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## Project Resource Management as a Model for Enhancing Maternal and Child Healthcare Programme in Kenya: A Case of Homa-Bay County, Kenya

**Otieno Kenneth Ochieng**

Ph.D. Student, School of Continuing and Distance Education, University of Nairobi, Kenya

**Dorothy Ndunge Kyalo**

Senior Lecturer, School of Continuing and Distance Education University of Nairobi, Kenya

**Dr. Opiyo Elisha T. Omulo**

Lecturer, School of Computing and Informatics, University of Nairobi, Kenya

**Dr. Angeline Sabina Mulwa**

Lecturer, School of Continuing and Distance Education, University of Nairobi, Kenya

### **Abstract:**

*The purpose of this study was to establish the influence of project resource management on performance of maternal and child healthcare programme in Homa-Bay county, Kenya. The paper advocates for adequate allocation of resources (financial resource, human resource and technological adoption) for health with the aim of reducing maternal and infant mortality. The study was guided by systems theory and conservation of resource theory. The study adopted pragmatism research paradigm to support mixed method approach. Simple sampling technique was used to select a sample of 226 respondents; 126 nurses, 97 laboratory technologists, 7 medical record personnel. A questionnaire with a 5 point Likert scale was used to collect quantitative data while qualitative data was collected using open ended questions. Descriptive analysis was analysed using mean scores, standard deviation and percentages. Inferential data analysis was analysed using Pearson's product moment correlation. The results indicated that  $P < 0.017$ ,  $F = 5.770$ ,  $r = 0.174$ . The study concluded that there is need to allocate more resources for health. Provision of adequate resources will go along way in ensuring that health facilities do not run out of medicines and medical consumables. The study also established that there is need to invest in human resource in order to improve on quality healthcare services. It was also established that there is need to invest in modern medical technology to improve the quality of healthcare services.*

**Keywords:** Project Resource Management, Human resource, infrastructure Performance, Maternal and Child healthcare

### **1. Introduction**

Maternal mortality is viewed as a sentinel indicator of the quality of a healthcare delivery system. In 2015, global strategy for women, children and adolescent health was adopted to run from 2016 to 2030 tugged sustainable development goals. The strategy is a road map for post 2015 agenda and seeks to end all preventable deaths of women, children and adolescents through transformed environment, health and well-being. The global strategy of ending preventable maternal mortality aims at addressing: inequality in accessing quality reproductive health, maternal and new born health, universal health coverage, addressing all causes of maternal mortality and strengthening the healthcare system (Howanitz, 2005; WHO 2015a, 2015b). Quality healthcare must be provided with compassion, dignity, confidence, continuity and informed choice. This approach has led to a multidimensional quality assessment in reproductive health services taking into account the views of healthcare users, the structure and the process of service delivery.

#### **1.1. Statement Problem**

A significant proportion of maternal and infant mortality is due to infectious conditions, non-infectious diseases, malnutrition and inadequate healthcare services. Malaria and diarrheal diseases are the leading causes of childhood morbidity and mortality in Africa. It is estimated that about 732,000 infants and children under the age of five (5) die each year from these illnesses (Black et al., 2008). Health with its socioeconomic underpinnings remains one of the major global challenges and an obstacle to human capital development (Turnbull, Blyton, & Turnbull, 1992). Staff retention has been identified as one of the challenges affecting healthcare services in both developing and developed countries. Further, another study found out that incentives and providing motivation to workers are some of the ingredients to workers retention (McGuire, Todnem By, & Hutchings, 2007); (English et al., 2011). Health financing is one of the key areas that offer important opportunities to translate healthcare policies into results. There is need to develop strong health financing systems in order to provide a robust healthcare system, developed countries are finding it increasingly hard to keep up with rising health care costs due to the current economic downturn which is exerting more pressure on health spending.

Insufficient investment in the health sector or in actions to tackle the environmental and social determinants of health is a serious obstacle to improving health outcomes in Africa.

### 1.2. Objective of the Study

To establish the influence of Project Resource Management on Performance of Maternal and Child Healthcare Programme in Homa –Bay County, Kenya

### 1.3. Research Hypotheses

- $H_0$ : Project Resource Management has no influence on Performance of Maternal and Child Healthcare Programme in Homa –Bay County, Kenya
- $H_1$ : Project Resource Management has influence on Performance of Maternal and Child Healthcare Programme in Homa –Bay County, Kenya

## 2. Literature Review

Strengthening health systems in low- and middle-income countries is essential towards achieving sustainable development goals on health that focuses on; combating HIV / AIDS, malaria, reducing child and maternal mortality. Maternal and infant mortality have been identified as the most significant public health problems in developing and resource-poor nations (Gershy-Damet et al., 2010; Ravishankar et al., 2009). Studies shows that maternal mortality occur due to the interplay of social, cultural, economic, logistical barriers coupled with inadequate and under funded healthcare services in developing countries. Strengthening health system and improving quality healthcare delivery is pivotal to reversing the trend of high maternal and infant mortality (Bhutta et al., 2010); (Adedini, 2014). In recognition of this health challenges, in 2014 the world health (WHO) endorsed every new-born action plan (ENAP) as a road map to ending preventable new-born deaths and stillbirth. The target is also included in sustainable development goals (Chau, Daelmans, Jolivet, 2015). Additionally, the ENAP objective focuses on strengthening and investing in quality healthcare systems at the time of birth as a mechanism of achieving reduced mortality targets. (WHO, 2014).

