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Influence of Financing Infrastructure on Implementation of Health Care Projects in Meru County, Kenya

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Abstract

Devolution of the healthcare function from the national government in Kenya to county governments is influenced by various socio-economic and political factors. In particular, the provision of health infrastructure for healthcare under the management of county governments presents various challenges to these devolved units of governance. This study investigated the influence of financing of health infrastructure on implementation of healthcare projects in Meru County. The study is hinged on one theory; Theory of Fiscal Decentralization. The study adopted Descriptive survey research design. Target population was composed of 703 respondents; 23 Department of Health Non-medical staff, 670 Medical Personnel and 10 Health Civil Society Organizations' Managers. For this study, a sample size of 249 participants was used and subjects selected making uses of Stratified and Simple random sampling. Two questionnaires were used to collect primary data from the sampled respondents. Quantitative data was analyzed through the application of descriptive statistics while qualitative data was outlined in narratives modeled on themes under research. The study established that funding disbursed from central governments, budgetary constraints and revenue through local all influenced the financing of health infrastructure. The study concluded that adequate financial resources disbursed in good time are key drivers of the financing of health infrastructure that influenced the implementation of healthcare projects by in Meru County. The study recommends that, The Ministry of Health should advocate that the Ministry of Finance should devolve more financial resources for the purchase and implementation of health infrastructure at county government levels for implementation of healthcare projects.

Key Terms: *Devolution, Financing of Health Infrastructure, Healthcare Projects, County Government*

1.0 Background Information

According to Bremner (2011) health care services provisions in the devolved system of governance refers to the various processes undertaken by sub-national governments through which inputs like; finances, human resources, equipment, medical drugs and other essential supplies are amalgamated to facilitate the delivery of health interventions to the populace. White, (2011) observes that it is the lack of one or several of these inputs that influences the provision of healthcare in the devolved even at lowest level; primary care.

In Colombia, Faguet (2009) reported that budget constraints did lead to the introduction of local taxation measures to enhance the financing of health infrastructure by local governments. Loayza, Rigolini and Calvo-González (2014) reported that issues of financial planning and inadequate local taxation systems for health infrastructure did have a negative influence on the implementation process of health care projects and the provision of health services by municipal governments in Peru. Challenges related to financing

emanating from low levels of disbursements from the central government that contributed to bottlenecks of lack of health infrastructure adversely influenced the implementation of health care projects that would have witnessed the provision of health services by municipal governments in Nicaragua (Mathauer, Cavagnero, Vivas & Carrin, 2010).

Devolution of the health care function has brought with it different results in Europe especially in matters health care projects. In Italy, Bordignon and Turati (2009) also reported that issues of financing of health infrastructure adversely influenced the implementation of health-care projects for provision of health care services by regional governments in the country. Chestnutt (2014) reported that effective financing of human resources for health and health infrastructure did positively influence the implementation of dentistry health care projects and the provision of these services in Wales. In Denmark, Pedersen, Andersen & Søndergaard (2012) reported that the adoption of local taxation did improve on the ability of regional governments to finance the implementation health infrastructure projects.

Similarly in Asia the devolution of the health function has presented different challenges to different forms of devolved units of governance. In Indonesia, Heywood and Choi (2010) reported that issues related to limited funding did adversely influence the implementation of health care infrastructure projects such as health care innovations by provincial governments at the district level resulting to high reliance to private sector providers. The unequal expenditure on health care did negatively influence the provision of facilities and health infrastructure that enhance provision of health care services to the populace in some prefectures in Japan (Hayashi & Oyama, 2014).

Devolution of the health function for implementation of healthcare projects to enhance provision of this public service has had it fair share of challenges in Africa (Wunsch, 2014). In South Africa, Stuckler, Basu and McKee (2011) noted the uneven allocation of finances and the resultant imbalance in health care infrastructure did adversely influence the implementation of health care projects by provincial governments. Frumence, Nyamhanga, Mwangu and Hurtig (2013) reported that insufficient funding and inopportune disbursement of funds from the central government for financing of health infrastructure did adversely influence the implementation of health care projects in Tanzania. In Kenya, Okech (2016) also reported that budgetary constraints that derailed the provision of health infrastructure had adversely influenced the implementation of health care projects by county governments.

