Procurement Process and Stocking of Essential Drugs in Public Health Facilities in Mvita Sub-County, Mombasa County-Kenya

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Abstract: **One of the policies that guide Kenyan's, public health facilities is to always keep in stock an identified limited range of drugs that can manage the most prevalent diseases around. The purpose of the study was to evaluate how procurement process determines stocking of essential drugs in public health facilities. This study was a cross-sectional descriptive study conducted in six public health facilities falling under Mvita Sub-County. Saturation sampling was used to sample 66 respondents including 30 pharmacy personnel, 6 heads of procurement department and 30 other staff in the procurement department. Questionnaire was administered to pharmacy and procurement staff while heads of procurement were interviewed. A checklist was used to obtain data on the availability of essential drugs. Data was collected for a period of ten months between December 2015 and September, 2016 and analysed using descriptive statistics with the aid of SPSS v20.0. A reliability coefficient of α = 0.712 was obtained.**

The study found that majority of the public health facilities in Mvita Sub County do not have adequate staff to carry out the procurement process. The study further found that forecasting is not based on statistics from various authorized and credible organizations (Mean = 2.38±1.166), they do not use up to date statistical tools to forecast for our demand for essential drugs' (Mean = 2.40±1.061) and that they do not use well established forecasting guidelines (Mean = 2.50 ± 1.255). Drug selection is done in a systematic manner with more emphasis on essential drugs' (Mean = 2.55±1.064).

Keywords: **Availability of Essential drugs, Institutional factors, Procurement process.**

I. INTRODUCTION

One of the policies that guide Kenyan's, public health facilities is to always keep in stock an identified limited range of drugs that can manage the most prevalent diseases around. These are called Essential drugs. Among the major challenges facing the public health system is underutilized drugs (resources), stock-outs and expired drugs occur at all levels in the public systems including distribution outlets, district stores, and hospitals MoH, (2009b) particularly in the public system in rural communities (Elliot, 2008). Today, health supply chains at the country level face a range of service delivery challenges, among them limited geographic reach, lack of information for reliable forecasting and supply chain planning, insufficient scale in warehousing and distribution, and poor access to debt and equity financing.

Waako, et *al.,* (2009) through a network of academic institutions assessed the existing capacity to manage pharmaceuticals and related commodities in East Africa with specific reference to antiretroviral therapy. The assessment explored

categories of health workers involved in the management of ARVs, their knowledge and practices in selection, quantification, distribution and use of ARVs, nature of existing training programs, training preferences and resources for capacity building. Their findings indicated that a competence gap existed in all the four countries with a variety of healthcare professionals involved in the supply and distribution of ARVs.

Kenya government hospitals have experienced inadequate supply of essential drugs and other medical supplies. The Kenya Health Sector Integrity Study Report, (2011) indicate malarial drugs, rehydration salts, ARVs and antibiotics are some of the essential drugs that are in short supply in public hospitals due to ineffective supply chain processes. According to the Annual Health Report Survey (2013), the majority of basic medicines to treat common conditions at primary care level were available in all sectors both public and private. The Mombasa County Annual Work Plan for the financial year 2012/2013 indicated that, Public and FBHS facilities experience stock outs of basic essential medicines for about 46 and 14 days per year respectively.

Aim of the study:

Consequently, the purpose of the study was to evaluate how procurement process determines stocking of essential drugs in public health facilities.

II. LITERATURE REVIEW

Procurement in hospitals is the responsibility of the pharmacist or pharmacy staff, though skills beyond basic pharmacy are also required (Karr, 2004). According to Carr and Smeltzer (1997) procurement practices relate to the process of obtaining supplies for a firm and author further defines the dimensions of procurement practices as strategic purchasing, purchasing knowledge and skills. He further emphasizes that such strategies lower costs and improve procurement efficiencies.

