

THE INFLUENCE OF HUMAN RESOURCE FACTORS ON PHARMACEUTICAL PROCUREMENT SUPPLY CHAIN MANAGEMENT CYCLE IN NON- GOVERNMENTAL ORGANIZATIONS IN KENYA

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ABSTRACT

Introduction: Procurement is an important part of efficient drug management and supply and is critical for all levels of health care institutions. An effective procurement process ensures the availability of the right drugs in the right quantities, available at the right time, for the right patient and at reasonable prices, and at recognizable standards of quality. Sound procurement policies and standard operating procedures are among the essential elements of good governance.

Lack of or failure to use existing standard operating procedures of procurement in the procurement of medicines and other health related products can lead to procurement of substandard products and thus knowledge of SOPs among the health personnel is crucial for maintenance of quality products. The study aims at determining the effect of human resource factors on pharmaceutical procurement supply chain management cycle in charitable NGOs in Kenya with a specific focus on the Kenya Red Cross

Society. **Methods:** The study adopted a descriptive cross section survey design. The study was conducted at Kenya Red Cross Society in Nairobi County head office and in 8 Kenya Red Cross Society regional offices. The study population comprised of 48 procurement, finance and logistic personnel. The stratified sampling method was used to identify the subgroups in the population. Self-administrated questionnaire with 5 point likert scale was to collect data. Quantitative data was analyzed using SPSS version 25. **Results:** The findings of the study revealed that human resources awareness of procurement and logistic policies is significantly associated with the efficiency of pharmaceutical supply chain at the KRCS. Based on the findings of this study, it is recommended that, there should be periodic training of all staff engaged in procurement and logistics of pharmaceutical products.

Key Words: *human resource factors, supply chain, pharmaceuticals, procurement*

INTRODUCTION

Procurement is a key aspect of efficient drug management and supply. It is critical in all levels of health care institutions. Efficient procurement process ensures that, the right drugs are available in the right quantities, the right time and to the right patient. It also ensures that drugs are sold at reasonable prices and adheres to recognizable standards of quality (Management Sciences for Health 2012 Pharmaceutical quantification).

Humanitarian relief organizations such as the Kenya Red Cross Society (KRCS) deal with emergency humanitarian issues such as supply of drugs, food aid, water and sanitation, provision of shelter to affected communities among others. They endeavor to help nations and people recover from disasters by providing relief commodities. Catastrophes whether natural or man-made lead to loss of lives, shortage of food and water, medicine, damages to the existing infrastructure and rupture in socio-economic conditions in the affected countries (Akhtar, et al, 2012). Catastrophes also lead to economic damages such as losses in sectors like fisheries, agriculture, livestock, tourism or microenterprises. To mitigate the negative impacts of catastrophes, humanitarian organizations prepare counter measures by creating infrastructure and planning relief operations in advance (Nikbakhsh & Farahani, 2011).

Efficient pharmaceutical procurement management is composed of elements that collectively ensure that a public health care system is able to obtain the right products at the right prices, from the right source, in the right quantity and quality in a timely manner. An efficient procurement policy will also ensure that actors outside the public health care system access and/or import materials that are effectively regulated and consistent with national health care standards of quality.

Studies indicate that many public procurement and distribution of pharmaceuticals activities in Kenya suffer from neglect, lack of direction, poor co-ordination, lack of open competition and transparency, differing levels of corruption. They also lack cadre of trained and qualified procurement specialists, who are competent enough to conduct and manage procurements activities in a professional, timely and cost-effective manner. Rigid and bureaucratic procurement systems contribute to undesirable contract delays, increased costs, the potential for manipulation of contract awards and unfair competition (Evelyne and David, 2014).

World Bank emphasizes on adequate financing for the procurement of pharmaceuticals (Ministry of Medical Services-Kenya & WHO, 2010). Staff involved in procurement of medicines, whether directly or indirectly, must not only have adequate knowledge about the medicines but also about the various stakeholders who can potentially affect the process (SOPs) or who may have legal responsibility.

The biggest hurdles to overcome in humanitarian relief supply chain is the huge uncertainty in demand and supply as well as the assessment of the needs accompanied by time pressure to supply on time during emergency. Humanitarian logistics is very complex because of huge uncertainty in demand and supply pharmaceuticals during emergency. Assessment of case specific needs and the pressure supply the pharmaceuticals just in time during emergency complicates the procurement of pharmaceuticals even further. Despite its significance, existing literature does not specifically focus on problems related to disaster relief procurement, which creates the need to examine this topic further, from theory as well as from practice. (Mwanjumwa et al. 2015).

