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FACTORS AFFECTING ACCESS TO IMMUNIZATION SERVICES IN THE INTEGRATED OUTREACH MODEL: A CASE STUDY OF LOIMA SUB COUNTY

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Abstract

Purpose: The study aimed at assessing the factors affecting access to immunization services through the outreach model of service delivery.

Methodology: The study used a cross sectional design which involved collection of both qualitative and quantitative data. A total of 349 households with children 0≤23 months were interviewed and further information obtained through review of health records both at facilities and Sub County level. Healthcare providers and Sub County Health Management Teams were interviewed. Data was analyzed by use of SPSS and presented in graphs, tables and charts.

Findings: The study has found that the immunization services provided through the outreach model has impacted positively on the levels of immunized children in the Sub-County considering that the majority of the population is made up of nomadic people. This therefore translates to improved health care for both mother and child.

Unique contribution to theory, practice and policy: The study recommends that the outreach programme should be supported by more logistical assistance in regards to the transportation for vaccines as well as for mobilization to the community.

Keywords: *Access, immunization services, integrated outreach*

1.0 INTRODUCTION

There is need to strengthen service delivery which form the basis for achievement of millennium development goals (MDGs) which include provision of interventions aimed at reducing child mortality, improving maternal health and control of communicable diseases including HIV/AIDS, tuberculosis and malaria (WHO, 2007). A health system is expected to provide services that are accessible to the population and meet the minimum quality standards.

Immunization coverage is among the most monitored indicator in any health system (Jillo, 2015). Low immunization coverage often indicates failure of a health system to deliver services that will protect her population against preventable diseases. In order to enhance child survival and other economic benefits associated with it, it is therefore important to improve access to immunization services.

For low income countries like Kenya, immunization coverage vary depending on geographical locations and is lower in remote rural settings (MoH 2013).In this kind of situation where 74.4% of the population live in rural areas, the use of outreach immunization offers great opportunity for improvement of service delivery (CIA, 2016).The country have coverage of approximately 80% and it is estimated that 400,000 children out of the 1.5 million that are born in the country, do not receive lifesaving vaccines.

The immunization schedule in Kenya begins with BCG and oral polio vaccines given at birth or within two weeks depending on which comes first. Pentavalent 1 which is a combined routine childhood vaccine against diphtheria, pertussis, tetanus, hepatitis B and Haemophilus influenza type b is given at six weeks of age, a second dose at ten weeks and a third dose at fourteen weeks or at first contact with four weeks apart between doses. Nationally, the coverage for pentavalent 3 is 84 %, an improvement from 63% in 2000 (WHO, 2014). Despite improvements of national coverage, many counties in Kenya continue to report low vaccination coverage. Reports indicate that only 45% of countries attained ≥80 % immunization coverage in 2013 (WHO 2014). In Kenya, 27% percent of counties have recorded dropout rates of between 10% and 33% for the third dose of pentavalent vaccine in 2011 (WHO 2012).Vaccine preventable diseases have long been associated with low immunization coverage in target population.

Turkana County is among the former marginalized counties zoned in the northern frontier counties. This is partly attributed to the government policy paper no.10 of 1965 that informed priority areas in terms of development (CRA, 2013). With an estimated area of 77,000 km^2 which is approximately 41% of the former rift valley province, the County

had only 79 health facilities that served a projected population of 1.2M (KNBS, 2010). This therefore called for alternative ways of reaching the rural populations with minimal access to stand alone health facilities.

It is based on this that ministry of health together with partners supporting health services in Turkana came up with a model that will assist in addressing the healthcare needs of the unreached remote populations. This included but not limited to immunization, management of common ailments, sanitation improvement, defaulter tracing, community Tuberculosis and HIV interventions, nutrition interventions and screening for eye care conditions. Loima Sub County currently is running a total of 41 outreaches supported by both the government and development partners. Other interventions not necessarily by health sector are now riding on the integrated outreach model to reach the remote populations in Loima Sub County. The overall objective of the study was to assess factors that affect access to immunizations services through the integrated community-based outreach model in Loima Sub County.

1.1 Specific Objectives

i. To establish the influence of demand creation activities on access to immunization services through integrated outreach model.
ii. To determine the role of leadership in facilitating immunization services through community based outreach model.
iii. To assess logistics management practices that determine access to immunization services through the outreach model.
iv. To establish human resource capacity in the provision of immunization services through outreach model.

1.2 Theoretical Framework

This study used the logic model which is commonly used to clarify and depict a program within an organization (Innovative network, 2012). The logic model is a valuable tool for program planning and development. The logic model structure helps managers to think through program strategy and since it connects the dots between resources, activities, and outcomes, it therefore forms the basis for developing a more detailed program management plan. Using data collection and an evaluation plan, the logic model helps program leads track and monitor operations to better manage results. It can also serve as the foundation for creating budgets and work plans (Kellogg, 2001). In this study, as indicated in Table 1, the researcher tried to link the inputs necessary to operationalize

outreaches with the outputs. Inputs will include mobilization, health education, financing, vaccines, logistic and human resources. Immediate results will include but not limited to percentage increase in immunization rates but eventual results will be reduction in morbidity due to vaccine preventable diseases in children and improvement on maternal health services.

Table 1 Logic Model

Inputs	Activities	Outputs	Outcomes
Demand Creation	Advocacy	Improved access to Immunization services	Reduction in mortality due to vaccine preventable diseases
	Communication		
	Socio Mobilization		
	Household visits by CHVs		
Leadership Practices	Financing	Change in Community Health seeking behaviour	
	Coordination		
	Reviews and work planning		
Logistics	Cold Chain Management		
	Transport		
Human Resources	Recruitment		
	Capacity building		
	Motivation		

1.3 Conceptual Framework

In this study, the overall impact of reduction in infant mortality and improved maternal health is determined by the performance of dependent variables that include improvement on immunization coverage and access to essential primary health care.

