FACTORS INFLUENCING AVAILABILITY OF ESSENTIAL MEDICINES IN PUBLIC HEALTH FACILITIES IN KENYA: A CASE OF EMBU COUNTY

Caroline Wambui Muiruri
Master of Arts in Project Planning and Management, University of Nairobi, Kenya

Dr. Mercy M. Mugambi
University of Nairobi, Kenya

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ABSTRACT

Healthcare provision involves curative, promotive, rehabilitative and preventative care. Both curative and preventative care involves the use of medicines and medical supplies. In order to provide effective treatment essential medicines and medical supplies must be available at the health facilities. About one third of the world's population lacks access to essential medicines. The situation is worse for the developing continents especially Africa and Asia. Half of the population in Africa lacks essential medicines. This study sought to establish influence of health workers training on availability of essential medicines in public health facilities, to determine influence of health budgetary allocations on availability of essential medicines in public health facilities ,to examine influence of supplier stock levels on the availability of essential medicines in public health facilities and to assess influence of disease prevalence patterns on availability of essential medicines in public health facilities. Descriptive Survey design was used to conduct the research. The target population for the study was health workers dealing with essential medicines in the 94 health facilities in Embu County. Of the target population a sample of 49 health workers was used as derived using Yamane's formula. Stratified random sampling and simple random sampling procedures were used to determine how the data collection instrument would be distributed. A Questionnaire was administered to the sampled population to obtain data. Data was first coded then analyzed using the statistical Package for Social Sciences (SPSS) and it was further subjected to Chi Square test analysis. Chi Square test is a test used in research to assist in the assessment of relationship between two or more mutually exclusive variables. This technique helps in comparing proportions observed to what would be expected under an assumption of independence between two variables. The study found that majority of the health workers were females and they were generally young. Most had a diploma level of academic qualification and they were nurses who had worked for less than five years. Majority of the health workers had knowledge on essential medicines with a significant number having attended commodity management trainings. The findings also indicated that a significant number of the respondents had attended short commodity management trainings as they felt that they were very relevant in their practice as health workers and there was need to attend such trainings once annually. Most of the sampled facilities were dispensaries which received a significant budget allocation for the procurement of essential medicines. The budget allocations were done quarterly though disbursement was mainly done half yearly. The study showed that Kemsa was the main supplier for essential medicines for the health facilities. However the suppliers did not stock all the essential medicines and their order fulfillment was averagely good. The study also indicated that there were no new diseases reported in a period of one year although if present a substantial amount of the essential medicines would have been consumed. The common diseases treated in

the county were both communicable and non communicable diseases. The study revealed that all the factors investigated had an influence on the availability of essential medicines in public health facilities due to untrained staff, inadequate and untimely disbursements of budgets allocated to the health facilities, no of suppliers and supplier stock factors which were seen to inhibit the stocking abilities for the suppliers and the disease prevalence patterns. The study recommended that the stakeholders in health include commodity management trainings as a core discipline in all major health professions. Other recommendations included timely and sufficient budgetary allocation and disbursements to health facilities, increase the no of suppliers, hold regular meetings to provide feedback to the already existing suppliers and conduct surveillance on current disease patterns and also establish response budgets.

Key Words: essential medicines, public health facilities, Kenya, Embu County

INTRODUCTION

Healthcare provision involves curative, promotive,rehabilitative and preventative care.Both curative and preventative care involves the use of medicines and medical supplies. Inorder to provide effective treatment essential medicines and medical supplies must be available at the health facilities.Besides having skilled healthcare providers, medicines are the most significant means to prevent, alleviate, and cure disease (United Nations, 2005).The World Bank defines Essential medicines as those medicines that satisfy the priority health care needs of the population. They should be available within health systems at all times, in adequate amounts, in the appropriate dosage forms, with assured quality and adequate information, and at an affordable price (WHO 2002).

Availability of medicines is commonly cited as the most important element of quality by health consumers and the absence of medicines is a key factor in assessing the quality of health services (Chuchu, 2002).Different counties have had several setbacks as pertains to the availability of essential medicines and medical supplies. Bruno et al., 2015 states that the concept of essential medicines was introduced by the World Health Organization (WHO) in 1977. They state that one third of the world's population lacks access to needed medicines. This lack of access is even worse among the world's poorest countries in Asia and Africa. In such countries, up to 50% of the total population lacks this access. Although considerable progress has been made since the World Health Organization (WHO) introduced the concept of essential medicines, the benefits have been unequally distributed across the global population (Attaran, 2008).