Concerns have also been raised on the level of expertise of officials involved or mandated in procurement process of most firms. While some officials with responsibilities for procurement are experienced and knowledgeable on SOPs in procurement of health and pharmaceutical products, some employees with procurement responsibilities lack the requisite training, experience or adequate technical knowledge about the goods or services being procured. Lack of expertise is a major problem for new staff and staffs who do not regularly conduct procurement activities and therefore never get properly trained or do not remember their training or retain knowledge in the procurement process. This study therefore explores the role of human resource factors on the efficiency of pharmaceutical products supply chain management cycle in the Humanitarian nongovernmental organization with a special focus on the Kenya Red cross Society.

Many public procurement activities suffer from neglect, lack of direction, poor co-ordination, 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 procurements, in a professional, timely and cost-effective manner. Inflexible and bureaucratic systems of procurement contribute to unacceptable contract delays, increased costs, and the potential for manipulation.

According to KNBS (2016), Kenyan women trail men in formal employment at 65.5%. This study will also try to establish whether this also applies in supply chain management department in Kenya Red cross. Proper human resource practices play a critical role in the performance of organizations (Mello, 2005). For any organization to achieve competitive advantage, then proper human resource management is a must (Chowhan, Pries, & Mann, 2017; Hafeez & Akbar, 2015).

It is therefore imperative that employees need to be trained so as to achieve organizational goals. Employee training should cater for the interest of the employees and should be aligned to the objectives of the organization. Both the employee needs and those of the organization (Piansoongnern & Anurit, 2010). In fact, multi talented personnel in an organization with enhanced capabilities, knowledge and skills become the underlying source of gaining competitive advantage.

Training activities are geared enhancing employee skills so that employees can discharge their duties effectively (Robbins & O'Gorman, 2015). Training may entail, coaching, motivation and even learning experience. These in turn impart employees with skills, knowledge and abilities to discharge duties (Shaw, 2015). Staff knowledge involves understanding facts and procedures. Traits are personality characteristics (e.g., self-control, self-confidence) that predispose a person to behave or respond in a certain way. Skill is the capacity to perform specific actions: a person's skill is a function of both knowledge and the particular strategies used to apply knowledge. Abilities are the attributes that a person has inherited or acquired through previous experience and brings to a new task.

Adequate capacity in the form of appropriate structures with fully skilled and professional SCM personnel is a key success factor for proper SCM implementation. The quality of SCM personnel's skills and ability are well below standard (Migiro and Ambe, 2008:241). Human resources within companies are important, and also in some case crucial, for the performance of the companies. Resources can be classified in both tangible assets as well as intangible assets. The company's most strategically important resources are probably the intangible resources including competencies (Grant, 1991). The loss of key competencies may have negative consequences on the competitiveness of a company and on its productivity and efficiency. The preservation and development of competencies are critical issues to these companies.

Public procurement in Kenya has for long been overshadowed with inefficiency, corruption and disregard of fundamental "value for money" considerations. This has adversely impacted the rate and quality of progress in realizing the objectives of national development. Employees may neither engage in, nor give the appearance of engaging in, dishonest or unethical actions but the public's perception of honest government may be biased. Improper disclosure of such protected information could violate numerous laws, as well as ethics rules. It also could subject you to administrative actions, as well as civil or criminal penalties.

Management in contracting authorities should ensure that there is an appropriate focus on good practice in purchasing and, where there is a significant procurement function that procedures are in place to ensure compliance with all relevant guidelines. Procurement staff, departmental heads and all related stakeholders will need training, particularly in how to resolve dilemmas and competing priorities. Useful monitoring and due diligence tools include Supplier Engagement Forums and supplier questionnaires during tendering and at other stages of the relationship such as contract renewal. Public officials should not accept benefits of any kind from a third party which might reasonably be seen to compromise their personal judgment or integrity.