Inventory management has a significant role in the supply chain especially forecasting. American Production and Inventory Control Society (APICS) define inventory management as the branch of business management concerned with planning and controlling inventories. Inventory management has been recognized as one of the most important functions that has huge impact on their overall performance. Safety stock must be considered where there is an uncertainty in demand; also safety stock is needed during the replenishment lead time when there is a mismatch between actual demand and expected demand. The medicines management cycle involves four basic functions: selection, procurement, distribution and use (Quick, 2003(a), Lufesi et al., 2007). The selection of the medicines depends on the main disease conditions prevailing at the area, and their inclusion in the National Essential Medicines List.

By understanding the steps involved with procurement and distribution, it is possible to get a better understanding of the real cost involved with attaining any good or service (Baily, 2004). Many public procurement activities suffer from neglect, lack of direction, poor coordination, lack of open competition and transparency, differing levels of corruption and most importantly not having a cadre of trained and qualified procurement specialists, who are competent to conduct and manage such procurement and distributions, in a professional, timely and cost effective manner. Inflexible and bureaucratic of procurement contribute to unacceptable contract delays, increased costs, the potential for manipulation of contract awards and lack of fair competition, all of which create the perception in the population at large, that public expenditure is slow, ineffective, expensive and often corrupt.

Similar to the co-ordination and integration of operational processes, information technology in the health sector is related to both physical products as well as to the flow of patients within and between health service organizations (Lowell & Celler, 1998). Examples of information technology-oriented applications can be found in the area of procurement, inventory control and materials planning. The affordability is further compromised by the private sector's preference for originator brand products which further increases the price and makes treatment even more unaffordable. Prices in the private sector tend to 18 also be higher due to higher manufacturers' prices, taxes and tariffs, and high mark-ups in the supply chain (UN 2011:51).

A 2008 study by Kaplan and Laing (2003) investigated the availability of malaria medication in government facilities. The study shows that 25, 6% of the surveyed facilities did not have any of the four treatment packs in stock. The factors contributing to this stock out are mainly procurement failures and delays due to a shift made away from direct procurement

towards open tender processes. The recommendation from the study was that procurement processes should be strengthened and impact: cost analyses conducted before deciding on international open tenders as the processes can be of extended duration leading to medicine stock outs. Despite this study having looked at the availability of essential drugs in Kenyan hospitals, the present study goes a step further to establish the contribution of procurement practices towards such stock-outs but specifically in Mvita Sub-County of Mombasa County.

III. METHODOLOGY

This survey was a cross-sectional descriptive study that employed both quantitative and qualitative approaches. Both qualitative and quantitative data were collected. The study was only conducted in six public health facilities falling under Mvita Sub-County: Coast General Hospital, Tudor District Hospital, Mvita Health Centre, Majengo Dispensary, Ganjoni Health Centre, Kaderboy Medical Centre. As such, there were 6 public hospitals/health facilities, 6 heads of procurement, 30 procurement staff and 30 pharmacy staff (DHIMS, 2013). For the sake of this study, saturation sampling technique was used to sample the 66 respondents from the target population due to its small size (Ghauri and Gronhang, 2006). Thus the target population included the hospitals top management, 30 pharmacy personnel, 6 heads of procurement department and 30 other staff in the procurement department.

A. Method of data collection:

The study employed the use of questionnaires to obtain detailed explanation of the experiences in relation to medicine availability. The questionnaire entailed both structured and semi structured questions and were divided into five parts: Part A covered demographic profile, part B dealt with operational cycle, part C with procurement process, part D with supply chain systems while part E covered policy matters on procurement of essential drugs. The questionnaires were administered to pharmacy staff and other procurement staff (excluding head of procurement) by trained research assistant and the researcher.

Further, a checklist was used to obtain data on the availability and consistency of essential drugs. Data was gathered from facility records, through observations and interviews with key informants at the health facilities. Availability of the key essential drugs and the presence of expired drugs on the shelves were verified by physical inspection of the drugs in the warehouses and cross-checking with the stock records. The Heads of procurement were interviewed using the interview schedule to provide crucial information on the procurement process in their respective facilities. As such, there were only six (6) interviews for the six heads of procurement as the key informants. Data was collected for a period of ten months between December 2015 and September, 2016. Data was analyzed using descriptive statistics including frequency, percentages, mean and standard deviation.

