CORE Group Polio Project Final Evaluation

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Acronyms and Abbreviations

CGPP	CORE Group Project
UNICEF	United Nations International Children's Fund
USAID	United States Agency for International Development
WASH	Water and Sanitation
WHO	World Health Organisation
FGD	Focus Group Discussions
KII	Key Informant Interviews
ToT	Trainer of Trainers
ODK	Open Data Kit
ADRA	Adventist Development Relief Agency
IRC	International Rescue Committee
WV-K	World Vision- Kenya
ARC	American Refugee Committee
M&E	Monitoring and Evaluation
CHVs	Community Health Volunteers
CHWs	Community Health Workers
HOA	Horn of Africa
AFP	Acute Flaccid Paralysis

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1. Executive summary

The CORE Polio Project (CGPP) group are pleased to share this report on the impact of a five-year grant funded by the European Union and over-sighted by United States Agency for International Development (USAID) and implemented in six counties, Garissa, Mandera, Marsabit, Turkana, Wajir, Mandera and part of Nairobi counties.

The Global Polio Eradication Initiative began 2014 with high hopes of coordinating efforts to address polio eradication in the region. Since 2013 when 15 wild polio virus cases were documented, no new cases have been identified in Kenya despite the high cross boarder movements. While the last case of endemic wild polio in Kenya was in 1984, the country is still under threat of importation from neighbouring countries such as Somalia, Ethiopia and South Sudan.

The focus of the CGPP HoA activities are in the high risk border counties and in the city of Nairobi, which is considered an international point of entry as well. Kenya has a well-established infrastructure with good roads and a bustling economy. The health care system is well established and is moving toward a more reliable data sharing systems using SMS between the sub-county, county, regional and national levels. Currently, health data is aggregated at the county and regional level and entered into a central electronic database. In discussing data with CGPP partners in Kenya, it was clear that the most reliable assessment of vaccine coverage is the independent monitoring data that occurs after a campaign. Otherwise, the estimates of coverage rates were based on dated census data that has questionable reliability. The population in the Horn of Africa is highly mobile and fluid across international borders and can change within a given area exponentially. Public health in this context cannot be based on the same epidemiology techniques used in stable population environments.

The CORE Group Polio Project (CGPP) continued to make important contributions to polio eradication through the active engagement of international and national Non-Governmental Organizations/Civil Society organizations (NGOs). CGPP partner NGOs actively supported polio eradication in Kenya with more focus on community based Acute Flaccid Paralysis (AFP) surveillance, community-focused social mobilization for campaigns and routine immunization, independent campaign monitoring, cross-border planning, campaign micro-planning, vaccine registers and child tracking. CGPP solidified its reputation as a global leader in community focused civil society engagement in polio eradication through the quality of its work and increased profile at local, district, national, regional and global meetings.

CGPP continues to contribute to polio eradication by working through community health workers who support campaigns, conduct community based AFP surveillance, promote routine immunization, track the vaccination status of under-fives, new-borns, and pregnant women, and mobilize communities to actively participate in vaccination services. The project conducts independent campaign monitoring, cross border eradication activities, community based AFP surveillance, advocacy, and provides logistical support for both campaign and routine immunization.

This report focuses on the period of the CGPP project which runs from 2013 when the mid-line survey was conducted up until 2017.

2. Background of the Evaluation

2.1.Catholic Relief Services

Catholic Relief Services is a nonprofit making organisation that has been working in Kenya since 1995. It carries out the commitment of the Bishops of the United States to assist the poor and vulnerable overseas especially in the delivery of comprehensive development programs that works through development partners and local organizations. CRS Catholic identity is at the heart of its mission and operations. CRS embraces people of all faiths and secular traditions who share its values and commitment to serving those in need. In Kenya and Somalia, the programme serves the most vulnerable population of international borders living along Kenya, Somalia, Ethiopia and South Sudan. CRS currently hosts the CGPP secretariat in its Nairobi office as well as provision of operations support to ensure successful delivery of activities undertaken by the CGPP group in both Somalia and Kenya.

2.2. CORE Group Polio Project

The CGPP Secretariat is based in Nairobi (hosted by CRS) and field activities are implemented by five International NGOs in Kenya: American Refugee Committee (ARC), Adventist Development and Relief Association (ADRA), International Rescue Committee (IRC), Catholic Relief Services (CRS) and World Vision (WV) covering Garissa, Mandera, Marsabit, Turkana, Wajir, Mandera and Nairobi counties. In Kenya, the project targets about 900,000 children under 15; 314,000 children under 5 and 61,000 under 1. The CGPP was awarded a new five-year grant by USAID beginning in October 2012. As part of the funding, CGPP Kenya collaborates with MOH, WHO, UNICEF, and other key health leaders to build knowledge, address challenges, utilize best practices and plan with partnering groups.

The CGPP used community-based strategies designed to strengthen acute flaccid paralysis surveillance, routine immunization coverage, and supplemental polio immunization activities in high-risk and/or hard-to-reach areas since 1999. Over the past five years, CGPP has worked in Angola, Ethiopia, Kenya, India, Nigeria, Somalia and South Sudan. A CGPP national secretariat, based in Kenya, coordinates and ensures the quality of project activities, which are implemented by US-based PVOs and local NGOs.

2.3.Objective of the assignment

The main objective of the final evaluation is to provide a country level assessment of the CORE Group Polio Project (CGPP) progress against the baselines set in 2015 in Kenya.

a) To determine the extent to which the CORE Group Polio Project (CGPP) has achieved its objectives and the impact it has had on communities living in the targeted regions in Kenya and Somalia.
b) To generate strong evidence as part of analysis to support the outcomes and impact of CORE Group Polio Project (CGPP) interventions.
c) To document lessons learnt and best practices that can be used to inform future community based strategies and innovations
d) To document case studies and success stories as part of evidence in what worked well and what did not work well - specifically pinpointing out recommendations for the CORE Group Polio Project (CGPP) to take forward.

3. Contextual Analysis

The final evaluation was conducted in Garissa, Mandera, Marsabit, Turkana, Wajir, Mandera and part of Nairobi counties a few week after the general elections held on 8th August and a few weeks before presidential elections held on the 26th October, 2017, following the annulment of the 8th August presidential elections by the Supreme Court due to elections irregularities. The ruling by the Supreme Court of Kenya ignited another round of intense and electric campaigns, characterized by high political temperatures in all the 47 counties of Kenya. This created tensions between NASA and Jubilee supporter, and further divided communities along ethnic and tribal lines evidenced by nationwide demonstrations called by the NASA who remained unsatisfied with the electoral process and failure by the IEBC to implement the high court ruling and the NASA the pre-election conditions "irreducible minimums" such as the removal of culpable IBEC commissioners to pave way for free, fair and credible elections. As a result of the demonstrations and police response, a number of lives have been in NASA strongholds such as Kondele, Kibera, Kamukunji and other slum dwellings. The situation remained tense in Kamukunji and a good number of mothers had relocated to safer zones fearing that the repeat presidential elections scheduled for 26th October 2017 could result into violence.

Poverty is still prevalent in the areas targeted by the CGPP and majority still earning less a dollar. Due to the national strike called by the nurses' union, doctors and nurses have stayed away from the public hospitals, health centres and dispensaries and as a result negatively affecting most households who cannot afford services offered in the private facilities. This has occasioned a situation where families resort to keeping their sick members of the family or relatives at home without adequate medical care, with some succumbing to deaths thereafter. Some of the prevalent challenges observed in the targeted regions are malnutrition, early pregnancies, early marriages, girl mothers, exclusion of disable children from essential services, child neglect, orphans and increased number of immigrants especially in Kamukunji.

In terms of security, parts of Mandera, Wajir, Marsabit and Garissa still remains volatile due to threat from violent extremist groups such as al-shabaab and bandits. Some of the security incidences recoreded during the data collections were;

a) On 21st September 2017, a conflict a rose between Garre and Borana communities affecting data collection around Yaballo health facility in Marsabit County.
b) On 22nd September 2017, a vehicle heading to Danaba in Wajir County was ambushed by unkown people between Bute and Griftu areas. This happened immediately after the data collection exercise in Bute prompting the research team to use an alternative route.
c) On 25th September 2017, Amuma was attacked by suspected al-shabaab militia and a safaricom communication mast destroyed. The research team who were in the area during the incident had to locate immediately after finalizing the data collection.
d) Bothai dispensary which falls under Hulugho Sub County, Garissa County could not be accessed through Boni forest due to insecurity and the ongoing military operation in Boni forest to flush out the Al-shabaab.

Despite most communities especially the Somali, Borana and Turkana communities lead a nomadic lifestyle, a large majority have permanently settled a round major service provision facilities such as schools, health centres and sub county government offices. However, pastoralism and movement across the border is still common amongst communities

4. Design and Methodology

4.1. Evaluation design

The final evaluation of the CORE Group Project (CGPP) was based on a mix of qualitative and quantitative research methodologies. The quantitative methodologies adopted a 30-cluster sample approach used during the mid-term evaluation conducted in 2015 to sample villages and randomly select eligible households living around the health

facilities situated along the borders with neighbouring countries namely South Sudan, Ethiopia and Somalia. The household questionnaire, a quantitative tool structured in accordance with the results areas of the CGPP targeted households with mothers or caregivers of children aged 12-23 months while the qualitative approach targeted women and men with under five year old children, local and high level stakeholders, and employed various methods such as focus group discussions (FGDs) and key informant interviews (KIIs) with men and women, CGPP project staff and stakeholders.