The importance of an integrated continuum of healthcare services from pre-pregnancy through childhood across levels of service delivery from household to hospital should be well known by the population in order to mitigate health risks. However, health system suffers from bottlenecks at all levels leading to low coverage of many priority interventions through poor coordination, weak infrastructure, shortage of trained and motivated health workers, low uptake of available capacity and household resistance to recommended health practices (Okuonzi S.A, 2004). World Health Organization has developed a Health System Building Blocks Framework with six components to address healthcare challenges and they include ; health workforce, service delivery, information, supplies, financing and leadership to allow for the systematic identification of gaps within the system. Application of multidimensional approach in healthcare is aimed at identifying synergistic effects of complementary interventions from lowest facility level up to national level. This process has a monitoring, steering of dynamic and interrelated processes aimed at improving provision of healthcare services.

Reviewed literature have showed that human resource management is an important ingredient in developing quality healthcare services ((Elarabi & Johari, 2014). Incentives provide motivation to workers and improve the performance of individuals working in hospital (Mckinnies, 2011). In 2010 World Health Organization report, identifies three main barriers to universal health coverage; availability of resources, overreliance on direct payment, insufficient and inadequate use of resources. In low and middle income countries (LMICs) where physical and financial access remains an important barrier to universal health coverage, healthcare managers have a difficult task of ensuring healthcare services are accessible to all citizens where resource allocation is considered pooling function (McIntyre & Kutzin, 2012). In United Kingdom for instance, national health services (NHS) in 1970s developed a resource allocation formula based on health needs of specific population, relative cost of services, cost associated with different rate, cost associated with non-service delivery and patient cross boundary flow. In Latin America, Chile resource allocation is based on redistribution on per capita formula while in Colombia, resource allocation is on needs-based formula and adjustment based on various poverty related factors such as poverty level, unmet basic needs and quality of life indicator (Briscombe, Sharma, & Saunders, 2010). From independence, national budget allocation in public sector in Kenya has been incremental with government departments getting a fixed raise each year proportional to the treasury anticipated volume of resource. Resource allocation decision only diverged from this approach to the extent that local interest gained preference through political patronage. Further resource allocation procedures were based on three year rolling and forward budget framework. However, in a significant departure from previous budgeting approach, Kenya linked resource allocation to proposed outputs (Briscombe et al., 2010).

In order to have robust preventive, curative, rehabilitative and palliative healthcare services there is need to work towards achieving universal healthcare services that target all people while ensuring that the use of these services does not expose patients to financial hardship. The constitution of Kenya 2010 provides the overarching legal framework for the universal healthcare; under the bill of rights, all persons are given the right to the highest attainable standard of health which include the right to healthcare services and reproductive health (Constitution of Kenya, 2010).

### 2.1. Theoretical Framework

This study was modelled on; Systems theory and conservation of resource theory.

### 2.1.1. Systems Theory

System theory was proposed by Ludwig Von Bertalanffy in 1940s. System theory applies system principle to aid decision making process aimed at problem identification, reconstructing, optimizing and controlling system while taking into account multiple objectives of constraints and resources. It follows two basic premises, which include looking at reality in terms of whole and acknowledging that the environment is part of the system as it interacts with other system (Von Bertalanffy, 1968). Health system is a system with various levels of relationships. According to (Chuang & Inder, 2009), they identified a holistic healthcare system relationship model that provides the platform for a series of adaptive control and communication relationship between systems aimed at improving the quality of healthcare services.

### 2.1.2. Conservation of Resources Theory

The theory was advanced by Dr. Stevan E. Hobfoll in 1989 as a way to expand stress as a construct Conservation theory covers two basic principles which involve protecting resources from being lost. The principle states that it is more harmful for individual to lose resources compared to when there is gain of resources. The basic tenet of conservation theory is that individual/ organization strive to obtain, retain, foster and protect resources (Hobfoll, Stevan, 1989). The theory assumes that at any given time institutions / people have a finite set of resources. Resource allocation decisions are made with the aim of accomplishing personal / organization goals within a dynamic environment (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014). Multiple meta-analyses have been conducted with conservation of resources theory, specifically related to burnout. One meta-analysis by (Lee & Ashforth, 1996) examined the relationship between demand and resource conservation of resources theory which relates behavioural and attitudinal conservation of resources and different dimensions of job burnout. The study found out that burn out occurs as a result of perceived or actual loss of resources leading to poor performance, lowers alertness and general quality of care (Prapanjaroensin, Patrician, & Vance, 2017)

