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# FACTORS INFLUENCING HIGH CHILD MORTALITY IN KAREMO SUBCOUNTY, SIAYA COUNTY –KENYA

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## Abstract:-

**Study Objective***: To determine factors influencing high child mortality rates at Karemo sub-County, Siaya County Kenya*
***Study Design:*** *A descriptive cross sectional study*
***Study Setting:*** *Karemo Sub-County, Siaya County Kenya*
***Study Subjects/participants:*** *Three hundred and twenty six (326) caregivers of children under five years at house hold levels*

## Results:

***Conclusion:*** *The education level of a mother played a major role in influencing child survival. The higher the educational level of a mother, the higher the chances of her child surviving. They appreciate the importance of giving the child balanced diet, they are able to access nutrition information from other sources such as internet, they take counselling positively, they are not so much into cultural practices they are able to shun away bad and promote good cultural practices, they appreciate the* importance of cleanliness, they are practice family planning and they are able to interpret and comprehend prescriptions

## INTRODUCTION

Children are the future human resources for any nation in the world. Therefore if you want a better future, you have to invest in children. This is why it is important for any nation – developed and developing to spend much in terms of time and money to continuously research on issues affecting under five years. The purpose of this study then was to explain why child mortality is high in Karemo Division.

Every year, nearly 11 million children die before reaching their 5th birthday and most of them during their first year of life despite efforts to improve health and nutritional status of children in developing countries according to family and community practices that promote child survival, growth and development (2004).

According to Fotso et al (2007) improvements in child survival have been very poor in sub-Saharan Africa. Since the 1990s, declines in child mortality have reversed in many countries in the region, while in others; they have either slowed or stalled, making it improbable that the target of reducing mortality by two thirds by 2015 will be reached.

According to Kanupriya and Chaturveen, ( 2004) Global trends of neonatal, infant and child mortality implications for child survival, only two WHO regions account for more than 70% of all under-five deaths; 42% occur in the African region and 29% occur in South-east Asia region. 6 countries account for 50% of all child deaths (2002 data source): India- South East Asia region, Nigeria- Africa region, China- West Pacific region, Pakistan-east Mediterranean region, Ethiopia –Africa region and DRC- Africa region.

According to AMREF (1981) nearly 50% of the population of East Africa is children. Almost all of the are born healthy, but approximately 250 out of every 1000 children born alive die before the age of 5yrs (under 5yrs mortality). This figure is made up of an infant mortality (deaths before 1 year of age) of 150 per 100 live births and additional 100 deaths between their first and fifth birthdays.

In Kenya all childhood mortality indicators are highest in Nyanza Province and lowest in Central Province according to KDHS (2003) and according to KDHS 2008 preliminary report under-five mortality is highest in Nyanza Province (206 deaths per 1000 live births), followed by North Eastern Province (163 per 1000) and lowest in Central (54 per 1000) and Rift Valley (77 per 1000). This implies that a child living in Nyanza Province is four times more likely than a child born in Central Province to die before celebrating his or her fifth birth day.

According to Siaya District Development plan 2008 -2012, under give rates is estimated at 234/1000 live births.

## MATERIALS AND METHODS

***Study Design*:** The study was a descriptive cross sectional and used both qualitative and quantitative methods.

***Study Setting*:** The study was conducted in 10 sub-locations selected randomly in Karemo sub-county – Mulaha, Nyandiwa, Randago,

Nyang'oma, Olwa, Ulafu, Umala, Mur Mulanga, Bar Ding' and Bar Olengo. These are sub-locations that have an NGO/Agency intervening in health and also previously benefitted from the eight years collaboration effort by community, NGO, MoH through Community Initiatives for Child Survival project.

***Study population:*** Study population consisted of the caregivers of children under 5 years at house hold levels and the implementers- Village Health Committees, Community Health Workers, NGOs/Agencies and Ministry of Health.

***Sampling method:*** For the quantitative study on the categories and the community health workers a cluster sampling method was used. For the qualitative study a purposive sampling was used to identify the key informants and the focus group discussants.

By the use of purposive sampling in the qualitative data, the identification of the key informants and focused group discussants through a method where I identified 80 CHWs among those who were trained during the eight years of collaborative effort by community, NGO and MoH through Community Initiatives for Child Survival project and still actively involved in community health workers activities in their respective villages.

***Sampling Size:*** For the quantitative data, 326 caregivers and 80 CHWs were interviewed using structured questionnaire. For qualitative data, the study involved 16 key informants and 10 focus group discussions using unstructured schedules. For the quantitative study, the composition of the sample size is based on a mathematical formula earlier applied by Fistcher and later adopted by authors such as Mugenda and Mugenda (1999). This mathematical formula focuses on three parameters, the confidence level, the precision level of the expected result and the size of the error term that can be allowed. Hence the precision level equals

$$\frac{P\ (1\text{-}p)}{\sqrt{n}}$$

And the significance level denoted by α equals 1-0.09 =0.05 and let the error term be denoted by d= the marginal error allowed or degree of accuracy desired (in the case 95% confidence limit gives error of 0.05) and therefore the sample size is determined by the formula below

$$d= Z\alpha/2\frac{\sqrt{(\ P<1\text{-}p>)}}{\sqrt{n}}$$

$$d= Z\alpha/2\frac{\sqrt{(\ P<1\text{-}p>)}}{n}$$

$n=z^2pq/d^2$ , (Mugenda, Mugenda, 1999/ Fitscher et al method)

Where:

n = desired sample size

z = standard normal deviation at the required confidence level

(1.96% for 95% confidence level)
P = the proportion of the target population estimated characteristics
If there is no reasonable estimate then 50% (0.5) is used
q=1-p (1.0.15=0.85)
d = the marginal error allowed or degree of accuracy desired (in this case 95% confidence limit gives error of 0.05)
Since Karemo Division has a high concentration of NGSs/Agencies intervening in health and also benefitted from the eight years collaborative effort by Community, NGO ad MoH through Community initiatives for child survival project, I will calculate my sample population from the current population of Karemo Division (76,900)
Total population = 76,900
Sample size is therefore (n) = $z^2pq/d^2$

$$N = \frac{(1.96)^2(.25)(.85)}{(0.5)^2}$$

$$N = 326$$

**Inclusion criteria**
Inclusion criteria were:
1. Willingness to participate in the study.
2. Lived/resided in the targeted sub-location in Karemo division for at least three months.
3. Caregivers in households that have experienced death of a child under 5 years of age within Karemo Division
4. Opinion leaders (Chiefs and Asst. Chiefs in target sub-locations in Karemo Division.
5. Special consideration will be given to women outside age group bracket of reproduction with or taking care of children under 5 years of age.
6. Member of DHMT-In- charge of a sampled health facility.

**Exclusion criteria**
Exclusion criteria were:
1. None residence of sub-locations of Karemo Division of Siaya District.
2. Unwillingness to participate in the study.

***Data collection methods*:** A well-structured questionnaire was used to collect the quantitative aspects of the study with some open ended questions which gave the respondent a chance to explain his/her reasons for the specific answer. Well-structured questions were also used with the Key informant interviews and the FDG, where the respondents were not guided to the answers but had a chance to discuss and explain their decisions and choices under prevailing circumstances. These predefined and well-structured questionnaires were administered to the respondents and the FDG and key informant questions discussed freely with the selected sample of individuals. These discussions were recorded and later transcribed and translated. The KIIs guides and FDG were used to collect qualitative information from MoH and other stakeholders, FDGs from the village health committees and the women groups.
***Data collection*:** The pretested and corrected tool was used in the data collection where the teams worked with 5 CHWs as guides. The CHWs identified the required target groups to be interviewed. The enumerators interviewed the identified target groups and individuals for 5 days (80 CHWs, 326 heads of households that have a child under 5 years, 5 key informants, 8 VHC, 1 DHMT, 8 health facilities in-charges, 6 NGOs/Agencies managers and 4 groups of women)
***Data processing*:** After the data collection, the questionnaires were reviewed to ensure consistency and validity of the data that was collected, the completeness of the questionnaire and other irregularities checked. After verification, the quantitative data was entered into SPSS by well trained personnel where further cleaning was conducted before the actual analysis.
For qualitative data, the recorded responses and discussions were transcribed and then translated to English which cleaning was done to ensure the validity, consistency and importance of each and every sentence recorded.
***Data analysis*:** For quantitative data, the analysis was done using a variety of statistical software's which included SPSS, Excel and Epi-Info. The data was first entered into the SPSS data matrix by well qualified persons after which cleaning was conducted to remove incomplete responses, inconsistent answers and ambiguous responses. After the data cleaning, some of the data were exported to other software's that were used in the analysis.
For the qualitative data, the discussions were first transcribed, after which the transcripts were translated into English since the discussions were done in local languages (Dholuo and Kiswahili) after which the analysis was done through summarization and grouping of related responses.

