FACTORS AFFECTING INVENTORY MANAGEMENT IN RELIEF ORGANIZATIONS: A CASE STUDY OF MEDECINS SANS FRONTIERES

PAUL NDIVO MUISYO

A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF MANAGEMENT AND LEADERSHIP IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF MANAGEMENT AND LEADERSHIP OF THE MANAGEMENT UNIVERSITY OF AFRICA

JULY 2017
DECLARATION

Declaration by student
This research project is my original work and has not been presented for the award of a degree in any other University or Institution, no part of this report should be reproduced without my consent or that of the Management University of Africa

Name…………………………..Signature………………………… Date……………………

Declaration by Supervisor
This project has been submitted for examination with my approval as appointed University Supervisor

Name…………………………..Signature………………………… Date……………………

Lecturer Supervising
DEDICATION

This research project is dedicated to my Late mother H.G.K Muisyo whose wisdom and guidance all through was un-marched. “Mum your legacy lives on”
ACKNOWLEDGEMENT

I would like to sincerely thank Medecins Sans Frontieres management team for agreeing to my proposal to conduct this research in their esteemed organization. My supervisor Dr Paul Machoka for his support and my colleagues and peers for their positive feedback and input.
ABSTRACT

This research project is on the factors affecting inventory management in relief organizations. It is a case study of Medecins Sans Frontieres, an international non-governmental organization that provides medical humanitarian support to those affected by conflict, man-made and natural disasters. The objective of the study is to determine factors that affect inventory management of medical supplies that have shelf life in relief organizations which operate in unpredictable environments. The population sample is 40 comprising staff who work for the organization in different departments and come into contact with inventory. The data was collected through questionnaires, interviews and through observing staff at work. The data was analyzed using qualitative & quantitative techniques and was presented using tables, graphs and charts. The study revealed that 61% of staff are qualified having college and university education, however 83.34% of staff generally do not agree that warehouse staff have formal training in the area of inventory management. The study also revealed that 72.23% of staff or of the opinion that the organization provides resources to respond to emergencies. The study revealed 55% of staff are of the opinion that the organization has sufficient warehouse structure and equipment. In addition the study revealed that 54 % are of the opinion that tools in place to monitor the expiry dates of the medical supplies. Some of the recommendations from the study includes that the organization needs to recruit staff that have supply chain management/warehousing profile to ensure that the inventory is managed in a more efficient and effective way. A proper emergency plan should be developed, shared and updated to the staff regularly so that the staff are aware of their roles and how to respond more efficiently. During the development of the emergency plan it is important that staff are involved so that there is more ownership of the processes. There is need to monetize the inventory so that stock losses are captured in form of money and not a list and this will capture not only the attention of the warehouse staff but globally the decision makers within the organization. The warehousing strategy for the next few months should focus on ensuring that there is better visibility of stocks by regrouping them within the warehouse to ensure that the rate of output increases and the lead time for processing stock requests is reduced.
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<td>EDI</td>
<td>Electronic Data Interchange</td>
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<tr>
<td>EOQ</td>
<td>Economic Order Quantity</td>
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<td>FEFO</td>
<td>First Expiry First Out</td>
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<td>HDRSC</td>
<td>Humanitarian Disaster Relief Supply Chain</td>
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<td>HR</td>
<td>Human Resource</td>
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<td>IFRC</td>
<td>International Federation of Red Cross</td>
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<td>IHO</td>
<td>International Humanitarian Organization</td>
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<td>MSF</td>
<td>Médecins Sans Frontières</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>OCHA</td>
<td>Office of Humanitarian Affairs</td>
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<tr>
<td>SCM</td>
<td>Supply Chain Management</td>
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<td>SKU</td>
<td>Store Keeping Unit</td>
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<td>SOP</td>
<td>Standard Operating Procedures</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<td>UNHCR</td>
<td>United Nations High Commissioner for Refugees</td>
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<td>UNEP</td>
<td>United Nations Environmental Programme</td>
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<tr>
<td>VED</td>
<td>Vital Essential Desirable</td>
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<td>VMI</td>
<td>Vendor Managed Inventory</td>
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<td>WFP</td>
<td>World Food Programme</td>
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<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>Emergency</td>
<td>A serious, unexpected and often dangerous situation requiring immediate action</td>
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<tr>
<td>Humanitarian aid</td>
<td>Humanitarian aid is assistance provided to save lives, alleviate suffering, and maintain human dignity</td>
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<td>Inventory</td>
<td>A list for goods and materials, or those goods and materials themselves, held available in stock by a business</td>
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<tr>
<td>Relief aid</td>
<td>Humanitarian operation that mitigates the urgent needs of a population with sustainable reduction of their vulnerability in the shortest amount of me and with the least amount of resources</td>
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<td>Resource</td>
<td>A source or supply from which benefit is produced. Typically resources are materials, energy, services, staff, knowledge, or other assets that are transformed to produce benefit and in the process may be consumed or made unavailable.</td>
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CHAPTER ONE
INTRODUCTION OF THE STUDY

1.0 Introduction

Many organizations working in this era have embraced the model of working efficiently. Relief organizations have not been left behind in this aspect. One of the ways of ensuring efficient operations in relief organizations is through proper inventory management. Inventory management which is the overseeing and controlling of the ordering, storage and use of components helps organizations to identify the optimum inventory to hold at any one time. Inventory as is often stated in academic books and journals is a necessary evil. No organization wants to keep inventory because of the cost of procuring the items and the holding cost, however no organization can be able to operate with absolutely no stock. Relief aid is assistance provided to save lives, alleviate suffering, and maintain human dignity. Humanitarian aid is often distinguished from development aid by being focused on the immediate relief of suffering caused by natural or man-made disasters. The case of Relief organization and how they manage inventory is particularly interesting as their operations are as a result of emergencies and are always uncertain, which makes inventory control highly unfavourable.

1.1 Background of the study

Médecins Sans Frontières (MSF) (or Doctors Without Borders), is a French-founded international humanitarian-aid non-governmental organization, and Nobel Peace Prize laureate, best known for its projects in war-torn regions and developing countries facing endemic diseases. Its headquarters are in Geneva, Switzerland. The organization is known in most of the world by its French name or simply as MSF.

MSF Kenya started its operations in 2008. MSF’s core activity is providing medical care, therefore 80% of MSF inventory are medical items. On its inception the number of medical stock items managed by MSF Kenya was 96 items.