## **3. Research Methodology**

This study adopted a pragmatic paradigm. Consequently, descriptive Cross-Sectional research design and Correlation design were used. The complementary capabilities of mixed method build the strength of this study by allowing descriptive explanation of the study variable while showing relationship among variables under the study through inferential statistics. A sample size of 226 respondents was sampled using simple random and purposive sampling techniques. 126 nurses working in maternal and child welfare clinic, 93 laboratory technologists and 7 medical record personnel were sampled.

Data was collected using three sets of structured and semi structured questionnaire targeting nurses, laboratory technologists and medical record personnel. The data instruments addressed research objectives and were divided into sections. Validity was enhanced through expert opinion and conducting a pilot study. Based on the results of the pilot study, content validity was achieved by examining objectives and comparing them to content of the instrument. To ensure reliability, test and retest method at an interval of one month was done. Cronbach's Alphas reliability coefficient that ranges from 0 and 1 was generated to measure the reliability for the purpose of this study where  $\alpha < 0.964$  was obtained. The study used a mixture of descriptive and inferential data analysis techniques. Descriptive statistic such as mean scores, percentage, frequency distribution and standard deviation was used, while inferential statistics tested the hypothesis. Simple linear regression was adopted to establish the nature of relation between variables under the study. The following correlation model guided data analysis with the variables and the indicator denoted as follows:

$$Y = a + b_1 (\text{Project resource management}) + e$$

## **4. Finding**

Questionnaires were administered to 226 health personnel (nurses, laboratory technologist and medical record personnel). 186 questionnaires were satisfactorily filled and returned which gave an 82.3% response rate. According to (Groves et al., 2011) indicated that a response rate of at least 50 per cent is adequate for analysis and reporting, a 60 per cent response rate is good and 70 per cent and above is very good. This implies that the response rate was adequate for analysis and reporting.

### *4.1. Background Information of the Respondents*

The researcher sought to establish the respondents back ground information based on; gender, age bracket, highest level of education and duration in the organization. The information was gathered from the three set of questionnaires from nurses, laboratory technologists and medical records personnel.

#### 4.1.1. Distribution of Respondents by Gender

The study sought to understand the background information of the respondents based on their gender. As a result of the respondents we asked to indicate their gender as per the given option of either Male or Female. Data derived was presented in Table 1.

Category	Frequency	Percentage (%)
Gender		
Male	72	38.7
Female	114	61.3
Total	186	100.0

*Table 1: Gender Distribution of the Respondents*

The findings in Table 1 shows that 114 (61.3 %) of the participants were female while 72 (38.7%) were male. This shows that most of the nurses and laboratory technologists working in health facilities in Homa-Bay County were female. The study also confirms that Homa Bay County government had complied with the requirement of employment act in public sector which states that at least 30% of government employees should be of either gender (GoK, 2007; Unterhalter, 2007).

#### 4.1.2. Distribution of Respondents by Age Group

The study sought to understand the background information of the respondents based on their age. As a result of the respondents were asked to indicate their age as per the given age brackets. The study findings were presented in Table 2.

Category	Frequency	Percentage %
20-30 years	99	53.2
31-40 years	60	32.3
41-50 years	18	9.7
Above 51 years	9	4.8
Total	186	100.0

*Table 2: Respondents Distribution by Age Group*

The study findings in Table 2 indicated that 53.2% of the participants were aged between 20 and 30 years, 32.3% indicated between 31 and 40 years, 9.7% indicated between 41 and 50 years and 4.8% indicated above 51 years. This shows that most of the nurses and laboratory technologists in health facilities in Homa-Bay County were aged between 20 and 30 years. The finding indicated that 85.5 % of the respondents were below 30 years. This implies that the majority of healthcare workers were in their productive ages and this could be used to introduce new changes in quality controls systems in healthcare.

#### *4.2. Distribution of Respondents by Highest Level Of Education Attained*

The study sought to establish the highest level of education attained by the respondents. They were provided with the following options to choose from; Certificate, Diploma, Higher Diploma, undergraduate degree and Masters. The study findings were presented in Table 3

Category	Frequency	Percentage %
Certificate	12	6.5
Diploma	132	71.0
Higher diploma	18	9.7
Undergraduate Degree	21	11.3
Master's Degree	3	1.6
Total	186	100.0

*Table 3: Distribution of Respondents by Highest Level of Education Attained*

Table 3 presents respondents highest level of education, the findings indicated that 71.0 % had diplomas, 11.3 % had undergraduate degrees, 9.7 % had higher diplomas, 6.5 % had certificates and 1.6 % indicated that they had masters' degrees. This shows that most of the nurses and laboratory technologists in health facilities in Homa-Bay County had diplomas. It is therefore important to nature young employees and provides further training to improve on work output through continuous medical education.