**Ethical considerations**
Before heading to the field I had to seek permission form District Commissioner and District Medical Officer of Health to allow me to carry out the study in the Sub-locations in the study area.
Respondent's identity was protected by keeping information given confidential. In studies lack of confidentiality and manhandling of information can cause harm to the respondents.
All enumerators had to seek respondents voluntary and informed consent to participate in the study. This was ensured by enumerators clearly explaining to the respondents the purpose of the study by the researcher.
Dissemination of study findings; it is ethical to share/reveal the study findings to the representatives of the respondents as a way of feedback. I will have to arrange appropriately to give feedback to District and Divisional administration, DHMT, CHWs, NGOs/ Agencies and community through their representatives in forums such as stakeholders meetings

**RESULTS**

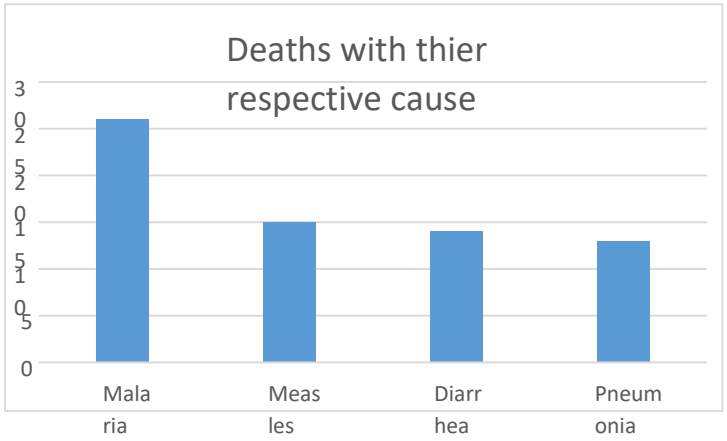
All the respondents included had at one time lost a child under five years within the last 5 years. However, some had lost a child in the previous year. 1 split the tables to distinguish those experienced child mortality within the previous year from the rest


*Bar chart showing the percent of those who lost a child in the past year*

Only 24.54% of the respondents had experienced a loss of a child who was under five in the previous year. This is lower than those who had not experienced it. For the sake of the objectives given, I selectively studied the pattern of their lifestyles differently. The 24.54% was 80 respondents from the total 326 respondents.

**Cause of child mortality**

The main cause of death is Malaria which claimed 32.5% lives, Diarrhea and Pneumonia were also major killers which claimed 18.75%, 17.5% and 16.25% lives respectively. The remaining 15% were other causes.




According to the key informant interviewees, most infant mortality happens between 1-3 years. This is due to poverty hence cannot afford the cost of medication, lack of parental care children are left with their brothers and sisters to take care of them when parents are out farming or doing business and ignorance of the benefits of seeking medication early.

Some respondents confirmed that most of their children suffer from malaria since their body immunity is weak, which they normally don't complete immunization and die between the ages of one and three years. They also cited incidences of poor care for the children by their mothers. They said poverty affected food security; thus malnutrition and that many pregnant women didn't know their HIV status. Most deliveries occur at home since most health facilities do not provide such services being dispensaries. Those delivering in health facilities either for to the district hospital or a Health Center in the division or have to go to private hospitals or faith based facilities. Mothers also do not seek ANC services in fear of being tested for HIV before birth thus risking transmitting it to their children during birth.

In some places the respondents mentioned early marriages, lack of family planning and HIV as the main causes. In addition, they said some 'become nurses themselves' and in so doing incidences of child mortality occur.

Poor weaning practices was also cited as another cause and as a curse – 'hero' (it is taboo to continue breastfeeding a child when one has conceived, since they conceive before the child reaches one year). They were clear to state that some pregnant women are poor attendees of ANC thus risk infecting the child with "complications that they have". They said

that home deliveries are conducted by unskilled midwifes – traditional birth attendants or at times relatives) enhance chance of poor child's health and that low household incomes contributed much to malnutrition.
Other citation included ignorance, lack of collective responsibility parents (hence poor parental care) as causes of child mortality.

**Education and parity**

| Live birth last twelve months | Experienced death at under 5 | |
|---|---|---|
| | Yes | No |
| | | 2 (1%) |
| Yes | 44 (55%) | 116 (4%) |
| No | 36 (45%) | 128 (52%) |

Table showing those who had live births over the year or not

Despite having lost a child within the year, 55% (44) respondents also had another child within the year.
Among the 80 who had lost a child within the year, 77.5% (62) were married, 13.5% (11) were '*living together'* with another person, 6.25% (5) were widowed while the remaining 2.5% (2) did not reveal.

| Level of education | Experienced death at under 5 | |
|---|---|---|
| | Yes | No |
| None | 2 (3%) | 5 (2%) |
| Primary completed | 27 (34%) | 94 (38%) |
| Primary not completed | 37 (46%) | 107 (43%) |
| Secondary completed | 7 (9%) | 14 (6%) |
| Secondary on completed | 5 (6%) | 24 (10%) |
| Others specify | 2 (3%) | 2 (1%) |

*Table describing the level of education among the respondents*

From the table above, the distribution on the level of education is fairly similar between those who lost a child within a year or not. Most of the categories had not completed secondary school.

| | | Experienced death at under 5 | |
|---|---|---|---|
| Parity | | Yes | No |
| | Para 1 to 2 | 19 (24%) | 95 (39%) |
| | Para 3 to 4 | 20 (25%) | 78 (32%) |
| | Para 5 to 6 | 24 (30%) | 45 (18%) |
| | Para 7 and above | 17 (21 %) | 28 (11%) |

*The parity observed among the respondents*

Most 30% (24) respondents who lost a child within a year had a parity of 5 to 6. Most who had not lost a child over the last year had parity of between 1 and 4; thus the difference in the distribution of parties between those who lost a child within the year and those had not.

**Weaning, and nutrition habits during illnesses**

| | | | Experienced death at under 5 | |
|---|---|---|---|---|
| | | Yes | No | Total |
| Age started giving additional food | 0 to 3 months | 36 (45%) | 99 (40%) | 135 (41.4%) |
| | 4 – 6 months | 32 (40%) | 97 (39%) | 129 (39.6%) |
| | > 6 months | 12 (15%) | 48 (20%) | 60 (18.4%) |
| | Don't know | | 1 (< 1%) | 1 (0.3%) |
| | Not applicable | | 1 (< 1 %) | 1 (0.3%) |

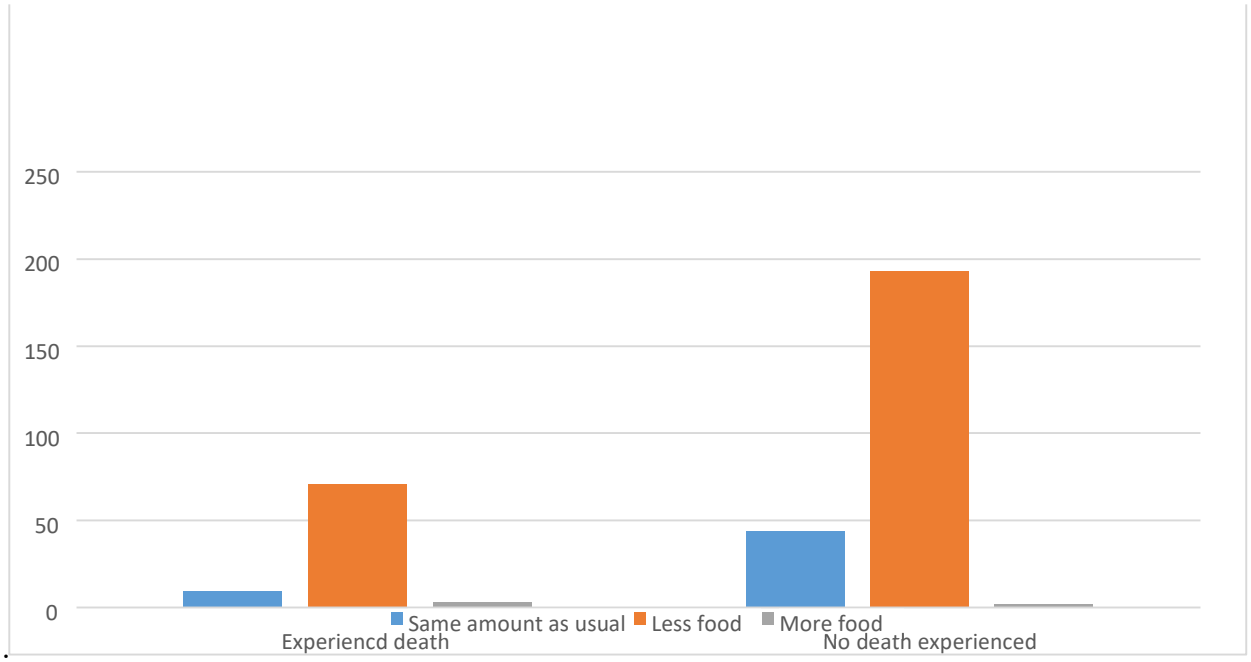
Age respondents introduce their children to additional food (wean)

41.4% respondents introduced their children to additional foods before three months of age, 18.4% waited until past six months (15% and 22% respectively). This behavior was almost between those who lost a child within the year and those who didn't.

| | Experienced death at under 5 | | |
|---|---|---|---|
| | Yes | No | Total |
| Same as usual | 15 (19%) | 50 (20%) | 65 (19.9%) |
| Less than usual | 60 (75%) | 185 (75%) | 245 (75.15%) |
| More than usual | 3 (4%) | 8 (3%) | 11 (3.4%) |
| None at all | 2 (3%) | 3 (1%) | 5 (1.5%) |

*What the respondents does in regards to drinks sickness*

Most respondents (75%) administered less than usual drinks to their children (under five years) during sickness. Very few (3.4%) gave more than usual drinks during sickness. The behavior was similar between those who experienced child mortality within the year and those who didn't.
I also considered the feeding habits of the two lots during sickness. Their behavior was as summarized in the clustered bar chart below




The distribution was fairly similar between those who experienced death of an under five in the previous year and those who didn't.