4.2.Target Population

In each of the six counties in Kenya, the quantitative study targeted households with children aged 12-23 months for interviews to determine socio-demographic characteristics, SIA coverage, SIA polio immunization knowledge and attitudes, routine immunization history, routine immunization knowledge & attitudes, acute flaccid paralysis and cross-border behaviour. The qualitative study on the other hand targeted mothers and fathers of children under five years, community mobilisers, CORE group project staff, religious leaders, community and district level stakeholders and high level stakeholders such as WHO, UNICEF, USAID and Ministry of Health (MoH)

4.3.Study Area and Population

The final evaluation was conducted in the 6 counties and subsequently in 18 sub counties around 82 health facilities supported by the CORE Group Polio Project. The counties comprised of Marsabit County, Turkana County, Garissa County, Mandera County, Wajir County and part of Nairobi Counties as shown in the table below;

S/n	County	Sub County	Health Facilities
1	Marsabit	North Horr, Moyale	12
2	Turkana	Turkana West(Kakuma), Loima (Lorugum), Kibish	16
3	Garissa	Fafi, Hulugho, Dadaab	8
4	Mandera	Mandera West, Mandera South, Banisa, Mandera North, Mandera East and Lafey	22
5	Wajir	Wajir North, Wajir East, Wajir South	19
6	Nairobi	Kamukunji	5

4.4.Sampling methods and sample size

The sample size of 240 households for each county was derived from modifying the simple random sampling design sample size. In a simple random sampling design, a sample size (n) of 96 is derived based on the formula: n=z2 (pq)/d2. A cluster sample usually introduces bias in the form of the design effect into the sampling frame, meaning that households in close proximity may have more in common than households that are from different areas of the same community, which therefore decreases their possible variation. Therefore, the number of households used in this evaluation was doubled to at least 192. This was increased even further by 25% to a sample size of 240 eligible households for each county. Consequently, a WHO 30-cluster stratified sampling design was adapted for each of the counties, and 8-10 households were interviewed in each cluster.

The final sample size for all the 6 counties was 30 x 8 x 6 = 1440 mothers/caretakers with children 12-23 months of age. The number of clusters per Sub County or within a particular community were randomly selected based on its unique demographic statistics and the location of the health facilities supported by the CORE Group Polio Project.

4.5. Survey personnel

The household data was collected by experienced quantitative research assistants who are conversant with smart surveys, geography and local languages of the target population. A four day TOT training was provided to the team leaders on qualitative and quantitative methodologies. The team leaders were later assigned and deployed to specific counties to train the research assistants for two days on sampling design, data collection methods, interviewing techniques, field procedures, and data quality assurance. The methodologies used during the trainings included practical sessions on reading and collecting information from Immunization Cards, lectures, plenary, mock interviews, fieldwork practices, discussions in smaller groups, and tests developed to examine the understanding of the trainees in regard to using the tools and Open Data Collect (ODK). The team leaders and research assistants were divided into six teams, each comprising one supervisor and four research assistants. In total, 1441 randomly selected mothers/caregivers of children aged 12-23 months were interviewed, this comprised approximately 240 mothers/caregivers per county. To achieve this, 2 lead consultants, 8 supervisors (one per county) and 34 research assistants participated in the data collection.

The secretariat and Catholic Relief Services logistics teams supported the field teams throughout the evaluation period. The lead consultants and the team leaders worked closely with members of the CGPP secretariat and partners namely International Rescue Committee (IRC), Somalia–Aid, Adventist Development Relief Agency (ADRA), World Vision- Kenya (WV-K) and American Refugee Committee (ARC) who were very supportive. The lead consultants, in an inception meeting participated in a Skype meeting convened by the CGPP secretariat and M&E Technical specialist to review the qualitative data collection tools and sampling approaches. This helped determine the number of FGDs and KIIs for each county using similarity of target groups as the deciding factor.

4.6. Data collection exercise

The data collection started on 20th September and ended on the 30th September 2017. The team leaders and the research assistants were first trained on Open Data Kit (ODK), a mobile data collection application before actual data collection. The research assistants in each region were split into groups of twos and assigned clusters and villages based on their geographical knowledge of the sub counties. The research assistants were assigned CGPP community mobilisers and Community health volunteers by partners to support in mapping and mobilising the communities, men and women for focus group discussions. An inception meeting with county MoH officials and local leaders were held in each county to introduce the evaluation purpose, methodology and also to agree on target health facilities and villages. These were facilitated by the CGPP partners on the ground.

The research assistants sought for consent before interviewing each of the randomly selected eligible households having mothers or caretakers of 'index' child aged 12 to 23 months. Smart phones were used to conduct a face to face interview with mothers at household level and data transmitted to the central server hosted by ONA, a data collection platform. The number of interviews conducted by each research assistant varied from 6-8 interviews per day given each interview took approximately 45 minutes. The focus group discussions with women and men who are parents of children under five comprised at least 8 community members per focus group discussion. These were conducted in different communities or sub-counties other than those targeted for household survey. The team leaders took notes and recorded the session using tape recorders. These were later transcribed and translated to English by the team leaders.

4.7. Data Collection Tools

The household survey tool and the interview guides were already designed by the secretariat and Global M&E consultant, and these formed the basis of the evaluation. The household survey tool was used to collect information from eligible mothers or caregivers having children aged 12-23 months while interview guides were used to collect information from mothers or fathers, community mobilisers/volunteers, CORE Group Project staff, community level

stakeholders, high level stakeholders and religious leaders. The household survey tool was translated into Somalia language, corded into comma-separated values (CSV) files and forms imported into ONA platform. The household data was collected using smart phones and data submitted using ODK collect. Interviews in Turkana, Marsabit and Nairobi were conducted in Kiswahili while those in Wajir, Mandera and Garissa were conducted in Somalia language. This ensured that same questions were asked by different research assistants in the same manner.

4.8. Data quality assurance

Debrief meetings were held every evenings after the data collection, and team leaders made sure saved forms are completed and free from any errors before data submission into the central servers. Similarly, an IT expert doubling as a statistician conducted real time reviews to eliminate and correct common mistakes such as blanks, skips, unreadable notes etc., and shared findings with the field teams to avoid repetitive errors. The lead consultants on the other hand, at the end of each day, separately reviewed the uploaded forms and ensured that mistakes arising thereof are addressed prior to the next day of data collection. The household data were cleaned and analysed according to themes while also making sure that notes and voice obtained through Key informant interviews and Focus Group Discussions were accurately transcribed. Open Data Kit (ODK) collect was used to transmit raw data into the central server while SPSS and advance STATA were used to analyze data exported from the ONA server. The team leaders conducted regular spot-check and reviews of the completed interviews to ensure data collected meets the prescribed standard and quality.

4.9. Data management and analysis

The management and analysis was conducted by the data scientist supported by lead consultants who are experts in quantitative and qualitative techniques. The data was cleaned and analysed using descriptive statistics of frequencies and cross tabulations to outline correlations. The qualitative data analysis involved coding of transcripts from qualitative interviews to establish and highlight the emerging themes around the main indicators and to triangulate the information with the findings from quantitative data and baseline. The inferences from these analyses were complementary in nature and helped provide a clear picture of project performance and impact.

5. Final Evaluation findings

5.1. Socio-Demographic Characteristics

The CGPP group works in the horn of Africa characterised by conflicts, hard to reach and comprise marginalized and disadvantaged communities, including women with children of vaccination ages, pastoralist, hard to reach rural communities, refugees, and asylum seekers/immigrants. The household survey was conducted from 19th to 28th September, 2017 in 6 Counties namely Marsabit, Turkana, Wajir, Mandera, Garissa, and Kamukunji. This comprised of 18 sub counties divided into 180 clusters, 30 clusters per county. The respondents interviewed comprised 1441 mothers/caretakers having children aged 12-23 months. The distribution of the sample by the counties is shown in the table below;

Table 1: The study area and respondents disaggregated by gender, CORE Group Project Areas, Kenya

County	Male	Female	Total
Garissa	6	231	237
Mandera	8	233	241
Marsabit	9	228	237
Kamukunji	10	230	240
Turkana	10	236	246

Wajir	15	225	240
Total	**58**	**1383**	**1441**

5.2.Characteristics of respondents

Of the sampled households, 343 (20.4%) were urban and 1098 (76.2%) were rural residents. More than 94% of the respondents were mothers' of the index child. Majority of the respondents (54.7%) were in the age group 20-29 years, females constituted 96.0% and 65.9% were Muslims by religion. Majority of the respondents (77.7%) had no formal education at all, 20.4% prefers leaving their child with their mother or partner when not at home, 74.6% involved in domestic work and 51.0% have lived in the village for more than 10 years (Table 2).

Table 2: Socio-demographic Characteristics of Respondents, CORE Group Project Areas, Kenya[1]

Characteristics	Number	Percent (%)
Gender		
Male	58	4.0%
Female	1383	96.0%
Residence		
Urban	343	20.4%
Rural	1098	76.2%
Relationship to the index child		
Mother	1367	94.9%
Father	24	1.7%
Grandmother	22	1.5%
Other	28	1'9%
Age		
< 20	51	3.5%
20-29	788	54.7%
30-39	505	35.0%
40+	97	6.7%
Religion		
Christians	478	33.2%
Muslims	949	65.9%
Hindu	13	0.9%
Traditional	1	0.1%
Educational status		
No education (Illiterate)	1120	77.7%
Primary incomplete	85	5.9%
Primary complete	95	6.6%
Secondary +	141	9.8%
Occupational status		
Domestic work	1075	74.6%

[1] Refer to the indicator sheet for a more a detailed analysis per county

Livestock (fixed)	67	4.6%
Livestock (Nomad/mobile)	54	3.7%
farming	36	2.5%
Business or office	180	12.5%
Other	29	2.0%
Years lived in the estate/village		
< 5 years	308	21.5%
5-9 years	395	27.5%
10+ years	738	51.0%
Total	1441	100.0%

5.3.SIA polio immunization coverage

This section of the report looks at the SIA coverage of most recent round of vaccination that happened in March 2017 nationally and in the counties targeted by the CORE Group Polio Project. The total number of children who are under 5 living with the respondent in the same household were 6,094 children. Out of these, 1,441 children (female 53.8%) were randomly selected and the respondent questioned regarding their vaccination status. A majority, 53.9% were below one year of age, 96.6% had ever received polio vaccination that is drops in the mouth in a vaccination campaign, only 27.3% of the mothers were able to accurately recall the date of the last/recent vaccination campaign, the rest 72.7% could not accurately recall. Interestingly when asked whether their children had received polio vaccination, that is polio drops in the month of March 2017, about 79.2% of the respondent reported their children received mouth drops while 19.2% reported their children did not. For purposes of verification, only 35.8% of the children reported to have received polio vaccination during the last/recent campaign had finger marks, though not very visible. . Among the reasons for not receiving polio vaccination during the recent campaign, majority (60.3%) said the vaccination teams did not visit their households. Worth noting is that 69.4% of the respondents were aware about the March polio vaccination campaign, 71.7% were visited by the vaccinators and 57.3% reported to have received polio vaccination at home during the March campaign. (Table 3).