2.0 Statement of the Problem

The Constitution of Kenya 2010 brought with it devolution of power and the promise of better delivery of public services, for low income earning Kenyans. Though several health facilities have been built under devolution since 2014 and ambulances services have also improved owing to the purchase of new ambulance vehicles by several county governments, health care still remains a reserve of the privileged. This

is evidenced by the fact that most health care facilities are understaffed, are also ill-equipped with health infrastructure, lack drugs and other medical supplies, lack proper basic amenities such as toilets and clean drinking water (Kimanthi, 2015; Muchui, 2015).

In Meru County, despite The Meru County Government having allocated Ksh. 1.7 billion in the financial year 2015/2016, frequent strikes by health workers emanating from poor pay and lack of health infrastructure coupled with the lack of medical supplies have been reported to often paralyze operations at the Meru Level 5 hospital and other county health facilities leading to poor delivery of services to patients putting the lives of these patients in danger. Further, despite recent alarming reports of rising cases of cancer, with 15% of those referred to the Kenyatta coming from the study locale, the major county hospitals lacks proper equipment for proper diagnosis and treatment (Kimanthi, 2015). According to a Ministry of Health 2015 Oral report, Meru County has a dentist/patient ratio of 1:14,286 adversely affecting the provision of this health service to the populace in the county. Further, according to the Ministry of Health 2015 report on Meru County: Health at a Glance, the situation is made worse by the alarming doctor/patient and nurses/patient ratios which are currently estimated at 1:5,882 and 1:1,515 respectively. This leads to overworking of these sensitive human resources for health care consequently leading to poor quality health care services delivery especially in subsectors such as maternal and child health (MCH), cancer and oral health (Changalawa, 2016). Changalwa, (2016) also noted that the Meru County lacks a linear accelerator machine to treat cancer a disease that is growing at an alarming rate in the county and that available dialysis machines are

This study sought therefore to investigate on the factors that influence the implementation of health care projects in the devolved system of governance in Meru County. Specifically the study looked at the influence of; collaborative communities, distribution of human resources for health, financing of health infrastructure, learning and adoption of best practices. It recommended that issues such as; financing of health infrastructure and embracing of collaborations of communities in the form of public private partnerships for financing of medical equipment should be adopted and policy strategies should be formulated and implemented for the equitable distribution of human resources for health. County Medical staff and department of health non-medical staff should also be exposed to both international and national trainings for learning and adoption of best practices.

3.0 Research Hypothesis

H_0: Financing of Infrastructure does not have a significant relationship with the implementation of water projects by county governments.

H_1: Financing of Infrastructure has a significant relationship with the implementation of water projects by county governments.

4.0 Financing of Health Infrastructure and Implementation of Health Care Projects

In their study, Crivelli, Leive and Stratmann, (2010) had found evidence that showed that budgetary constraints were directly correlated to the implementation of health care projects by member countries from South America Europe and South East Asia of the Organization for Economic Cooperation and Development (OECD) with a devolved system of governance. Further, they contend that failure by devolved units to raise enough local taxes coupled with inadequate financial disbursements from central governments in these countries did adversely influence the implementation of health care projects (Crivelli, et al., 2010). However, Jiménez-Rubio, (2011) found different evidence that indicated fiscal decentralization had resulted to reduced infant mortality rates in OECD countries with devolved system of governance. This he argues was as a result of effective local government financing strategies that positively influenced implementation of infrastructure for child immunization projects (Jiménez-Rubio, 2011).