MSF Kenya operations grew bigger with the opening of a project in Africa’s largest refugee camp in dadaab in 2009. The medical stock items grew from 96 items to well over 500 items with an approximate volume of 168 cbm after the hunger emergency in north eastern Kenya 2011.
This amount of inventory would normally require very elaborate system, structures and human resource so as to be able to manage efficiently however the emergency operations of MSF Kenya means uncertainty in stock holding at any particular time.

1.2 Statement of the problem

The core function of MSF is to provide medical emergency humanitarian aid. When MSF responds to emergencies, there have been reported cases of stock rupture, high stock range, dead stock, insufficient storage space and expired medical supplies. The above issues mean that the organization medical operations are sometimes hampered with and in some cases money is tied up in non-moving stock. MSF Kenya finds it difficult to balance between optimizing resources which in this case is the inventory and still being able to respond to operational needs which are emergencies.

1.3 Objectives of the study

The general objective of the study is to determine the factors that affect inventory management in relief organizations.

1.3.1 Specific Objectives

The objective of the study was to:-

I. To determine the effect of warehouse human resource on inventory management

II. To determine the effect of infrastructure that is warehouse, machinery and equipment on inventory management.

III. To determine the effect of emergencies on inventory management

IV. To determine the impact of medical supplies shelf life on inventory management.

1.4 Research Questions

I. How does effective, qualified warehouse Human Resource affect inventory management?

II. How has warehousing structure and equipment affected inventory management?

III. How do emergencies affect inventory management?

IV. How does shelf life of medical supplies affect inventory management?
1.5 Significance of the study

The study is aimed at finding out the factors affecting inventory management in relief organizations. Control of such a large volume of inventory can be a big challenge in emergency context.

In the author's opinion it is difficult for relief organizations to strike a balance between what volume of inventory to keep at each specific time. This is because they operate in emergency context which are in their nature unpredictable. In addition, medical supplies have a defined shelf life which compounds the problem since in most cases the commodities can expire before being consumed.

1.6 Scope of the study

The study was confined within MSF which is located in (Nairobi). The departments and sections that were under study include: Logistics, Supply, Medical, Administration and Finance.

MSF provided a suitable case study due to its operations in emergency context, the huge volume of medical inventory which have shelf life that the organization holds.

1.7 Limitations of the study

It was difficult to have access to key strategic and confidential company information in the organization under study.

Some of the procedure documents provided were not updated thus the researcher was unable to relate some of the activities he was observing to what was actually documented.

Most employees were unsure of the confidentiality of the response given and considered it a breach of contract signed between them and the employer.

The employees feared reprimands from their supervisors and managers if they found out that they were willingly giving out organization information.

The organization was skeptical of how the information that was provided would be used by the researcher.

Some of the staff that could provide first-hand information were always on the move responding to various emergencies.
1.8 Summary

The research study is on factors affecting inventory management in relief organizations. The case study is Médecins Sans Frontières a humanitarian organization that provides medical assistance. The objective of the study is to see how relief organization can be able to balance between the unpredictability of emergencies and managing drugs which have shelf life.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
According to Lyson (2003), Inventory control refers to the technique used to ensure that stock of supplies are kept at levels which provide maximum service at minimum costs.

According to Gordon (1996), Inventory control is the management of raw materials, partially completed goods and services and completed but unshipped goods. Ideally, to minimize inventory carrying costs managers maintain inventory only sufficient for completing the final product. Operations managers must know current levels of inventory, the rate with which the inventory can be replenished and the rate with which inventory is depleted to control inventory size and cost.

According to Rankin, Dias, Quick, Battersby, Garnett, Sallet & Turnbull (1997), Inventory management is the heart of the drug supply system; in fact, the non specialist might say that inventory management is drug management. That would be simplistic, but it is true that without a healthy inventory management system, the drug supply system as a whole will not be viable. Inventory management for drug supply sounds easy, all that might be done is to order, receive, store, issue and then reorder a limited list of items. In reality, the task is difficult and in many countries poor inventory management in the public drug supply system leads to waste of financial resources, shortages of essential drugs, and a decrease in quality of patient care.

According to Rankin et al (1997), ‘Sick’ inventory management systems generally feature subjective, ad hoc decisions about order frequency and quantity, in accurate stock records, and lack of systematic performance monitoring. These problems are directly related to ineffective management. In many cases there are no systematic rules and procedures to guide staff, a problem compounded by a lack of understanding of the basic issues of proper inventory management.

According to Lucey (2002), The objective of inventory control is to maintain stock levels so that combined costs are at minimum. This is established by two factors, when to order and how many to order. Detailed stock control uses time and resources and can cost a considerable amount of money.
Because of this it is important that the effort is directed where it can be cost effective (that is there is little point in elaborate and costly recording and control procedures for an item of insignificant value). It is therefore worthwhile carrying out a so called pareto or ABC analysis. It is often found that a few items account for a large proportion of the value and accordingly should have the closest monitoring. A typical analysis of stock items could be as follows: Class A – 80% of value 20% of items(close day to day control), Class B – 15% of value 30% of items(Regular review) and Class C – 5% of value 50% of items(Infrequent review). Such a review can be used to ensure that resources are used to maximum advantage. Detailed selective control will be more effective than a generalized approach which will treat all items identically.

According to Martin (2011), Globalization has influenced the decision by most organizations to effectively manage their production sites and reduce them where possible. The result of this is the centralization of stocks. The centralization of stocks has led to reduced total inventory costs for organizations due to closure of many satellite warehouses to focus on the few integral ones.

According to Rushton, Croucher & Baker (2010), The main function of majority of warehouses is for transit of commodities across the supply chain to the final end user (clients). In such cases and in as much as the commodities are on transit, organizations need to hold stock especially where the demand for the product is continuous. The consistent sale of commodities within the market requires an organization to implement a pull system. This pull system ensures that the overall supply chain system is based on clients demand. In most scenarios across various supply chain systems, supply lead time is greater than demand lead time and this makes it necessary for organizations to hold inventory so that they can satisfy the clients needs. When clients needs are urgent it is normally a great challenge for organizations to source, produce and transport the goods within the required time frame. In such cases it means that the clients needs would be appropriately serviced from the available stock. The stock will therefore cushion the organization from variations between supply and demand. When organizations hold stock, the total inventory cost is normally very high, however in such instances the organizations may find it more cost effective to reduce other costs within the supply chain rather than experience loses due to lost sales.
Manufacturing companies can buy items in bulk when the products are in season, get the necessary discounts and ensure that stock is available at all times so that production will continue through various seasons. In addition to this inventories are very useful when there are emergencies or perhaps humanitarian crisis and when spare parts are needed to fix broken down machines.