Table 3: Children characteristics, vaccination status of children under 5 selected and finger mark, CORE Group Polio Project Areas, Kenya

Characteristics of sampled children under 5	Number	Percent
Gender		
Male	775	46.2%
Female	666	53.8%
Age distribution		
< 1 yr.	776	53.9%
≥ 1 ≤ 3	405	28.1%
> 3 ≤ 5	260	18.0%
Ever received polio vaccination in a vaccination campaign		
Yes	1392	96.6%
No	43	3.0%
Don't know	6	0.4%
Received polio vaccination in the last/recent vaccination campaign		
Child reported received drops in the mouth	1141	79.2%

Child reported not received drops in the mouth	282	19.2%
Don't know	18	1.2%
For those reported vaccinated, finger mark observed available[2]	409	35.8%
Households visited by vaccinators- the last polio round–march 2017		
Visited	1033	71.7%
Not visited	357	24.8%
Don't know	51	3.5%
Knowledge of the last/recent polio campaign – March 2017		
Awareness of the campaign	1000	69.4%
Awareness of the campaign	441	30.6%
Total	1441	100%

5.4.SIA polio immunization knowledge & attitudes

This section captures results on the respondent's knowledge and attitude about polio vaccination in mass campaigns. As illustrated in the table 4 shown below, about 2.5% of the mothers/caretakers informed a child should get polio vaccination 9 times while response from the majority 74.0% ranged between one and eight times. On the other hand 84.0% of the mothers were of the opinion that receiving polio vaccine many times helps protect a child from polio, and about 94.9% agreed that a child should receive polio vaccinations during campaigns. However, 2.9% did not agree on the basis that new-borns, sick and physically handicapped children should not receive polio vaccination.

Table 4: Respondent's general knowledge and attitude about polio vaccination in mass campaigns, CORE Group Polio Project Areas, Kenya

Knowledge and attitude of sampled respondents	Number	Percent
# of times a child should get polio vaccination		
< 8	1067	74.0%
9 times	36	2.5%
10+	69	4.8%
Don't know	377	26.8%
Respondents opinion on a child receiving polio vaccine many times		
Child gets more protection from polio	1211	84.0%
Child may be harmed by the vaccine	106	7.4%
Nothing - not helpful or harmful	67	4.6%
Don't know	57	4.0%
Agree that a child should receive polio vaccination during campaigns		
Agree	1367	94.9%
Don't agree	42	2.9%
Don't know	32	2.2%

[2] The evaluation was conducted way after the vaccination campaigns, as a result most children under five did not have the finger marks. This explains the reason why out of 1141 reported received polio vaccination, drops in the mouth only 35.8% had finger marks.

Why a child should not receive polio vaccination (multiple)[3]		
Newborns	53	50.5%
Sick children	32	30.5%
Physically handicapped children	12	11.4%
Others	8	7.6%
Total	**1441**	**100%**

5.5. Routine Immunization History

This section contain results on routine immunization history of children aged 12-23 months. In view of children with vaccination cards, 48.3% of the children had vaccination cards at the time of the interview, 39.0% reported they have immunization cards while 12.7% did not have cards at all. Of the children who did not have cards, 70.5% had cards before but either got lost, got burnt in the house or the mother misplaced the card. Of the children who had immunization cards, 51.4 % received vaccination during campaigns that were never recorded in the cards.

Table 5: Immunization history of children aged 12-23 months in the CORE Group Polio Project Areas, Kenya

Immunization history of children aged 12-23 months	Number	Percent
Gender		
Male	741	51.4%
Female	700	48.6%
Vaccination cards		
Yes, child immunization card seen	696	48.3%
Yes, child immunization card not seen	562	39.0%
No card	183	12.7%
Child with no card who ever had one before[4]		
Yes	129	70.5%
No	49	26.8%
Don't know	5	2.7%
Vaccinations received other than during vaccination campaigns that were never recorded in the cards[5]		
Yes	358	51.4%
No	306	44.0%
Don't Know	32	4.6%
Children whose cards were not seen or did not have a card but received vaccination – not during campaign[6]		
Yes, received	648	45%
No did not receive	84	5.8%

[3] The response was obtained from the mothers/caretakers who did not agree that a child should not receive polio vaccination.

[4] This was response from mothers/caretakers who did not have a vaccination card at all

[5] This was response from mothers/caretakers who had vaccination cards

[6] The response was obtained from mothers/caretakers who claimed their children were vaccinated but their cards were not seen or did not have a card at all

Don't Know	13	0.9%
Total	**1441**	**100%**

5.6. Vaccination coverage by data verification source

The vaccination status of children were assessed based on the card and mothers or caretakers report or history. As shown in figure 1, the proportion of children who got vaccinated based on the card for each vaccine varied between 29.5% for OPV 0 and 45.4% for BCG. Similarly, based on reports of mothers/caretakers, the proportion of children vaccinated for the different vaccines ranged between 52.3% for OPV 1 and 59.8% for Measles. The proportion of children vaccinated based on both card and history ranged between 96.1% for Measles and 98.8% for BCG.

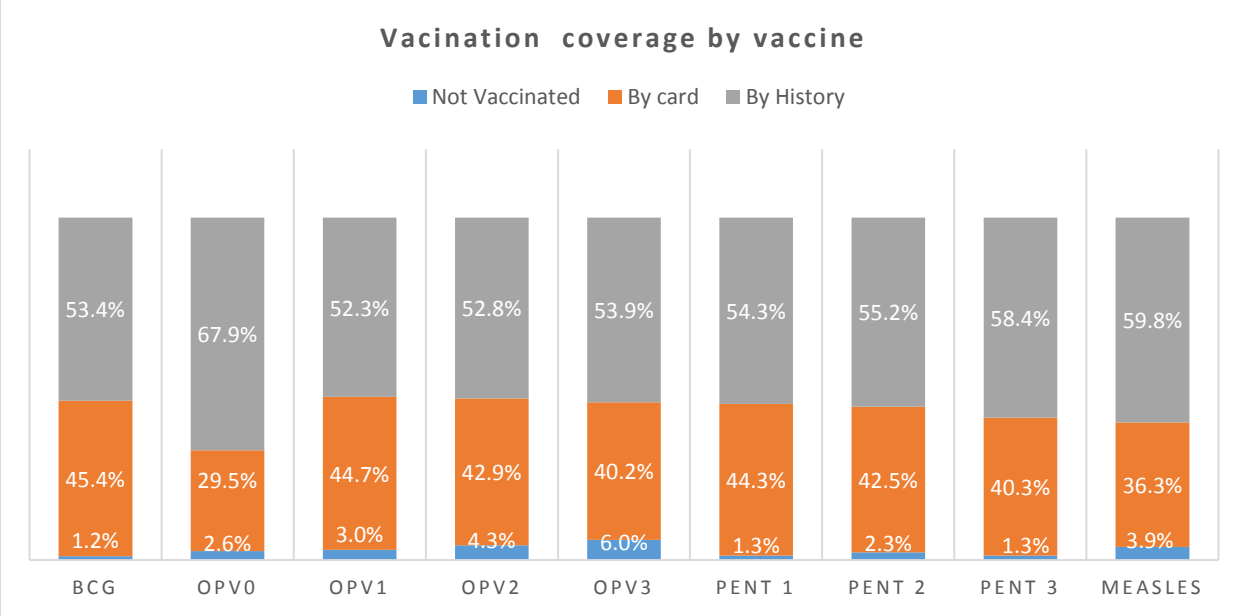

Fig. 1: Vaccination coverage by vaccine and verification source, CORE Group Polio Project Areas, Kenya

	Not vaccinated		Card		History		Card + History	
Vaccine	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
BCG	17	1.2%	654	45.4%	770	53%	1424	98.8%
OPV 0	38	2.6%	425	29.5%	978	68%	1403	97.4%
OPV 1	43	3.0%	644	44.7%	754	52%	1398	97.0%
OPV 2	62	4.3%	618	42.9%	761	53%	1379	95.7%
OPV 3	86	6.0%	579	40.2%	776	54%	1355	94.0%
Penta 1	19	1.3%	639	44.3%	783	54%	1422	98.7%
Penta 2	33	2.3%	612	42.5%	796	55%	1408	97.7%
Penta 3	19	1.3%	581	40.3%	841	58%	1422	98.7%
Measles	56	3.9%	523	36.3%	862	60%	1385	96.1%

Table 6: Vaccination coverage by data source and vaccine, CORE Group Polio Project Areas, Kenya

5.7. Vaccination dropout rates

Based on data from vaccination cards, dropout rates between different vaccines were determined using the vaccination dates in the cards. Accordingly, Measles dropout rate was calculated among those who took BCG and Penta1 but failed to take Measles vaccine. In that respect BCG – Measles dropout rate was 20.0% while that of Penta1 – Measles was 18.2%. All these results were way above the minimum expected dropout rate of 10%. Additional information is contained in the figure 2 below shows other dropout rates. It is worth noting that about 96.6% of the children in Garissa County did not have cards at the time of the interview, the highest compared to other counties.

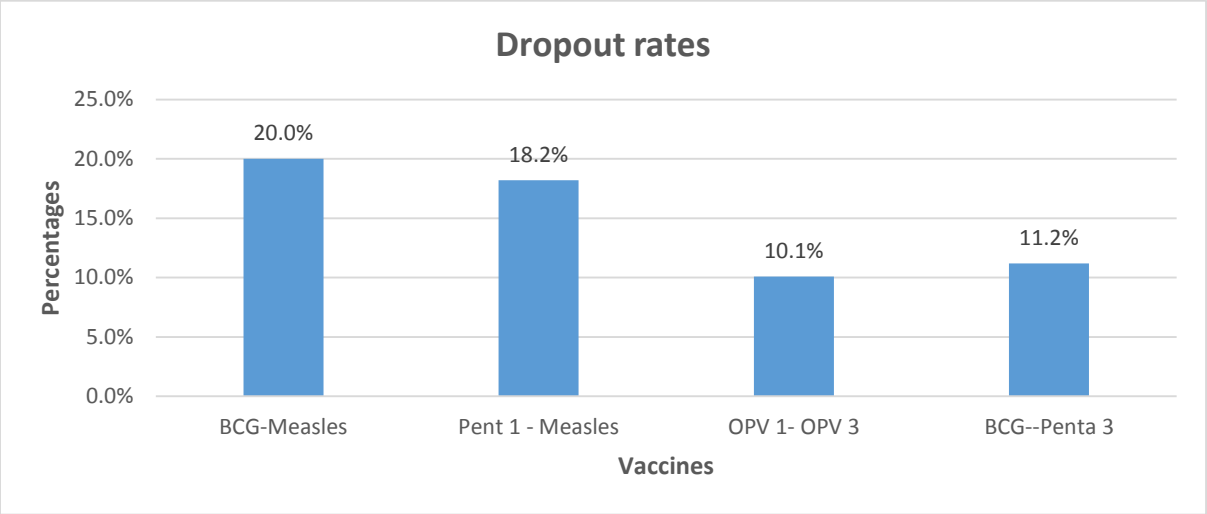

Fig 2: Dropout rates based on dates from vaccination card in the CORE Group Polio Project Areas, Kenya

Based on vaccination dates from cards it was found that 1102 (76.5%), and 339 (23.5%) of children missed all or missed at least one of the nine vaccine and fully vaccinated respectively. For subsequent analysis vaccination coverage data is classified at received all nine vaccines (fully immunized) or missed at least one, i.e., not vaccinated at all and partially immunized combined.