Conceptual framework will attempt to link the independent variables to dependent variables. In this study, as indicated in Figure 1, Independent variables included community mobilization, human resource factors, infrastructure and commodities.

Journal of Health, Medicine and Nursing
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Vol.3, Issue 2, No.3, pp 37 - 58, 2018

Managers have been able to post good performance by conceptualizing good program specific variables with ultimate goal of achieving a certain impact.

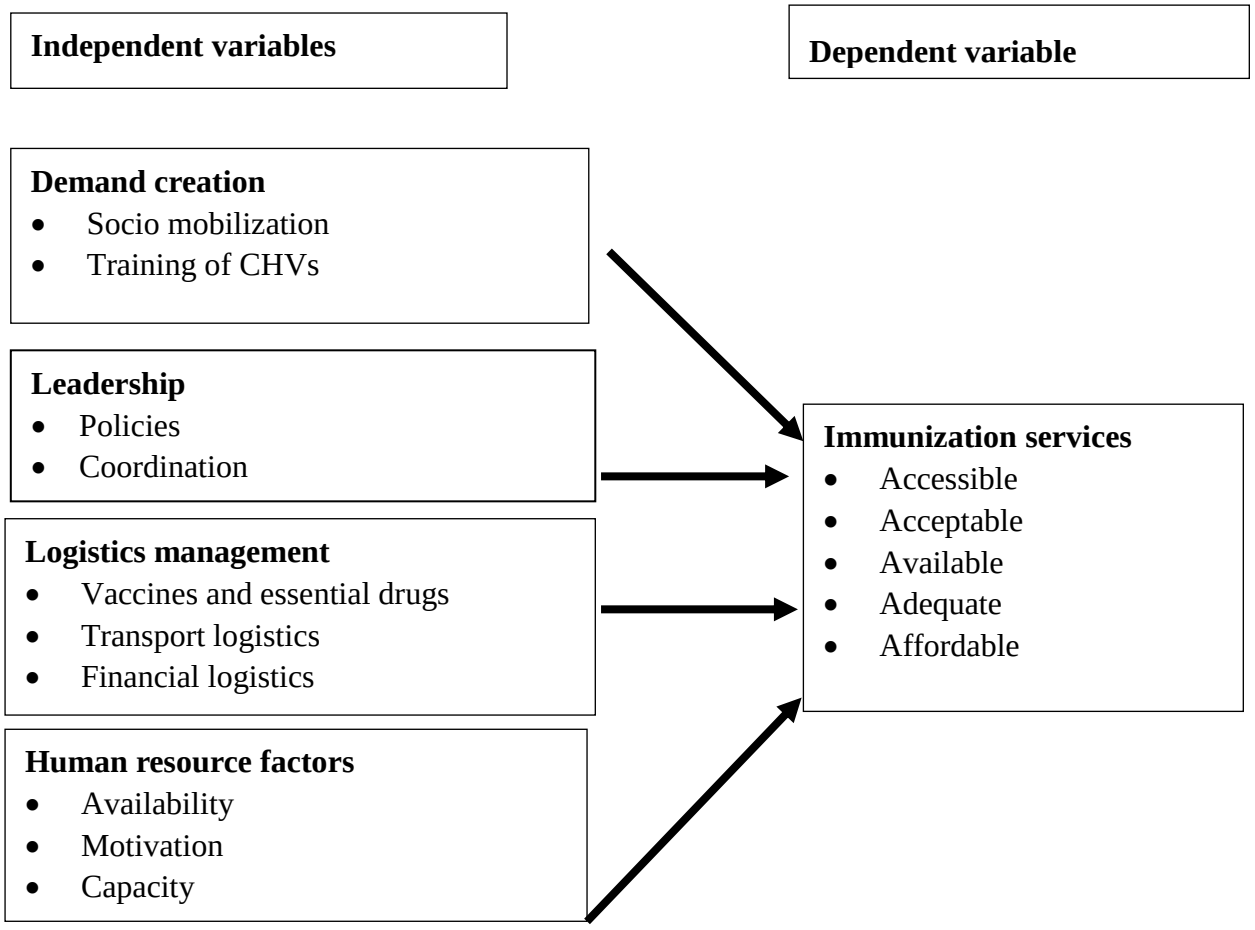

Figure 1 Conceptual Framework

3.0 MATERIALS AND METHODS

A descriptive cross-sectional study design was used in the research to assess factors affecting access to immunization services in the integrated community-based outreach model with both Qualitative and quantitative data collected. The study was conducted in the four Wards of Loima Sub County namely Turkwel,Loima, Lobei-Kotaruk and Lokiriama.The population for study was drawn from 41 outreaches in the above four Wards of the Sub County.Data was collected by use of interviewer adminstered

questionares, and Key Informant Interviews (KII). Analysis was done using SPSS and results presented in graphs and figures.

The investigator sought written informed consent from the respondents before adminstering the questionarre.Approvals were also sought from the scientific and ethics review committee and County admistrative authorities before proceeding with the study. Data obtained was treated with utmost confidentiality used for the purposes of the research only.

4.0 RESULTS AND DISCUSSION

4.1 Response Rate

A total of 384 questionnaires were administered to households within Loima Sub County with children between the age of 0 and 23 months. The numbers of questionnaires returned, correctly filled and accepted by the researcher were 349 in number (91% of the administered questionnaires). According to Babbie (2008) a response rate of above 50 % is allowed for analysis, hence a rate of 91% is allowed for analysis.

The majority of the households sampled in the study had between 3 and 6 people residing in the same house. Herein, the majority of the households had 4 people (83 (23.8%)). This constituted the children to the HH head and spouse, parents, brothers, sisters and other relatives. Households that were made up of more than 8 people also included the parents of the household head.