Similarly in their study Soto, Farfan, and Lorant (2012) found evidence noting that the effective central governmental fiscal disbursement program did enhance the implementation of health care projects by departmental governments in Colombia. They further argued that this did reduce the rate of infant mortality especially among low income populace in local municipalities but noted there was need to improve local tax capacity of departmental governments for the realization of greater gains in all health care subsectors (Soto, et al., 2012). Similarly, Faguet (2012) observed that fiscal decentralization had mixed results on projects related to different health care sub-sectors implemented by municipal governments in Bolivia. He however argued that there was need to enhance the taxing capacity of most municipal governments operating under department care to reduce their overreliance on disbursements from central government for implementation of health care projects (Faguet, 2012). Further, Martinez-Vazquez (2013) found evidence which indicated that insufficient central government financial disbursements adversely influenced the implementation of health care projects by regional governments in Peru. He however noted regional disparities in financial disbursements with Lima municipality enjoying a higher amount of disbursed funds for implementation of her health care projects (Martinez-Vazquez, 2013).

In a study, Tediosi, Gabriele and Longo (2009) observed budgetary constraints had an existing association with the implementation of health care projects by regional governments in Italy. Further, they argued that occurrences that witnessed regional governments experiencing insufficient funds either that raised from local taxes or that disbursed from the central government, their implementation of health care projects was derailed (Tediosi, et al., 2009). Similarly, Ferrario and Zanardi (2010) found evidence that showed the existence of a correlation between both the amount of local taxes raised by regional governments and that disbursed from the central government and the implementation of health care projects by the regional governments in Italy. They also argued there was need to address health care budgetary constraints by

increasing the number of local taxes at regional level which would enhance the implementation process of health care projects (Ferrario & Zanardi, 2010).

In their study, Gené-Badia, Gallo, Hernández-Quevedo and García-Armesto (2012) observed that reductions in central government's fiscal disbursements to autonomous communities had adversely influenced the implementation of health care projects by these devolved units in Spain. These they contend did have a pronounced negative influence on health care projects related to non-communicable diseases such as; cancer, chronic respiratory diseases and diabetes implemented by the autonomous communities (Gené-Badia, et al., 2012). Further, Galloa and Gené-Badia (2013) found evidence that reductions on fiscal disbursements did adversely influence the implementation of health care projects by autonomous communities in Spain. They also argued that this had negatively influenced medical insurance schemes especially those related to management of non-communicable diseases such as; cancer and diabetes (Gallo & Gené-Badia 2013). In a separate study, Avlijaš and Bartlett (2011) found that budgetary constraints did negatively influence the implementation of health care projects by municipal governments in Serbia. They however note that these emanated from insufficient fiscal decentralization from the central government to municipalities adversely influencing the acquisition of medical equipment that would led to better primary health care (Avlijaš & Bartlett 2011).

In their study Jin and Sun, (2011) found evidence that indicated that fiscal decentralization did enhance provincial government efforts in undertaking child immunization in China. This they contend did positively influence the reduction of child mortality rates (Jin & Sun, 2011). On their part Brixi, Mu, Targa and Hipgrave, (2013) observed that budgetary constraints did adversely influence the realization of equal access to health care provided through financing by provincial governments. They also contend these constraints had more pronounced negative influence on the implementation of maternal and child health (MCH) projects resulting to increased maternal morbidity and infant mortality (Brixi et al., 2013). Hartwig et al., (2015) found evidence that decentralized financing had positively influenced the implementation of maternal health care projects by provincial governments in Indonesia. They also argued that this was indicated by increased central government financial disbursements that had led to increased construction of provincial hospitals offering maternal health care services (Hartwig et al., 2015). However, Sparrow (2016) found different evidence noting that though decentralized financing had led to the introduction of medical insurance schemes by provincial governments in Indonesia these was only catering for outpatient. Further, he contends that this did aid the continued limited access to devolved health care services such as; dialysis, maternal and child health care and dental care by low income populace (Sparrow, 2016).