According to Rushton, Croucher & Baker (2010), Organizations all over the globe need warehouses since they are considered as key components in supply chain systems. However the functions of this warehouse vary from one organization to the next. It is critical to ensure that the functions and roles of the warehouse are aligned to other activities within the supply chain so as not to lose the organizations overall goal.

Warehouse operations are expensive and this varies based on the size. It is there important that they are effective and efficient so that customer service level is high even as the operating costs remain minimal.

According to Daria, Umberto, Alessandro & Fabio (2013), Historical data indicate that the total number of natural disasters has dramatically risen over the last ten years. They are even expected to increase another fivefold over the next 50 years, as ascribable to many different factors like global warming, population growth rate, urbanization, residential densification, economic and financial global contingencies, natural resources immoderate use and depletion, etc. Due to these reasons, offering timely and necessary aid to those in need through efficient humanitarian supply chains is a major challenge and logistics acts as a strategic role. Indeed, one of the most critical tasks during the humanitarian operations, after a natural catastrophe, is to manage and execute all the logistics activities effectively and efficiently, especially in distribution.

According to Hilary, Kate & Stephen (2013), In humanitarian supply chain work, there are high rates of turnover personnel. Humanitarian disaster literature tends to place a greater emphasis on victims and survivors with less focus on workers, possibly as a result of high staff turnover rates. As the body of humanitarian supply chain research increases and the supply chain processes, systems and technology within the supply chain are questioned, harnesses and improved, a possible dehumanization of humanitarian response may occur. People in humanitarian supply chains are more noticeable, working in the public eye in what may be traumatic circumstances.
Finally according to Martin (2011), Materials handling equipment, vehicles and other equipment involved in storage and transport add considerably to the total sum of fixed assets. Many companies have outsourced the physical distribution of their products partly to move assets off their balance sheet. Warehouses, for example, with their associated storage and handling equipment represent a sizeable investment and the question should be asked: ‘Is this the most effective way to deploy our assets?

2.2 Review of theoretical literature

2.2.1 Human Resource

According to Rushton, Croucher & Baker (2010), Warehousing human resources costs approximately 45 to 50 per cent of the total logistics cost, from which half is allocated to pickers and packers. The impact and importance of efficient picking within a warehouse cannot be over emphasized since it has a direct link to customers satisfaction. Although the picking activity is expensive to an organization, the accurate collection and consolidation of an order as per the clients request has a far reaching impact on the customer service and how well the organization is perceived.

According to Martin (2011), Supply chain is a network that revolves around people. Organizations that are forward thinking are investing in the development of staff skills and expertise in order for them to meet their overall goals.

According to Gemma & Tim (2015), Equipping your staff with new skills and developing their existing ones are absolutely crucial in the ever changing world of work. Some managers worry that if they spend money on training and developing staff then they will leave. There is only one greater risk than training your people and them leaving and that is you not training them and them staying. Some organizations put on a catalogue of learning opportunities and it’s down to managers and staff to identify which ones are of interest. Before training you need to understand what organizations priorities are for example if your organization plans to increase sales targets by 100% next year, you may decide you need to focus on developing your sales function. Training can be accomplished through e-learning, mentoring /coaching and organizations mandatory training.
According to Luk & Alfonso (2010), Under normal circumstances, humanitarian organizations are faced with unknown demand and supply. In relation to the supply chain, human resources specifically in the humanitarian organizations context, low skills, high personnel rotation and the nature of humanitarian work causes huge challenges since experience is not retained by organizations.

In most cases International Humanitarian Organization (IHO) recruit during the onset of humanitarian crisis and fire staff when the crises end. This essentially means that during the crises there is normally high demand for the few human resource available.

According to Christopher Sandwell (2011) A survey conducted during the Tsunami disaster revealed that humanitarian relief support was impacted negatively due to lack of experienced and trained humanitarian personnel.

Generally the work of humanitarian personnel is stressful, which if compounded with lack of defined career growth can result in high staff turnover due to personnel becoming frustrated.

Humanitarian logistics is not yet considered as a professional discipline in its own right, however recent studies have shown this school of thought is incorrect. The studies have gone a step further to provide evidence of competencies that logistics managers or personnel should possess. In addition, there are suggestions to professionalize, standardize and internationally recognize emergency logistics planning as a specialized area that would assist disaster management in the future for humanitarian organizations.

According to Hilary, Kate & Stephen (2013), In humanitarian supply situations, many people involved are from different organizations and backgrounds with different conceptualizations of disaster management work practices. Diverse backgrounds in terms of culture, experience, expectations and expertise for example add myriad challenges. Humanitarian supply chain workers, employees, managers and volunteers are operating in areas where people are suffering from trauma. Additionally the relief workers face administrative burdens and role performance complexities. Balancing their roles and tasks are important parts of response operations. Routines and objects can guide their behaviour in disaster response work practices. Practice based perspective to work sees human activity as central to knowledge, it is considered to be embedded in practice. Knowledge is thus socially constructed, culturally embedded and multidimensional.
Viewing knowledge as being embedded in practice means acquiring tacit knowledge becomes critical. Although often considered unteachable, tacit knowledge can only be produced in practice thus learning by doing, for instance gaining experience as an apprentice is often suggested as the way to acquire tacit knowledge.

According to Rushton, Croucher & Baker (2010), When using finances as a means to motivate staff, it is necessary to distinguish between incentive, rewards and bonus since each of this scheme will have a different impact on human resources. Incentives are believed to stimulate better performance of employees in the future since they are payments for the achievement of previously set and consented goals. Since payment is already known in advance incentives have a direct impact on employee behaviour and motivation. On the other hand rewards are believed to have less impact on behaviour and motivation of employee compared to incentives since the amount payout is less certain, paid in lump sum and linked to previous performance.

