6										
	7										
	8										
	9										
	10										
	11										

	12									
ADULT (18 years and above)	13									
	14)									
	15									
	16									

2.9	How many mosquito nets does this household have? _____ (Indicate no.) go to question 2.10 before proceeding to question 2.11	
2.1 1	Main Occupation of the Household Head – HH. (enter code from list) 1=Livestock herding 2=Own farm labour 3=Employed (salaried) 4=Waged labour (Casual) 5=Petty trade 6=Merchant/trader 7=Firewood/charcoal 8=Fishing 9= Income earned by children 10=Others (Specify) ____	2.12. What is the main current source of income of the household? 1. =No income 2. = Sale of livestock 3. = Sale of livestock products 4. = Sale of crops 5. = Petty trading e.g. sale of firewood 6. =Casual labor 7. =Permanent job 8. = Sale of personal assets 9. = Remittance 10. Other-Specify ____
2.1 3	Marital status of the respondent 1. = Married 2. = Single 3. = Widowed 4. = separated 5. = Divorced. ____	2.14. What is the residency status of the household? 1. IDP 2. Refugee 3. Resident ____
2.1 5	Are there children who have come to live with you recently? 1. YES 2. NO	2.15b If yes, why did the child/children come to live with you? 1= Did not have access to food 2=Father and Mother left home 3=Child was living on the street, 4=Care giver died

		5=	Other	specify
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Fever with Malaria: High temperature with shivering	Cough/ARI: Any episode with severe, persistent cough or difficulty breathing	Watery diarrhoea: Any episode of three or more watery stools per day	Bloody diarrhoea: Any episode of three or more stools with blood per day
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3.	4.	5. CHILD HEALTH AND NUTRITION (ONLY FOR CHILDREN 6-59 MONTHS OF AGE; IF N/A SKIP TO SECTION 3.6) Instructions: <i>The caregiver of the child should be the main respondent for this section</i> 3.1 CHILD ANTHROPOMETRY 3.2 and 3.3 CHILD MORBIDITY <i>(Please fill in ALL REQUIRED details below. Maintain the same child number as part 2)</i>													
A	B	C	D	E	F	G	H	I	J	K	3.2 a	3.2 b	3.3 a	3.3 b	3.3 c
Child No.	what is the relationship of the respondent with the child/children 1=Mother 2=Father 3=Sibling	SEX FemaleF MaleM	Exact Birth Date	Age in months	Weight (KG) XX.X	Height (CM) XX.X	Oedema Y= Yes N= No	MUAC (cm) XX.X	Is the child in any nutrition program 1. Yes 2. No If no skip to questions 3.2	If yes to question J. which nutrition program? 1.OTP 2.SFP 3.BSP Other Specify	Has your child (NAME) been ill in the past two weeks? 1.Yes 2. No If No, skip to 3.4	If YES, which illness (multiple responses possible) 1 = Fever with chills like malaria 2 = ARI /Cough 3 = Watery diarrhoea 4 = Bloody diarrhoea 5 = Other (specify)	When the child was sick did you seek assistance? 1. Yes 2. No	If the response is yes to question # 3.2 where did you seek assistance? (More than one response possible)- 1. Traditional healer	If the child <u>had watery diarrhoea</u> in the last TWO (2) WEEKS, did the child get: 1. ORS 2. Zinc supplementation? <i>Show sample and probe further for this component check the remaining</i>

	4=Grandm other 5=Other (specify)											See case definitions above		2.Community health worker 3. Private clinic/ pharmacy 4. Shop/kiosk 5.Public clinic 6. Mobile clinic 7. Relative or friend 8. Local herbs 9.NGO/FBO	<i>drugs(confirm from mother child booklet)</i>
01															
02															
03															
04															