In their study, Boex and Selemani (2013) observed that the unequal disbursement of financial resources negatively influenced the implementation of health care projects by regional governments in Tanzania. This they did contend mainly affected regional governments that had received monetary resources that didn't

match their health care needs (Boex & Selemani, 2013). Nangoli, Ngoma, Kimbugwe and Kituyi (2015) found evidence that budgetary constraints created by high cases of corruption at devolved units derail the implementation of health care projects in Uganda. They also argued that this did have adverse effects on the amount of fiscal disbursements from the central government equally having a negative influence on the implementation process of health care projects (Nangoli, et al., 2015). Further, Gachie and Iravo (2016) found evidence that established that insufficient and inconsistent fiscal decentralization adversely influenced the implementation of health care projects by county governments in Kenya. They also contends that delayed central government fiscal disbursements did influence the acquisition of medical equipment that would have lead to better management of non-communicable diseases by county governments (Gachie & Iravo, 2016).

5.0 Theoretical Perspective

The study is hinged on one theory: Theory of Fiscal Decentralization. Formulated by Oates (1972) the theory of fiscal decentralization is based on a premise that the decentralization of funds from national governments to sub-national governments meant for development would bring services closer to local citizen levels. Oates, (1972) notes fiscal decentralization hinges heavily on the two concepts; efficient and effective allocation of financial resources for enhanced service delivery in the public sector. In this vein, Oates (2006) advances the arguments on the theory of fiscal decentralization which presupposes that sub-national governments are in a position to adapt outputs of public services to the preferences and particular circumstances of their constituencies, as compared to a central solution that presumes one size fits all.

In adopting this theory therefore, this study contends that unlike the monopolistic environment enjoyed by national governments, devolved governments encouter stiff competition from their peers. It is such competion that necessitates constraints in budgetary growth and contributes the pressure for the efficient provision of services to the public for example through the implementation of responsive health care projects (Oates, 2006 ; Tiebout, 1956). Through the theory, this research also holds that fiscal decentralization can act as a critical vehicle to achieving sustainable development in the health care sector especially the implementation of projects if it is used to provide a logical framework for mobilizing local support and resources, and promoting participation among beneficiaries of these public service development programs (Porcelli, 2009).

Through the theory, the researcher also argues that fiscal decentralization should not be taken as the panacea for the implementation of public services projects such as health care projects. Its existence may not even necessarily produce positive outcomes if there is no fair and clearly defined mechanism for resource allocation and distribution. In fact, as it has been argued, fiscal decentralization could lead to Allocative inefficiencies, as well as poor accountability and governance (Seabright, 1996). This has been found to limit

innovations in the provision of public sector services by devolved units of governance. This theory therefore advances that without proper allocation of financial resources raised either through local taxation, funding disbursed from national governments and possibly grants from international development partners; the process of implementation of health care projects would be adversely influenced.

6.0 Research Methodology

The study adopted descriptive survey research design to investigate the influence of financing of health infrastructure and the implementation of health care projects in Meru County. Descriptive survey research design was instrumental in facilitating the gathering of both qualitative and quantitative data on the correlation between financing of health infrastructure and implementation of healthcare projects in the study locale. Descriptive survey design also assisted the researcher in establishing the relationship between research variable and study problem. This emanating from its inherent features which provided the researcher with the opportunity to examine respondents' understand and perspectives in relation to the problem under research. For this research study, a sample size of 249 constituting of; Department of Health Non-medical Staff, Medical Personnel and Health Civil Society Organizations' Managers was used. Stratified and Simple Random sampling techniques were used to select study respondents from the sample. Self-administered questionnaires were used to collect data from the sampled subjects. Collected primary data was edited, examined for integrity and coded. Quantitative data was analyzed using descriptive statistics with the help of Statistical Package for Social Sciences (SPSS) version 22.0. Research findings were presented in frequency and percentage tables to make valid inference on the topic of study. Qualitative data were analyzed through the application of content analyses by organizing data into themes, patterns and sub-topics guided by the objectives of the study.