Most 81.3% (265) gave less food to the child when children were sick.

| | Experienced death of under 5 | | |
|---|---|---|---|
| | Yes | No | Total |
| Nothing | 7 | 23 | 30 |
| Oral rehydration salt | 30 | 70 | 100 |
| Porridge | 6 | 48 | 54 |
| Soup or fruit juice | 1 | 3 | 4 |
| Breast milk | 2 | 8 | 10 |
| Tea | 1 | 1 | 2 |
| Water or sugary water | 19 | 47 | 66 |
| Others specify | 14 | 46 | 60 |

*What is given when having diarrhea*

The oral rehydration salt (ORS) was administered to most (30.7%) children who had diarrhea by most of the caregivers (38% and 28% respectively). This was the same response between caregivers who had lost a child in the previous year and those who didn't. However 69.3% of respondents offered nothing or porridge, or soup/fruit juice, or breast milk, or tea, or water/sugary water and other forms of fluids. Breast milk was offered, albeit, to more extent than tea and soup. Behavior of respondents who lost a five year old child within the year and those who didn't lose seemed similar.

**Health seeking behavior of the respondents**
192 households had a child ill in the past two weeks. 30.9% never sort any treatment from anywhere, 45.7% seek treatment from health facility, 21.3% administered self-medication and only 2.1% seek treatment from traditional healers.

| | Experienced of under 5 | | |
|---|---|---|---|
| | Yes | No | Total |
| Malaria | 16 (33.3%) | 66 (45.8%) | 82 (42.7%) |
| ARTI | 7 (14.6%) | 28 (19.4%) | 35 (18.2%) |
| Diarrhea | 9 (18.6%) | 20 (13.9%) | 29 (15.1 %) |
| Don't know | 1 (2.1%) | 2 (1.4%) | 2 (1.6%) |
| Others specify | 15 (31.3 %) | 28 (19.4%) | 43 (22.4%) |

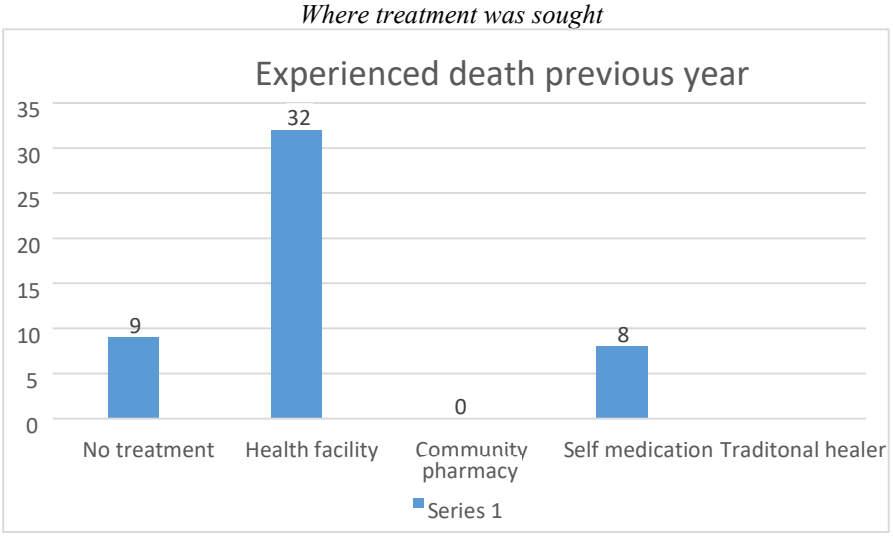
*Type of illness encountered by 194 children that were ill*

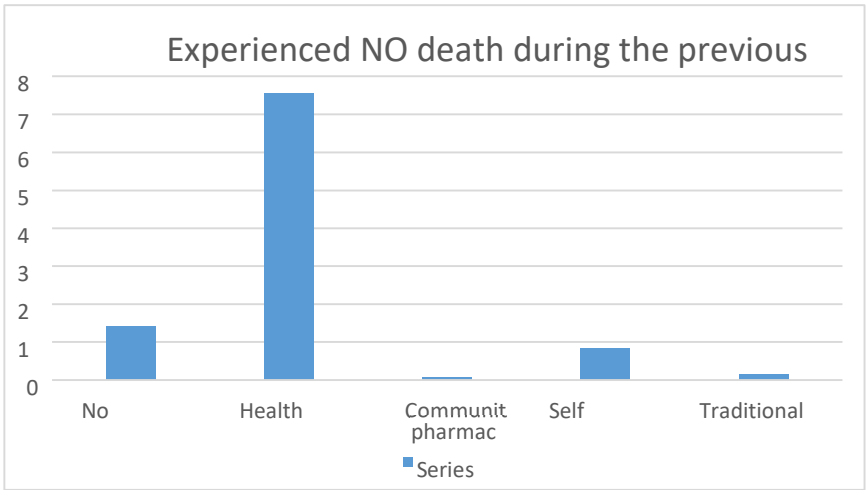
All it can be seen form the table above, Malaria was the most common illness (42.7%) among the respondents. Among the respondents who had lost a child in the previous year, more (18.6%) children were affected by diarrhea than ARTI (14.6%). This was different for those who had not lost a child in the year. To them, ARTI was more pronounced than Diarrhea.

I also looked at where the respondent sought the treatment for the less than five years ill child. The responses were as summarized below

| | Experienced death of under 5 | | |
|---|---|---|---|
| | Yes | No | General |
| No treatment | 9 (18%) | 20 (14%) | 29 (14.9%) |
| Health facility | 32 (65%) | 110 (76%) | 142 (73.2%) |
| Community pharmacy | | 1 (1%) | 1 (0.5%) |
| Self-medication | 8 (16%) | 12 (8%) | 20 (10.3%) |
| Traditional healer | | 2 (1%) | 2 (1.0%) |

*Where treatment was sought*




The two figures above show percentage of respondents seeking treatment from the given source. Health facilities are the primary places where the respondents sought for treatments for their sick children. Alarmingly, a significant proportion of the caregivers (more than 14%) did not seek treatment anywhere. Also, a significant number of them used self-medication.

Traditional healers and community pharmacies received almost 'negligible' respondents, with no respondent who had lost a child in the previous year going to visit them.

| | Experienced death at under 5 | | |
|---|---|---|---|
| | Yes | No | General |
| Recovered | 26 (53%) | 87 (61%) | 113 (58.9%) |
| Still sick on treatment | 15 (31%) | 36 (25%) | 51 (26.6 %) |
| Still sick not on treatment | 8 (16%) | 20 (14%) | 28 (15.6%) |

*Outcome of the treatment*

The outcome of the treatment was fairly similar between those who had lost a child in the previous year and those who had not. Most 58.9%, more than a half, of the ill children recovered while the minority 14.6% were still sick, and not on treatment. Also I looked at the cost of the treatment

| | Experienced death of under 5 | | |
|---|---|---|---|
| | Yes | No | General |
| Not answered | 1 (2%) | 4 (2.8%) | 5 (2.6%) |
| Less than 100/- | 22 (44.9%) | 67 (46.9%) | 89 (46.4%) |
| 100 – 500/- | 9 (18.4%) | 31 (21.7%) | 40 (20.8%) |
| 500 – 1000/- | 4 (8.2%) | 3 (2.1%) | 7 (3.6%) |
| Over 1000/- | 1 (2%) | 2 (1.4%) | 3 (1.6%) |
| No payment (waived) | 4 (8.2%) | 22 (15.4%) | 26 (13.5%) |
| Not applicable | 8 (16.3%) | 14 (9.8%) | 22 (11.5%) |

*Amount paid for treatment*

A majority (44.9%) of the respondents who had a child sick in the previous week used less than 100 shillings to pay for treatment. Also many (18.4 %) used between 100 and 500 shillings to pay for treatment and other proportion (8.2 %) had their payment waived. From the FGDs we got that the majority of people seek treatment services for their children below five year in the health facility. Others however said they buy medicine not available in the health facility from the pharmacy.