#### 4.2.1. Distribution of Respondents by Number of Service Years in the Institution Health

The researcher sought to establish the number of service year's health personnel have served in the current health institution. Respondents were requested to choose from the following categories: 1-5 years, 6-10 years, 11- 15 years, 16- 20 and Above 21 years. The study findings were presented in Table 4.

Category	Frequency	Percentage %
1 to 5	120	64.5
6 to 10	45	24.2
11 to 15	12	6.5
16 to 20	9	4.8
Total	186	100.0

Table 4: Distribution of Respondents by the Number of Service Year

Table 4 presents the distribution of respondents by the number of service years. the findings indicate that 64.5% of the participants reported that they had been working in their organizations for between 1 and 5 years, 24.2% indicated for between 6 and 10 years, 6.5% indicated for between 11 and 15 years and 4.8% indicated for between 16 and 20 years. This shows that most of the nurses and laboratory technologists had been working in their health facilities in Homa-Bay County for between 1 and 5 years and this is an indication that the county had recently employed a new breed of employees.

#### 4.2.2. Performance of Maternal and Child Healthcare Programme

The performance of maternal and child healthcare programme is a measured that shows an increase or decrease of maternal and infants mortality recorded per 100 000 births over a period of time. It is considered in terms of absence or presence of infant infections at birth and infants born with ideal weight at birth. Increase in maternal and infant mortality has been identified as a global and human right concern. An increasing number of women are at risk of pregnancy-related complication or death despite advances in medicine and medical technology. Performance of maternal and child healthcare programme was identified as the dependent variable of this study.

The study sought to establish the performance of maternal and child healthcare programme in Homa Bay County measured using a number of factors on a five-point Likert scale. Respondents were requested to indicate their level of agreement or disagreement on the statement provided in Table 4.5.

Description	SA%	A%	N%	D%	SD %	Mean	Standard Deviation
Maternal mortality has been decreasing after introduction of maternal healthcare services.	59.7	32.3	8.0	0.0	0.0	4.516	.642
Maternal and child healthcare programme have led to a decrease in infant mortality	38.7	51.6	8.1	1.6	0.0	4.274	.677
The average child weight at birth has been increasing since the implementation of maternal and child healthcare programme	24.2	38.7	17.7	19.4	0.0	3.677	1.046
Infant infections at birth have been decreasing after introduction of maternal and child healthcare programme.	32.3	51.6	14.5	1.6	0.0	4.145	.716
Diseases at birth have been decreasing after the introduction of maternal and child healthcare programme and free antenatal tests.	33.9	45.2	17.7	3.2	0.0	4.096	.799
Client satisfaction has been increasing with the reduced test turnaround time for patient visiting maternal and child healthcare department.	22.6	41.9	17.7	17.7	0.0	3.693	1.012
Efficiency in disease diagnosis at maternal and child healthcare has increased as a result of the introduction of laboratory test accuracy	32.3	54.8	8.1	4.8	0.0	4.145	.760
Composite value						2.595	0.513

Table 5: Maternal and Child Healthcare Programme

The study findings in Table 5 indicate that respondents agreed with most of the statement concerning performance of maternal and child healthcare programme with a composite mean score was 2.595 and standard deviation of 0.513. The study finding also shows that respondents agreed with the statement that maternal mortality has been decreasing after the introduction of free maternal healthcare services with a mean of 4.516 and standard deviation of 0.642. In addition, they agreed that maternal and child healthcare programme has led to a decrease in infant mortality with a mean of 4.274 and standard deviation of 0.677. The study findings are in agreement with world health organization (2015) which indicated that the universal strategy of ending preventable infant and maternal mortality should address inequality in accessing quality reproductive health, new born and maternal health and also strengthening healthcare system. Through the interview, respondents agreed that since the inception of free maternal healthcare services there has been a decrease in a number of women dying due to pregnancy-related complication as the majority of women are able to deliver in the hospital as compared to previous cases where a number were delivering at home with the assistance of traditional birth attendants.

Further, the participants agreed that infant infections at birth have been decreasing after the introduction of free maternal and child healthcare programme with a mean of 4.145 and standard deviation of 0.716. Respondents agreed with the statement that efficiency in disease diagnosis at maternal and child healthcare has increased as a result of the introduction of laboratory test accuracy with a mean of 4.096 and standard deviation of 0.799. Respondents also agreed that diseases at birth have been decreasing after the introduction of maternal and child healthcare program through the introduction of antenatal tests with a mean of 4.096 and standard deviation of 0.799. The study findings are in agreement with Olusegun et al (2012) who indicated that performing quality laboratory test will go a long way in reducing maternal mortality. Similarly, Gershy-Damet et al (2010) indicated that strengthening health system in low and middle income countries are essential in reducing maternal and infant mortality.