Accordingly, the proportion of fully immunized children varied between urban and rural residents for which those in rural had higher rate of full vaccination. Children from mothers who ever attended formal school and those who did not attend formal schooling had 30.2% and 21.6% full vaccination coverage rate. Religion of the mothers/caretakers showed significant difference in fully immunization coverage rate in that Muslims 19.9% and Christians 31.4%. Christian mothers had relatively higher rate of fully immunized children compared to children of Muslim counterparts (Table 6A).

Mothers who got information about polio from CGPP mobilisers/community health volunteers had lower rate (18.4%) of fully vaccinated children. Children who got polio vaccination in polio campaign also showed lower full vaccination coverage (21.6%) compared to those who didn't get vaccination in campaigns (88.4%). (Table 6A).

Table 6A: Vaccination coverage for the Nine Antigens by respondents' characteristics, health service use and vaccination related factors in the CORE Group Polio Project Areas, Kenya

Characteristics respondents, health service use and vaccination related issues	**Missed at least one of the nine vaccine + missed all**		**Received all nine vaccines**		**Total**	
	%	No.	No.	%		p-value

Residence						0.00000497663
Urban	67.3%	231	112	32.7%	343	
Rural	79.3%	871	227	20.7%	1098	
Total		1102	339		1441	
Ever attended formal school						0.00134286302
Yes	69.8%	224	97	30.2%	321	
No	78.4%	878	242	21.6%	1120	
		1102	339		1441	
Highest grade completed						0.01653102977
Primary incomplete	81.2%	69	16	18.8%	85	
Primary complete	69.5%	66	29	30.5%	95	
Secondary+	63.1%	89	52	36.9%	141	
		224	97		321	
Mother/Caretaker religion						0.00000446069
Muslim	80.1%	760	189	19.9%	949	
Christians	68.6%	328	150	31.4%	478	
Hindu	100.0%	13	0	0.0%	13	
Traditional	100.0%	1	0	0.0%	1	
Total		1102	339		1441	
Has NAME ever received polio vaccination, that is, drops in the mouth, in a vaccination campaign?						0.00000000000
Yes	78.4%	1091	301	21.6%	1392	
No	11.6%	5	38	88.4%	43	
Don't Know	100.0%	6	0	0.0%	6	
Total		1102	339		1441	
How do you find out information about polio?-CGPP mobilizer						0.00000000000
Yes	81.6%	1102	248	18.4%	1350	
No	0.0%		91	100%	91	
		1102	339		1441	

As shown in figure 3 and 4 below, 22% of the total number of respondents interviewed in six counties informed ever attending formal education. Of these 26% did not complete primary, 30% completed primary education while the rest 44% completed secondary education. Worth noting is that respondent who ever attended formal education, a large proportion come from urban settlement such as Nairobi, Wajir, Madera towns.

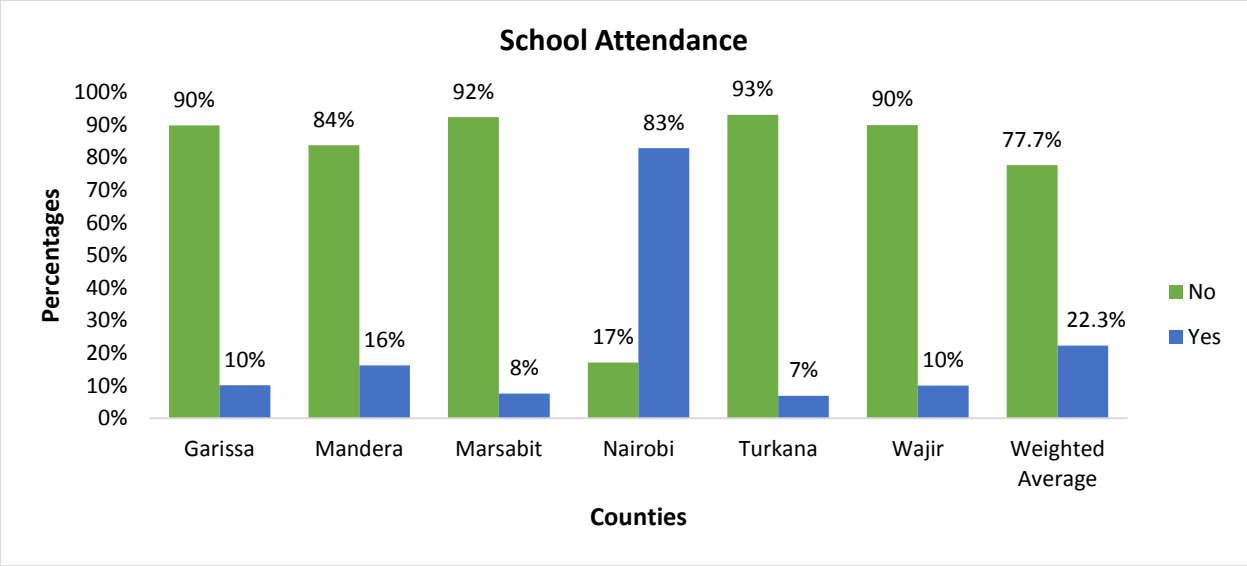

Fig. 3: Respondents level of education disaggregated by County CORE Group Polio Project Areas, Kenya

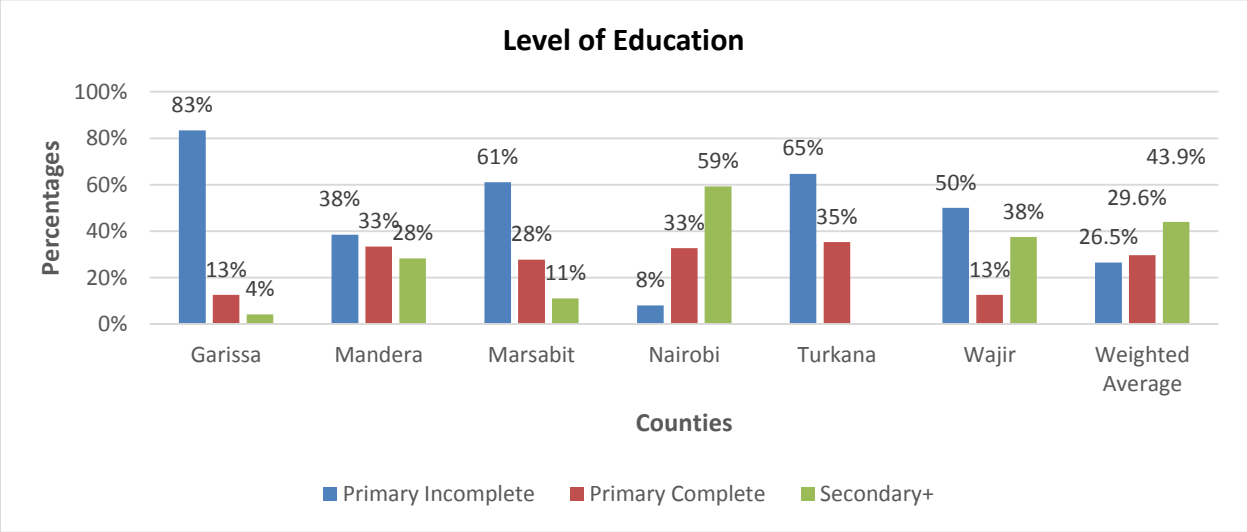

Fig. 4: Highest level of education disaggregated by County, CORE Group Polio Project Areas, Kenya

The respondents especially mothers who work outside home were asked about who takes care of the child when they are not at home, and interestingly it emerged that most mothers preferred leaving their children with neighbours (23.1%) followed by the child's grandmother (20.4%) and husband at 20.2% of all the responses. The reason for leaving the child with neighbours was most prominent in households where the husbands are at home most of the time or are engaged in work outside home. In urban areas particularly in Nairobi, this was being attributed to economic reasons such as the family not being able to afford services of a caretaker. (Figure 5)

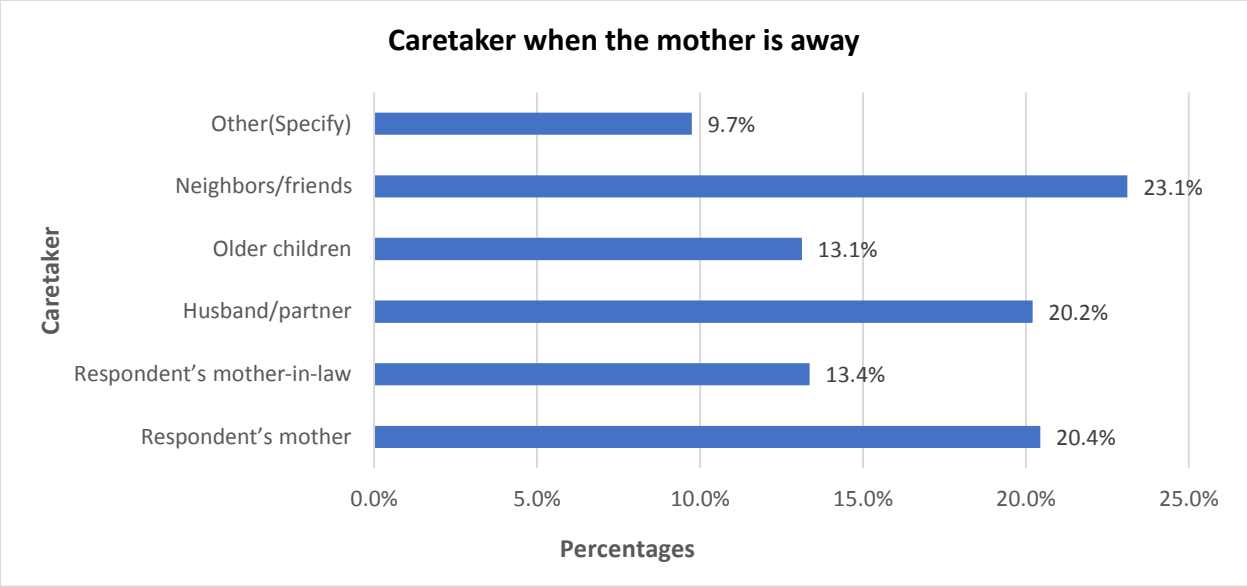

Fig 5: Child caretakers during mother's absence in the CORE Group Polio Project Areas, Kenya