According to Christopher (2011), The difference between private firms and humanitarian organizations (HO) is that staff in HO are not motivated to perform using huge salary or manipulation. The staff in HO are volunteers and in most cases share the same ideologies as the organizations for which they are recruited to work in. The sharing of ideologies between the staff and the HO make it easy to manage the employees because they believe in what the organization stands for as well as its operations. In other words staff who are recruited believe in the organizations principles, ideas and their stand within the society. Most of the staff in HO want to make a difference in the world and this drive as well as pragmatism can lead them to go round some valuable management rules and practices. The tendency sometimes is that some management techniques are ignored due to the nature of HO and the can do attitude of staff. This ignorance of the basic management elements may lead to lack of development opportunities at both individual and organization level.

2.2.2 Warehousing

According to Rushton, Croucher & Baker (2010),Warehousing costs approximately 20 to 30 per cent of the overall logistics budget, while inventory carrying cost amount to another 18–20 per cent.
The combination of the warehouse and inventory carrying cost represent a substantial amount to many organizations. The warehouse on its own cost approximately 25 per cent which when itemized is the sum of the building and depreciation of the structure itself. This huge cost should be motivation enough for any organization to be both effective in the utilization of the warehouse space as well as having a proper warehouse design for enhanced operations.

According to Rushton, Croucher & Baker (2010), Warehouses are not only used for holding inventory. Some organizations use warehouses to transit commodities along the supply chain. Examples of such warehouses are sorting centres. Due to the nature of sorting warehouse, there is normally no reserve storage. In case inventory is required, then organizations management decide at what appropriate point within the supply chain the inventory will be kept. This decision is considered as strategic and it enables lean manufacturing or supply upstream while an agile response due to volatile market downstream. The difference between holding inventory upstream and downstream is that upstream allows for postponing of commodities thereby reducing inventories which is not the case for downstream since the stock is mostly needed to respond to actual client requests.

Under normal circumstances, global supply chains have long lead time. If we add this lead time to unstable markets then it seems very necessary to hold strategic inventory. In recent times customers have increased their preference which has further increased the range of products and thereby many different types of inventories. This therefore means that despite lots of improvements in supply chain management over the years and especially in areas related to minimizing inventory, stock levels have not shown great change within the same period.

Another key warehouse role is the movement of commodities. As many organizations focus on the speed of movement of the said commodities across the supply chain, the role of the warehouse seems to focus not only on the speed but also on the inventory holding costs.

In some instances the role of the warehouse becomes consolidation of goods from clients orders for delivery to clients at the same time. The source for the items could be from stock or from another source within the supply chain.
When commodities are supplied from different sources with the primary objective of fulfilling a client order, they are stored temporarily in the cross docking area. In most cases the commodities are moved from incoming trucks to outgoing truck through the outlet bays without being stored. Inlet and outlet bays use the same concept as a cross dock centre but the main difference being that sortation centres are used for sorting parcels for specific customers or region.

The function of a cross dock warehouse include; receiving of commodities in a form that is ready to be shipped out to the client or in a form that requires some preparation like labelling or any other activity that adds value to the supply chain; sorting the commodities which entails separation and clearly distinguishing products based on their final destination. The sorting can be done manually or by mechanical equipment. The equipment does the job much faster especially if the commodities are fitted with barcodes that can clearly distinguish for which specific client order or destination. The commodities would then be guided and loaded onto a truck. In the case where the warehouse is modern and fitted with mechanical conveyors that extend to the truck, parcels can be loaded directly onto the trucks.

According to Rushton, Croucher & Baker (2010) Supply chain setup may be different due to various distinct nature of products. Some foods and medicines require being temperature controlled. The reasons for temperature control is so that they do not get spoilt in the case of food or lose potency for the case of drugs. The temperature regime ranges between (–18 to –25°C), to (+2 to +8°C). Sometimes the nature of cold chain material requires that the products are segmented. However in order to have a more efficient supply chain one can actually combine all the regimes in a single supply chain that consists of multiple temperature control. Other commodities are voluminous and therefore require bulk handling. Some commodities are dangerous and therefore require special storage, transport and handling. Dangerous commodities require separation within the supply chain to ensure safety of all who come into contact with the material. Some commodities are not considered as dangerous but highly contagious when they come into contact with others. Additionally certain commodities maybe targeted by thieves for one reason of the other and would therefore need to be secured or monitored at all times.
Some commodities maybe of high value than others and therefore would require to be separated and secured. They should not be easily accessed by clients or randomly by warehouse employees. Other normal material may be placed in multiple locations within the warehouse but for highly valued products they need to be centralized in one location that is secured.

According to Gupta, Jain& Garg (2007), In the advent of advanced medical technology and drugs, the expenditure on health care delivery is increasing disproportionately as compared to the resources available. Drugs and medical supplies are apportioned sixty percent of the total budget. The study conducted in a government sponsored hospital showed that controlling movement of expensive medical supplies resulted in twenty percent savings. The type of control measure implemented for the medical supplies within the hospital included ABC and VED analysis. ABC method of stock control is a useful technique that uses the pareto principle. The principle groups commodities as the vital few and trivial many. The grouping is based on the overall cost of an item. According to the pareto principle ten per cent of commodities are allocated seventy percent of the budget and this form group A. The next twenty percent of commodities are allocated twenty per cent of the budget and this form group B. The last seventy percent of commodities are allocated ten percent of the budget and this form group C. VED analysis is based on the criticality of commodities within the firm. Group V are the vital commodities, group E are the essential commodities and lastly group D are desirable commodities.

According to Emmett (2011), Inventory control within organizations is mostly managed using economic order quantity (EOQ). The concept of EOQ generally entails a strategy where firms order huge volumes of commodities when they anticipate a surge in demand based on previous trends. In such a scenario the firm is deemed to have been proactive. In situations where firms are deemed to be reactive, the EOQ is modified after the demand surge commences in order to meet the increased needs. Organizations need to look into various trade-offs posed by reactive and pro-activeness. The consequences are normally that if a firm is proactive and anticipate a surge which never happens then the firm will incur inventory holding costs. When the holding costs within a certain region are relatively low the proactive strategy is less risky than the reactive strategy given the uncertain element of whether for example a storm would hit or not.
In case of such scenarios the proactive strategy normally comes on top compared to a reactive strategy with respect to cost base measures however this is not always the case as sometimes reactive strategy take precedent. According to Luk & Alfonso (2010), Humanitarian logistics needs to start implementing restructuring as a way of improving their supply chain management. The International Federation of Red Cross (IFRC) has been able to achieve this by creating regional logistics centres. The regional centres act as offices and warehouses. This form of logistics decentralizations brings the service closer to the population affected by the humanitarian crisis. IFRC offices which are located in Panama, Kuala Lumpur and Dubai among other locations are each able to cater for specific needs. Some offices are purely for transport services while some are for specific category of suppliers. Overall the main aim of logistics restructuring is to create as efficient supply chain that can respond to beneficiaries needs in the long run. Humanitarian partnership and network is concept that reduces running cots of humanitarian actors by sharing resources such as warehouses.