About 30% of the world's population lacks access to the essential medicines. In Africa, almost half the population or 15% of the world total lack access (WHO, 2004a). A study conducted by WHO in 2011 found that poor medicine availability, particularly in the public sector, is a key barrier to access to medicines. Public sector availability of generic medicines is less than 60% across WHO regions, ranging from 32% in the Eastern Mediterranean Region to 58% in the

European Region. Private sector availability of generic medicines is higher than in the public sector in all regions. However, availability is still less than 60% in the Western Pacific, South-East Asia and Africa Regions (WHO, 2011).

The situation has not been any better since the start of devolution to date. In Kenya a study found that public facilities experienced stock-outs of basic essential medicines for about 46 days annually (Ministry of Medical Services and Ministry of Public Health & Sanitation, 2009). To improve Kenya's health system access to essential medicines is the key to tackling health complications and reducing mortality rates throughout the developed world. In a study conducted in 39 low and low to middle countries including Kenya it was found that there was a wide variation on average availability which was 20% in the public sector and 56% in private sector (WHO, 2010).

Public health facilities experience an acute shortage of drugs thereby forcing hospitals to use funds meant for development to buy emergency medicines from local pharmacies. For instance in Nakuru county data obtained from a pharmaceutical agency indicated that in 201 provincial, district and sub district hospitals in that county registered an average of 50% for common class medicines while the lower level facilities had an average of 60% of essential medicines in stock (Ministry of health, 2010).A global study conducted on essential medicines showed that the median availability of essential medicines was suboptimal at 61.5% but significantly higher than non-essential medicines at 27.3%. The median availability of essential medicines was 40% in the public sector and 78.1% in the private sector compared to 6.6% and 57.1% for non-essential medicines respectively. A reverse trend between national income level categories and the availability of essential medicines was identified in the public sector. Although EMLs have influenced the provision of medicines and have resulted in higher availability of essential medicines compared to non-essential medicines particularly in the public sector and in low and lower middle income countries. The availability of essential medicines, especially in the public sector does not ensure equitable access (Bazargani et al., 2014).

STATEMENT OF THE PROBLEM

Unavailability of essential medicines in most of Kenya's public health facilities highly increases the country's mortality rate as the facilities serve majority of Kenyans with low incomes and have to depend on subsidized cost of healthcare promised in public facilities. The shortage of these medical supplies in public health facilities diverts patients hoping for cheaper and government-subsidized rates to private facilities where costs are quite high (Magak and Muturi, 2016). The counties being the managers of the finances meant for public health facilities have not been keen in providing the requisite essential medicines required by the health facilities. Before devolved system of governance public health facilities had autonomy in the management and utilisation of the revenue they generated. Large proportions of the allocations would go towards the procurement of essential medicines. However this scenario has changed after the onset of devolution the revenue generated is collected and managed centrally by the county

goverment. Public health facilities have experienced difficulties in accessing those funds and hence have had to rely on the county goverment to supply them with the essential medicines as and when they deem fit. The patient flow has been diminishing since most of the medicnes prescribed are not available in those facilities.This has led to patients seeking services from private hospitals and clinics despite the extra cost. In Embu county for instance since 2013 inconsistent and irregular ordering patterns have been followed. The quarterly ordering cycles previsiouly prescribed by the Ministry of health have not been followed and instead adhoc emergencies have been experienced. In 2013/2014 to 2015/2016 financial years (FY's) Embu county have placed six quarterly orders as opposed to complete twelve quarterly orders(Kemsa, 2017). This has hampered adequate availability of the essential medicines in the facilities leaving the patients predisposed.This has led to unreliable, inefficient , ineffective and non affordable provision of health services and in many cases increased mortality rates due to lack of treatment.

GENERAL OBJECTIVE

The study sought to investigate the factors influencing the availability of essential medicines in public health facilities in Embu County.

SPECIFIC OBJECTIVES

1. To establish influence of health worker training on availability of essential medicines in public health facilities.

2. To determine influence of health budgetary allocations on availability of essential medicines in public health facilities.

3. To examine influence of supplier stock levels on the availability of essential medicines in public health facilities.

4. To assess influence of disease prevalence patterns on availability of essential medicines in public health facilities.