As shown in figure 6 below, 69.4% of the respondents received information and were aware about the Polio campaign that took place nationally in March 2017, only 30.6% were not aware. Of those who were aware, (43.1%) informed they knew about it through community health volunteers, 20.2% informed they knew about polio campaign through health workers, 13.6% knew through close friends and neighbours while radio came fourth at 7.7%. It seems like respondents in hard to reach areas such as Garissa, Mandera and Wajir were more aware about the polio campaign than their counterparts in Nairobi and Turkana (Figure 17)

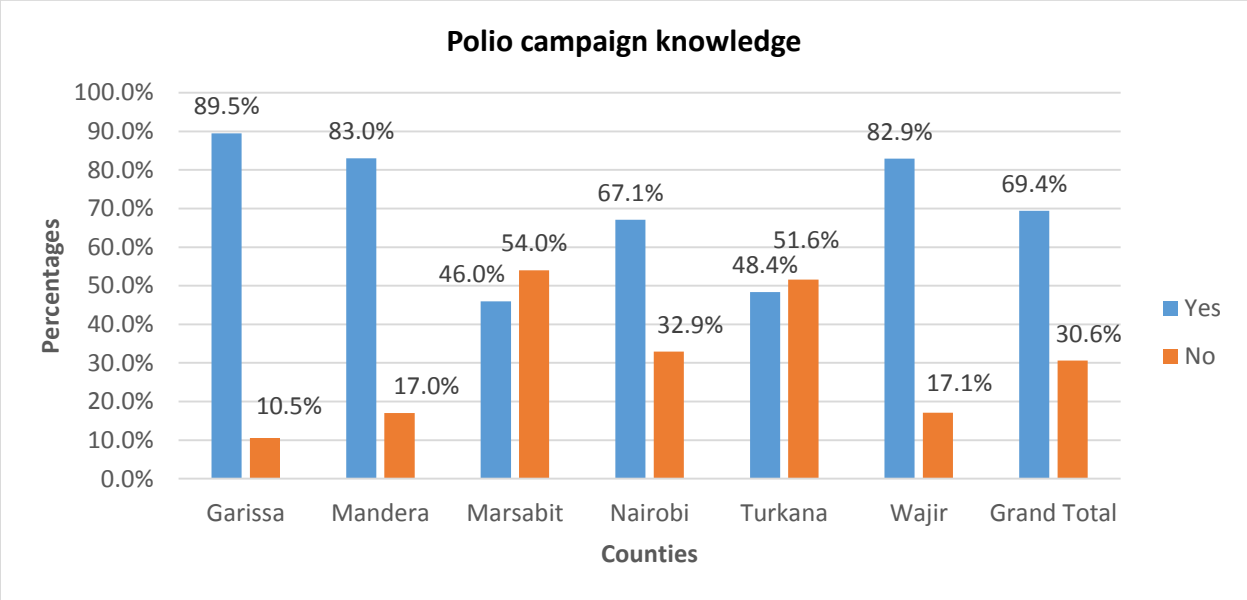

Fig 6: Respondents knowledge of the recent Polio campaign in the CORE Group Polio Project Areas, Kenya

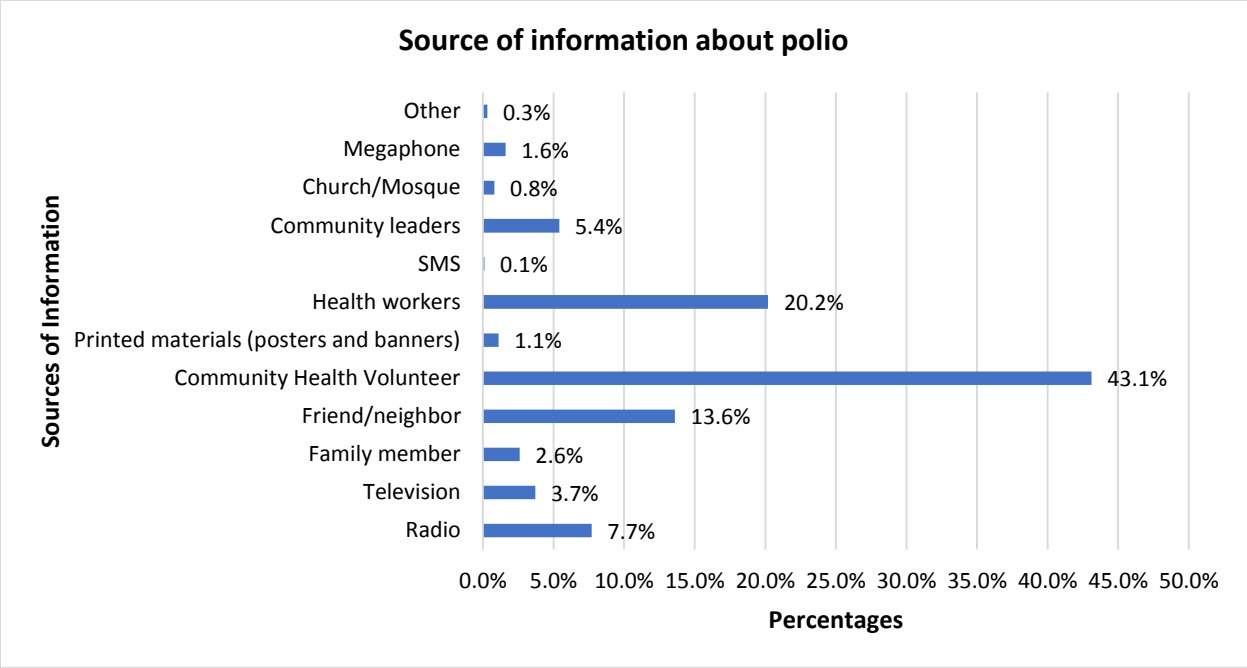

Fig 7: Source of information about recent Polio campaign in the CORE Group Polio Project Areas, Kenya

As shown in the fig. 8 and 9 below, 80.1% of the respondents informed they get their children vaccination from health facilities while a small proportion said their children receive vaccination from other sources such as private clinics, faith based clinics and outreach sites. Majority, 96.0% of the respondents can access these health facilities by foot, with only 3.0% accessing the health facilities by bus, car and motorcycles. On the other hand, 67.3% informed it takes less than 30 minutes to reach the health facilities. This means the health facilities are accessible and households who reside far away, areas with no means of transport can still able access them by foot.

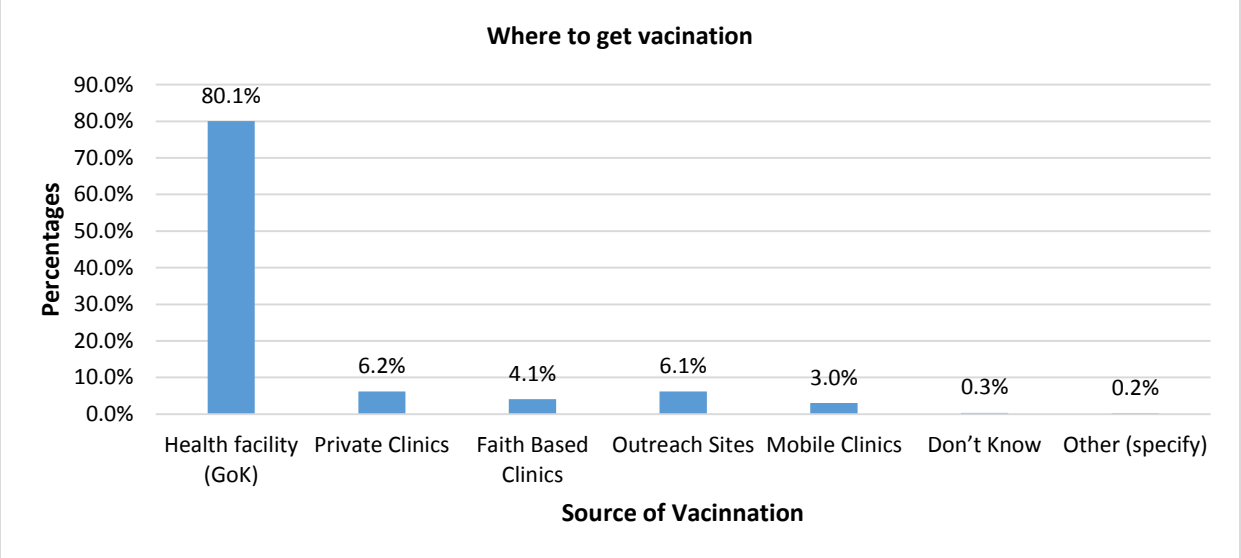

Fig. 8: Where to take a child for vaccination in CORE Group Polio Project Areas, Kenya