The majority of the respondents that filled the interviewer-administered questionnaires were the heads of the households as indicated by 290 (83%). Other respondents were the spouse, 52 (15%), Parent 7 (2%) and either brother or sister to the spouse or the head of the household. Majority of the respondents who participated in this study were male aged between 26 and 45 years which represents the community culture where men are considered as heads of households

The level of education within the area selected for the study seems to be low as shown by a high percentage 241 (69%) of respondents indicating that they had no education. from the data collected, and presented in Figure 2 below, only 4% of the respondents indicate having a post-secondary level of education. This translated into most of the respondents being pastoralists and a significant number without any employment while the low attainment of post-secondary education seems to affect the occupation of the respondents as only 6% are salaried and 26% in business while a large portion 126 (36%) of the respondents are pastoralists. The respondents also indicated that they were farmers (12%) other occupations such as *BodaBoda* drivers (2%) while 18% said they do not work.

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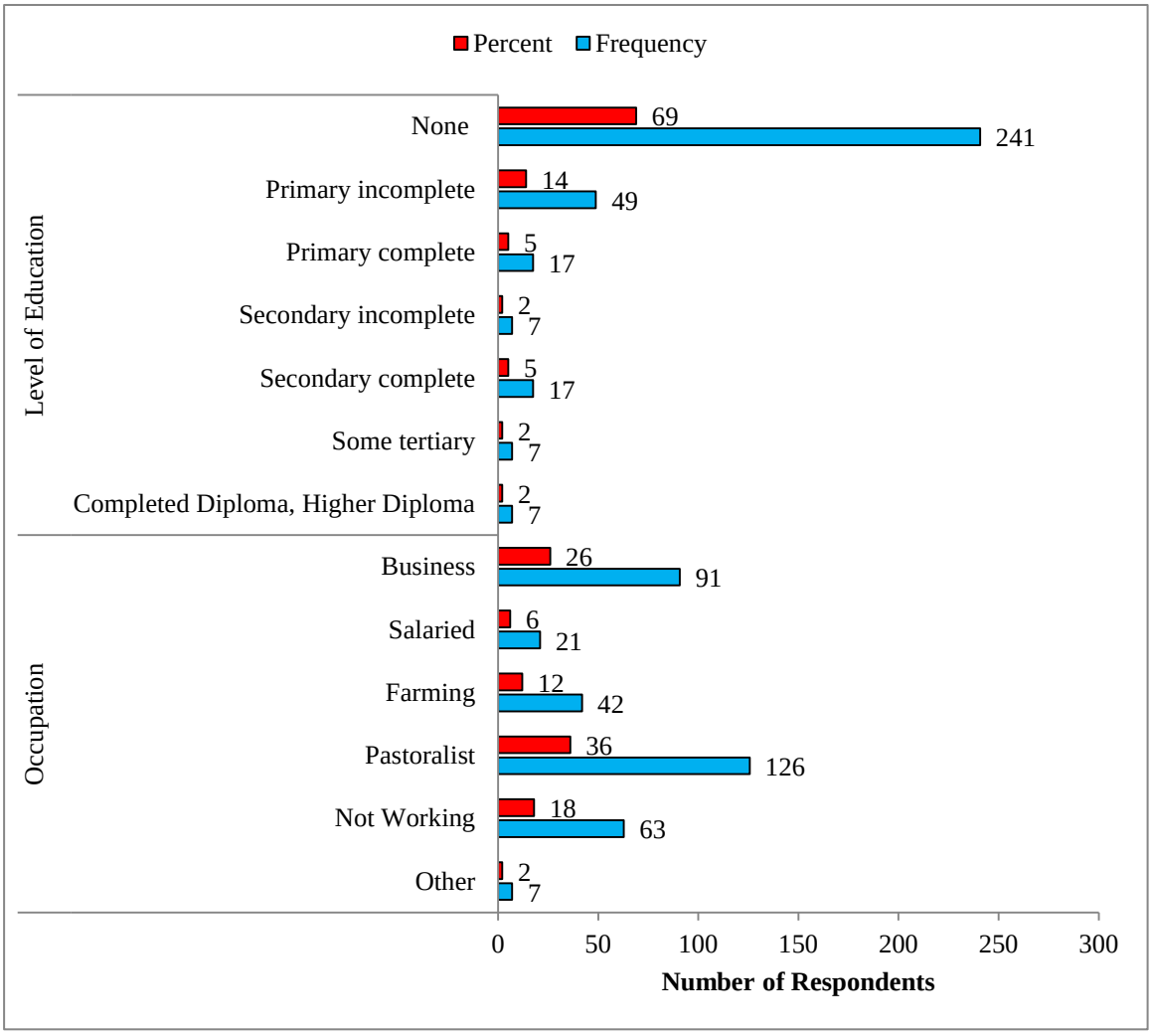

Figure 2 Level of Education and Occupation

4.2 Role of Demand Creation

The Table 2 below shows that almost all the respondents 345 (98.9%) had MCWC indicating a growing and strong awareness and priority for mother and child health in contradiction to the study by MoH (2008) which showed that health issues in nomadic communities are not prioritized.

Journal of Health, Medicine and Nursing
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Table 2 Respondents on presence of MCWC

Response	Frequency	Percent
Yes	345	98.9
No	4	1.1
Total	**349**	**100.0**

The data in figure 3 below shows that majority of the respondents had taken their children for BCG immunizations 335 (96%), Penta 1, 328(94%), Penta 2, 311(89%), Penta 3, 276 (79%), and Measles, 181(52%). This is a good number considering the lifestyle of most of the people in the Sub-County is a nomadic life, CDC (2012) in their study found that as a result of the mobile lifestyle many nomadic children miss routine services such as immunization.