METHODOLOGY

This study adopted descriptive cross section survey design to collect information on the influence of human resource factors on the efficiency of pharmaceutical supply chain management cycle. The study was conducted at Kenya Red Cross in Nairobi County and the target population comprised of 48 procurement finance and logistics personnel working in the procurement, logistic department and the finance department. The study adopted census approach of data collection. Self-administrated questionnaire with closed ended questions was used to collect data. To gauge the reliability of the research instrument, cronbach's alpha coefficient was used with a measure of >0.07 being regarded as reliable. Collected data was analyzed using descriptive statistics and logistic regression. Descriptive statistics involved the use of frequencies, percentages and cross tabulations. Logistic regression was used because the dependent variable is binary in nature. In this study, the dependent variable was parameterized into efficient and not efficient. Logistic regression generated the coefficients (and its standard errors and significance levels) of a formula to predict a logit transformation of the probability of presence of the characteristic of interest. The logistic regression is expressed as:

$$f(p) = \frac{1}{1 + e^{-p}} \dots\dots\dots 1$$

Equation 1 can be simplified as:

$$\text{logit}(p) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots\dots + \beta_n X_n \dots\dots\dots 2$$

Where: p = probability of presence of the characteristic of interest; β_0 = representation of the reference group; β_1 = the regression coefficients associated with the reference group; $X_1 \dots X_n$ = explanatory variables

RESEARCH RESULTS

A total of 48 questionnaires were administered to various staff of Kenya Red Cross. Reliability of the research instrument was ascertained by computing cronbach's alpha coefficient. The cronbach's alpha coefficient was 0.972 indicating that the instrument was very reliable. The study sought to assess the view of respondents on the human resource factors in the pharmaceutical procurement supply chain management. The human resource factors were operationalized as: awareness, knowledge, attitude and the practice of pharmaceutical supply chain management cycle. Table 1 presents the results.

Table 1: Respondents understanding of Human Resources Factors

Variable	Frequency	Percentage
HR Awareness		
Not aware of SCM cycle	17	35.4
Aware of SCM Cycle	31	64.6
HR knowledge		
Don't Know	17	35.4
Know	31	64.6
HR attitude		
Negative attitude	15	31.2
Positive attitude	33	68.8
HR Practices		
Procurement Practices not Implemented	14	29.2
Procurement Practices fully implemented	34	70.8

The results indicate that respondents agreed that Kenya Red Cross (KRCS) has laid down criteria for hiring the employees involved in the procurement and logistics. Most respondents 31 (64.6%) were aware of KRCS policies and the laid down criteria for hiring the employees involved in procurement and logistics of pharmaceutical products.

In terms of respondents' knowledge on policies relating to supply chain processes, the study established that most of the respondents 31(64.6%) fully understand KRCS procurement policy that governs the procurement activities. Further the respondents said that always confine their activities to the contract terms with suppliers in such a way that the organization benefits without putting it at undue risk, they always refine the contract terms with suppliers in such a way that the organization benefits without putting it at undue risk, and that they are fully aware of the management of a contract including supplier performance. However, the respondents partially agreed that they are always sensitized on the supply chain processes to increase knowledge on management of pharmaceutical in KRCS, they are always sensitized on KRCS policies on supply chain processes to increase knowledge on management pharmaceutical, and that they frequently have seminars to improve our knowledge on the procurement practices.

In terms of employees' attitude on the procurement policies at KRCS, 33(68.8%) of the respondents had positive attitude towards policies and procedures regarding pharmaceutical supply chain processes. On the practices of the procurement and logistics at KRCS, about 34(71%) of the respondents were of the view that procurement practices are fully implemented at KRCS and all the employees fully understand the procurement practices in KRCS. While only 14(29%) of the respondents felt that pharmaceutical procurement practices are not fully implemented.

To determine the influence of human resource factors on the efficiency of pharmaceutical products supply chain management cycle at the Kenya Red Cross society, logistic regression analysis was done. Logistic regression model is deemed to be appropriate in this study because the dependent variable is binary in nature. That is, the supply chain management cycle can either be efficient or inefficient. Results of the analysis are as presented in Tables 2 and 3.

Table 2: The Model Summary

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
13.792 ^a	0.485	0.560

The results in Table 2 indicate that the model predicts 56% of the variations in the efficiency of pharmaceutical supply chain management cycle at the Kenya Red Cross Society. This indicates that there is still room for further studies on factors influencing the efficiency of pharmaceutical products supply chain at the Kenya Red Cross society given that there is 44 % of variations in efficiency of pharmaceutical products supply chain management cycle which remain unexplained in this study.