THEORETICAL REVIEW

The concept of essential medicines in 1977 as drawn from the world health organization indicates that Essential medicines are those that satisfy the priority health care needs of the population. Their selection is in regard to public health relevance, evidence on efficacy and safety, and comparative cost-effectiveness. Essential medicines are intended to be available within the context of functioning health systems at all times in adequate amounts, in the appropriate dosage forms, with assured quality and adequate information, and at a price the individual and the community can afford. The availability of essential medicines focuses on enhancing human life through satisfaction of the basic level of need where health is one of them.

According to Maslow Theory of human needs, (1943) human needs are classified in different levels namely physiological, safety, love and belonging, esteem self-actualization and self-

transcendence. Health is classified under the physiological need and it is paramount that treatment is given in order to sustain health. It is a physical requirement for human survival. If not met, the human body cannot function properly and will ultimately fail. Physiological needs are thought to be the most important; they should be met first .From the definition of essential medicines by the WHO it is evident that they satisfy the priority health care needs of the population and they should therefore be available at all times in adequate amounts and in appropriate dosage forms, at a price the community can afford (WHO, 2002).

Availability of essential medicines to protect and promote good health to humans creates a sense of satisfaction to both the patient, health workers, suppliers of the medicines and it also controls disease prevalence. Availability of essential medicines is geared by systems, procedures and people. Motivation to ensure that the required medicines are available in public health facilities can be achieved by ensuring rational selection and use of medicines is done by coming up with national essential medicines lists and hospital formulary lists that guide procurement and use of medicines. Mechanisms that make medicines affordable include promoting bulk procurement, implementing generics policies, eliminating duties, tariffs and taxes on essential medicines and encouraging local production of essential medicines of assured quality.

Reliable supply systems that can be realized by public-private-NGO partnerships in supply delivery, proper regulatory control and exploring various purchasing schemes would all enhance and ensure the physiological need of health is satisfied. Through this, patients' mortality rates are lowered and also health complications are reduced. Where the essential medicines are availed the healthcare worker are also motivated to render service as well as ensure they participate in key decision and leadership areas with great emphasis to ensure they obtain the requisite resources and set and adopt remarkable policies that will ensure the essential medicines are availed with ease.

Another theory which is paramount to this study is Joseph Juran's Theory of Total quality Management. According to Juran quality refers to "fitness for use." He stresses a balance between product features and products free deficiencies. Juran uses the word "product" to refer to the output of any process, and that includes goods as well as services (Juran & Gryna, 1988).Product features in his theory refers to the technological properties the product will give to a customer. In this study the product is essential medicines which must bring a level of satisfaction to the customer in this case the patient. From the World Health Organization definition it is clear that the essential medicines must be able to satisfy the health needs of a given population. It is therefore important to ensure that as the essential medicines are made available to a given population that they first meet the requirements to qualify for fitness for use. In order to ensure essential medicines are available and uninterrupted the Juran trilogy of quality needs to be followed to harness the process of acquisition of essential medicines. The trilogy states that management for quality consists of three interrelated aspects that is quality planning, quality control and quality improvement. (Juran, 1986).Quality planning involves developing a

process that will achieve the established goals. This aspect mainly focuses on determining the customer needs and expectations. In this study though much has been done towards identification of the customers' needs fulfillment and enhancement of those needs has not been fully honored. The quality control and improvement aspect are thus being embraced in order to ensure that objectives laid down are fully achieved without waste and instead create a sense of satisfaction. In order to ensure continuous and an interrupted essential medicines supply chain Juran emphasizes on top management support and commitment, continuous education and training and effective communication and team work at all levels. This implies that from the time essential medicines needs and requirements are identified to the time the essential medicines are supplied and the need is fully satisfied all key player involved must be involved and committed towards actualizing that need.

RESEARCH METHODOLOGY

Research Design

The study used descriptive research survey design. Descriptive survey design involved collecting data through a questionnaire from a sampled population in order to determine the current status of that population with respect to the study variables.

Target Population

The target population for the study comprised of healthcare workers in 94 public health facilities in the county government of Embu.