2.2.3 Operations

According to fritz (2006), Humanitarian aid is required in situations where people’s lives and livelihoods are put at risk to a point where their own coping mechanisms fail to provide adequate protection. Situations that require humanitarian assistance have been occurring throughout history and have increased over time. Each situation however is surrounded by geopolitics (the political, social, and economic environment of its geographical location).

According to Adriana et al (2013), Natural disasters (such as floods, droughts, earthquakes, hurricanes, and famine) and man-made disasters (such as wars, conflicts, and refugee crises) have increasingly impacted communities and nations around the world in recent decades, and forecasts suggest that the trend will continue (EM-DAT – Emergency Events Database, 2011). Emergency relief phase involves responding to the specific disaster situation. The main objective of this phase is to provide the necessary aid to meet the immediate, short term needs of people affected by the specific disaster. During emergencies, the focus is on getting the right type of aid as quickly as possible to the people requiring it. In this phase, there is the need to acquire resources. These resources, e.g. vehicles, helicopters,
Humanitarian aid may be required to respond very quickly to a situation requiring an immediate response (rapid onset); examples of these are natural disaster situations such as earthquakes and floods. In these situations, speed of initial response is very important particularly of rescue equipment and personnel and the provision of supplies of food, water and shelter, over a short period of time.

Other situations are not as immediate (slow onset) which means more planning time is available or that aid can be provided gradually over a longer period of time. Examples of slow onset are drought and secondary effects of war. A slow onset situation can be triggered by political destabilisation and economic decline.

There are then situations which are regularly found (endemic) which means there will be experience of how to respond and information on ‘best practice’ for responding to these situations. Often the geographical area where the situation is likely to occur is known. An example would be seasonal meningitis outbreaks.

A disaster situation is sometimes referred to as a complex emergency. The UN Office for the Coordination of Humanitarian Affairs (OCHA) official definition of a complex emergency is: ‘A humanitarian crisis in a country, region or society where there is a total or considerable breakdown of authority, resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single UN agency and/or the ongoing United Nations country programme.’

According to Jamison, Steven, Paul, Edward & Clay (2012), The HDRSCs generally operate in high uncertainty. It is impossible to know which locations, where and when disaster would strike. In addition, donor contributions are sometimes not known as well as the actors on the ground. When humanitarian crisis actually occurs, it is very difficult to get some information to all actors that might need it to respond effectively. HDRSC’s are in themselves projects as they involve the entire supply chain life cycle from preparation for the emergency to closing down the operations. Just like any other project each stage has an end result. For humanitarian response the result may come from time to time. However what is clear is that during the initial stages the goal is to save as many lives as possible therefore speed is of utmost importance. Since there an element of speed and uncertainty humanitarian organizations tend to push supplies they have as quickly as possible to the affected areas.
During emergency response prepositioning inventory dictates how an organization is able to respond effectively. In such cases the beneficiaries would receive the supplies that are available in stock and not what they necessarily need. Later on as victims of disaster have been stabilized, then the supply chain shifts its focus on efficiency which means that commodities delivered is what is needed. The emergency response therefore evolves from push to pull system. Due to the nature of humanitarian work, forecasts are not easy compared to private sector. However, the biggest difference between supply chain management in private and humanitarian organizations is how fast and radical priorities shift.

According to Alessandra, Silvia & Alessio (2012), The agile principle is used when unpredictable demand is combined with a short lead time. The concepts of emergency and humanitarian logistics have been linked to the agile principle in several academic contributions. The focus on agility from the supply-chain perspective emerged in 2001. Supply-chain agility is usually defined as the ability to respond to unanticipated changes. The main objectives of an agile supply chain are to respond quickly to short-term changes in demand (or supply) and to smoothly handle external disruptions. An agile supply chain is the most appropriate response to the extreme conditions faced by humanitarian emergency; it must be effective and respond as quickly as possible, it requires a massive and periodic employment source and has a high cost level. In humanitarian supply chains, the effectiveness ensures that we are saving time and time saved means more lives saved; the efficiency ensures that we are saving costs and costs saved mean more lives helped

2.2.4 Warehouse Equipment

According to Rushton, Croucher & Baker (2010) Equipment has a 10 to 15 per cent costs on logistics. This includes rental or depreciation, equipment maintenance and running costs. Probably the most widely used form of storage fixture and can accommodate a very extensive range of stock. Shelves are just as convenient for packaged goods and it is most suitable for loose items such as nuts and bolts small components e.t.c. For additional security or protection from dirt or damage for valuable tools or instruments, medical supplies, stationery, clothing e.t.c lockable doors can be provided this is according Jessop and Morrison (1994)
According to Jessop and Morrison (1994) Bins metal or plastic bins are convenient for some stores, particularly loose components. They can be made in various sizes, provided with handle and label holders and fitted into shelves especially designed for that purpose. This type of equip is especially suitable for random storage. The trays in the shelves can be arranged either flat or sloping downwards towards the front so that their contents are more readily visible. A popular type of bin is supplied as a flat paper board profile which can be folded and slotted together to make a rigid bin.

According to Rushton, Croucher & Baker (2010), A picker uses Trolleys and roll-cage pallets between cages and racks to access commodities. A trolley is build is in such a way that it makes it possible to hold commodities inside for a short duration of time. The trolleys have three barriers to ensure that commodities do not fall off and there exist a possibility to have a forth barrier or not. This ideally means that roll cage pallet can be used to move commodities from picking area and loaded directly to the trucks. This kind of high speed picking can only be achieved in the ground floor and mezzanine and normally ensures that picking process is highly effective. The other type of machine used within the warehouse is the powered picking truck. The trucks are electronically powered and normally have forks that can be used to place pallets (either wooden or plastic) which hold the commodities on top.