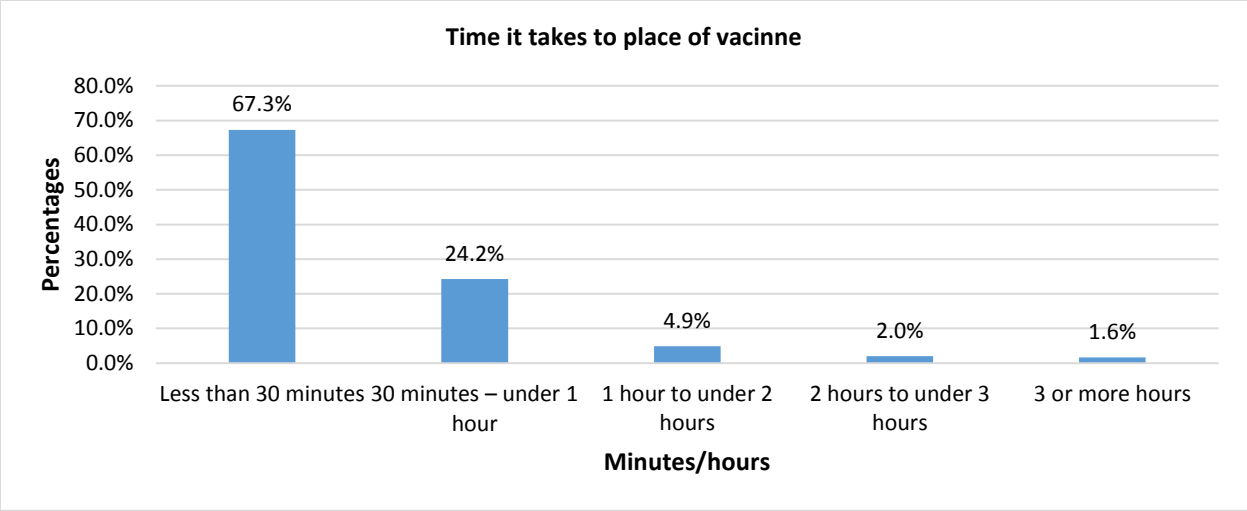

Fig. 9: Time it takes to the place of vaccine in CORE Group Polio Project Areas, Kenya

5.8.Comparisons of the Baseline and Final Evaluation Survey results

This section attempts to compare the baseline and the final evaluation results, and prioritizes on a few selected indicators and questions. In terms of respondent's knowledge of the recent campaign conducted in March 2017, 69.4% confirmed they were aware far from the 84.0% baseline result. Interestingly, the findings shows a reduction in number of respondents who heard about the polio across the four main communication channels compared to the baseline figures. However, majority of the respondents heard about the polio campaign through community health volunteers and community health workers. The sudden drop could be attributed to the current strike by nurses across the country that has affected service delivery and mobilisation efforts.

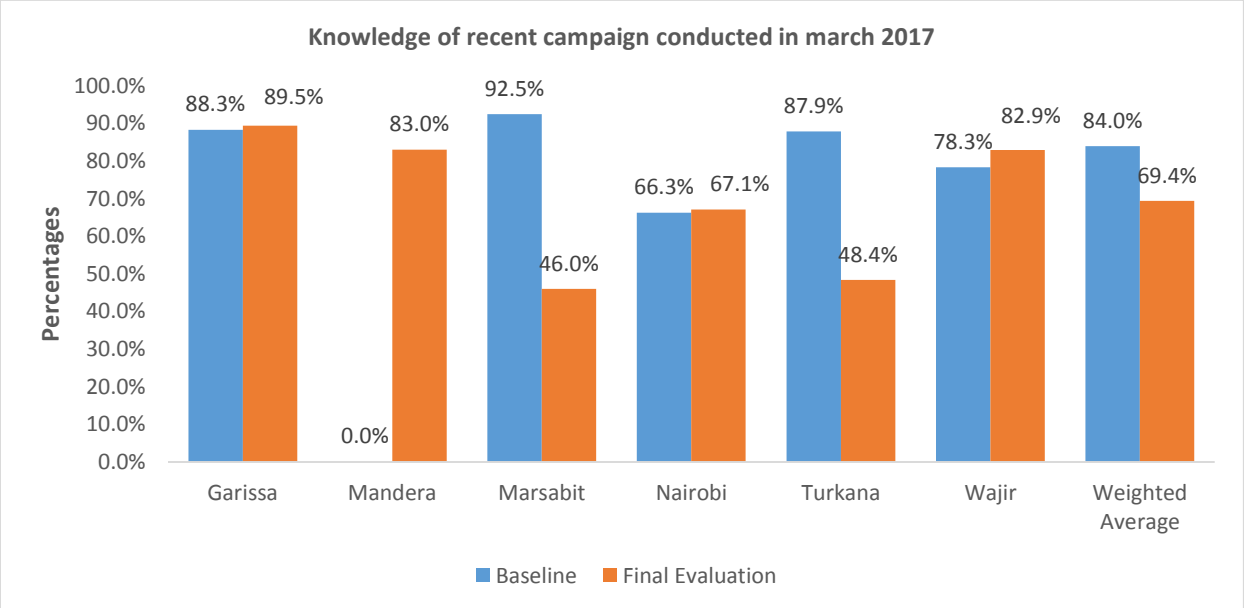

Fig. 10: Respondent's knowledge of the recent campaign conducted in March 2017, CORE Group Polio Project Areas, Kenya

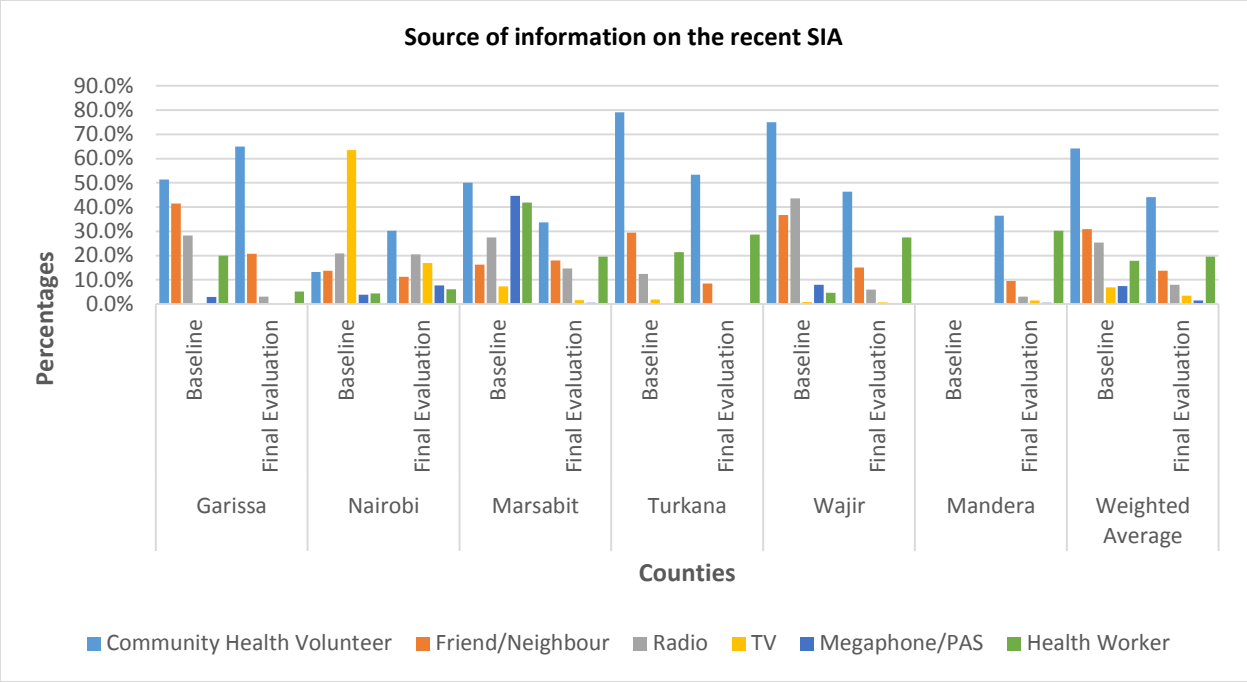

Fig. 11: Source of information on program for women/caretakers who heard of upcoming SIA, CORE Group Polio Project Areas, Kenya

According the final evaluation, 86.0% of the respondents believe a baby should to receive the polio vaccine, that is, drops in the mouth, for the first time during the first two weeks, a great improvement compared to 51.7% at baseline. The good is that mothers who don't know when a child should receive the first polio vaccination dropped from 29.6% to 1.7%, an indication that more mothers are more aware of the vaccination calendar than before.

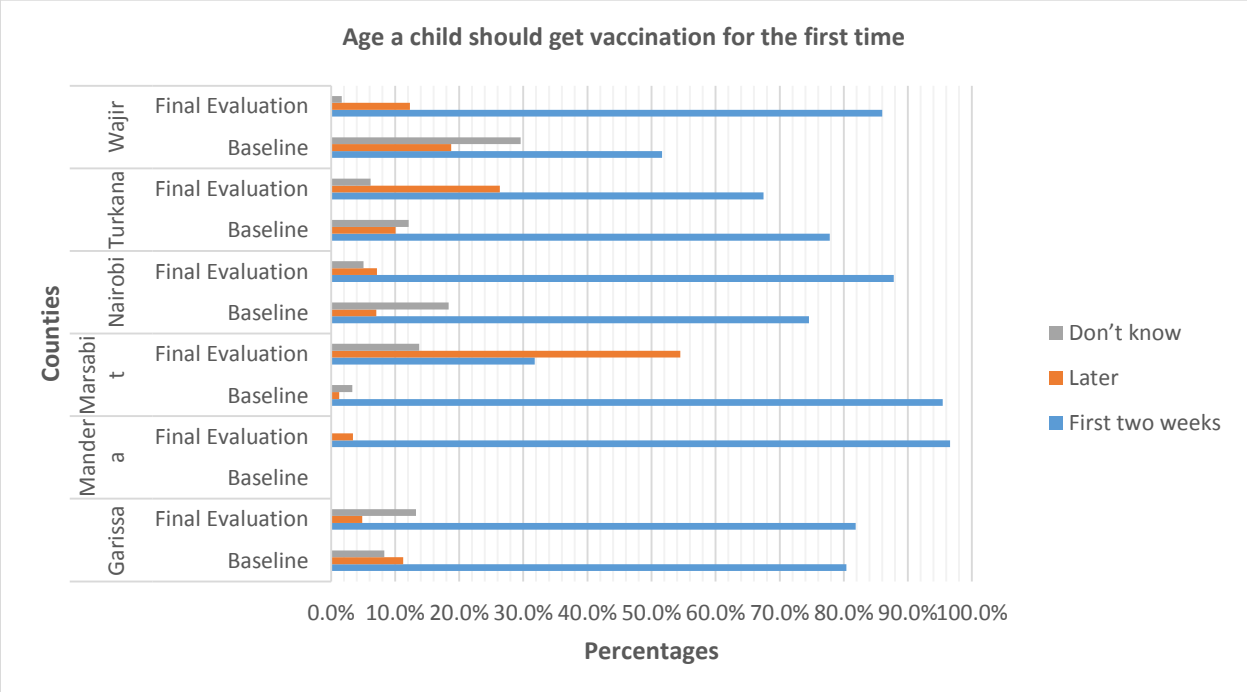

Fig. 12: Respondent's opinion on when a child should get vaccination for the first time, CORE Group Polio Project Areas, Kenya

The number of children who ever received polio vaccination, that is, drops in the mouth, in a vaccination campaign did not change significantly from the baseline figures. The final evaluation findings were uniformly across all counties ranging between 94.5% on the lower limit and 98.7% on the upper limit. This did not vary widely from the baseline figures although a decline of about 1% was evident.