Through interview respondents indicated that major achievement has been made through mandatory HIV testing, this has helped reduce the number of children born infected with HIV/AIDs. Most health facilities have made it mandatory that all women visiting health facilities have to undergo voluntary testing for HIV/AIDs. In addition, they agreed that client satisfaction has been increasing with the reduced test turnaround time for patient visiting maternal and child healthcare department as shown by a mean of 3.693 and standard deviation of 1.012. From observation, it was noted that in some health facilities patients were still waiting for laboratory results longer due to a number of tests requested and in some facilities it was occasioned by a low number of staff. The findings are in line with Kariuki et al (2010) argument that common reasons given by clinicians in Kenya concerning the use of laboratory services was long turnaround time for receiving laboratory results.

Respondents also agreed with the statement that the average child weight at birth has been increasing since the implementation of maternal and child healthcare programme the study findings were a mean of 3.677 and standard deviation of 1.046. Through interviews, respondents noted that this has been made possible due to increased number of births recorded in health facilities as compared to the situation where women used to give birth at home and were not recorded. The findings concurs with Baker et al (2010) argument that in low and middle income countries, nearly 50% of all birth take place at home through the assistance of tradition birth attendants.

#### 4.2.3. Analysis of Maternal Mortality Rate in Homa-Bay County

The study sought to establish the number of maternal mortality in Homa Bay County for a period for 2012-2016. Maternal mortality has been described as the number of female deaths per 100,000 live births from causes that can be attributed to pregnancy. The information was collected from secondary data as registered in Homa-Bay County health records and date presented in Table 6

Year	Maternal mortality rate (100,000)
2012	531
2013	546
2014	610
2015	583
2016	540

*Table 6: Maternal Mortality in Homa Bay County*

The result in Table 7 shows that maternal mortality numbers in Homa Bay County has been fluctuating for the last five years. In 2012 maternal mortality in the County was 531 maternal deaths per 100,000 live births. In 2013 and 2014 recorded maternal deaths were 546 and 610 respectively. In the year 2015 maternal mortality decreased to 583, which was followed by a subsequent decrease in 2016 to 540. This shows that with more intervention programme maternal mortality issues will eventually reduce to acceptable levels.

#### 4.2.4. Under 5 years Mortality Rate in Homa-Bay County

The study sought to establish under-five mortality numbers in Homa-Bay County. Under-five mortality refers to the probability of a child dying between birth and exactly five years of age, expressed per 1,000 live births. Table 8 shows the Under Five Mortality Rate in Homa Bay County for a period of five years (2012-2016).

Year	Mortality rate
2012	126
2013	135
2014	133
2015	119
2016	82

*Table 7: Analysis of Under-Five Mortality Rate in Homa Bay County*

Table 7 indicates generally mortality numbers in Homa-County. In the year 2012, under-five mortality in Homa Bay County was 126 deaths for 1,000 live births. This figure increased in 2013 to 135 deaths for 1,000 live births but a further decrease was recorded in the year 2014 to 133 deaths while in the year 2015, 119 deaths were reported. The

study also established that in the year 2015 the number of deaths was 82. The study findings show a decreasing number of under-five mortality. As noted by Becquet et al (2012) infant mortality may be affected by geographical, socioeconomic factors and the HIV status of their mothers at the same time Homa-Bay County has been rated as one of the Counties with the greatest HIV burden in Kenya.

#### 4.2.5. Causes of Neonatal Mortality in Homa Bay County

The study sought to establish major causes of neonatal mortality in Homa –Bay County as shown in Table 9. Data shows information gathered for three months (January – March 2018).

Types of Infection Affecting Neonates	Male	Female	Total	Percentage (%)
Neonatal sepsis	405	397	802	52.1
Neonatal jaundice	150	161	311	20.2
Respiratory distress	208	219	427	27.7

Table 8: Neonatal Infection

The study findings in Table 8 indicate that neonatal sepsis was the most common infection affecting neonate at 52.1 % while 27.7 % suffered from respiratory distress. The study findings also indicated that 20.2 % suffered from neonatal jaundice. It can therefore be assumed that medical laboratory quality control systems when put in place and applied will go a long way in detecting infection affecting neonates hence reducing mortality. The study findings are in agreement with Kourtis (2013) who indicated that one of the leading causes of infant mortality is neonatal sepsis, respiratory and gastrointestinal infections.

#### 4.2.6. Under-Five Mortality

The study sought to establish causes of death among children under the age of five years.