According to Tom (2011), Forklifts are used within the warehouse to pick commodities that are palletized either from the ground floor or from the racks that are above and cannot be reached by pickers using bear hands. The picking of the pallets is accomplished in a forward motion for efficiency. Generally the warehouse must have well-spaced aisles in order to ensure that the forklift moves freely from one point to the other while fulfilling a customer order. Some forklifts are fitted with elevation steps to ensure that the pickers can easily access commodities that are placed in high level racks within the warehouse. There also exist some narrow aisle fork lift trucks for organizations that cannot afford to build bigger warehouses with wide aisles. This narrow aisle forklift trucks can be used in the same manner as the wide aisles fork lift trucks that is for pallet placing, moving pallets and picking customer orders.
The speed of picking (high level) within the warehouse is normally determined by the Store Keeping Unit (SKU) of the commodities. If the SKU of commodities is in the form of pallets, the order picking is very fast and effective. Since the speed of picking is dependent on the SKU and in most cases bulky items are stored on high level racks, it therefore means that that it is highly probable that picking on the ground floor is slower. The slowness in picking is also affected by the narrow aisles together with the number of fork lift trucks used for specific work.

Fixed path high level picking trucks use the same logic as the free path trucks. The most notable difference is that they run on rail that is placed on the bottom and top of the truck. These rails act as a guide and therefore ensure warehouse operations of picking are accomplished at a faster rate. These trucks are suitable for picking commodities that are stored on high level racks. These trucks are best utilized by organizations that have many commodities with small quantities in terms of Store Keeping Units and due to insufficient space require placing commodities on high level racks. Pick cars are specialized in nature and run on fixed path along the aisles of warehouses in a horizontal manner. The pick cars run in parallel to conveyors that pickers use to place commodities on top with ease. Once the picking operation within a certain section of the warehouse is finalized, the conveyor moves the commodities to the next stage of operations. The machines provide the organization with faster alternatives to picking although they are considered as complex in nature. They are generally not common in warehouses globally. However conveyors are common for picking among many warehouses. Their mechanical nature ensures the flow of selected commodities from operation to the next. Pickers place selected commodities on the conveyors and eventually this commodities are consolidated together to fulfil a clients order. The system used to fulfil a clients order depends on the organization.

According to Rushton, Croucher & Baker (2010), Pallet trucks are used for loading or offloading can either be manual or mechanical. The loading can be done from the side or rare of a truck using the adjustable shifts. Due to the nature of the forklifts two pallets can be lifted side by side for efficiency. One other activity that the fork lift truck can accomplish that manually would take longer is loading and offloading of high level pallets on a vehicle.
Dock levellers are useful fixtures in the warehouse. They form a gentle slope to and from the warehouse that eases the loading and offloading process. These slopes have to be fitted to the truck levels to be effective and the rest is accomplished by gravity. The dock levellers need to be long enough to fit any type of vehicle at the loading and offloading bay.

Warehouse doors can be fitted in such a manner that they retract when used. The retraction process is purely mechanical and in some cases limits movement. Placing window on the door ensures that visibility on the ongoing operations on the other side of the bay. Door shelters and seals protect the warehouse from various weather patterns that could damage commodities within the warehouse. In most cases they protect against dust. Due to the constant movement of materials and trucks in the warehouse, bumpers are a necessary fitting. These bumpers reduce the extent of shock within the building.

Warning lights within the loading bay are used as a form of alert and generally ensure the safety of all staff by reducing or eliminating accidents.

2.2.5 Logistics
According to Luk & Alfonso (2010), The need for humanitarian aid has increased tremendously over the years. The World Bank states that in 2010, there was approximately two billion people living below the poverty line. The World Food Program (WFP) in 2010 states that one billion people were hungry and from this figure one hundred million were in dire need of food. The WFP in 2010 indicated that 25 per cent of children below the age of five in developing countries are malnourished. During the same year the WFP state that six million six hundred thousand children under five years starve every year. According to a report by UNEP in 2010 the last ten years have experienced thirty five major conflicts and approximately two thousand five hundred disasters which affected billions of people. The UNHCR states that due to the increased cases of conflicts around the world, the number of refugees has risen to approximately forty three million. It is estimated that the impact of disasters leading to humanitarian crises would increase by around 25 per cent by the year 2015. Much of these anticipated disasters would be as a result of global warming and other pandemics.

Humanitarian organizations do not only suffer from challenges as a result of unknown demand and supply but there is also an element of uncertainty in terms of human resource.
Humanitarian organizations relay on volunteers for the most part. In the last few years it has been observed that the volunteer skills have been low. The low skills culminated to high rotations pose a huge challenge for humanitarian supply chain operations. In order for a humanitarian response to be considered a success, it needs to fulfill the urgent requests of the people consistently during the period of operation and reduce their suffering in the fastest possible time. It is also expected that while doing this the humanitarian organization would use very few resources. The common denominators to a well-executed humanitarian operation are fast response, collaboration with other actors and prior preparedness. Supply chain is a major part of a well-executed humanitarian operation and therefore should be in place. It becomes easy for an organization to respond effectively to disasters with a proper supply chain system. One area that benefits from organizations being well prepared is coordination with other partners. As with commercial and private organizations, humanitarian organizations suffer from inventory problems. This culminated with uncertainty may render some stock to be redundant. To avoid redundancy some stock may require storage in different regions to ensure quick availability when disaster strikes. Stock prepositioning is part of the strategy for many humanitarian organizations. The prepositioning however requires huge budgets as they require extra resources. The solution for this would be organizations negotiating with suppliers for VMI that would serve the overall goal of rapid response. Just like the commercial and private organizations, humanitarian organizations suffer from bull whip effect. However the reasons for the bullwhip effect are different in the sense that they are caused by unsolicited donations, challenges of demand forecasting and lack of integrated information. The effect can be resolved by information sharing among organizations on supply and demand to ensure that agencies do not over supply a certain commodity and less of another which is much needed. What has been observed over the years is that push based supply chains are a reality within the humanitarian supply chain. This is because donors unwittingly send donations to regions affected with disasters. Some of these items could be perishable or almost expired. Although push based supply chain in most cases is meant for good some organization take advantage of disasters to get rid of near expired commodities which is in itself criminal.
IFRC’s have managed to resolve the common challenge of push based supply by decentralizing their operations into regional logistics units. The regional units ensure only the commodities needed during disaster are shipped to beneficiaries.