Sample Size and Sampling Procedure

From the population of 94 Public health facilities in Embu County, the study covered a sample of 52%. The study used stratified sampling and census methods as sampling techniques. The population was divided into three strata namely hospitals, health centres and dispensaries. Since the hospitals and health centres were less than thirty census technique was employed and they were all considered for the study. The sample size was drawn from a target population of 94 healthcare workers. Yamane's formula was used to calculate the sample size. The sampled population consistuted 49 health workers.The sample was spread across the different levels of care consisting of Five hospitals, fifteen health centres and twenty nine Dispensaries. Since the facilities were grouped based on the level of care stratified sampling procedure was used. The study used this procedure as the population comprised a number of distinct categories; the frame was organized by these categories into separate strata of hospital, health centre and dispensary. The strata for this study were the three different levels of public health facilities. A single participant was drawn from the sampled no of health facilities. This implied that five participants represented the hospital category, fourteen participants represented the Health centre category and thirty participants represented the dispensary category.

Methods of Data Collection

The research study used the questionnaire method to collect data from five health workers working at the hospitals managing essential medicines, fourteen health workers working at the health centre managing essential medicines and thirty health workers managing essential medicines at the dispensary level. A structured questionnaire containing both open and closed ended questions divided into five major sections was administered to the health workers in the respective sampled facilities to collect data. The first section gathered demographic data and the other four sections collected data on health worker training, health budgetary allocation, supplier stock level and disease prevalence patterns.

Data Collection Procedure

An initial visit to the Director Medical Services Embu County to seek an approval to conduct a research in public health facilities in the County was done. A clearance letter was issued by Director Medical Services for the respective respondents in the sampled health facilities. Communication to the health facilities was done through their respective sub county Pharmacists on the days the questionnaire would be distributed. Data was collected from the respondents through a questionnaire which was distributed previously for filling and collected at the agreed date.

Data Analysis Technique

Data coding was done where the variables were noted in form of symbols or numeric characters to reduce the amount of data entry required. The data was then tabulated into frequency and cumulative tables in preparation for computer manipulation. The quantitative data was analyzed using statistical Package for Social Sciences software while the qualitative data was organized into themes according to the study objectives. Percentages and frequency distribution tables were used to draw inferences between the dependent and independent variables for data presentation. The level of significance was 5%. The Chi square test was used in establishing relationships between categorical variables (Mugenda and Mugenda, 2003). In this study Chi Square test was used to determine whether there was a significant relationship between health worker training, health budget allocation, supplier stock level, disease prevalence pattern and availability of essential medicine. The study variables were also subjected to multicolinearity test to check the level of predict the target variable.

RESEARCH FINDINGS

Chi – Square Statistics

The Chi Square statistic is commonly used for testing relationships between categorical variables. The null hypothesis of the Chi-Square test is that no relationship exists on the categorical variables in the population as they are independent.

Chi – square test1 Age and Education level

Ho = There is no relationship between age and education level

H1 = There is a relationship between age and education level

Table 1: Age category * Academic qualifications Cross tabulation

| | | | Academic qualifications | | | | |
			Diploma	Higher Diploma	Degree	Postgraduate	Total
Age category	26-35	Count	20	0	0	0	20
		% within Age category	100.0%	0.0%	0.0%	0.0%	100.0%
		% within Academic qualifications	80.0%	0.0%	0.0%	0.0%	40.8%
	36-45	Count	5	9	0	0	14
		% within Age category	35.7%	64.3%	0.0%	0.0%	100.0%
		% within Academic qualifications	20.0%	100.0%	0.0%	0.0%	28.6%
	46 and above	Count	0	0	11	4	15
		% within Age category	0.0%	0.0%	73.3%	26.7%	100.0%
		% within Academic qualifications	0.0%	0.0%	100.0%	100.0%	30.6%
Total		Count	25	9	11	4	49
		% within Age category	51.0%	18.4%	22.4%	8.2%	100.0%
		% within Academic qualifications	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2: Chi-Square Test 1

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29.792[a]	3	.000
Likelihood Ratio	37.884	3	.000
Linear-by-Linear Association	22.376	1	.000
N of Valid Cases	49		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.55.

The p – value = 0.000, which implies that there is a relationship between the age respondent and education level and hence the null hypothesis was rejected..

Chi – square test2 Age and relevance of training

HO = There is no relationship between age and respondents response on the relevance of training

HI = There is a relationship between age and respondents response on the relevance of training.