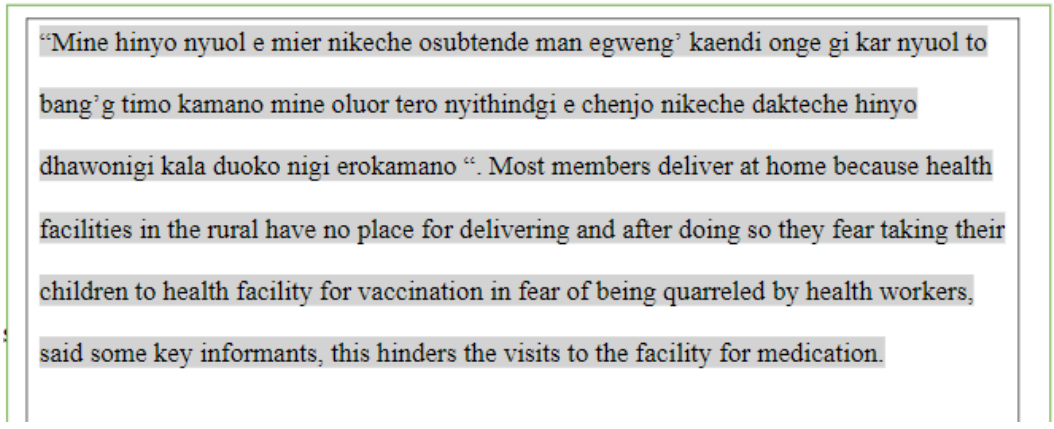
Faith healers and Traditional doctors are consulted. "They identify the problem since we normally don't know", respondents reported. A respondents explained that the above have greatly contributed to the high percentage of deaths due to ignorance of community members they take their children to health facility when traditional doctors fail and their conditions is worse.

Differences in social setups necessitates them to not have a consensus as to which is a preferred option, "*Dholuo opogore kaluwore kod kit dak magi!"* people vary depending on their style of living.

Key information echoed the sentiment stating that some mothers still believe in "*juok"* (witchcraft). Once they see the condition worsen is when they will go to the health facilitiesThis could be a delay of three days to one week.

**A question was posed asking that there is a vaccination given to children at 9 months do we mean that it is not effective since according to most respondents measles was still a main cause of child mortality in the division.**

The key informant interviewees acknowledged that vaccines are active but it is the women who do not take the responsibility to take the children for the process due to ignorance and long distances from the health facility.


"Mine hinyo nyuol e mier nikeche osubtende man egweng' kaendi onge gi kar nyuol to bang'g timo kamano mine oluor tero nyithindgi e chenjo nikeche dakteche hinyo dhawonigi kala duoko nigi erokamano ". Most members deliver at home because health facilities in the rural have no place for delivering and after doing so they fear taking their children to health facility for vaccination in fear of being quarreled by health workers, said some key informants, this hinders the visits to the facility for medication.

| | Experienced death of under 5 | | |
|---|---|---|---|
| **Distance of health facility** | Yes | No | General |
| < 30 minutes' walk 30 to 1 hour walk<br>1 to 2 hours walk<br>More than 2 hours walk | 31 (39%)<br>27 (34%)<br>19 (24%)<br>3 (3%) | 95 (39%)<br>84 (34%)<br>57 (23%)<br>10 (4%) | 126 (38.7%)<br>111 (34%)<br>76 (23.3%)<br>13 (45) |
| **Mode of transport used to health facility** | | | |
| Boda boda (bicycle transport)<br>Walk<br>Vehicle transport<br>Motor bike transport<br>Others | 20 (25%)<br>54 (68%)<br>2 (3%)<br>4 (5%) | 57 (23%)<br>170 (69%)<br>1 (<1%)<br>17 (7%) | 77 (23.6%)<br>224 (68.7%)<br>3 (0.9%)<br>21 (6.4%)<br>1 (0.9%) |
| **Is a mode of transport affordable** | | | |
| Yes No | 52 (65%)<br>28 (35%) | 167(68%)<br>79 (32%) | 219 (67.2 %)<br>107 (32.8%) |

As it can be seen from the above table, most (38.7%) respondents had health facilities situated a distance of less than 30 minute walk from their households. Very few (4%) lived further than a two hour walking distance form a health facility. Most respondents (68.7%) walk to the health facilities. *Boda Bodas* and Motorbikes form respectively the most used means of transport apart from walking. And also, a great proportion of the caregivers (67.2%) agreed that the mode of transport was affordable.

| | Experienced death of under 5 | | |
|---|---|---|---|
| *Major occupation* | Yes | No | General |
| Salaried<br>Self employed<br>Casual employment<br>None<br>Others | 35 (44%)<br>3 (4%)<br>26 (33%)<br>16 (20%) | 3 (1%)<br>93 (38%)<br>6 (2%)<br>72 (29%)<br>72 (29%) | 3 (0.9%)<br>128 (39.3%)<br>9 (2.8%)<br>98 (30.1%))<br>88 (27%) |
| *Partner's major occupation* | | | |
| Salaried employment<br>Self-employment<br>Casual employment<br>None<br>Others<br>Not applicable | 6 (8%)<br>34 (43%)<br>16 (20%)<br>5 (6%)<br>18 (23%) 1 (1%) | 33 (13%)<br>90 (37%)<br>58 (24%)<br>13 (5%)<br>50 (20%) 2 (1%) | 39 (12%)<br>124 (38%)<br>74 (22%)<br>18 (5.5%)<br>68 (20.9%) 3 (0.9%) |
| *Major family source of income* | | | |
| Farming<br>Remittance<br>Employment<br>Business<br>Casual work<br>Others | 23 (29%)<br>1 (1%)<br>6 (8%)<br>29 (36%)<br>15 (19%) 6 (8%) | 104 (42%)<br>14 (6%)<br>25 (10%)<br>61 (25%)<br>33 (13%) 9 (4%) | 127 (39%)<br>15 (4.6%)<br>31 (9.5%)<br>90 (27.6%)<br>48 (14.7%) 15 (4.6%) |

| | Experienced death of under 5 | | |
|---|---|---|---|
| | Yes | No | General |
| *Number of people living in the house* | | | |
| 2<br>3 to 5<br>6 to 8<br>9 to 12 | 47 (59%)<br>27 (34%)<br>6 (8%) | 11 (4%)<br>128 (59%)<br>87 (35%)<br>20 (8%) | 11 (3.3%)<br>175 (53.7%)<br>114 (35%)<br>26 (8%) |
| *Presence of latrine* | | | |
| Yes | 63 (77.8%) | 203 (82.9%) | 266 (81.6%) |
| No | 18 (22.2 %) | 42 (17.1 %) | 60 (18.4%) |
| *Whether hand washing is practiced after visiting latrine* | | | |
| Yes | 75 (92.6%) | 234 (95.5%) | 309 (94.8%) |
| No | 6 (7.4%) | 11 (4.5%) | 17 (5.2%) |
| *How to wash hands* | | | |
| Leaky tin | 4 (4.9%) | 12 (4.9 %) | 16 (4.9 %) |
| Tap water | | 4 (1.6%) | 4 (1.2%) |
| Basin | 56 (69.1%) | 186 (75.9%) | 254 (74.2%) |
| Pouring using cup | 10 (12.3%) | 27 (11%) | 37 (11.3%) |
| Others | 11 (13.6%) | 16 (6.5%) | 77 (23.6%) |
| *When to wash hands* | | | |
| **After meals** | | | |
| Yes | 77 (88.9%) | 204 (83.3%) | 276 (84.7%) |
| No | 9 (11.1%) | 41 (16.7%) | 50 (15.3%) |
| **Before meals** | | | |
| Yes | 79 (97.5%) | 239 (97.6%) | 318 (97.5%) |
| No | 2 (2.5%) | 6 (2.4%) | 8 (2.5%) |
| **After handling babies tools** | | | |
| Yes | 11 (13.6%) | 40 (16.3%) | 55 (16.9%) |
| No | 70 (86.4%) | 205 (83.7%) | 275 (84.4%) |
| **Before food preparation** | | | |
| Yes | 30 (37%) | 62 (25.3%) | 92 (28.2%) |
| No | 51 (64%) | 183 (74.7%) | 234 (71.8%) |

From the cross tabulation table above, most families 37% with less than six people live in single rooms, while 13.8% of those with six to twelve members lived in two-roomed houses. Most families (53.7%) had between three and five members, and of those, most (65.1%) were in single roomed houses.
Most homes had pit latrines (more than 94% of them). For the homes lacking a pit latrine, most disposed off their waste in bushes while a majority of those remaining didn't specify where they disposed. Some who never lost a child in the previous year also stated that they buried their waste.
After visiting the latrine, most of them washed their hands in a basin (74.2%), or by pouring using a cup (11.3%). Another majority stated using leaky tins while only two had taps.
Most respondents 97.5% was their hands before 84.7% after meals. However, a majority (84.4%) don't wash their hands after handling babies' stools and 71.8% before food preparation. This behavior is similar between those who lost a child within the year and those who didn't. I also looked at the source of water for domestic use. The results were tabulated and are explained below

| *Water source for domestic use* | Experienced death of under 5 | | |
|---|---|---|---|
| | Yes | No | General |
| River | 27 (34%) | 90 (37%) | 117 (35.9%) |
| Borehole (protected) | 25 (31%) | 81 (33%) | 106 (32.5%) |
| Tap | 6 (8%) | 9 (4%) | 15 (4.6%) |
| Spring | 19 (24%) | 44 (18%) | 63 (19.3%) |
| Others | 3 (4%) | 22 (9%) | 25 (7.7%) |
| *Distance from water source* | | | |
| < 30 min walk | 67 (84%) | 181 (74%) | 248 (76.1%) |
| 1 hour walk | 10 (13%) | 60 (24%) | 70 (21.5%) |
| > 1 hour walk | 3 (3%) | 5 (2%) | 8 (2.5%) |
| *Treating of drinking water* | | | |
| Yes | 63 (78.8%) | 180 (72.8%) | 243 (74.5%) |
| No | 17 (21.2%) | 66 (27.2%) | 83 (25.5%) |
| *Method used to treat water* | | | |
| Boiling | 5 (7.9%) | 18 (10%) | 23 (9.5%) |
| Chemicals | 57 (90.5%) | 161 (89.4%) | 218 (89.7%) |
| Others | 1 (1.6 %) | 1 (0.6%) | 2 (0.8%) |

Rivers and boreholes (more than 68.4% combined were the main source of water for people in Karemo. At least 76.1% of the respondents have water sources that are a walking distance of less than thirty minutes from the homestead, with 2.5% of them having to walk for more than an hour before they get to the source of water.
At least 89.7% of the respondents also treated their water, mostly by use of chemicals with a few, 9.5% of those who treat, boiling the water.