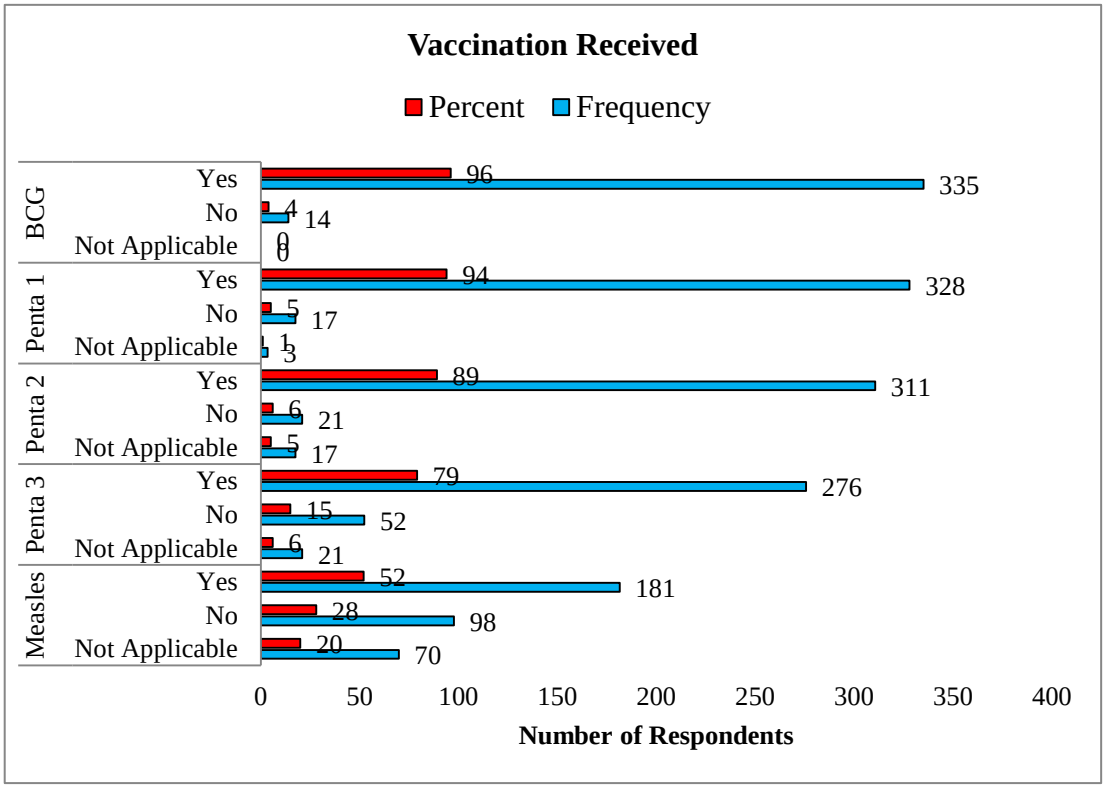

Figure 3 Vaccination received

The study finds that majority of the people 161 (46%) live more than 5 kilometers away from their nearest health facility. This makes them walk the long distances or using *Boda Boda* motorcycles to reach the health facility. The findings coincide with those of Kruger

(2013) who finds that most nomadic people live in areas without easy access to health facilities.

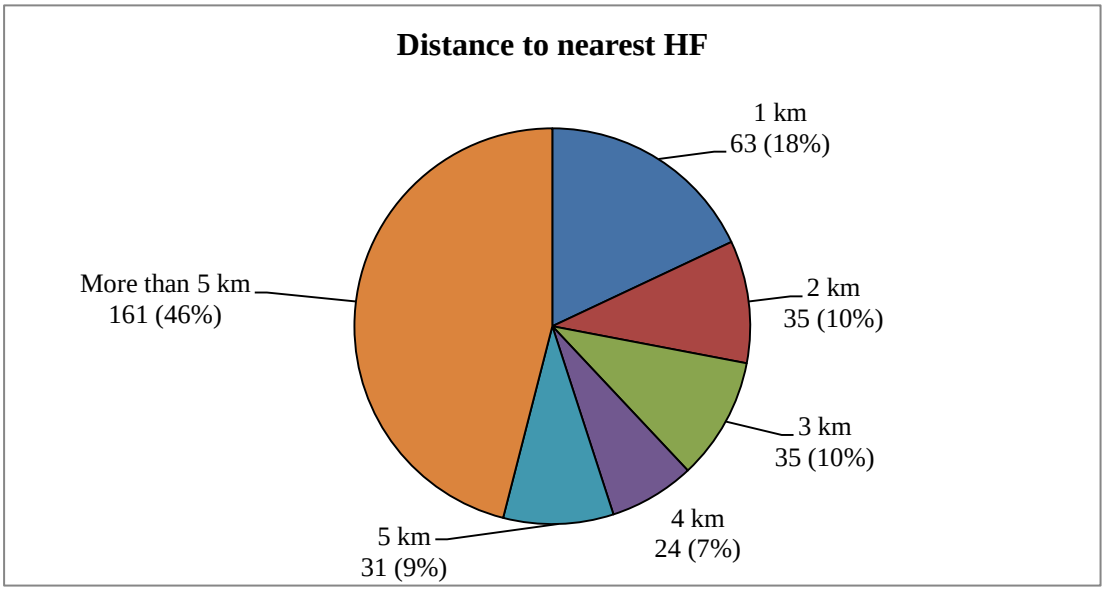

Figure 4 Distance to nearest health facility

In regards to the awareness of caregivers about the outreach model of health service delivery, the majority of the respondents as shown by 59% in the figure 4 above say that they are aware while 33% say they are slightly aware. The data also shows that only 8% of the respondents indicated that the children's caregivers were unaware