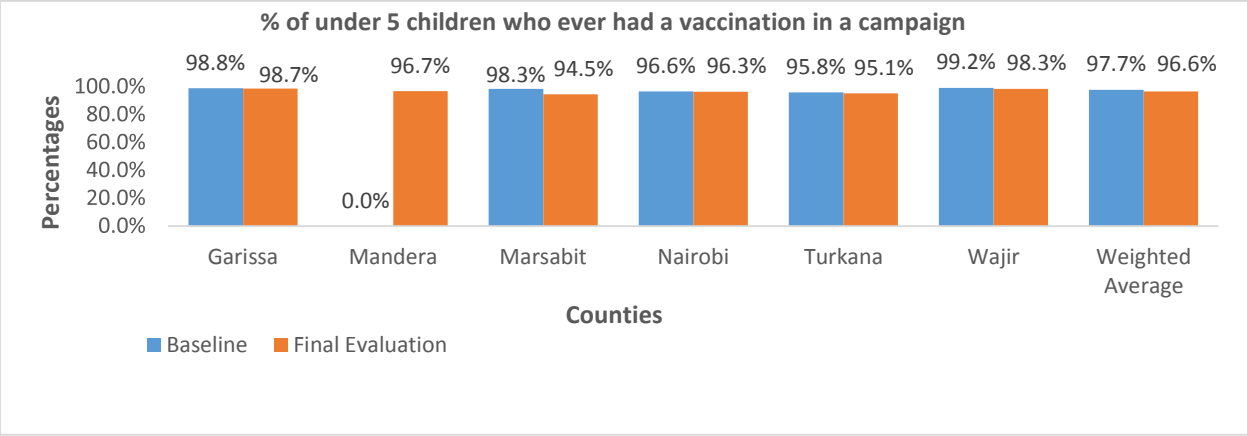

Fig. 13: Percentage of under 5 children who ever had a vaccination in a campaign, CORE Group Polio Project Areas, Kenya

75.6% the respondents informed they recall being visited at your home by a Community Health Volunteer or CGPP mobilizer in the past 6 months at times other than the days of a vaccination campaign that was conducted in March 2017. The percentage of respondents who remember receiving a home visit by a Community Health Volunteer / Mobilizer increased from 44.5% to 75.6%, evidenced by increased awareness and vaccination knowledge amongst mothers.

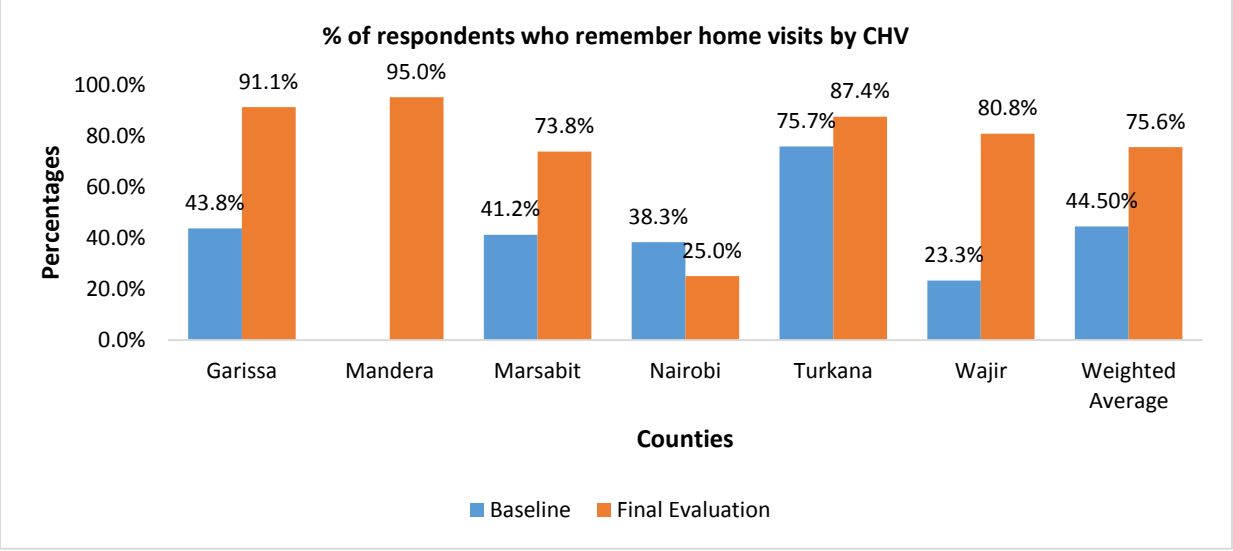

Fig. 14: Percentage of respondents who remember home visits by CGPP mobilisers, CORE Group Polio Project Areas, Kenya

The mothers were asked whether they have been visited by a Community Health Volunteer/Mobilizer, and 71.7% of the respondents were visited by vaccinators during the most recent polio round between March and April compared to 94.8% recorded during the baseline. This implies a decrease of 23.1% from the baseline figures. Interestingly, 80.2% of the respondents knew and could name the Community Health Volunteers and mobilisers. 49.9% of the respondents

informed they follow the instructions of the health workers when their children don't need more vaccination, 27.6% prefer to refer to their immunization cards while 10% stop after the measles vaccine.

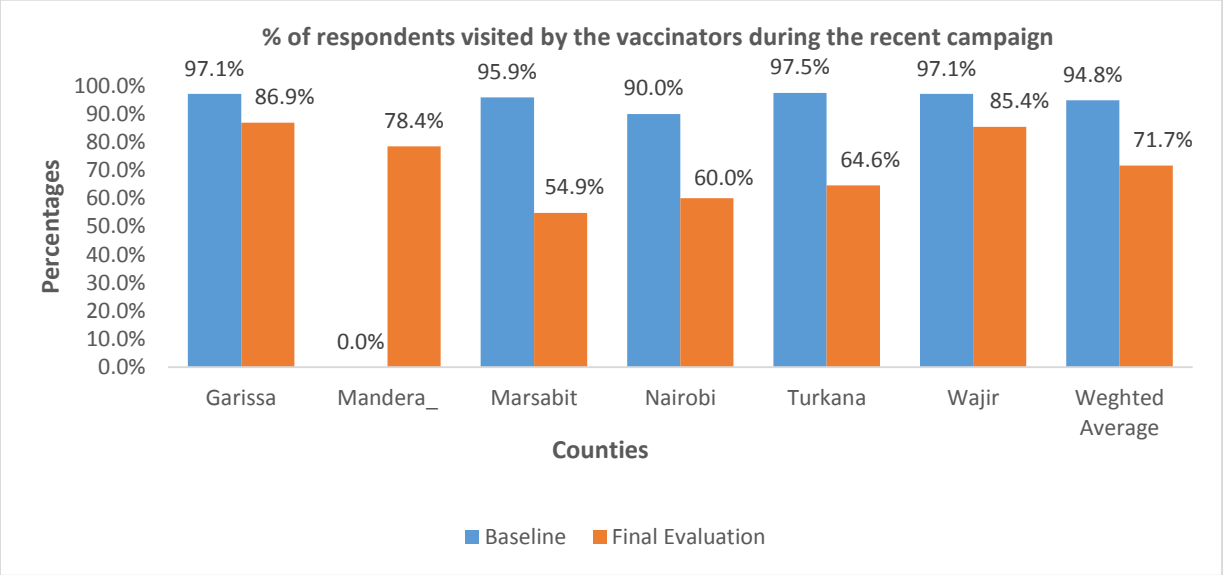

Fig 15: Visits by vaccinators during the recent polio campaign in the CORE Group Polio Project Areas, Kenya

In the most recent vaccination campaign that happened in March, 79.2% of the children aged below five years received polio vaccination that is drops in the mouth. This varied widely from the baseline figures recorded in between August 1 and 5. Of those who received mouth drops, 35.8% had finger marks while the rest did not have because the campaign was concluded several months ago and the finger marks had all faded away.

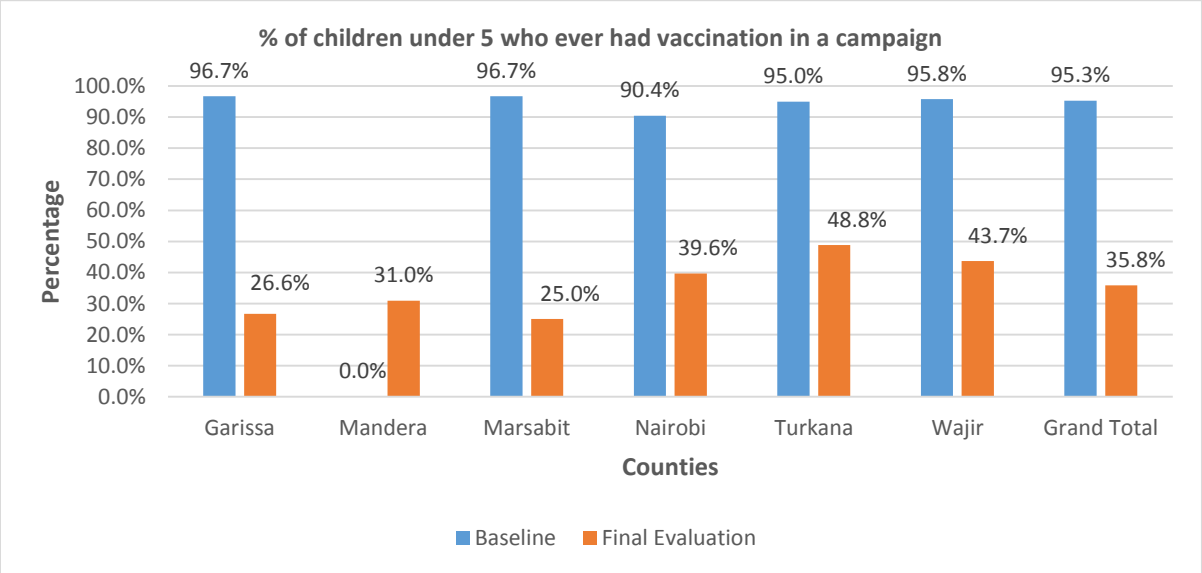

Fig. 16: Percentage of under 5 children who ever had a vaccination in a campaign, CORE Group Polio Project Areas, Kenya