Table 3: Age category * Relevance of training Cross tabulation

			Relevance of training				
			Not relevant	Somehow relevant	Relevant	Very relevant	Total
Age category	26-35	Count	1	14	5	0	20
		% within Age category	5.0%	70.0%	25.0%	0.0%	100.0%
		% within Relevance of training	100.0%	100.0%	83.3%	0.0%	40.8%
	36-45	Count	0	0	1	13	14
		% within Age category	0.0%	0.0%	7.1%	92.9%	100.0%
		% within Relevance of training	0.0%	0.0%	16.7%	46.4%	28.6%
	46 and above	Count	0	0	0	15	15
		% within Age category	0.0%	0.0%	0.0%	100.0%	100.0%
		% within Relevance of training	0.0%	0.0%	0.0%	53.6%	30.6%
Total		Count	1	14	6	28	49
		% within Age category	2.0%	28.6%	12.2%	57.1%	100.0%
		% within Relevance of training	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4: Chi-Square test 2

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.917[a]	6	.000
Likelihood Ratio	62.354	6	.000
Linear-by-Linear Association	33.561	1	.000
N of Valid Cases	49		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .29.

The chi square analysis from the table 4 above shows that p-value = 0.000, implying that there exists a relationship between age and respondents response on the relevance of training and hence the null hypothesis is rejected.

Chi –square test3 Gender and new emergent diseases

HO = There is no relationship between gender and attitude towards new emergent diseases

HI = There is a relationship between gender and attitude towards new emergent diseases.

Table 5: Gender * Extent of agreement Cross tabulation

			Extent of agreement				
			Disagree	Somehow agree	Agree	Strongly agree	Total
Gender	Male	Count	13	6	0	0	19
		% within Gender	68.4%	31.6%	0.0%	0.0%	100.0%
		% within Extent of agreement	100.0%	85.7%	0.0%	0.0%	38.8%
	Female	Count	0	1	18	11	30
		% within Gender	0.0%	3.3%	60.0%	36.7%	100.0%
		% within Extent of agreement	0.0%	14.3%	100.0%	100.0%	61.2%
Total		Count	13	7	18	11	49
		% within Gender	26.5%	14.3%	36.7%	22.4%	100.0%
		% within Extent of agreement	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6: Chi-Square Test 3

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.389[a]	3	.000
Likelihood Ratio	59.696	3	.000
Linear-by-Linear Association	37.803	1	.000
N of Valid Cases	49		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 2.71.

As indicated in the table 6 above, the value of p = 0.000, implying that there exists a relationship between gender and attitude towards new emergent diseases. Therefore the null hypothesis is rejected.

DISCUSSION

The discussions were done in line with the following objectives establishing influence of health workers training on availability of essential medicines in public health facilities, determining influence of health budgetary allocations on availability of essential medicines in public health facilities ,examining influence of supplier stock levels on the availability of essential medicines in public health facilities and assessing influence of disease prevalence patterns on availability of essential medicines in public health facilities. The discussions of the study are summarized on the thematic areas.

Influence of Health worker training on availability of essential medicines in public health facilities

Lack of trained pharmacy staff at the health center service delivery level to manage medicines and supply chain has become a critical bottleneck in national efforts to improve access to medicines and primary health-care service delivery. Addressing human resources constraint would improve medicines management, logistics information flow, and supply chain function at the health facility level, leading to improved medicines availability at public health facilities, access to essential medicines in the community and health outcomes (Lubenga et al., 2014).The study revealed that most of the respondents were had knowledge on essential medicines and had been trained on commodity management. Although most of the health workers had not attended short commodity management trainings they felt that attending the short courses once annually was relevant and would enhance their skills as far as commodity management was concerned. This would help ensure that essential medicines were available at their health facilities.

An effective medicines supply chain with sufficient numbers of well-trained and motivated human resources is an essential component of a robust health system (MSH, 2012, and USAID Deliver Project, 2013). The chi square analysis showed a p-value = 0.000, implying that there exists a relationship between age and respondents response on the relevance of training and therefore the Embu county government should continuously provide training to the health workers. Health worker training is statistically significant in explaining availability of essential medicines in public health facilities in Embu County.

Influence of Health budgetary allocation on availability of essential medicines in public health facilities

The world health organization states that besides factors such as Rational selection of medicines, affordable prices, reliable health and supply systems, sustainable financing is a key factor that affects the access of essential medicines (WHO, 2004).The study revealed that financing was provided for health facilities to procure their drugs though the disbursements of the allocated budgets were not done in a timely manner and this was seen to affect the availability of essential medicines in the public health facilities. Magak and Muturi, (2016), further asserted that

insufficient budgets are a major cause of stock outs for essential medicines in many parts of the world. Although results indicated a significant budget for the facilities based on level of care with a mean budget allocation for essential medicines 2.4694 indicates a significant relationship between the level of health facility and its budget allocation. As a result higher budgetary allocations should be considered since they are statistically seen to be significant in explaining availability of essential medicines in Embu County.