Finally, when asked on rubbish disposal, 50.6% of the respondents affirmed that they have compost pits for the purpose. The second most used option is 'throwing the garbage in the garden' where 38% respondents said they do so. 7.7% respondents said they burn the garbage and 1.8% bury. This behavior pattern of the respondents in water treatment and garbage disposal, and choice of distance of homesteads from the source of domestic water was fairly similar between those who had lost a child below five years of age in the past year and those who had not.

**Health service information**

| *Free health services to under 5 years* | Experienced death of under 5 | | |
|---|---|---|---|
| | Yes | No | General |
| Yes | 21 (26%) | 55 (22%) | 76 (23.3%) |
| No | 59 (74%) | 191 (78%) | 250 (76.7%) |
| *Charges for children treatment* | | | |
| Yes it is said that treatments is free but you have to but | 50 (78.1%) | 119 (61.3%) | 169 (65.5%) |
| You pay consultation fee of 40/- when you take the child for | 3 (4.7%) | 42 (21.6%) | 45 (17.4%) |
| Fixed payment of 100 | 3 (4.7%) | 5 (2.6%) | 8 (3.1%) |
| Others | 8 (12.5%) | 28 (14.4%) | 36 (14%) |
| *Health facility lacks drugs for children under 5 years* | | | |
| Yes No | 63 (79%)<br>17 (21%) | 172 (70%)<br>74 (30%) | 235 (72.1%)<br>91 (27%) |
| *Length drug shortage lasted* | | | |
| 2 to 4 weeks | 46 (73%) | 124 (72%) | 170 (72.3%) |
| 1 to 2 months | 11 (17%) | 37 (22%) | 48 (20.4%) |
| > 2 months | 6 (10%) | 11(6%) | 17 (7.2%) |
| *When drugs prescribed is available* | | | |
| Referred to another health facility | | 7 (3%) | 7 (2.1%) |
| Purchased prescribed drugs from the chemist | 80 (100%) | 234 (95%) | 314 (96.3%) |
| Others | | 5 (2%) | 5 (1.5%) |
| *When last visited by CHW* | | | |
| < 2 weeks ago | 10 (12.5%) | 46 (18.7%) | 56 (17.2%) |
| 2 to 3 weeks ago | 6 (7.5%) | 21 (8.5%) | 27 (8.3%) |
| 4 to 5 weeks ago | 9 (11.3%) | 27 (11%) | 36 (11%) |
| Others | 55 (68.8%) | 152 (61.8%) | 207 (63.5%) |

Most (76.7%) of the respondents said they do not receive free health services. According to 72.1% of the respondents, there were instances when the health facilities lacked adequate drugs for the treatment of under five year old children. The duration of the shortage exceeded two months.

When the prescribed drugs were unavailable, 96.3% of the respondents resorted to purchasing them from a chemist, with 2.1% of the respondents, who had not lost a child in the previous year, being referred to another health facility. The health facilities operate full day according to the respondents, where full day implies from eight in the morning till five in the evening. 63.5% of the respondents did not affirm to being visited by the CHWs in the preceding five weeks.

In all villages, no community pharmacies were currently running. Communities that once had a community pharmacy that was started by the MoH in collaboration with CARE-K some collapsed while others were upgraded to dispensary; CHWs were then given HBC kits by the Maseno West diocese but were not replenished when the initial supplies got exhausted. The community pharmacies collapsed due to drugs being cheaper at the dispensaries, inadequate drugs and mismanagement; high supply lack and lack of adequate sale; rent payments were high since community never built their own structure; disagreements between the committee and the CHWs on profit sharing and credit sales that were never fully honored.

**Facility related factors that contribute to high child mortality**

During FDGs, we asked and were given a plethora of factors that the participants believed to have led to high incidences of child mortality in Karemo division. They are as enumerated below

- Delays by community members to seek health services from HF promptly; many wait the next day when, it most cases the condition has worsened.
- Lack of drugs and essential equipments in the facility. o Congestion in the wards with few trained personnel to attend to admitted children.
- Unsupervised and unqualified trainees working at the outpatient department leading to misdiagnosis and wrong treatment hence more children deaths.

> *"Gimulo nyathi ka jomatugo gi doli to gikia gimagitimo" They handle children like playing with a doll without knowing what they are doing.*

> *"Wamedo bedo gi luoro nikeche kata nyithindiwa oyudo chenje mar dweche ochiko to podi seregete makogi (measles). Yedhe nenore ni ok tii koso ang'o matimore yawa?" We continue to fear because even when our children receive measles vaccine they still get measles. It seems the vaccines are ineffective or what is happening.*

- Corruption at facility; some bribe hence are served first, those who won't or can't are delayed on the queue such that children die on the queue.
- Language barrier between the patient and the health personnel; some staff don't know Dholuo, while some patients can't understand English or Kiswahili. The miscommunication leads to misinterpretation of information provided by caregivers leading to misdiagnosis, incorrect treatment and death of a child.
- Facilities' staff attitude; many of them use unkind words on mothers hence discourage them from going to health facility. Some health workers are not confidential. This is evident when putting off those who can't afford the health services.
- High medical levies.

**Community related factors that contribute to high child mortality**

I also inquired of the community factors that the participants believed to have contributed to high child mortality cases. The below were given.

- Beliefs; in witchcrafts (*juok/Sihoho*) while some religious beliefs discourage visiting health facilities.
- Most parents pay little attention to young children especially when their mothers conceive before they are one or two years. o Poor weaning, poverty and poor environmental sanitation.
- Misinforming the public; it is said that children under five years are treated free while in reality they have to pay a small fee to cater for the volunteers assisting at the facility. Most caregivers cannot afford given their economic situation. They end up avoiding to take their children to health facility hence increased child mortality.
- Lack of triage system in the facility o Stigma/fear that they will be tested o Ignorance – many have difficulty in identifying the disease while others share drugs, use of stale drugs; people don't look at the expiry dates without proper diagnosis. Also some default on health facility visits.
- High rates of unattended home deliveries.

**Knowledge and practice of standard case management of childhood illnesses**

**Community Health Workers**

- From the FDGs, we got the numbers of known CHWs for the study locations. A total of eighty CHWs were interviewed 77.5% of the CHWs are aged 40 and above years.
- 77% have served as CHWs for 10 and above years
- Only 61% of the CHWs could remember having received training on standard case management of childhood illness.
- 54% of the CHWs are not practicing standard case management of childhood illness.
- 33.8% conducted 3 or more home visits to households in a month.
- Only 20% of CHWs could assess, diagnose/classify, provide appropriate treatment and advised caregiver what to do when condition of the child worsened.
- 48.7% cannot remember the education to caregivers on home care during illness and signs of severe illness that when noted on a child should be taken immediately to be seen by a qualified health worker.
- Majority (52.5%) of the CHWs cannot assess and identify danger signs in a sick child.
- 83.7% of the CHWs cannot remember how to assess and classify a child with respiratory tract infection.
- 62.5% of the CHWs cannot remember how to assess and classify a child with diarrhea
- 61.5% of the CHWs cannot remember treatment of a child with malaria
- 77.5% cannot remember treatment of a child with pneumonia
- 78.7% cannot remember treatment of a child with dehydration
- "The CHWs referral systems are ineffective". This was said by majority of the residents in the study area. Some said that the CHWs lack referral forms while some are generally inactive. Also, they said that the staff in facilities don't acknowledge such referrals and thus render them ineffective.

**Caregivers**

Interestingly most of the respondents did not know CHWs from their own communities, thus they couldn't evaluate their knowledge on proper case management of child hood diseases for children aged below five years. However, those that knew CHWs from their communities seemed to agree that most CHWs have minimal knowledge on standard case management of childhood illnesses. This they attributed to recent recruitments since most who were initially trained are either dead or dropped along the way. They also said it could be due to lack of technical support such as refresher trainings on standard case management of childhood illnesses. Some have 'forgotten everything'. Generally CHWs have neglected their work due to lack of motivation and even those who work ask for payment first before attending to the child. A higher percentage of caregivers are ignorant of the danger signs for children below the age of five and some caregivers blamed superstitious beliefs for the prevailing ignorance. They stated, 'If the CHWs who are supposed to educate the community are ignorant of danger signs for children below the age of five, then how the caregivers would know'.