B. Validity and reliability of research instruments:

In this study, two types of validity were tested; face validity and content validity. To improve on the face validity, a pilot study was conducted after which responses to each item were scrutinized to identify any misunderstandings and ambiguity. Items which were found to be unclear or ambiguous were modified thereby improving face validity. Expert Opinion from Lecturers in Management Department, searches and pre-testing of open-ended questions were used to improve the content validity.

To ensure reliability of the questionnaires, a pilot study was carried out in neighbouring Changamwe Sub-County. This area was used for piloting because the two counties share similar demographic and population characteristics. Cronbach Alpha was used to determine the reliability index. From the reliability analysis, a reliability coefficient of $\alpha = 0.712$ for 20 LIKERT scale items was obtained with a sample 10 respondents thus the questionnaire was considered reliable.

IV. FINDINGS AND DISCUSSIONS

A. Background information:

The study achieved a return rate of 100.0% (66) as all the respondents fully participated in the study to give duly completed questionnaires and complete interviews. This response return rate was achieved because the researcher made call backs and administered the questionnaires and conducted the interviews in person. The study did not find any

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significant difference on gender with females being the slight majority (51.7%) and male staff being 48.3%. This finding shows that gender factor is not variation in the procurement and pharmacy departments in the health facilities in Mvita Sub-County.

On age, the study found that majority of the respondents were aged between 31 and 40 years (38.3%) with another 21.7% aged between 41 and 50 years. This finding shows that as much as 60% of the respondents were aged between 31 to 50 years thus being at the prime work age and thus able to understand and adequately deliver on their assignments. Further, majority of the study respondents had served in their respective departments for 11-15 years (31.7%) with another 21.7% having served for 6-10 years. Cummulatively 73.4% of the study respondents had served for more than 5 years.

Majority of the respondents identified themselves as being involved in middle level management (41.7%) with another 38.3% being in the low level of management. However, only 20% of the respondents were in the top management. This finding shows that majority of the respondents have little to no influence on procurement decisions for the essential drugs in the Hospitals in Mvita Sub County.

B. Procurement process and stocking of essential drugs:

The researcher explored the procurement process, quality of goods procured and the overall rating of the procurement process by the respondents. Respondents were asked to provide their responses on a series of questions regarding the procurement process on a yes/no basis (see Table I).

Table: I Procurement process

Statement	Yes		No	
	F	%	F	%
Have sufficient staff to carry out procurement process	23	38.3%	37	61.7%
Procurement procedures are simple and clear	39	65.0%	21	35.0%
Procurement process is fully observed	34	56.7%	26	43.3%
Suppliers deliver the products to the hospital premises	25	41.7%	35	58.3%
Suppliers deliver the products on time	32	53.3%	28	46.7%
Delivery corresponds to specifications	31	51.7%	28	46.7%
Cases of Goods being rejected by departments	31	51.7%	29	48.3%

From the findings, it emerges that majority of the public health facilities in Mvita Sub County do not have adequate staff to carry out the procurement process. This is because 61.7% of the respondents disagree that the institutions have sufficient staff to carry out procurement process. However, majority of the study respondents (65%) agreed that procurement procedures are simple and clear. Another significant 56.7% agreed that procurement process is fully observed while 53.3% of the respondents agree that suppliers deliver the products on time. The majority of the respondents however disagree that suppliers deliver the products to the hospital premises with 58.3% saying no. The findings shows that the procurement process in the public health facilities are relatively sufficient with the challenge being observed in the inadequate number of staff. On the same note, Carr and Smeltzer (1997) held that procurement practices such as strategic purchasing, purchasing knowledge and skills lower costs and improve procurement efficiencies.