Table 3: Multivariate Logistic Regression Results

Variables	B	S.E.	P value	Odds Ratio
HR Awareness of procurement procedures				
Not aware (Ref)	-	-	-	1.000
Aware	0.725	0.359	0.043	2.065
HR Knowledge on procurement procedures				
Don't Know (Ref)	-	-	-	1.000
Know	0.713	0.321	0.028	2.040
HR Attitude on procurement				
Negative attitude (Ref)	-	-	-	1.000
Positive attitude	0.060	0.150	0.032	1.062
HR Practices				
Procurement practices not implemented (Ref)	-	-	-	1.000
Procurement practices fully implemented	0.030	0.166	0.048	1.030

The results indicated that human resource factors are significantly associated with the efficiency of pharmaceutical products supply chain management cycle at the Kenya Red Cross society. Employees who were aware of procurement procedures were 2.065 times more likely to be efficient compared to those who were not aware of SOPs. The results were significant at $P < 0.5$.

The results also indicated that human resource knowledge on procurement procedures was significantly associated with the efficiency of pharmaceutical products supply chain management cycle at the Kenya Red Cross society. Employees who had understood all the procurement procedures pertaining to purchases of pharmaceutical products were 2.040 times more likely to be efficient when compared to those who had no such knowledge. The results were significant at $P < 0.5$.

The results further indicate that human resource attitude on procurement significantly affect the efficiency of pharmaceutical supply chain management cycle. The odds of efficiency of pharmaceutical products supply chain management cycle were 1.062 times more among employees who had positive attitude towards procurement when compared to those who had negative attitude towards procurement of pharmaceutical products. The results were significant at $P < 0.5$.

Lastly, the result indicated that a significant relationship between human resource practices and the efficiency of pharmaceutical products supply chain management cycle. Employees who have fully adopted procurement practices were 1.03 times more likely to be efficient in procurement of pharmaceutical products when compared to those who had not adopted such procurement practices. The results were significant at $P < 0.5$.

DISCUSSION

Most respondents 31 (64.6%) were aware of KRCS policies and the laid down criteria for hiring the employees involved in procurement and logistics of pharmaceutical products. This result implies that KRCS should do more capacity building and awareness to its staff on its policies and employment criteria to increase adherence and effectiveness. This result contradicts those of Larroya 2011 who observed that existing policies and regulations over and over again hinder procurement processes and shape the way operations are to be undertaken in the public sector. However, the results are in agreement with those of Acevedo, Rivera, Lima and Hwang 2010 which indicated that, efficient policy-making requires information on whether governments are doing things right and achieving the desired outcomes. Hence policies and standard operating procedures influence pharmaceutical supply chain management cycle depending on the level of awareness.

Only 17(35.4%) of the respondents did not have full knowledge of the policies and procedures governing supply chain processes of pharmaceutical products. This result implies that KRCS should do more capacity building and awareness to its staff on its policies and employment criteria to increase adherence and effectiveness. This observation agrees with Acevedo, Rivera, Lima and Hwang 2010 which states that, effective policy-making requires information on whether governments are doing things right and whether they achieve the results intended

A third, 15(31.2%) of the respondents had negative attitude towards policies and procedures governing the pharmaceutical products supply chain. This implies that KRCS needs to build up capacity and create awareness to all staff so as to reinforce compliance to policies and procedures regarding pharmaceutical supply chain processes. This supports Thai (2001) study that outlines the environmental factors affecting the ethical standards in public procurement as: internal environment, legal environment, political environment and socio-economic environments.

Implementation of procurement practices ensures that risk to fraud is reduced, and accountability and transparency are upheld, it also improves efficiency and better service delivery. Larroya study 2011 observed that Existing policies and regulations often constrain procurement processes and shape the way operations are to be undertaken.

CONCLUSIONS

This study adds more knowledge to the medical products, vaccines and technologies building block of the health system and expands skills and knowledge on how an efficient and effective pharmaceutical supply chain management cycle operates and factors affecting it. It also established that human resource factors, standard operating procedures, organization culture and procurement planning all influence the pharmaceutical supply chain management cycle at

different levels depending on skills, knowledge, practices and staff attitudes, where human resource factors were found to be closely associated to the dependent variable after multi-variate analysis. The recommendations of this study include, periodic training of all staff engaged in procurement and logistics of pharmaceutical products, ensuring that there are clear and documented standard operating procedures on procurement of pharmaceutical products, management should adopt progressive organization structure with clear documentation on standard operating procedures and maintenance clear procurement plans

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