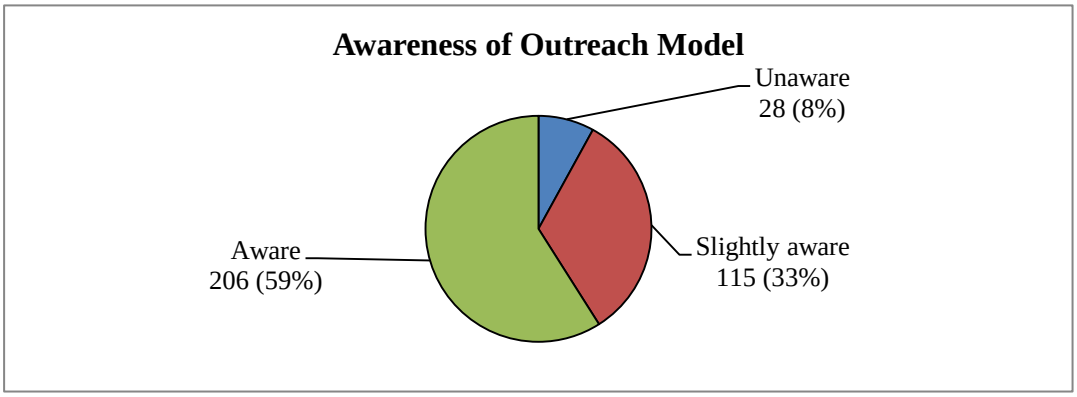

Figure 5 Awareness of Outreach Model

The data collected in regards to the awareness of the respondents of the services at the

Journal of Health, Medicine and Nursing
ISSN 2520-4025 (Online)
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Outreach clinic indicated that not very many people are aware of services at the clinic, this is shown by a majority 237 (68%) saying they are a little aware, 35 (10%) saying not at all while only 59 (17%) said a lot. This can be attributed to the fact that most respondents are pastoralists and the places where they live are not easily accessible by the mobile clinic as indicated by Hartley (2004).

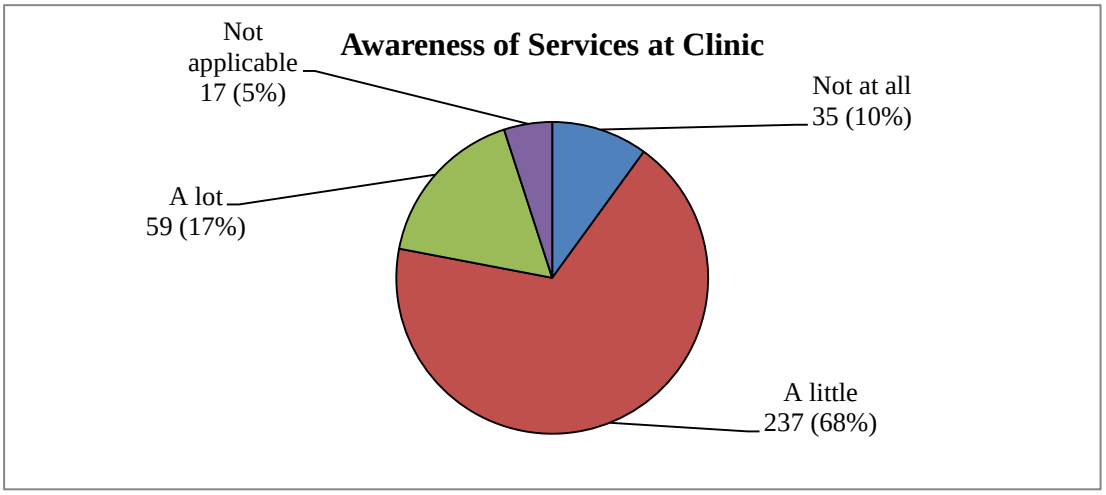

Figure 6 Awareness of services at outreach clinic

Majority of the respondents (83%) agree that caregivers are aware of the importance of immunization services saying they find it important and very important while 52 (14.9%) are of the idea that caregivers term it as little important. When further asked to give reasons, respondents indicate that it is because of preventing diseases within the community, ensuring health of women and children as well as reducing deaths. When asked whether they agreed with the outreach model of immunization, majority of the respondents 162 (46.1%) strongly agreed while 154 (44.1%) remained neutral on the issue. This indicates an increased awareness of the need to reach all people with crucial health services such as immunization. The data shows that majority of the respondents are satisfied with the timeliness (79%), adequacy (77%) and the quality (54%) within the Outreach clinic. These findings are contrary to those of a study by REACH (1993) who finds that most people were dissatisfied with government interventions in providing immunization services because of the inadequacy of services and mistreatment from health professionals.

Most respondents 319 (91.4%) found the issue of payment as not applicable, since the Outreach clinic does not require any payment for immunization services provided.

However, 11 (3.2%) indicated they were uncomfortable indicating that they had been charged for the services. The study found that the majority of the respondents (91%) indicate being either very satisfied or satisfied with the professionalism with some saying that they show care and are always willing to assist. This is in contrast to an earlier study done by REACH (1993) which found that many people were unsatisfied with government clinics because staff mistreated them. The study found that majority of the respondents 237 (68%) were satisfied with what community health workers were doing, 73 (21%) were very satisfied while only 17 (5%) were unsatisfied and 3(1%) very unsatisfied. The findings indicate that despite the challenges found in reaching nomadic communalities with health care, the CHV program is also successful in reaching the majority of the population within the area.