Influence of Supplier stock levels on availability of essential medicines in public health facilities

According to Gateman & Smith, (2011) and Chabner, (2011) Essential medicines shortages, among them generic injectable chemotherapy agents, are causing increasing concern to healthcare providers. The third objective of the study was to examine influence of supplier stock levels on the availability of essential medicines in public health facilities in Embu County. The study results indicated that suppliers of essential medicines constituted two major suppliers who did not stock all the required essential medicines for the public health facilities.

The suppliers' failure to stock all the essential medicines largely influenced the availability of essential medicines in healthcare facilities. Furthermore, the lack of moderation, monopoly and dominance especially by Kemsa and Meds negatively influences availability of essential medicines in public health facilities in Embu County. The results reveal that supplier stock level is statistically significant in explaining the availability of essential medicines in Embu County.

Influence of Disease prevalence patterns on availability of essential medicines in public health facilities

Information on disease prevalence rates is not well known and thus a negative influence in terms of medicines demand forecast and quantification is not well captured. As a result there is rampant increase on mortality rates amongst other factors due to insufficient treatment due to lack of essential medicines for the same. In many parts of the world prevalence rates of diseases is not well known and this would hamper the planning on prevention and treatment (Sullivan et al., 2000).The study sought to assess influence of disease prevalence patterns on availability of essential medicines in public health facilities in Embu County. Results indicated that both communicable and non communicable diseases were the most commonly treated diseases in health facilities and also new emergent diseases were believed to consume essential medicines. Although a significant no of respondents agreed that new emergent diseases exhausted the essential medicines. However the county needs to consider the following measures proper disease surveillance, community sensitization and proper research in order to control the prevalence rates. The Chi square Test showed the value of $p = 0.000$ which indicates that there is a relationship between disease prevalence and availability of essential medicines.

CONCLUSIONS

From the study it can be concluded that health worker training was found to have a positive and significant relationship with availability of essential medicines in healthcare facilities. This implies that handling training of healthcare workers was statistically significant in explaining availability of essential medicines in Embu County. Inadequate and untimely disbursements of the budgetary allocations were seen as a major factor influencing the availability of essential medicines in the health facilities. The level of care and allocation of budget for essential medicines contribute to availability of essential medicines. From this study there exists a positive significant relationship between health budgetary allocation and availability of essential medicines in Embu County. The results reveal that budgetary allocations are statistically significant in explaining availability of essential medicines in Embu County.

The study revealed that there were various supplier stock factors that influence the availability of essential medicines in Embu County. This is because respondents agreed that both the supplier and the supply stock play a key role in enhancing availability of essential medicines due to their correlation. It was possible to infer that the relationship between supplier stock levels and availability of essential medicines is positive and significant. Monopoly by the key suppliers, inadequate stocking levels of essential medicines and order fulfillment capacity by the suppliers some of the key factors influencing the availability of essentials medicines. New emergent diseases were seen to consume the available essential medicines in the health facilities.

RECOMMENDATIONS

The health stakeholders to introduce commodity management training in all health professions as this will have an added advantage to the health care managers. The county health department should provide the healthcare facilities with finances to facilitate health workers training. The Government should establish more training centers for healthcare facilities in each sub-county to ease access to specialized training by healthcare workers. The Embu county health department and other Key supporting partners of health care provision should conduct and sponsor short commodity management trainings. The County Government of Embu should provide timely and sufficient budgets to health facilities for procurement of essential medicines. The healthcare department to create more balance and increase budgetary allocations for healthcare facilities to help them meet their budgetary set targets. The Ministry of health and the County Health Department of Embu should create a wider base of suppliers and provide the suppliers with information on consumption data of commodities. The disease surveillance and response team within Embu County to vigilantly conduct surveillance on the current disease prevalence patterns and also plan promptly and set response budgets for any incidents. The stakeholders in the healthcare department should provide proper disease surveillance measures and sensitize the surrounding community on the emergent of new diseases. Conduct research in order to find out new methods to counter emergent of new diseases.

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