Type of infection	Male	Female	Total	Percentage (%)
Malaria	220	185	405	26.6
Pneumonia	80	71	151	9.9
Anaemia	115	93	208	13.7
Meningitis	6	5	11	0.7
Diarrhea	265	220	485	31.9
Chicken pox	40	22	62	4.1
Pulmonary TB	4	2	6	0.4
Diabetes Mellitus	6	4	10	0.7
HIV and AIDS	175	110	185	12.2
Total			1423	100%

Table 9: Under Five Disease Trends in Homa –Bay County (Jan to Feb2018)

The findings in Table 10 indicates that diarrheal disease contributed to 31.9% of infections, malaria contributed to 26.6 %, Anaemia 13.7 %, HIV and AIDs-related infections 12.2%, pneumonia 9.9 %, chicken pox 4.1 %, Meningitis, and Diabetes contributed to 0.7% while pulmonary TB contributed to 0.4% of all admissions during the period of the study. The findings reflect those of the Kenya National Bureau of statistics and ICF micro (2009) which indicated that Nyanza account for 33% mortality for children below the age of 5 and common illnesses cited were malaria, Diarrhoea, Pneumonia HIV and Aids.

#### 4.3. Project Resource Management and Performance of Maternal and Child Healthcare Programme

The study sought to establish the influence of project resource management performance of maternal and child healthcare programme in Homa- Bay county.

##### 4.3.1. Influence of Financial Management on Performance of Maternal and Child Healthcare Programme

The study sought to establish the influence of Financial Management on performance of maternal and child healthcare programme. As such respondent were asked to indicate their level of agreement or disagreement on various statements on financial management in their health institution and results were presented in Table 10

Description	SA%	A%	N%	D%	SD %	Mean	Std. Deviation
Financial resources are critical for successful implementation of maternal and child healthcare services.	71.0	27.4	1.6	0.0	0.0	4.693	.496
There are adequate finances to purchase medical equipment and laboratory supplies in our health facility	3.2	8.1	37.1	46.8	4.8	2.580	.835
There are resource allocation policies in our health facility	1.6	45.2	41.9	6.5	4.8	3.322	.820
Our organization adheres to resource allocation policies	3.2	33.9	41.9	19.4	1.6	3.177	.835
Our health facility normally develops an annual budget	11.3	56.5	24.2	8.1	0.0	3.709	.772
Composite score						3.550	0.752

Table 10: Financial Management on Performance of Maternal and Child Healthcare Programme

Table 10 shows that majority of the respondents agreed with the statement that financial management influence performance of maternal and child healthcare programme with a composite mean score of 3.550 and standard deviation of 0.752. Respondents also agreed that financial resources are critical for the successful implementation of maternal and child healthcare services as shown by a mean of 4.693 and standard deviation of 0.496. Respondents also agreed that their health facilities normally develop an annual budget with a mean of 3.709 and standard deviation of 0.772. Respondents also indicated that there are resource allocation policies in their health facilities with a mean of 3.322 and standard deviation of 0.820. Respondents also indicated that their health institution adheres to resource allocation policies with a mean of 3.177 and standard deviation of 0.835. Respondents also indicated that there are adequate finances to purchase medical equipment and laboratory supplies in their health facilities with a mean of 2.580 and standard deviation of 0.865

Through interview carried out respondents indicated that there were inadequate finances allocated in health facilities and this sometimes affect services offered of material and child health care and in return mothers visiting health facilities are forced to pay for some essential laboratory services and this affect some who do not have money to carry out these investigations. This is due to inadequate financial resources allocation which leads to the inadequate acquisition of equipment. Consequently, inadequate infrastructure, tools, equipment, erratic power supply are also considered to affect the quality of care given to the patients. There is a highly doubt if the finances allocated for maternal and child healthcare programme are used appropriately R07

#### 4.3.2. Influence of Human Resource Management on Performance of Maternal and Child Healthcare Programme

The study sought to establish how human resource management influence performance of maternal and child healthcare programme in Homa-Bay County. Respondents were requested to indicate their level of agreement or disagreement with various statements concerning human resource management in their health facilities and the findings presented in Table 11

Description	SA%	A%	N%	D%	SD %	Mean	Standard Deviation
There are adequate staff in our health facility	0.0	9.7	9.7	67.7	12.9	2.161	.768
Our health facility ensures that medical personnel are motivated	0.0	16.1	37.1	35.5	11.3	2.580	.892
There is a low employee turnover in our health facility	11.3	43.5	30.6	12.9	1.6	3.500	.913
Health professionals in our health facility are satisfied with their salaries and allowances	0.0	9.7	24.2	35.5	30.6	2.129	.961
Human resource deployment is an obstacle to provision of quality healthcare services	24.2	46.8	24.2	4.8	0.0	3.903	.819
Composite score						2.854	0.871

Table 11: Human Resource Management and Performance of Maternal and Child Healthcare Programme

Table 11 shows that respondents agreed that human resource management has an influence on the performance of maternal and child healthcare programme with a composite mean score of 2.854 and standard deviation of 0.871. Respondents also agreed that human resource deployment is an obstacle to the provision of quality healthcare services with a mean of 3.903 and standard deviation of 0.819. The study was in agreement with the study conducted by Elarabi and Johari, (2014) which indicated that human resource is an important ingredient in developing quality healthcare services.