3.4 Maintain the same child number as part 2 and 3.1 above

A1	A2	B	C	D	E	F	G	H	I
----	----	---	---	---	---	---	---	---	---

Child No.	How many times has child received Vitamin A in the past year? (show sample)	Has the child received vitamin A supplement in the past 6 months?	How many times did the child receive vitamin A capsules from the facility or out reach	If Vitamin A received how many times in the past one year did the child receive verified by Card?	FOR CHILDREN 12-59 MONTHS How many times has child received drugs for worms in the past year? (show Sample)	Has the child received BCG vaccination? Check for BCG scar. 1 = scar 2=No scar	Has child received OPV1 vaccination 1=Yes, Card 2=Yes, Recall 3 = No 4 = Do not know	Has child received OPV3 vaccination? 1=Yes, Card 2=Yes, Recall 3 = No 4 = Do not know	Has child received measles vaccination at 9 months (On the upper right shoulder)? 1=Yes, Card 2=Yes, Recall 3 = No 4 = Do not know	Has child received the second measles vaccination (18 to 59 months) (On the upper right shoulder)? 1=Yes, Card 2=Yes, Recall 3 = No 4 = Do not know
01										
02										
03										
04										

3.5 MNP Programme Coverage.

Maintain the same child number as part 2 and 3.1 above. Ask all the relevant questions (3.5.1 to 3.6.4) before moving on to fill responses for the next child. THIS SECTION SHOULD ONLY BE ADMINISTERED IF MNP PROGRAM IS BEING IMPLEMENTED OR HAS BEEN IMPLEMENTED

3.5 Enrolment in an MNP program		3.6 Consumption of MNPs			
3.5.1. Is the child enrolled in the MNP program?(show the example of the MNP sachet) (record the code in the respective child's number)	3.5.2 If the child, 6-23months, is not enrolled for MNP, give reason. (Multiple answers possible. Record the code/codes in the respective child's number. DO NOT READ the answers)	3.6.1 Has the child consumed MNPs in the last 7 days?(show s the MNP sachet) (record the	3.6.2 If yes, how frequent do you give MNP to your child? (record the code in the respective child's number) Every day1	3.6.3 If no, since when did you stop feeding MNPs to your child? (record the code in the respective child's number)	3.6.4 What are the reasons to stop feeding your child with MNPs? (Multiple answers possible. Record the code/codes in the respective child's number. DO NOT READ the answers)

	<p>Yes =1 No=0</p> <p>If no go to 3.5.2, If yes go to section 3.6.1</p>	<p>Do not know about MNPs1</p> <p>Discouraged from what I heard from others2</p> <p>The child has not fallen ill, so have not gone to the health facility3</p> <p>Health facility or outreach is far4</p> <p>Child receiving therapeutic or supplementary foods5</p> <p>Other reason, specify6</p> <p>Skip to 3.7</p>	<p>code in the respective child's number)</p> <p>YES = 1 NO= 0</p> <p>If no skip to 3.6.3</p>	<p>Every other day2</p> <p>Every third day3</p> <p>2 days per week at any day4</p> <p>Any day when I remember.....5</p>	<p>1 week to 2 weeks ago1</p> <p>2 week to 1 month ago2</p> <p>More than 1 month3</p>	<p>Finished all of the sachets1</p> <p>Child did not like it2</p> <p>Husband did not agree to give to the child3</p> <p>Sachet got damaged4</p> <p>Child had diarrhea after being given vitamin and mineral powder5</p> <p>Child fell sick.....6</p> <p>Forgot7</p> <p>Child enrolled in IMAM program ...8</p> <p>Other (Specify).....9</p>
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Child 1						
Child 2						
Child 3						
Child 4						

MATERNAL NUTRITION FOR WOMEN OF REPRODUCTIVE AGE (15-49 YEARS) <i>(Please insert appropriate number in the box)</i>							
3.7	3.8	3.9	3.10			3.11	
Woman ID. (all women in the HH aged 15-49 years from the household demographics – section 2)	What is the mother's / caretaker's physiological status 1. Pregnant 2. Lactating 3. not pregnant and not lactating 4. Pregnant and lactating	Mother/ caretaker's MUAC reading: ____.____ cm	During the pregnancy of the (name of the youngest biological child below 24 months) did you take the following supplements? indicate 1. Yes 2. No 3. Don't know 4. N/A			If Yes, for how many days did you take? (probe and approximate the number of days)	
			Iron tablets syrup	Folic acid	Combined iron and folic acid supplements	Iron tablets syrup	Folic acid

4.0 WATER, SANITATION AND HYGIENE (WASH)- Please ask the respondent and indicate the appropriate number in the space provided