C. Rating the distribution process:

Respondents were asked to rate the elements of the procurement process affecting availability of essential drugs in the facilities. The rating was based on five point LIKERT scale of strongly disagree, disagree, neutral, agree and strongly agree with scores ranging from 1 to 5. The findings are shown in Table II.

Table: II Rating of procurement process

Statement		SD	D	N	A	SA	Mean	Std.Dev
Procurement process for various facility requirements begins with forecasting	F	14	15	13	18	0	2.58	1.154
	%	23.3%	25.0%	21.7%	30.0%	0.0%		
We use well established forecasting guideline to ensure sufficiency in drugs and other essential commodities	F	19	12	9	20	0	2.50	1.255
	%	31.7%	20.0%	15.0%	33.3%	0.0%		
Our forecasting is based on statistics from	F	20	10	17	13	0	2.38	1.166

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various authorized and credible organizations	%	33.3%	16.7%	28.3%	21.7%	0.0%		
We use up to date statistical tools to forecast for our demand for essential drugs	F	13	23	11	13	0	2.40	1.061
	%	21.7%	38.3%	18.3%	21.7%	0.0%		
Our drug selection is done in a systematic manner with more emphasis on essential drugs	F	12	17	17	14	0	2.55	1.064
	%	20.0%	28.3%	28.3%	23.3%	0.0%		
We procure for sufficient quantities of essential drugs by allowing for a significant margin of error	F	14	12	14	20	0	2.67	1.174
	%	23.3%	20.0%	23.3%	33.3%	0.0%		
Procurement contracts at the organization are binding and are always adhered to	F	11	14	13	22	0	2.77	1.140
	%	18.3%	23.3%	21.7%	36.7%	0.0%		
Tendering process for essential drugs is transparent	F	15	13	14	18	0	2.58	1.169
	%	25.0%	21.7%	23.3%	30.0%	0.0%		

From the findings, it emerged that procurement process is challenge to public health facilities in Mvita Sub County with reference to availability of essential drugs. Specifically, majority of the respondents disagree with the statement 'Our forecasting is based on statistics from various authorized and credible organizations' where 33.3% of the respondents strongly disagree, 16.7% disagree with another 28.3% being neutral to the statement. This gives a mean of 2.38 (SD=1.166) indicating general disagreement with the statement. The response to this statement reveals that the health institutions in Mvita Sub-County do not use statistics from credible sources in forecasting for essential drugs. The findings supports World Health Report (2008) which noted that health supply chains at the country level face a range of service delivery challenges, among them limited geographic reach, lack of information for reliable forecasting. On a similar note, the respondents disagree with the statement 'We use up to date statistical tools to forecast for our demand for essential drugs' (Mean = 2.40; SD = 1.061). In this case, majority of the respondents (38.3%) disagree with another 21.7% strongly disagreeing. The finding shows that there is little or no use of current statistical tools in the forecast for demand for essential drugs.

Further, the findings reveal that the health facilities in Mvita Sub-County do not use well established forecasting guidelines. Based on this, majority of the respondents disagree with the statement 'We use well established forecasting guideline to ensure sufficiency in drugs and other essential commodities' (Mean = 2.50; SD = 1.255) with 31.7% strongly disagreeing while 20.0% disagree. However, according to Boonstra & Govers (2009), it is widely acknowledged that patient related information systems can significantly contribute to improving the integration and smoothening of processes within and between health service delivery organisations.

Consequently, drug selection is also a challenge in procurement process of essential drugs. The respondents generally disagree with the statement 'Our drug selection is done in a systematic manner with more emphasis on essential drugs' (Mean = 2.55; SD = 1.064). Specifically, 28.3% of the respondents disagree, 20% strongly disagree with another 28.3% being neutral to the statement. The finding shows that lack of proper forecasting guidelines, overreliance on outdated forecasting tools, low regard to statistics from credible organizations and poor selection of essential drugs are the great challenges to the procurement process with a bearing on the availability/unavailability of essential drugs in public health facilities in Mvita Sub-County. On the contrary, an effective procurement is one in which efforts are made at all times to have a transparent and corruption-free and use good procurement practices (Ombaka, 2003).