In addition, respondents agreed that there is a low employee turnover in their health facilities with a mean of 3.500 and standard deviation of 0.913. Respondents also indicated that their health facilities ensure that medical personnel were motivated with a mean of 2.580 and standard deviation of 0.892. The study is in agreement with the study done by Mckinnies (2011) which indicated that incentives provides motivation to workers and in return improves on the performance of individuals working in a hospital.

The respondents also indicated that most health facilities in Homa-Bay count had inadequate staffs with a mean of 2.161 and standard deviation of 0.768. In addition, respondents indicated that health professionals in their health facilities were not satisfied with their salaries and allowances with a mean score of score of 2.129 and standard deviation of 0.961. The study findings are in agreement with McGuire et al (2011) which indicated that healthcare staff retention has been identified as a major challenge both in developed and developing countries, studies have out found that incentives and providing motivation of workers are some of the ingredients to workers retention. Similarly, Bhutta et al 2010) indicated that the shortage of healthcare workers was most significant constraints noticed for the failure in attaining the three health millennium development goal target for many countries. The study has also shown that healthcare work force is unevenly distributed in developing countries.

From the interviews and observation it was noted that some health facilities were understaffed and this might lead to longer turnaround time while at the same time affecting the quality of services offered in health institutions. In addition, respondents indicated that improvement in technology has led to reduce waiting time for some tests laboratory test done in their health facilities. Respondents also indicated that in workload per health worker has a direct relation with the quality of services offered therefore there is need to consider this when employing medical staff. They also indicated that there was no stable internet and reliable power backup system. They further indicated that an integrated health information system should be adopted to improve diagnostic services and aid in crucial decision making. Understaffing and untrained persons hinder the performance of maternal and child healthcare programme due to low work efficiency and implementation of programme R02

#### 4.3.3. Technological Adoption Management and performance of maternal and child healthcare programme

The study sought to find out the influence of technology adoption on performance of maternal and child healthcare programme. Respondents were requested to indicate their level of agreement or disagreement with various statements on technological adoption and findings presented on Table 12

Description	SA%	A%	N%	D%	SD %	Mean	Stand. Deviation
Adoption of new diagnostic technology is considered critical in improving diagnostic turnaround time	41.9	40.3	12.9	4.8	0.0	4.193	.841
Our health facility has allocated enough resources to the adoption of technology	0.0	8.1	35.5	41.9	14.5	2.371	.829
Our health facility has adopted the use technology in the maternity wards	0.0	19.4	33.9	27.4	19.4	2.532	1.014
Our health facility has adopted technology in health records management	3.2	30.6	37.1	27.4	1.6	3.064	.879
Our organization has adopted the use of technology in billing	3.2	32.3	35.5	29.0	0.0	3.096	.858
Hospital infrastructure hinders the adoption on new diagnostic technology required for disease diagnostics	22.6	24.2	22.6	16.1	14.5	3.241	1.355
Composite score						3.083	0.963

Table 12: Technological Adoption Management and Performance of Maternal and Child Healthcare Programme

Table 12 shows that respondents agreed that technological adoption influence the performance of maternal and child healthcare programme with a composite mean score of 3.083 and standard deviation of 0.963. Respondents also indicated that the adoption of new diagnostic technology is considered critical in improving diagnostic turnaround time with a mean a mean of 4.193 and standard deviation of 0.841. The study finding was in agreement with Howkins R. (2007) who indicated that turnaround time is one of the noticeable sighs of laboratory services and is often used as the key indicator for laboratory performance.

Further, respondents indicated that hospital infrastructure hinders the adoption of new diagnostic technology with a mean of 3.241 and standard deviation of 1.355. They also indicated that their health institutions had adopted the use of technology in billing with a mean of 3.096 and standard deviation of 0.858. Respondents also indicated that their health facilities had adopted technology in health records management with a mean of 3.064 and standard deviation of 0.879. Respondent also indicated that their health facilities had adopted the use of new technology in patient management such use of ultra-sound services and use of foetal heartbeat monitoring for pregnant women with a mean of 2.532 and standard deviation of 1.104. Respondents also indicate that their health facilities had allocated enough resources for the purpose of acquiring / adoption of new technology for patient monitoring with a mean of 2.371 and standard deviation of 0.0829.

The results also indicated the adoption of technology improves the efficiency of services and accountability at each stage of service delivery. However, poor technology adoption makes the services to slug behind. In most health facilities there was no modern technology deployed and hence there was the usage of old technological systems hence lowers the services. Also, the respondents indicated that the health facilities had the challenge of inadequate knowledge to operate the equipment. Further, some facilities that had adopted technology were using low-cost equipment which proved to be ineffective and inefficient.