7.0 Findings and Interpretations

The study sought to determine the extent to which respondents agreed with the following statements assessing the influence of financing of health infrastructure on the implementation of healthcare projects at devolved units. Results are presented in Table 1

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Table 1: Financing of Health Infrastructure and Implementation of Health care projects

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std Deviation
Revenue raised through local taxation is enough and this does not influence implementation of health care projects.	6.7%	19.6%	2.5%	44.8%	26.4%	3.62	1.25
Health Grants received by county government from international government and this does not influence health care projects.	6.7%	11.7%	3.7%	43.6%	34.4%	3.87	1.20
Funding disbursed from the central government is good enough and this does influence implementation of health care projects.	3.1%	20.2%	3.7%	43.6%	29.4%	3.76	1.17
County government faces budgetary constraints however these do not influence healthcare projects.	40.5%	35.0%	3.1%	6.7%	14.7%	2.20	1.42
County government finances the provision of health infrastructure for MCH influencing the implementation of health care projects.	12.3%	16.6%	4.3%	41.1%	25.8%	3.52	1.36
Average mean						**3.39**	**1.3**

A sizeable number of the respondents as represented by a 44.8% (mean=3.62 std dev =1.25) agreed that revenue raised through local taxation is enough and this did not influence implementation of health care projects, 43.6% of respondents (Mean =3.87, std dev =1.20) felt that health Grants received by county government from international government do not influence implementation of health care projects, 43.6% of respondents (Mean =3.76, std dev =1.17) agreed that funding disbursed from the central government is good enough and this influenced implementation of health care projects in the study locale, 41.1% of respondents (Mean =3.52, std dev =1.36) agreed that county government finances the provision of human

resources for MCH which influenced health care projects, while 40.5% of respondents (Mean =2.20, std dev =1.42). This essentially means that a vast majority of respondents 44.8% recognized that revenue raised through local taxation is enough however this did not influence implementation of health care projects possibly emanating from high levels of corruption in county governments;most of respondents 43.6% also recognized the county government receives health grants from international governments that do not influence implementation of health care projects possibly due to high levels of corruption and political interference, most of the respondents 43.6% also appreciated that funding from the central government was enough and did influence the implementation of health care projects, while a significant number of respondents 41.1% acknowledged that the county government finances the provision of health infrastructure for MCH may be because majority of the respondents were female and a minimal number 40.5% noted that the county government does not face budgetary constraints that influence implementation of health care projects.

Measures of Provision of Health Care through Health Care Projects

Respondents were also requested to highlight on indicators of provision of health care through health care projects. Results are presented in Table 2

Table 2: Measures of provision of Health Care through Health Care projects

Statement	Very Low Extent	Low Extent	Moderate	Great Extent	Very Great Extent	Mean	Std Deviation
Community Disability Health Centers	5.5%	3.1%	5.5%	47.9%	38.0%	1.90	1.03
Community Clinics	3.7%	3.1%	6.1%	42.3%	44.8%	1.79	0.96
Financing of Cancer diagnosis and Treatment Units	0%	9.2%	3.7%	48.5%	38.7%	1.83	0.88
Existence of a good number of Human resources for dialysis units	1.8%	6.1%	6.1%	46.6%	39.3%	1.85	0.92
On-job training for medical human resources	3.1%	5.5%	13.5%	43.6%	34.4%	1.99	0.99
E-health Pharmaceuticals and supplies stock management	8.6%	20.2%	6.7%	30.1%	34.4%	2.39	1.36

From the study findings, majority of the respondents as shown by 48.5% agreed that financing of cancer diagnosis and treat units was to a great extent an indicator of provision of health care through implementation of health care projects at county level. This is essentially because of reports of high cancer cases in the study locale. 47.9% of respondents agreed that community disability health centres are to a great extent an indicator of provision of health care through implementation of health care projects at county level. 46.6% of respondents agreed that existence of a good number of human resources for dialysis units to a great extent is an indicator of provision of health care at county level. 44.8% of respondents agreed that community clinics were to very great extent indicators of provision of health care through implementation of health care projects at county level and 34.4% agreed that E-health Pharmaceuticals and medical supplies stock management is to a very great extent an indicator of provision of health care at county level.