<p>4.1</p>	<p>What is the MAIN source of drinking water for the household <u>NOW</u>?</p> <p>piped water</p> <p>piped into dwelling 11</p> <p>piped to yard / plot 12</p> <p>piped to neighbour 13</p> <p>public tap / standpipe 14</p> <p>tube well / borehole 21</p> <p>dug well</p> <p>protected well..... 31</p> <p>unprotected well..... 32</p> <p>spring</p> <p>protected spring 41</p> <p>unprotected spring 42</p> <p>rainwater..... 51</p> <p>tanker-truck 61</p> <p>cart with small tank 71</p> <p>water kiosk 72</p> <p>surface water (river, dam, lake, pond, stream, canal, irrigation channel)..... 81</p> <p>packaged water</p> <p>bottled water 91</p> <p>sachet water 92</p> <p>1.</p>	<p>4.2 a What is the trekking distance to the current main water source?</p> <p>1=less than 500m (Less than 15 minutes)</p> <p>2=more than 500m to less than 2km (15 to 1 hour)</p> <p>3=more than 2 km (1 – 2 hrs)</p> <p>4=Other(specify) _____</p>	<p>4.2b – Who MAINLY goes to fetch water at your current main water source?</p> <p>1=Women, 2=Men, 3=Girls, 4=Boys</p>
<p>4.2.2 a</p>	<p>How long do you queue for water?</p> <p>1. Less than 30 minutes</p> <p>2. 30-60 minutes</p> <p>3. More than 1 hour</p> <p>4. Don't que for water</p> <p>1.</p>	<p>.3 Do you do anything to your water before drinking? (MULTIPLE RESPONSES POSSIBLE) _____</p> <p>(Use 1 if YES and 2 if NO).</p> <p>1. Nothing</p> <p>2. Boiling..... _____</p> <p>3. Chemicals (Chlorine,Pur,Waterguard)..... _____</p>	

		4. Traditional herb..... ____	5. Pot filters..... ____	5.
4.3a				6.

4.4	Where do you store water for drinking? 1. Open container / Jerrican 2. Closed container / Jerrican ____	4.5 How much water did your household use YESTERDAY (excluding for animals)? <i>(Ask the question in the number of 20 liter Jerrican and convert to liters & write down the total quantity used in liters)</i> ____		
4.6	Do you pay for water? 1. Yes 2. No (If No skip to Question 4.7.1) ____	4.6.1 If yes, how much per 20 liters jerrican _____ KSh/20ltrs	4.6.2 If paid per month how much ____	
4.7.1 a	We would like to learn about where members of this household wash their hands. Can you please show me where members of your household <u>most often</u> wash their hands? <i>Record result and observation.</i> OBSERVED FIXED FACILITY OBSERVED (SINK / TAP) IN DWELLING 1 IN YARD /PLOT2 MOBILE OBJECT OBSERVED (BUCKET / JUG / KETTLE) 3 NOT OBSERVED NO HANDWASHING PLACE IN DWELLING / YARD / PLOT 4 NO PERMISSION TO SEE5	4.7.1b Is soap or detergent or ash/mud/sand present at the place for handwashing? YES, PRESENT 1 NO, NOT PRESENT.....2		

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4.7.1	Yesterday (within last 24 hours) at what instances did you wash your hands? (MULTIPLE RESPONSE- (Use 1 if “Yes” and 2 if “No”)) 1. After toilet..... <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 2. Before cooking..... <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 3. Before eating..... <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 4. After taking children to the toilet..... <input type="checkbox"/> <input type="checkbox"/> 5. Others..... <input type="checkbox"/> <input type="checkbox"/>	
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4.7.2	If the caregiver washes her hands, then probe further; what did you use to wash your hands? 1. Only water 2. Soap and water 3. Soap when I can afford it 4. traditional herb 5. Any other specify <input type="checkbox"/>	4.8 What kind of toilet facility do members of your household usually use? If ‘Flush’ or ‘Pour flush’, probe: Where does it flush to? <input type="checkbox"/> If not possible to determine, ask permission to observe the facility. flush / pour flush flush to piped sewer system 11
--------------	--	--

		flush to septic tank	12
		flush to pit latrine	13
		flush to open drain	14
		flush to DK where	18
		pit latrine	
		ventilated improved pit	
		latrine	21
		pit latrine with slab	22
		pit latrine without slab /	
		open pit	23
		composting toilet	31
		bucket	41
		hanging toilet /	
		hanging latrine	51
		no facility / bush / field	95
		1. OTHER (specify)	96