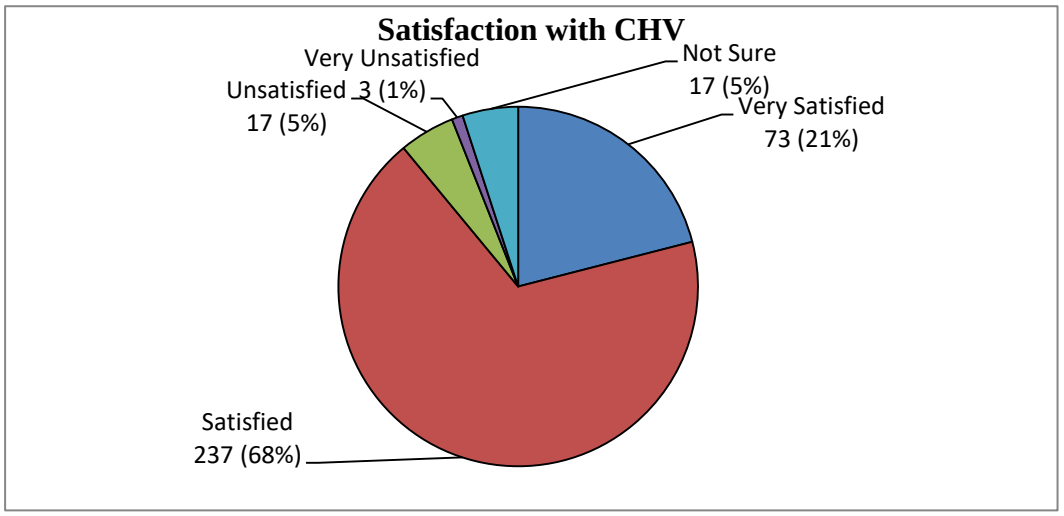

Figure 7: Satisfaction with CHV

Majority of the respondents (70.6%) were of the opinion that the community usually understand the IEC materials. The low literacy levels combined with the pastoralist nature of lifestyle means that for information to be passed, it needs physical conveyance and reminders by community health volunteers. The CHVs are mapped and live with community members hence an easy task for them. When asked whether the CHVs are trained on demand creation, the majority of the respondents (35%) indicated it is usually done while 23% said it is always done. This shows that CHVs in most health facilities are well aware of the need for demand creation. When further asked whether the CHVs conduct household visits, majority (65) said always while 35% said sometimes also indicative of the commitment of the CHVs in addressing immunization issues in the community.

Journal of Health, Medicine and Nursing
ISSN 2520-4025 (Online)
Vol.3, Issue 2, No.3, pp 37 - 58, 2018

4.3 Regression Coefficients

Using the vaccination at the outreach as the dependent variable, the researcher used a regression analysis to assess the significance of the awareness of services, satisfaction with immunization services, and satisfaction with staff and comfort with charges. The regression analysis as shown in Table 4.16 indicates that the variables are not statistically significant since all their P values are above the common alpha level of 0.05. This means that changes in the awareness of services, satisfaction with adequacy of services, satisfaction with staff professionalism and comfort with charges will not result in any significant change to the level of vaccination at the outreach.

Table 3 Regression Coefficients

	Unstandardized Coefficients		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	1.716	.222		7.728	.000
Awareness of services available at Outreach Clinic	.037	.039	.052	.945	.345
Satisfaction with adequacy of immunisation services	.008	.028	.016	.292	.770
Satisfaction with staff professionalism	.032	.028	.065	1.144	.253
Comfortable with charge of service	.004	.040	.005	.098	.922

a. Dependent Variable: Vaccination at outreach

4.4 Role of Leadership and Coordination

All respondents indicated having in their health facility. When asked how importance the plans were, the majority (59%) indicated very important while 41% said it was important. When asked whether the plan is followed consistently, 53% indicated usually while 29% said always. This indicates that the leadership of the health facilities is able to coordinate the immunization activities and coincides with the perception shared by the household respondents that health caregivers were concerned about their health.The data also

Journal of Health, Medicine and Nursing
ISSN 2520-4025 (Online)
Vol.3, Issue 2, No.3, pp 37 - 58, 2018
www.iprjb.org

showed that sub county teams carried out supervision whereby 59% said sometimes and 41% said always. In this regard, the interviewees admitted that despite having comprehensive guidelines to inform their activities, decisions are necessary especially when it comes to the allocation of human, financial and physical resources for the outreach.