2.2.6 Personal traits
According to Jurgen and Andrea (n.d) Generally, some key individual characteristics identified as intelligence, knowledge, personality and interests have an effect on performance in an inventory management task. The findings were that intelligent and knowledgeable people were good stock management practitioners. The study puts into perspective the mental state of subjects to the research in relation to how they accomplish stock related activities. According to the individual characteristics mentioned above, the theory sought to find out what it entails for a person to make well thought and decisive decisions on inventory management. Knowledgeable and intelligent people were found to consistently perform better during the experiment. The findings indicate that individuals who manage their stock regularly need to be intelligent and extensively knowledgeable in the area of stores and inventory management. While conducting studies on the theory, there was no conclusive evidence as to whether both intelligence and knowledge are necessary for an individual to perform better in regards to inventory management and which trait between intelligence and knowledge precedes the other. There were no findings that related stock management with characteristics of research subjects. Therefore the assumption is that personal characteristics do not determine the failure or success of stock control practitioners. The finding of the study is that the subjects technical or practical interests are beneficial while those persons who are business oriented are not encouraged for stock management jobs. However it is difficult to conclude that people who are business oriented would not fair well in inventory management jobs. The possible explanation could be that business oriented people might not find inventory management jobs as interesting and challenging their abilities to the maximum.

2.2.7 Inventory control
Kariuki (2012) conducted a study to measure factors influencing the effectiveness of inventory control. During the extensive study, the findings were that there was regular stock rupture, the market was volatile and there were delays in purchasing of commodities
as a result of long and tedious bureaucracy. The study findings were that failure to release finances in good time ultimately had a negative effect on inventory management. Other findings were that lack of inventory management tools, inconsistent entry of stock records by staff who manage inventory and inadequate staff with experience and expertise to manage inventory had a huge negative impact on the overall performance in relation to inventory management. Kariuki recommended that the organization should avoid bureaucracy and tight procurement rules that rather than controlling the process act as a hindrance. He also recommended the updating of the existing inventory control rules and policies. In addition to that he recommended that only qualified and skilled HR should be involved in inventory management. Since inventory management is a key component within the organization it should be allocated with sufficient human resources. Finally he recommended that finances should be disbursed as soon as possible when a procurement activity is in progress.

One of the major findings was that red tape in procurement increased lead time for delivery of commodities which caused frequent stock ruptures. The delays experienced in procurement would be as a result of volatile markets which meant that prices would fluctuate. In the end long times had a negative effect on stock management. The other findings were in relation to the tools used or lack off in inventory control. It was observed that stock cards were not used effectively, meaning that entries were not recorded as and when required. In addition, the lack of computerized system to manage the stock had an overall negative effect on the inventory management. Another finding from the study was that there was no dedicated staff in charge of receiving and issuing the stock. As a result of this there was poor follow up, stock cards were not updated in good time which lead to discrepancies and there was misuse of stocks. Normally such cases would require action to be taken to ensure that staff are accountable but due to the nature of human resource set up it was not possible to pin point who exactly could answer to the anomalies witnessed. The study also revealed that there was no existing calendar for stock take. In addition to this there were a lot of stock variances. Some factors that contributed to the variances include; theft and consistent rupture of commodities. The findings were that delay in releasing finance increase the lead time which meant stocks were not available when required and customers would eventually suffer.
Lack of sufficient stock would mean that warehouse staff would not be fully occupied which lead to poor motivation. The storage facility would also be underutilized due to lack of stock. It was established that the skills set of staff working in inventory control showed considerable differences. The staff had gone to school but each of them did not achieve the same academic milestones. Half of the staff indicated that they did not have additional professional qualifications in purchasing and supplies. It was also observed that despite the staff not having the required qualification in purchasing and supplies the organization did not consistently offer them trainings that would develop their inventory management skills before they were deployed. Among the few who had undergone any training, they had not been issued with accreditation for their efforts, something that had a negative impact on their effectiveness.

2.3 Critical review
Most organizations cannot seem to be able to get the right balance for inventory during emergencies when dealing with medical materials. Most fall under the category of either overutilization or underutilization of the resource due to uncertainties. Despite this knowledge none of the studies has actually come up with a model to show clearly what kind of resources different organizations would require based on its operations. Considering that most organization are fully behind the cost cutting concept, most organizations over utilize the inventory management resources during the onset of emergencies since the main goal at that particular time is to save lives.

Logistics and supply chain management have conventionally been forecast-driven rather than demand-driven. In other words, the focus has been to look ahead over a planning horizon and to predict demand at a point in time and then to build inventory against that forecast. As markets become more volatile and turbulent so too have they become harder to predict. The risk of over- or under-stocking increases. The challenge today is to enable supply chains to become demand driven as a result of better visibility of real demand. Real demand occurs at the end of the supply chain and if that information can be captured and shared upstream then the dependency on inventory reduces. But how can this be done effectively in institutions that operate primarily during emergencies.
2.4 Conceptual frame work

The nature of relief organizations is complex due to uncertainties. The uncertainties in themselves provide huge challenges in efficient inventory management. This is compounded further when the organizations core activity is medical care which means that the type of inventory has a shelf life and cannot be utilized once it has expired.

The researcher wanted to know the impact of qualified human resource in managing inventory.

The role of warehousing which includes equipment, warehouse set up and its impact on inventory control.

The researcher wanted to find out the impact of emergencies operations on inventory management.