**Developmental partners in the area apart from MoH**

1. ADRA empower youth. The initiated a youth resource centre.
2. AED Kenya: Support 0-12 year old children through material provision such as school uniforms, nets, soaps and water guards. This is does mostly for OVC within the community.
3. CARE Kenya empowers the community on group savings and loans.
4. CDC: They conduct home visits (HBCT) to look into the Child welfare, pay medication bills for children under research and conduct research on births and deaths.
5. CIS deals with agro forestry and give seedlings
6. GLOBCOM trains the youth and support groups on HIV/AIDS
7. GREAT LAKES UNIVERSITY also helps in training of CHWs
8. IDCCS Provided community water tanks and train CHWs
9. KEPSA support old age persons through building of shelter.
10. NALEP: Conducts training on agriculture. 11. NEMA: Provide tree seedlings
12. SWAP recently introduced themselves to the community and their focus is on water availability and sanitation.
13. TICH also provides health education to community members, seeds at affordable prices and train on poultry keeping.
14. WORLD VISION: Sponsor Children through provision of Uniforms, Conducts Community mobile medication.

**DISCUSSION**

Similar to other studies, malaria, measles, diarrhea and pneumonia played a major role in child mortality according to the study. The respondents that experienced death of a child during the previous year reported malaria as the main cause of mortality accounting for 32.5% deaths, measles accounted for 18.75% deaths, diarrhea accounted for 17.5% deaths, pneumonia accounted for 16.25% deaths and other causes accounted for 15% deaths. Stakeholders efforts to protect children from malaria endemic areas by ensuring that they sleep under recommended insecticide treated mosquito nets is thwarted since nets are distributed but due to economic status of most families, nets are sold for cash, some are kept for visitors, some are used for fencing kitchen gardens, some families hang the nets during the rainy season with the assumption that this is the time when mosquitos are many and active. Many children start and complete immunization. They also cited incidence of poor care for the children by their mothers. They said that poverty affected food security; thus malnutrition and that many pregnant women don't know their HIV status (Most deliveries occur at home since most health facilities do not provide such services being dispensaries. According to key informant interviewees, most infant mortality happens between 1- 3 years. This is due to poverty hence cannot afford the cost of medication, lack of parental care as children are left with their brothers and sisters to take care of them when parents are out farming or doing business and ignorance of the benefits of seeking medication early.

According to Fotso et al, 2007 it is estimated that more than 10 million children under the age of 5 years die each year, with about 90% of these deaths occurring in just 42 countries, 36% of which are in SSA (3). Numerous studies on infant and under-five mortality in developing countries indicate that most of these deaths are from preventable causes- such as diarrhea, pneumonia, measles, malaria, HIV and AIDS, and the underlying malnutrition.

Parity of a mother is also significant in determining child survival. It was clear from the study that the category of mother's paragravida 5 and above experienced a higher proportion of children deaths 51% compared to 49% of mothers in the category of paragravida 4 and below. Interestingly previous studies indicated that as women's parity increases chances of losing a child also increases (Doreen, 2001; Kalendi, 2003). However this studies indicated that mothers who were paragravida 7 and above experienced fewer deaths of children 21%. These findings could be attributed to the fact that many children have high demands in-terms of food, clothing and health care. It is also important to note that mothers with many children para 5 and above are in the rural than in the urban areas. Those in urban areas tend to live in crowded conditions that are common in slam areas. The focused group discussions revealed that fewer deaths experienced by mothers para 7 and above could be because the first and second born are big enough, are able to take care of themselves- can prepare theirs and other children's food, can express their problems when sick.

The education level of a mother played a major role in influencing child survival. According to the study findings is in line with previous researches done (Othero, 2001: Kalendi 2003). The higher the educational level of a mother, the higher the chances of her child surviving.

As the level of the mother's education increases the lesser the proportion of children dead decreases. In my study the category of mothers who never completed primary education had the highest number of deaths 44.2%, Primary completed

37.1%, Secondary not completed 8.9%, Secondary completed 6.4%, and others tertiary 1.2%. This could be attributed to several reason; educated mothers appreciate the importance of giving the child balanced diet, they are also able to access nutrition information from other sources such as the internet, they take counseling positively, they are not so much into cultural practices they are able to shun away bad and promote good cultural practices, they appreciate the importance of cleanliness, they practice family planning and are able to interpret and comprehend prescriptions by health professionals hence minimizing deaths of children due to wrong prescriptions or overdose.

One very unusual finding from this study that may require to be studied in low proportions of death of children in the category of mothers that had not gotten any education (2.1%).

As previously mentioned, couples that are both self-employed experienced high number of deaths about 34.5%. The income does not contribute much to the survival of their children could be because both parents have very little time with their children. Children are either left with house helps or elder brothers and sisters to take care of them while the parents go fending. With the playful nature of children, when left to care of their young brothers and sisters, they also have little time with them since they have to go playing leaving the child on its own without proper feeding, contamination by flies especially when the child defecates and is left on the feces leading to the child developing diarrhea which is one of the major causes of diarrhea in the area.

The mother's state of income does not contribute much to the survival of their children because interestingly mothers that were either self-employed or had no form of occupation experienced high number of children deaths 44% and 33% respectively. It is not clear the reason why mothers with no form of occupation experienced high number of children deaths and yet they spend more time with their children.

It is also important to note that where the family's major source of income is farming and business, they experienced high number of children deaths 29% and 36% respectively. This could again be attributed to the fact that both parents have very little time with their children who are left with elder brothers to take care of them as they go farming. It can also be due to the meager incomes since most businesses they are involved in are small scale selling kerosene, vegetable and illicit brew "chang'aa". The meager incomes is not adequate to meet the basic needs of the child food and health care. The study established that most harvests from farming is sold off and because of erratic rains sometimes the cops fail exposing the family to hunger and children dying.

The length of breast feeding and the age at which supplementary foods are introduced are important in determining the health of the child. Exclusive breast feeding is very important in that they will like. The qualitative data analysis confirmed that most caregivers give less food than usual to their children during sickness.

"*Nyathin katuo to dhoge rach ok onyal chiemo nikeche chunye ochido gi chiemo of onego chune gi chiemo to nikeche kichune to obiro chamo to ong'ogo" (*When a child is sick has poor sense of taste and appetite and therefore shouldn't be forced to eat because by doing so the child can vomit what it takes the study also revealed that caregivers either give nothing or other fluids other than ORS when their children suffer episodes of diarrhea.

A child with diarrhea loses water from the body and salt, may become hydrates and very weak, and my die if not treated. The child should drink ORS and continue with other foods so as not to lose strength. Diarrhea is more dangerous in children because they become dehydrated very quickly. All mothers ought to have known about this danger to minimize child mortality.

Access, availability and affordability of adequate and quality health care contribute to child morbidity and mortality within families and the community at large. Availability of quality health care at health facilities has a major pattern of utilization of services. It is therefore in order to associate child mortality with availability of health services. This study has shown that treatment of children under 5 years at GoK health facilities is never free. 74% of respondents that experienced death in the last twelve months said that treatment for under 5 years is never free as it preached. It is said that treatment is free but you have to buy child health card, pay for laboratory services, pay for each and every item prescribed. According to the analysis done only 0.9% of the respondents were salaried with the majority either self-employed, or casual laborers, or had no form of employment, earning meager income that couldn't entirely support the family and meet the demand of their children in terms of food and health care. Caregivers are further discouraged by frequent lack of essential drugs for treating children under. They are afraid of spending the little money they have on buying child health card, on laboratory diagnostics only to be prescribed drugs and be told to go buy from the chemist due to shortage at health facility. This is why they rely on traditional medicine where they can negotiate and have care without paying in cash. The payment can be done afterwards hence children do not access quality health care.

The physical setting of the child's surrounding environment is important in determining childhood morbidity and mortality. Infectious diseases accounts for the highest number of deaths in children under five years especially in developing countries. The number of occupants in the house determined the degree of ventilation accorded to people. A crowded house with poor ventilation would mean higher chances of communicating an infection from one person to another. The study established that most households owned one room and had between three and eight occupants. Children living in such conditions are prone to dying from air and vector borne diseases such as respiratory tract infections, measles, tuberculosis, and malaria.

The other problems that children face in their early ages in their lives are the condition of water and sanitation. Water is life and no one can ignore its importance in human life. It is important to emphasize the need to use safe drinking water in mitigating child mortality. A significant proportion of child mortality is a result of water borne diseases. For mothers to produce enough milk for the child until six months, she must eat well and take plenty of fluids every day. Given their economical status since majority of them are either self-employed, or does casual employment, or has no form of employment, getting food to eat in order for her body to produce adequate breast milk for the child becomes challenging.

They resort to supplement breast milk with other foods such as porridge and soup etc. and the water that is used to prepare the child's food is not safe. This study has shown that most families 68.4% get their water for domestic use from either the river or bore holes. The situation is bad since most mothers are either self-employed or are involved in small sale business. They leave their children in the care of either the house help or elder brother or sister who do not know how to purify water hence predisposing the child to water borne disease such as diarrhea that lead to death.