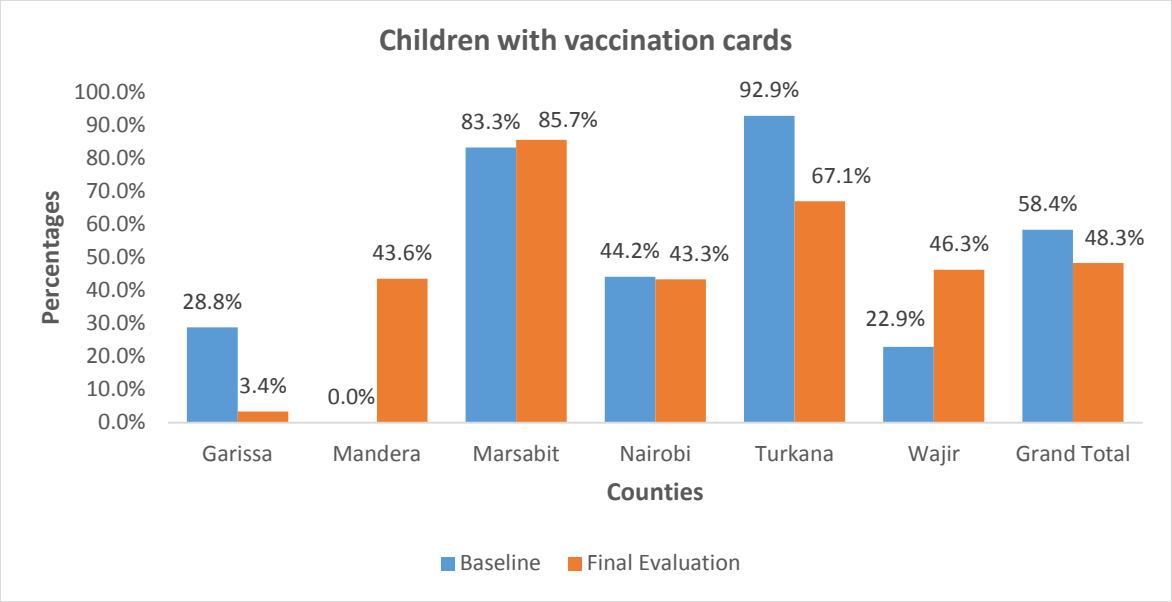

Fig. 17: Percentage of 12-23 months old children with vaccination cards, CORE Group Polio Project Areas, Kenya

5.9.Support efforts to strengthen AFP surveillance

Population knowledge of acute flaccid paralysis (AFP), or suspected polio disease, is important so that people report such cases to a health facility. Approximately 63% of the respondents correctly identified the key signs and symptoms of polio. This reveals an opportunity for CHVs to address AFP during village visits. Health education including AFP should be increased through CHV trainings and subsequent micro planning for additional community meetings.

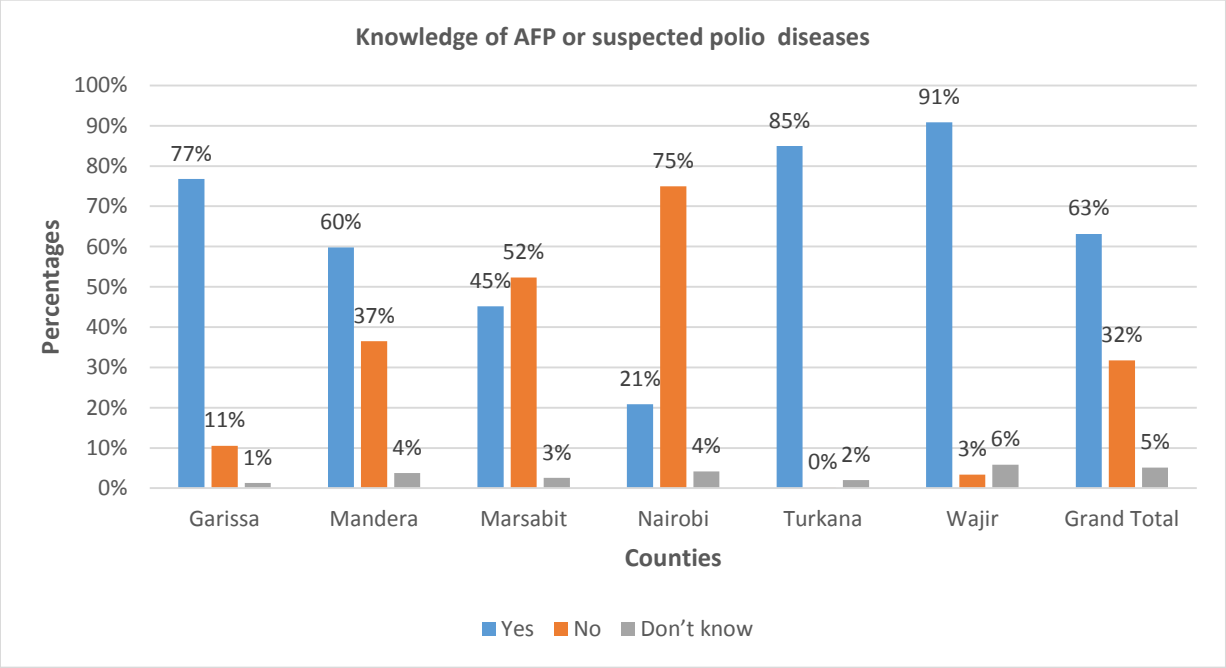

Fig. 18: Knowledge of AFP or suspected polio diseases, CORE Group Polio Project Areas, Kenya

5.10. Partnerships management and coordination between agencies

The CGPP Secretariat is based in Nairobi (hosted by CRS) and field activities are implemented by five International NGOs in Kenya: American Refugee Committee (ARC), Adventist Development and Relief Association (ADRA), International Rescue Committee (IRC), Catholic Relief Services (CRS) and World Vision (WV) covering Garissa, Mandera, Marsabit, Turkana, Wajir, Mandera and Nairobi counties. CGPP aims to achieve polio eradication outcomes as well as effectively coordinate and implement cross boarder activities through community based strategies. Of interest, 65% of the respondents said they do visit or get visitors from the other side of the border compared to 45% recorded in 2015. This means that movement of people cross the border has increased due to reasons such search for pastures for livestock, business and water.

6. Main challenges and problems observed in the CGPP target areas

a) A good number of household visited had cases of malnutrition due to poor diet and eating habits. This could be attributed to widespread poverty and inability of most household to afford three meals a day.
b) High illiteracy levels amongst mothers in the rural areas targeted by the CGPP group. Most mothers cannot read or write and as a result cannot properly monitor their children's routine vaccination and immunization cards.
c) Measles vaccination is constrained in most of the facilities due to lack of storage equipment's such as refrigerators. Most health facilities prefer administering measles vaccinations in groups of at least 20 children. This has led to delays in vaccination and children who are due are compelled to wait until there is enough quorum.
d) Mentally retarded, disable and street mothers are more disadvantaged in terms of access to health facilities. In most cases, their vaccinated cards are managed by CHVs to unsure their children receive routine vaccination.
e) Girl mothers living with their parents have a high potential of missing routine vaccination. This is because reluctance from part of the parents.
f) In areas which are predominantly Muslims, mothers still believe that vaccination causes sickness to their children. A good number of mothers especially in Katanga area in Kamukunji refused to be interviewed given their belief and the fact that their children have not received vaccination.
g) Cases of girls mothers especially street children not likely to take their children for vaccination due to stigmatization.
h) In Digo village, Kamukunji Sub County, most women and youths are idle and heavy engaged in alcohol and drug abuse. This is a potential cause of school dropouts, early pregnancies, HIV/AIDs, and child neglect.
i) Safety and security is a major issue in most parts of Turkana, Mandera, Wajir and Garissa. This has limited delivery of vaccination services in those areas.
j) The implementation of this final evaluation in some counties had gaps in coordination and communication amongst the CGPP partners who could not agree on logistical issues. These gaps are entrenched and have potential of affecting CGPP activities in future. For example in Mandera County, the Health department threatened to cancel activities despite presence CGPP member of the secretariat on the ground.

7. Recommendations

a) About 79.2% of the respondent reported their children received mouth drops while 19.2% reported their children did received polio vaccination during the last/recent campaign conducted in March 2017. This presents opportunity to upscale activities during such campaigns through effective coordination between MoH and PVOs as well as deployments of enough CGPP mobilisers, CHWs and CHVs.
b) About 69.4% of the respondents were aware about the March 2017 polio vaccination campaign while the rest 30.6% had no knowledge at all. CGPP group should ensure enough time is dedicated for door to door campaigns using services of CHVs, CHWs and local leaders to ensure more turn out and coverage.

c) While 84.0% of the mothers were of the opinion that receiving polio vaccine many times helps protect a child from polio, and about 94.9% agreed that a child should receive polio vaccinations during campaigns. It is still very unclear how many times a child should receive polio vaccinations. There is need to conduct more education sessions for pregnant mothers and mothers with children of vaccination ages. This could be achieved through CHVs, CHWs and health workers.

d) Approximately 48.3% of the children had vaccination cards at the time of the interview, 39.0% reported they have immunization cards while 12.7% did not have cards at all. It is possible that mothers who give birth at home other than in the health facilities are usually never reached at all for routine immunization. It is there for important to prioritise home deliveries especially in the hard to reach areas of Wajir, Mandera and Garissa counties. It is also wise for CHVs and CHWs to work closely with traditional birth attendants to help track such children.

e) Also witnessed are the high dropout rates amongst those who had vaccination cards and those who did not have vaccination cards but reported their children were vaccinated. This could be arrested through active follow up of mothers with children of vaccination age. If possible, CGPP should come up with a child vaccination management system for communities that can alert CHVs and CHWs when cases are due for next visits and vaccinations.

f) Approximately 63% of the respondents correctly identified the key signs and symptoms of polio. This reveals an opportunity for CHVs to address AFP during village visits. Health education including AFP should be increased through CHV trainings and subsequent micro planning for additional community meetings.