Despite advances in analytical technology, many laboratories have had difficulty in improving on turnaround time R09

#### 4.3.4. Testing of Hypothesis

The study sought to establish the influence of project resource management on the performance of maternal and child healthcare programme in Homa- Bay County. The null hypothesis was;

- $H_0$ : Project resource management does not significantly influence the performance of maternal and child healthcare programme in Homa- Bay County.

The hypothesis was tested by use of correlation and regression analysis at 95 percent level of significance. The findings presented in Table 13

		Maternal and Child Healthcare Programme	Project Resource Management
Maternal and child healthcare programme	Pearson Correlation	1	
	Sig. (2-tailed)		
	n	186	
Project Resource management	Pearson Correlation	.174*	1
	Sig. (2-tailed)	.017	
	n	186	186

Table 13: Correlation Coefficient for Project Resource Management Systems and Performance of Maternal and Child Healthcare  
\*. Significant Correlation at 0.01 Levels (2 Tailed)

Table 13 shows that there is a weak positive association between Project resource management and the performance of maternal and child healthcare programme in Homa-Bay County with  $r = 0.174$ .

##### 4.3.4.1. Influence of Project Resource Management on Performance of Maternal and Child Healthcare Programme

The study sought to establish the influence of project resource management on performance of maternal and child healthcare programme in Homa-Bay County. The results were presented in Table 14

R	R Square	Adjusted R Square	Std. Error of the Estimate
.174	.30	.025	.5463898

Table 14: Model Summary for Project Resource Management and Performance of Maternal and Child Healthcare Programme

As shown in Table 14, the R-squared was used to indicate the relationship between project resource management and the performance of maternal and child healthcare programme in Homa- Bay County was 0.30. This implies that project resource management can only explain 30 % of the performance of maternal and child healthcare programme in Homa-Bay County.

Analysis of variance was used to determine whether the model was a good fit to determine the influence of project resource management on performance of maternal and child healthcare programme in Homa-bay County. The results were presented in Table 4.55

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.723	1	1.723	5.770	.017
Residual	54.932	184	.299		
Total	56.654	185			

Table 15: ANOVA for Project Resource Management and Maternal and Child Healthcare Programme

The results presented in Table 15 indicate the significance level of 0.05 was greater than the P-value of 0.017 and the F-calculated of 3.94 was less than the F-critical of 5.770. This implies that the model is a good fit for the data and hence the model can be used in predicting the influence of project resource management on the performance of maternal and child healthcare programme in Homa- Bay County.

Table 16 shows the regression coefficient for the influence of project resource management on performance of maternal and child healthcare programme in Homa –Bay County.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.393	.288		11.786	.000
Project Resource management	.223	.093	.174	2.402	.017

Table 16: Coefficients for Project Resource Management and Performance of Maternal and Child Healthcare Programme

Table 16 shows that project resource management has a positive and significant influence on the performance of maternal and child healthcare programme in Homa- Bay County as shown by a regression coefficient of 0.174 and P-value = 0.017. The findings indicate that performance of maternal and child healthcare programme can be improved through implementation of project resource management for health in Homa-Bay County.

## 5. Findings

The objective was to establish how project resource management influences the performance of maternal and child healthcare programme in Homa-Bay County. The null hypothesis that was tested was that there is no relationship between project resource management and performance of maternal and child healthcare programme in Homa- Bay County. The findings of the research were  $R^2 = 0.300$ ,  $F = 3.940$ ,  $P = 0.017$  and  $r = 0.223$ . The research findings indicate that project resource management had positive and significant influence on performance of maternal and child health care programme. It is arguable that health facilities should invest resources for health.

### 5.1. Conclusion

The study found that project resource management has a positive and significant influence on the performance of maternal and child healthcare programme. There are three main conclusions that can be drawn. First is that the county should put in place a clear mechanism for resource allocation highlighting various budget lines. Secondly, there is a need to employ more medical personnel in order to improve health practitioners patient ratio as this will go a long way to improve on the quality. Finally, the county government should invest more in equipment and infrastructure to handle patient laboratory needs and in cases where a capital investment is high, there is need to develop referral network where specimen can be taken for analysis hence improving patient treatment and management.

### 5.2. Recommendation

The study finding also indicated policymakers need to ensure adequate resources are available to support the implementation of quality control systems. Proper allocation and management of financial resource will go a long way in ensuring that laboratory consumables and equipment are available for diagnosis. In addition, human resource management would ensure quality services are offered to women and children visiting health institution. Technological adoption, on the other hand, would also guarantee production of quality results and reduce turnaround time hence reducing waiting time for patient waiting for laboratory services.

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