The study has also shown that most people (94.5%) wash their hands after visiting latrine. Hands carry the germs that cause diarrhea when they are not properly washed after defecation or after work. It is always good to always wash hands well with soap and running water if possible after defecating, after work, before cooking, serving food and eating and feeding children. However the study revealed that most people who practiced hand washing after visiting a latrine do so using water in a basin (41.7%). Washing hands in a basin is not safe especially when one does not rinse his/her hands with running water either from a tap, leaky tin or poured from a cup.

Knowledge is power. Community Health Workers were empowered with the knowledge and skills of recognizing danger signs in sick children and they intern empowered mothers and caregivers through women groups on the same so that they can be looking for any of these sings and seek immediate medical action so as to save the child from dying. There are five danger signs that when noticed on a sick child and no quick action is taken the child can die. Mothers and caregivers are expected to recognize these danger signs while at home and when any one is noticed in a sick child, they should not hesitate to seek immediate medical action from a CHW, community pharmacy or the nearest health facility. These danger signs included; lethargic of unconscious; history of convulsions; vomiting everything and not able to drink or breast feed. It is evident from the qualitative data analysis that majority of the mothers in the study area lack adequate knowledge to recognize any of these danger signs so as to seek immediate medical attention and prevent some of the conditions mat contribute to child deaths. Immunization of children under 5 years against the six killer diseases namely tuberculosis, poliomyelitis, pertussis, diphtheria, tetanus and measles reduces child mortality. Immunization of children against these diseases saves lives of some millions of children in developing countries every year. Measles is the most important cause of child mortality in developing countries.

Mothers ascertained that despite of their children getting measles vaccination at nine months, it still claims many lives of children under 5 years. When a child falls sick with measles it is never taken to health facility due to some traditional beliefs. "Nyathi man gi seregete ok kal go yoo" You shouldn't cross a road with a child suffenng from measles. This is an out dated belief that was practiced long ago to control the spread of measles. Children die at home without seeking medical attention from health facility. Qualitative data analysis showed measles among the top five causes of child mortality in the study area. It is evident from this study that cultural practices and beliefs still play a major role when it comes to health seeking behavior. They are still considered with much respect in the rural areas. People are brain washed with the belief of the existence of witchcraft *(juok/Sihoho).* The study area is believed to be the heart of witchcraft known to the natives as "Alego tat yien". Majority of the people believe that a child cannot get sick without being witched and as such whenever a child is sick what comes into a mothers mind is that the child is witched thus first seeking the services of a witch doctor and later after two to three days when the child's condition is worsened is when it is taken to a health facility.

The study also revealed that most parents pay little attention to young children especially when their mothers conceive before they are one year. They term it as "hero" (Curse). The baby is weaned from breast feeding because it is believed that when it continues to breast feed it will die.

Health facilities are insufficient with regards to the population. Most respondents reported that often do not use the available facilities because of the problem of affordability. People are poor and health care is expensive. Children treatment is said to be free while in reality it is not, you are expected to buy treatment card, pay for laboratory services in case of any, and also pay for each and every item prescribed. At dispensaries fixed payment rates vary from one facility to the other. Some charge 40/= while others charge 100/=. Majority cannot afford these fee since only 13.7% of them major source of income is from salaried employment. This is why they rely on traditional medicine where they can negotiate and have care without paying in cash. The payment can be done afterwards hence children do not access quality health care. According to WHO (2009) population-based studies suggested mat poor access to health care, which results in delayed attendance at a health facility or none at all, may be a key determinant of mortality in children under 5 years of age in developing countries. Community pharmacies

CARE-K in collaboration with CDC, MoH and Karemo Community established Community pharmacies (BI pharmacies) almost in all sub-location to serve as a central location/resource centre where priority health and other development activities regularly took place. A small stock of priority drugs were made available and affordable at all times. They served as referral point for CHWs where mothers with sick children would get first aid treatment to their children before going to health facility especially during week-end, public holidays when dispensaries are closed Unfortunately all these pharmacies collapsed due to either inadequate drugs in the pharmacy, mismanagement, expiry of drugs in the pharmacy as a result of high supply and lack of adequate sale, lack of commitments by the CHWs, CHWs selling drugs but never submitting all sales to the pharmacy, rent payment being high since the community never built their own house and disagreement between the committee and the CHWs on profit sharing. Mothers have no option of getting affordable drugs at the Chemists that are far away. Not many can afford the cost of transport and purchasing prescribed drugs given their financial status. According to USAID (2003) the Community Initiatives for Child Survival in Siaya (CICSS) project in the Siaya District Western Kenya, was initiated to expand existing efforts to reduce maternal and child mortality. It was designed to empower communities to operate a system of curative health workers and a committee overseeing a community pharmacy. The strategy was to train, equip and supervise **locally** elected community health workers (CHWs) to provide promotive, preventive, and curative health services to mothers and children.

Cost sharing was a new concept when it was introduced into Kenya's national health sector in the early 1990s. After decades of providing essentially free services, revenue collected was meant to improve efficiency and effectiveness at grass root level. It was to enable quality improvements such as more responsive emergency services, better availability of medicine, increased cleanliness, purchase more equipment and motivation of staffs. The intention of cost sharing was quite noble however it enhanced corruption amongst staffs. The qualitative data analysis revealed that staffs at public health facilities hold and sell drugs meant for patients. Some staffs have private pharmacies where they siphon drugs to and refer patients to purchase from these pharmacies. Health facilities can run for up to one month without essential drugs to treat children under 5 years such as drugs for treating malaria to buy a dose of coartem from a private pharmacy is quite expensive and given the meagre income for most families they cannot afford. If they don't get them free from public health facilities then they resort to using cheap drugs that are not recommended for treating malaria hence increased child mortality.

According to USAID, 2009; Cost sharing is one of Kenya's central healthcare financing strategies, yet it has faced a number of challenges, including leakages and limited monitoring and supervision capacity.

Health facilities may not operate effectively due to lack of drugs and medical supplies. Drug shortages can increase preventable morbidity and mortality in children under the age of 5 years, especially for diseases that rely on drugs for treatment like malaria, ARIs, diarrhea or even simple interventions such as oral rehydration therapy. Bustreo et al, (2005) Lack of equipment can increase the risk of disease transmission, through neglect of universal precautions in addition, lack of essential medical equipment such as cold chain equipment, safe injection kits, and clean delivery kits impedes the provision of key services such as immunization and health care delivery.

The qualitative data analysis has shown that public health facilities can run for up to one month without essential drugs to treat common childhood illnesses like malaria which claims most lives of children under 5 years. During this time mothers/caregivers are advised to buy prescribed drugs from private pharmacies. However because of the economical status of most families they are not able to afford the cost of drugs. Children are given under dose, or only analgesics or nothing at all. Nature to take its course and few that are lucky may survive but majority die. Most public health facilities lack diagnostic equipment, no laboratories, no facilities for rapid test such as para-check for malaria, most diagnosis are based on history from the mother/caregiver, signs and symptoms that a child presents with that may be misleading at times since some conditions present almost with similar signs and symptoms.

The study has shown that public health facilities in the study area experience a serious acute staff shortage. This is hampering greatly the provision of quality services since the available qualified personnel at these facilities are not able to cope with the workload. This have resulted in long waiting time in the queue to be seen by a clinician; Staff bum out is also a problem since it has also affected staffs attitude towards patients, many of them use unkind words on mothers hence discourage them from taking their children to health facility when they are sick fearing to be abused and embarrassment from staffs. It has also led to lack of confidentiality in most public health facilities since untrained casual laborers are used to handle some sensitive issues affecting patients.

Health systems reporter, (April 2009) reported that in Kenya, a lack of personnel in key areas of the country's health system is worsened by internal migration (from rural to urban areas). This in turn exacerbates the inequitable distribution of health personnel .Communities in the poorest areas of the country suffer most from this.

Supervision is paramount in all programs being under taken in order to improve efficiency, to identify areas of weaknesses, to ensure the right quality of service provision is maintained etc. The qualitative data analysis revealed that mothers/caregivers at times are compelled to avoid referrals especially to the district hospital because trainees are left to see patients on their own without a qualified personnel to supervise their work. *"Gimulo nyathi ka jomatugo gi dolly to gikia gimagitimo".* Meaning that the trainees handle children like people playing with dolls and don't know what they are doing. This leads to misdiagnosis and wrong treatment hence more children deaths. If you cannot afford to part with some money (bribe) then your child is not seen by a qualified clinician.

Lack of triage system in the facility. One of the situations where valuable time is lost in canng for a very sick child is when referred to a facility and the child and his mother get lost in a long queue of mothers and children, most of whom do not need such urgent care. All heath facilities should have a system of emergency triage of waiting children that should identify those that are very sick and require urgent attention. Deaths of children in health facilities often occur within 24 hours of admission. Many of these deaths could be prevented if sick children are identified soon after their arnval in the health facility and treatment is started immediately. Professionally trained health workers are supposed to triage all sick children when they arrive at a health facility into those with emergency signs, with prionty signs, or non-urgent cases. This study revealed that none of MoH health facilities perform this very important procedure to sick children seeking services.

WHO (2006) Improved triage and emergency care for children reduces inpatient mortality in a resource-constrained setting.