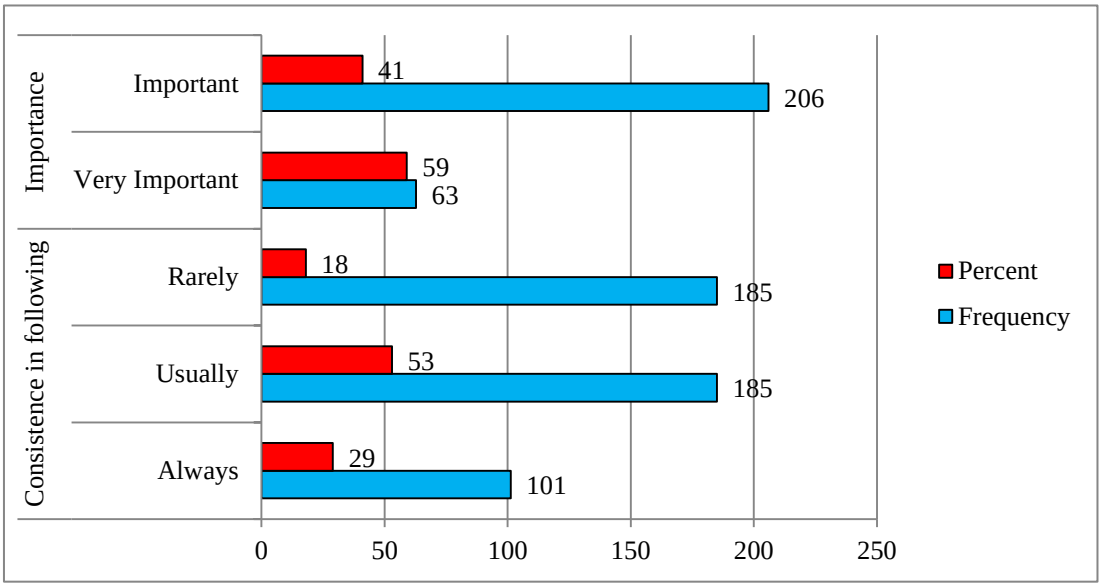

Figure 8 Importance of Micro plans

65% agreed that partners are available to support outreaches. Partners are an essential yet rare component of an outreach plan. Having supporters is good for any organization providing immunization outreach programs is advantageous because of the sizeable population that combined forces can serve. Even so, the scarcity of partners is a problem considering the voluminous resources required to successfully mitigate or control the risks and challenges involved.

4.5 Role of Logistics Management

100% of the respondents indicated always, while in regard to the availability of vaccines, the data also showed that they were available since 82% said always while 18% said sometimes.

Journal of Health, Medicine and Nursing
ISSN 2520-4025 (Online)
Vol.3, Issue 2, No.3, pp 37 - 58, 2018
www.iprjb.org

Table 4 Availability of Vaccines

Response	Frequency	Percent
Sometimes	3	17.6
Always	14	82.4
Total	**17**	**100.0**

Majority of the respondents (53%) as shown in figure 9 below indicated that it is available sometimes while 18% indicated always. The respondents also indicated that the financial support provided is somehow adequate (65%) and adequate (6%). This indicates that the outreach programmes in most of the health facilities is well supported in regards to the logistical management. This translates in the high immunization levels in the Sub-County in regards to BCG, Penta 1, Penta 2, Penta 3 and measles vaccines.

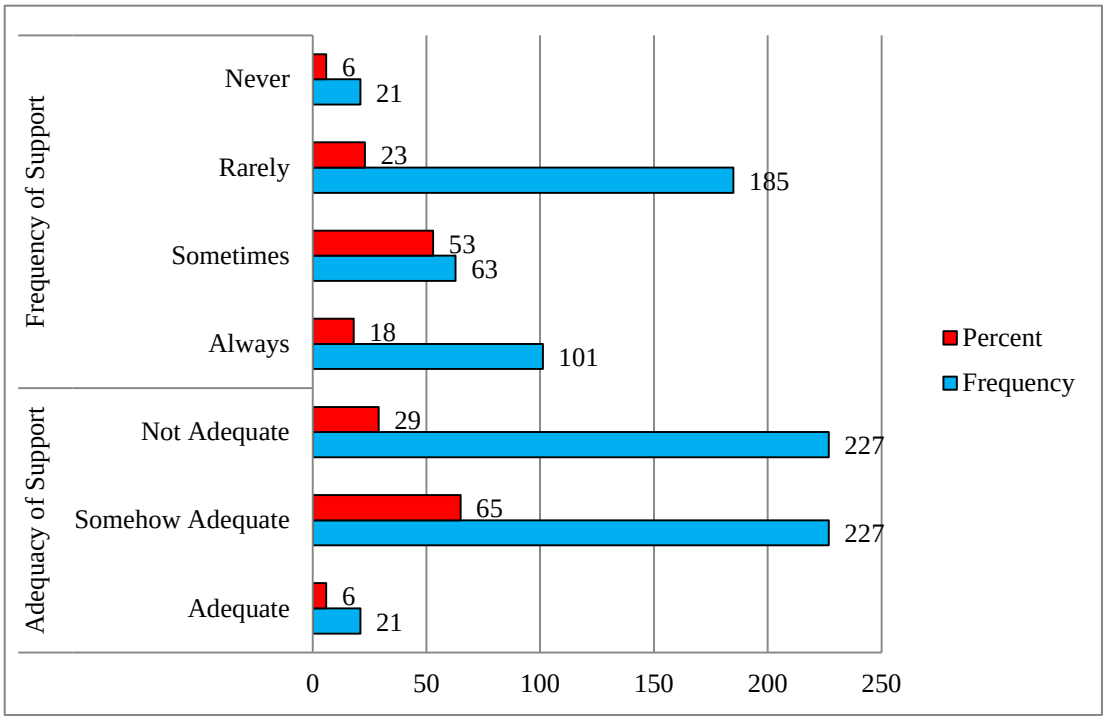

Figure 9 Financial support for outreach

4.6 Role of Human Resource Capacity

The data collected in regards to the number of staffs in the health facilities showed that

majority of the facilities had between 2 and 6 members of staff while large facilities had between 14 and 20 staff.

Table 5 Number of staff in facility

Number of staffs	Frequency	Percent
2	6	35.3
3	2	11.8
5	2	11.8
6	3	17.6
8	1	5.9
14	1	5.9
15	1	5.9
20	1	5.9
Total	**17**	**100.0**

When asked whether they receive a subsistence allowance for the outreach work, majority of the respondents 8 (47.1%) indicated sometimes while 18% said always indicating that in most health facilities the allowance was provided. This increases the motivation of the health workers and their performance as indicated by majority of the household respondents who indicated they were satisfied with the services at the outreach centres.

When further probed whether they were satisfied, the majority of the respondents (41%) said they were satisfied by either indicating very satisfied or satisfied while a significant 35% said they were unsatisfied

Table 6 Satisfaction with allowance

Response	Frequency	Percent
Not sure	4	23.5
Very satisfied	4	23.5
Unsatisfied	6	35.3
Satisfied	3	17.6
Total	**17**	**100.0**

The data in regards to staff training in essential packages for outreaches found that training was not undertaken frequently with 47% of the respondents saying rarely while 23% saying never.