Regression Results-Inferential Statistics

The data presented before on financing of health infrastructure and implementation of healthcare projects in the county were computed into single variables per factor by obtaining the averages of each factor. Correlations analysis and multiple regression analysis were then conducted at 95% confidence interval and 5% confidence level 2-tailed to establish the relationship between the variables. The research used statistical package for social sciences (SPSS V 22.0) to code, enter and compute the measurements of the Pearson's Product Moment Correlation and multiple regression.

Pearson's Product Moment Correlation

A Pearson's Product Moment Correlation was conducted to establish the strength of the relationship between the variables. The findings are presented in Table 3.

Table 3: Correlation Matrix

		Implementation of healthcare projects	Financing of human resources	Distribution of human resources	Collaboration of communities	Learning and adoption of best practices
Implementation of healthcare projects	Pearson Correlation	1				
	Sig. (2-tailed)	.				
Financing	Pearson Correlation	.806	1			
	Sig. (2-tailed)	.029	.			

Results in Table 3 reveal that there is a strong, positive and significant correlation between financing of health infrastructure and implementation of healthcare projects in the county. (r = 0.806, p value= 0.029).

This implies that the variable under study had a positive and significant correlation with implementation of healthcare projects in the County.

Multiple Regression Analysis

In this study, a multiple regression analysis was conducted to test the effect among the predictor variable. The summary of regression model output is presented in Table 4

Table 4: Summary of Regression Model Output

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.926[a]	0.857	0.854	1.287
Predicator: (constant)	Financing of Health Infrastructure			
Dependent: Variable.	Implementation of Healthcare Projects			

The study found that the independent variable selected for the study (i.e. financing of health infrastructure accounted for 85.4% of the variations in implementation of healthcare projects in the county. According to the test model, 14.6% percent of the variation in the implementation of healthcare projects in the county could not be explained by the model. Therefore, further studies should be done to establish the other factors that contributed the unexplained (14.6%) of the variation in the implementation of healthcare projects in the county.

The study employed Regression coefficients for the relationship between the study's independent variable (financing of health infrastructure) and implementation of healthcare projects in the county. Results are shown in Table 5.

Table 5: Regression coefficients

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	0.684	0.123		5.561	0.000
Financing of health infrastructure	0.796	0.342	0.676	2.327	0.025

From the data in Table 5, the established regression equation for the influence of financing health infrastructure on the implementation of healthcare projects in the county was:

Y = 0.684+ (0.796)

From the regression equation above it was established that taking financing of health infrastructure into account constant at zero, implementation of healthcare projects in the county was 0.684. The findings presented also show that a unit increase in the financing of health infrastructure would lead to a 0.796

increase in the scores of implementation of healthcare projects in the county. Specifically this means that inadequate financing of health infrastructure negatively influenced the implementation of healthcare projects in the county. The study also established that this was at a significance value of 0.025 which is < 0.05 which meant financing of health infrastructure to a great extent influenced the implementation of healthcare projects in Meru County. The researcher therefore rejected the Null hypothesis that financing of health infrastructure does not have a significant relationship with the implementation of healthcare projects in Meru County and accepted the Alternative hypothesis; financing of health infrastructure has a significant relationship with the implementation of healthcare projects in Meru County.

8.0 Conclusions

The study concluded that adequate financial resources are key drivers in implementation of health care projects in Meru County. It was established the rate of flow of health care projects' funds especially those disbursed from the central government to devolved units of governance influences the projects related to health infrastructure such as cancer diagnostic units and health information systems.

9.0 Study Recommendations

The Ministry of Health should advocate that the Ministry of Finance should devolve more financial resources for the purchase and implementation of health infrastructure at county government levels for implementation of healthcare projects. The devolved level of governance, with the help of anti-corruption agencies should combat corruption to ensure revenue from local taxation is appropriately utilized in the financing of health infrastructure. The county government with the help of central government agencies and the ministry of health should put in place measures that would ensure health grants from international governments are utilized for the implementation of intended health care projects.

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