5.0: Food frequency and Household Dietary Diversity

Type of food	Did members of your household consume any food from these food groups in the last 7 days? <i>(food must have been cooked/served at the household)</i>	If yes, mark days the food was consumed in the last 7 days?								What was the main source of the dominant food item consumed in the HHD? 1. Own production 2. Purchase 3. Gifts from friends/families 4. Food aid 5. Traded or Bartered 6. Borrowed 7. Gathering/wild fruits 8. Other (specify)	<u>WOMEN DIETARY DIVERSITY</u> ONLY FOR WOMEN AGE 15 TO 49 YEARS. REFER TO THE HOUSEHOLD DEMOGRAPHICS SECTION Q2.3 AND Q2.5								
		0-No 1-Yes		0-No 1-Yes		D1	D2	D3	D4		D5	D6	D7	TOTAL	Please describe the foods that you ate or drank yesterday during day and night at home or outside the home (start with the first food or drink of the morning)	0-No 1-Yes	Woman ID.....	Woman ID...	Woman ID.....
5.1. Cereals and cereal products (e.g. sorghum,																			

maize, spaghetti, pasta, anjera, bread)?														
5.2. Vitamin A rich vegetables and tubers: Pumpkins, carrots, orange sweet potatoes														
5.3. White tubers and roots: White potatoes, white yams, cassava, or foods made from roots														
5.4 Dark green leafy vegetables: Dark green leafy vegetables, including wild ones + locally available vitamin A rich leaves such as cassava leaves etc.														
5.5 Other vegetables (e.g., tomatoes, egg plant, onions)?														
5.6. Vitamin A rich fruits: + other locally available vitamin A rich fruits														
5.7 Other fruits														
5.8 Organ meat (iron rich): Liver, kidney, heart or other organ meats or blood based foods														
5.9. Flesh meats and offals: Meat, poultry, offal (e.g.														

<i>goat/camel meat, beef; chicken/poultry)?</i>														
5.10 Eggs?														
5.11 Fish: Fresh or dries fish or shellfish														
5.12 Pulses/legumes, nuts (e.g. beans, lentils, green grams, cowpeas)?														
5.13 Milk and milk products (e.g. goat/camel/ fermented milk, milk powder)?														
5.14 Oils/fats (e.g. cooking fat or oil, butter, ghee, margarine)?														
5.15 Sweets: Sugar, honey, sweetened soda or sugary foods such as chocolates, sweets or candies														
5.16 Condiments, spices and beverages:														

<p>1.1</p>	<p>Have you heard about food fortification?</p> <p>1. Yes 2. No 3. Don't know</p>	
<p>1.1.1</p>	<p>If yes, where did you hear or learn about it? (MULTIPLE RESPONSE ARE POSSIBLE- (Use 1 if "Yes" and 2 if "No")</p> <p>6. Radio..... <input type="checkbox"/></p> <p>7. Road show..... <input type="checkbox"/></p> <p>8. In a training session attended..... <input type="checkbox"/></p> <p>9. On a TV show..... <input type="checkbox"/></p> <p>10. Others..... <input type="checkbox"/></p>	
<p>1.2</p>	<p>Respondent's knowledge on the food fortification logo (Show the food fortification logo to the respondent and record the response). Do you know about this sign?</p> <p>1. Yes 2. No 3. Don't know</p>	<p><input type="checkbox"/></p>
<p>1.3</p>	<p>What is the MAIN source of Maize flour for the household <u>NOW</u>?</p> <p>2. Bought from the shops, supermarket e.t.c 3. Maize is taken for milling at a nearby Posho Mill 4. Bought from a nearby Posho Mill 5. Other (Please specify)</p> <p>_____</p>	<p>1.1b Do you know if the maize flour you consume is fortified or not?</p> <p>1. Yes 2. No 3. Don't know</p>
<p>1.4</p>	<p>What brands of the following foods does your household consume?</p> <p>1. Maize flour 2. Wheat flour 3. Margarine 4. Oils 5. Fats 6. Sugar</p>	<p>_____</p>

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