Journal of Health, Medicine and Nursing
ISSN 2520-4025 (Online)
Vol.3, Issue 2, No.3, pp 37 - 58, 2018

4.7 Correlation Analysis

In this study, all the independent variables and the dependent variable (access to immunization services (demand creation (r=798, p<0.05), leadership and coordination (r=0.817, p<0.05); logistics management (r=0.719**, p<0.05) and human resource capacity (r=0.709, p<0.05). These findings show that leadership and coordination was the most important factor influencing access to immunization services, this was followed by demand creation, logistics management and human resource capacity in decreasing order of importance. These findings are presented in Table 7.

Table 7 Correlation Analysis

		Access to Immunization Services	**Demand Creation**	**Leadership & Coordination**	**Logistics Management**	**Human Resource Capacity**
Access to Immunization Services	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	349				
Demand Creation	Pearson Correlation	.798**	1			
	Sig. (2-tailed)	.000				
	N	349	349			
Leadership & Coordination	Pearson Correlation	.817**	.691**	1		
	Sig. (2-tailed)	.000	.000			
	N	349	349	349		
Logistics Management	Pearson Correlation	.719**	.758**	.628**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	349	349	349	349	
Human Resource Capacity	Pearson Correlation	.709**	.912**	.570**	.725**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

N	349	349	349	349	349

**. Correlation is significant at the 0.01 level (2-tailed).

4.8 Regression Analysis

The *Model summary* in Table 8, shows that the regression model adopted by this study was strong (R square value =0.781). This shows that the regression model accounts for 78.1% of the variability in the data.

The **regression coefficients** obtained in this study show significant t-test values ($p<0.05$) as follows: demand creation ($t= 4.469$, $p<0.05$), leadership and coordination ($t=13.082$, $p<0.05$); logistics management ($t=3.636$, $p<0.05$) and human resource capacity ($r=0.476$, $p<0.05$). These findings show that all the study variables could be fitted into the regression model as follows:

Access to Immunization Services = 0.174 + (0.266*Demand Creation) + (.403* Management Support) + (0.006* Resource Allocation) + 0.026.

Table 8 Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.884[a]	.781	.778	.09565

a. Predictors: (Constant), Human Resource Capacity, Leadership & Coordination, Logistics Management, Demand Creation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.174	.026		6.681	.000
	Demand Creation	.266	.059	.325	4.469	.000
	Leadership & Coordination	.403	.031	.483	13.082	.000
	Logistics Management	.125	.034	.147	3.636	.000
	Human Resource Capacity	.024	.050	.030	.476	.004

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.884[a]	.781	.778	.09565

a. Dependent Variable: Access to Immunization Services

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study has found that the immunization services provided through the outreach model has impacted positively on the levels of immunized children in the Sub-County considering that the majority of the population is made up of nomadic people. This therefore translates to improved health care for both mother and child. The use of various strategies like chiefs, CHVs, religious leaders and availability of motorbikes and IEC has facilitated proper relay of information about importance of immunization and exact dates to target communities. Among the factors affecting access to immunization services through the outreach model of service delivery are issues such as lack of proper coordination to ensure that communication between the community and the programme in regards to the dates is adequate.

Link facilities have leadership structure responsible for planning and executing community based outreaches. This is evidenced by presence of management guidelines, review meetings held and ability to relay information to the community through community health volunteers. Proper organization and coordination by healthcare workers and community health volunteers has strengthened delivery of immunization services.

The programme has received support in terms of finances, motorbikes for mobilization and ferrying teams, IEC materials, vaccines and fridges.This has helped in establishing and improving immunization service delivery in rural and remote areas.

The study indicated a mix of staffs engaged in delivery of outreaches. Such level of staffing in health facilities with combination of community health volunteers is capable of delivering immunization services though the integrated outreach model.

5.2 Recommendations

5.2.1 Demand Creation Activities

Due to the high illetracy levels,the county department of health and partners woring in the area need to develp and customize IEC materials to suit the local environment.This will

also need the county department of health to enhance resource mobilization thatwill go towards suppporting community health volunteers.
To sustain the current score,the community health volunteers must sustain the current home visits campaign to educate women of child bearing age and the general population on importance of immunization.
To minimize confusion and improve on access,there is need to improve on coordination between outreach teams and communities on exact dates for service delivery.This is beteer done by health facility supervisors who have the mandate to plan for outreaches.

5.2.2 Role of Leadership

The sub county and county mangement teams to conduct frequent support supervision visits, on job trainings, and provide adequate immunization standard operating procedures to outreach stations.
It is also recommnded that information feedback mechanism be established in all outreaches,link facilities and sub county offices to facilitate interactions between healthcare system and users of services.
In order to address staff accountability,it is recommended that all link facilities establish duty rosters that will be used to assign responsibilities to available officers.

5.2.3 Logistics Management Practices

From the findings,it is recommended that outreach programme be supported by mobilization of more logistical support by county government and partners working in Loima.This includes motorbikes,fuel,fridges,and reporting tools to be used by healthcare workers serving in those areas.
The county department of health and paartners to come up a modality that will ensure efficiency in payment of staffs allowances and other financial resources meant to facilitate service delivery at outreaches.
It is important for staffs at service delivery level to practice good commodity management practices to ensure correct record keeping and ensure accurate quantification of materials and commodities recieved.

5.2.4 Human Resource Capacity

The county health departments and partners to develop strategies that will address skills gap in essential packages for outreaches.Community health volunteers to undergo refresher trainings and be provided with customized IEC materials to enabke them carry out advocacy and socio-mobilization.

Apart from building capacity,the county government and partners are recommended to develop a reward scheme that will motivate healthcare workers serving in rural areas.

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