Most stakeholders apart from Ministry of health have no focus on child survival programs in the division. Their focus are on youths, OVC (provision of soaps, uniforms, nets and water guard) community saving and loaning, research and home based care and treatment, agro forestry, support groups, CHWs trainings, construction of shelters, and water tanks Community Health Workers are men and women chosen by the community, and trained to deal with health problems of individuals and the community, and work in close relationship with the health services. They are responsible both to local community authorities and to supervisors appointed by the health services.

CARE- K in collaboration with Ministry of Health trained community selected CHWs in knowledge and skills of standard case management. They delivered care for common childhood illnesses within their respective communities that resulted to a positive impact on deaths among children in the division. The CHWs conducted IEC sessions, often through women's

groups, to educate mothers and other community members in their villages on danger signs and other signs and symptoms of common childhood illnesses to enable them detect when the child is sick and seek appropriate treatment in good time. The CHWs also assessed, classified/diagnosed, treated children under 5 years that presented with signs and symptoms of common ailments such as Acute Respiratory Infection, Malaria, Diarrhea, Measles, Ear infection, Conjunctivitis and skin infections such as scabies. They referred serious cases to nearby health facilities to be managed by more qualified health personnel and educated care givers on home care for less complicated cases managed at home. According to Andy et al (June 2007), There is renewed interest in the potential contribution of community health workers to child survival. Community health workers can undertake various tasks, including case management of childhood illnesses (eg, pneumonia, malaria, and neonatal sepsis) and delivery of preventive interventions such as immunization, promotion of healthy behavior, and mobilization of communities. Several trials show substantial reductions in child mortality, particularly through case management of ill children by these types of community interventions. However, community health workers **are** not **a** panacea for weak health systems and will need focused tasks, adequate remuneration, training, supervision, and the active involvement of the communities in which they work

This study has revealed that CHWs trained on standard case management though they claim that they are utilizing the knowledge and skills in their respective communities, the community they serve believe that they have neglected their work majority (54%) no longer practiced treatment of children under five years with common ailments, their home visits had reduced significantly, Majority of CHWs cannot assess, diagnose/classify, provide treatment and advise caregivers on what to do when condition of a sick child worsens. The community pharmacies that were established where CHWs could get medicine to treat common childhood illnesses all collapsed and not functional.

Most CHWs (52.5%) cannot remember how to assess a child and identify danger signs, 52.5% cannot remember how to assess a child with difficult breathing and identify signs of pneumonia, 83.7% cannot remember how to classify a child with respiratory tract infection, 62.5% cannot remember how to classify a child with diarrhea, 61.2% cannot remember the treatment of a child with malaria, 77.5% cannot remember treatment of a child with pneumonia and 78.7% cannot remember treatment of the child with dehydration This could be attributed to several issues such as lack of technical support supervision of CHWs; MoH that was to ensure continuity of this activity is unable due to the persistent shortage of staffs and funds, lack of refresher training on standard case management, lack of motivation; they demand payment so as to assist mothers with sick children just like what some NGOs operating in the locality are doing to CHWs that they have absorbed in their programs. James et al (2005), in his report on Accelerating Reproductive and Child Health Program Development: The Navrongo Initiative in Ghana Posting nurses to communities reduced childhood mortality rates by half, accelerating the attainment of the childhood survival MDG within five years. This statement strengthens the need of filling the knowledge gap among CHWs revealed by this study about standard case management.

**Conclusion**

Similar to other studies, malaria, diarrhea and pneumonia is still playing a major role in child mortality. Stakeholders efforts to protect children from malaria endemic areas by ensuring mat they sleep under recommended insecticide treated mosquito nets is not appreciated since nets distributed are not used for the intended purpose.

Parity of a mother is also significant in determining child survival.

The education level of a mother played a major role in influencing child survival. The higher the educational level of a mother, the higher the chances of her child surviving. They appreciate the importance of giving the child balanced diet, they are able to access nutrition information from other sources such as internet, they take counseling positively, they are not so much into cultural practices they are able to shun away bad and promote good cultural practices, they appreciate the importance of cleanliness, they are practice family planning and they are able to interpret and comprehend prescriptions

Occupation of the mother is good and also bad in a way. It is good because the mother can afford to buy food for the child, can to some extent afford treatment for the child. However it is bad because the mother leaves the child in the care of inexperienced siblings while she goes to fend for the family.

The length of breast feeding and the age at which supplementary foods are introduced are important in determining the health of the child. The study indicates that most mothers introduced their children to additional foods before three months of age, due to the poor economic situation of most families. They are involved in small businesses that earn them meager income. Mothers cannot breast feed their children on demand since they spend most of their time away predisposing the baby to getting diarrhea as a result of dirt or dirty water or food.

Most caregivers give less food than usual to their children during sickness. Caregivers believe that a sick child has poor appetite yet when a child does not get enough food of the right kind when they are sick their condition may worsen and the healing process may take long or the child can end up dying.

Treatment of children under 5 years at GoK health facilities is never free. Majority of the population are poor earning meager income that cannot entirely support the family and meet the demand of their children in terms of food and health care.

Caregivers are discouraged by frequent lack of essential drugs for treating children under 5 yrs. They are afraid of spending the little money they have on buying child health card, on laboratory diagnosis only to be prescribed drugs and be told to go and buy from the chemist due to shortage at health facility hence relying on traditional medicine where they can negotiate and have care without paying in cash. The payment can be done afterwards thus children do not access quality health care.

Most households owned one room and had between three and eight occupants. Children living in such conditions are prone to dying from air and vector borne diseases such as respiratory tract, infections, measles, tuberculosis, and malaria

Most people who practiced hand washing after visiting a latrine do so using water in a basin. Washing hands in a basin always is not safe especially when one does not rinse his/her hands with running water either from a tap, leaky tin or poured from a cup.
Majority of the mothers in the study area lack adequate knowledge to recognize any of five danger signs so as to seek immediate medical attention and prevent some of the conditions that contribute to child deaths.
Cultural practices and beliefs still play a major role when it comes to health seeking behavior. People are brain washed with the belief of the existence of witchcraft. Majority of the people believe that a child cannot get sick without being bewitched thus first seeking the services of a witch doctor and later after two to three days when the child's condition is worsened is when it is taken to a health facility.
Community pharmacies (BI pharmacies) were established almost in all sub-location to serve as a central location/resource centre where priority health and other developmental activities regularly took place. All these pharmacies have collapsed due to either inadequate drugs in the pharmacy, mismanagement, expiry of drugs in the pharmacy as a result of high supply and lack of adequate sale, lack of commitments by the CHWs, CHWs selling drugs but never submitting all sales to the pharmacy, rent payment being high since the community never built their own house and disagreement between the committee and the CHWs on profit sharing. Mothers have no option of getting affordable drugs at the Chemists that are far away. Not many can afford the cost of transport and purchasing prescribed drugs given their financial status hence contributing to high child mortality.
The intention of cost sharing was quite noble however it enhanced corruption amongst staffs. They hold and sell drugs meant for treating children and other patients. Some staffs have private pharmacies where they siphon drugs to and refer patients to purchase from them.
Health facilities can run for up to one month without essential drugs to treat children under 5 years such as drugs for treating malaria.
Health facilities are not operating effectively due to persistent drugs shortage and lack medical supplies. Public health facilities run up to one month without essential drugs to treat common childhood illnesses like malaria they lack diagnostic equipment, no laboratories, lack facilities for rapid test such as para-check for malaria, diagnosis are based on history from the mother/caregiver, signs and symptoms that a child presents with that may be misleading at times since some conditions present almost with similar signs and symptoms.
Staff shortage is hampering greatly the provision of quality services since the available qualified personnel at these facilities are not able to cope with the workload. This have resulted in long waiting time in the queue; Staff burn out that is affecting staffs attitude towards patients, many of them use unkind words on mothers hence discourage them from taking their children to health facility when they are sick fearing to be abused and be embarrassed.
None of MoH health facilities perform triage which is a very important procedure to sick children seeking services when they arrive at a health facility into those with emergency signs, with priority signs, or non-urgent cases. Most stakeholders apart from Ministry of health have no focus on child survival programs in the division. CHWs trained on standard case management have neglected their work, majority no longer practice, majority of CHWs cannot assess, diagnose/classify, provide treatment and advise caregivers on what to do when condition of a sick child worsens.

**Recommendations**

CHWs: Participants recommended that HBC Kits be provided to CHWs, that they receive refresher trainings and be motivated by the MoH and facilities utilizing them. They also recommended that CHWs should consistently conduct home visits, with proper coordination with the involved health facilities.
Facilities: Participants proposed that more nurses and COs be employed, that the facilities be provided with the necessary diagnostic equipment. They also requested that more health facilities, with laboratories, should be built in order to "bring services closer to the people". In addition, they proposed that the facilities should have 24 hours a day services. Also they proposed that the facilities introduce mobile clinics to better reach the community members in underserved areas.
Drugs: They proposed that the MoH should ensure adequate supply of drugs and revive the collapsed community pharmacies and curb selling of drugs by health facility staff. They also proposed that drugs necessary for first aid be provided to the CHWs. Community members: They said that community members should use nets and not postpone emergency cases (should observe sympathy).
Others: They also proposed that language barriers should be considered when employing/deploying staff for the health facilities in their communities. On top of it, they recommended that free treatment should be offered to children below five years and that measures should be taken to combat corruption in the health facilities.

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