Based on the challenges facing procurement process in the public health facilities in Mvita Sub County, the research sought to explore ways of improving the process. Key informants who were heads of procurement were asked to suggest ways of improving the process. During the interviews, one of the heads of procurement had this to say:

"There should be direct allocation of funds to the facility so that procurement of drugs can be done in time. The fund can be used to procure essential commodities quarterly from prequalified suppliers to ensure efficiency." [Head of procurement 2]

This shows that with proper planning and timely availability of funds, the health facilities will be able to ensure availability of the essential drugs through customized forecasting and ordering for the drugs.

V. CONCLUSIONS

The study found that majority of the public health facilities in Mvita Sub County do not have adequate staff to carry out the procurement process. The study also found that the procurement procedures are relatively simple and clear and is relatively fully observed in most of the facilities. However, the study found that suppliers do not deliver the products on time despite the quality of goods procured being generally good with some goods being rejected due to poor quality. The study also found that procurement process is a challenge to public health facilities in Mvita Sub County with reference to availability of essential drugs especially in forecasting. The findings reveal that the health facilities in Mvita Sub-County do not use well established forecasting guidelines and that drug selection is also a challenge in procurement process of essential drugs.

The study concludes that procurement process in the public health facilities is relatively sufficient with the challenge being the inadequate number of staff. Notably, the drugs procured are not of poor quality and that there is little or no use of current statistical tools in the forecast for demand for essential drugs. Further, lack of proper forecasting guidelines, overreliance on outdated forecasting tools, low regard to statistics from credible organizations and poor selection of essential drugs are the great challenges to the procurement process with a bearing on the availability/unavailability of essential drugs in public health facilities in Mvita Sub-County.

The study recommends that the government should develop proper procurement guidelines to be followed by health facilities.

REFERENCES

[1] P. K. Bailey, *Purchasing and Supply Management; 4th Edition Pearson Publishers:* Prentice Hall Great Britain, 2004.

[2] DHIMS, Ministry of Health. Report for DHIS2 Implementation in Kenya. October 2010 -February 2012.

[3] C. Elliot, Private Sector Mapping Uganda, Mission Report, Uganda, the Medicines Transparency Alliance (MeTA), December, 2008.

[4] P. Ghauri, and K. Gronhaug, Research Methods in Business Studies, 2005.

[5] A. Karr, Specializing in procurement. *Hospital Pharmacy.11*:379–82., 2004.

[6] W. Kaplan, and R. Laing, Paying for Pharmaceutical Registration in Developing Countries. *Health Policy & Planning 18;* 237-248, 2003.

[7] N. N. Lufesi, M. Andrew, and I. Aursnes, Deficient supplies of drugs for life threatening diseases in an African community. *BioMed Central Health Services Research, 7, 2007.*

[8] MoH, National Pharmaceutical Sector Strategic Plan (NPSSP) 2000/10-20013/14, Draft, September Ministry of Health, Government of Uganda, 2009.

[9] J. D. Quick, Ensuring access to essential medicines in developing countries: a framework for action. Clinical Pharmacology & Therapeutics, 73, 279- 283. [33], 2003.

[10] United Nations Development Group. *Indicators for monitoring the Millennium Development Goals.* New York, United Nations, 2003 (http://devdata.worldbank.org/gmis/mdg/UNDG%20document_final.pdf, accessed 23 January 2016).

[11] P. J. Waako, R. Odoi-adome, C. Obua, E. Owino, W. Tumwikirize, J. Ogwal-Okeng, W. W. Anokbonggo, L. Matowe, and O. Aupont, "Existing capacity to manage pharmaceuticals and related commodities in East Africa: an assessment with specific reference to antiretroviral therapy". *Clinical Research and National Children's Study,* 2009.

[12] World Development Report, *Making services work for poor people*. Washington, DC, the World Bank and Oxford University Press, 2004.