Finally what impact stock control of expiring of medical supplies has on overall inventory management
2.5 Research gaps

There exist not many academic papers on humanitarian supply chain especially in relation to inventory management. However the papers that do exist focus more on coordination of relief services to the vulnerable by humanitarian organizations when disaster occurs as this was initially seen as the major challenge. One of the initial studies conducted in a medical institution focused primarily on challenges faced by logisticians during emergency whilst supporting hospital activities. The study failed to highlight the role of proper logistics planning in humanitarian context through the eyes of a practicing health care manager. Operation lifeline Sudan was one of the biggest humanitarian support ever experienced in this lifetime. This huge humanitarian relief by the UN to the south Sudanese people initiated another study whose focus was on cost reduction. The cost reduction was to be achieved by reviewing the ordering policies and frequency in updating inventory system to ensure optimal stock. Since the core purpose of humanitarian organizations is to respond to disasters, the option of placing emergency orders was left open. The next series of studies revolved around comparisons of inventory management systems in private firms and humanitarian organizations; inventory strategies by humanitarian organizations. As part of the strategies HO prepared plans that resulted in order placement well in advance of disasters so that they would not suffer from disruptions that are experienced in supply chain when disasters strike. Other studies added the prediction of disasters to see possibilities of boosting inventory upwards during the periods with which disasters were expected. Unfortunately this had an impact on one specific order and was not deemed to be a long term solution. All the studies focused on relief response based on actual occurrence of the disaster with the exception of the study that included prediction of the disaster. However even with the prediction study the main focus was on planning phase leading up to the disaster and was primarily a theory on numbers that would be affected and not how that would impact the overall stock.
2.6 Summary

The studies that we have looked at all agree that the nature of relief organizations which are faced with uncertainties make it difficult to manage inventory. One study stated that inventory management is the heart of the drug supply system and without a healthy inventory system, the drug supply system as a whole would not be viable and this would lead to waste of financial resources, shortages of essential drugs, and a decrease in quality of patient care. Inventory management in commercial and relief organization is not a stand-alone activity and requires investment in resources.

Human resource had been highlighted as a key element in proper inventory management. Not just any human resource as one of the study indicated but skilled and well trained human resource. For the longest time in many organization supply chain and in particular warehousing and stores management was not viewed as a serious activity which required sufficient, able and dedicated resources.

But as time has passed organization have realized the importance of warehousing and inventory management as a tool that not only supports operations but greatly helps in decision making. However there still remains a gap in quantifying the number of staff required to perform tasks within the warehouse.

What is clear is that gaining a greater understanding of issues facing relief workers and preparing them for this context is necessary to reducing costs and retaining experienced staff and knowledge.

Other resources include tools that can be used to manage inventory such as an adequate warehouse, machines/equipment and installations and fittings that are functional within the warehouse. We cannot also forget to mention tools such as stock cards, computerized systems that help in managing actual movement of the inventory.

Agile systems are considered effective and despite costing slightly more they are best suited for emergency context as the overall goal is to save as many lives as possible as fast as possible.

Therefore a good balance has to be maintained between resources availed and nature of operations in order to be able to manage inventory effectively.
CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction
This chapter looked into methods that were used in gathering data for the study of effect of resource optimization on inventory management at MSF Kenya.

3.2 Research design
The study adopted descriptive research design. Descriptive research is a scientific method of investigation in which data is collected and analyzed in order to describe a specific phenomenon in its current status. It employs the quantitative methods during an investigation and uses survey design as the overall strategy for collecting and analyzing data.

3.3 Target population
The target population in this case is all the people who are in contact with inventory processes in the organization. That is all the people who are concerned with the day to day movement of inventory.

Table 3.1 Target population

<table>
<thead>
<tr>
<th>Category of Population</th>
<th>Population</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics</td>
<td>18</td>
<td>45</td>
</tr>
<tr>
<td>Supply</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>Medical</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>Finance</td>
<td>3</td>
<td>7.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Author (2017)

3.4 Sample and sampling techniques
The researcher employed census sampling. This is because the target population is defined that is homogeneous, the population size is known, a sampling frame is available and the population is relatively small.
3.5 Data Collection procedures
The researcher used questionnaires as the tool for data collection. Questionnaires issued to the target population were both structured and open ended. This approach was to ensure that only relevant material was collected and used as a guide so that the target population did not go outside the scope.

The research had to refer mainly to guidelines and inventory tools that were available in each department/section. The study adopted census as the sampling design due to the small number of the target population. But, with very specific interest on stock control manuals and tools

3.5.1 Validity and Reliability Test
The guidelines and tools provided a basis on the day to day running of the section. The tools provided for inventory management are standardized and provided clear guidelines on how different staff could use the modules provided to perform different functions. The research also used semi-structured questionnaires as well as interviews and observing the staff at work.

The questionnaires were administered to the persons concerned individually.

The researcher started by observing each individual in the population performing their day to day task. At the end of each observation the researcher had a one on one interview with the employees based on what he had observed and what the guideline quoted. He then provided the employees with questionnaires which he collected on completion of entry.

3.6 Data analysis methods
According to Mugenda (2003), Data obtained from the field in raw form is difficult to interpret. Such data must be cleaned, coded, keypunched into a computer and analyzed. It’s from the results of such analysis that researchers are able to make sense of the data.

Since the researcher used descriptive methodology the most appropriate way of analyzing the data collected was by using frequency distribution. Essentially the data collected was tabulated and compiled according to the responses from the questionnaires whether structured of open ended.
CHAPTER FOUR
DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introduction
This chapter presents the results of the study. It interprets and presents this information in the form that is easily understood by the readers.

4.2 Analysis of Findings
4.2.1 Response Rate

Table: 4.1 Response Rate

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>36</td>
<td>90</td>
</tr>
<tr>
<td>Non respondents</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Author (2017)

The researcher issued the sampled population with 40 questionnaires. The respondents who gave back the questionnaires formed the majority at 90 percent. These were mostly staff in logistics and supply. They formed 75 percent of the total sample of respondents. The respondents who did not give back the questionnaires were 10 percent.

Fig: 4.1 Response Rate

Source: Author (2017)
Table: 4.2 Gender Distribution

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>30</td>
<td>83</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Author (2017)

Fig: 4.2 Gender Distribution

Source: Author (2017)

From the study findings the gender distribution of the respondents sampled indicates that there are 83% were male and 17% were female. This is due to the nature of operations.
Table: 4.3 Respondents Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-24 years</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>25-34 years</td>
<td>14</td>
<td>39</td>
</tr>
<tr>
<td>35-44 years</td>
<td>16</td>
<td>44</td>
</tr>
<tr>
<td>45-54 years</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>55-65 years</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Author (2017)

From the study findings 6% of the respondents are aged between 18-24 years old, 39% are aged between 25-34 years old, 44% are aged between 35-44 year, 11% are aged between 45-54 years while none of the respondents was aged 55-65 years. This shows the organization has an experienced work force.

Fig: 4.3 Respondents Age

Source: Author (2017)
Table: 4.4 Respondents Education Level

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Certificate</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Diploma</td>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td>Degree</td>
<td>12</td>
<td>33</td>
</tr>
<tr>
<td>Master</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Phd</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Author (2017)

Fig: 4.4 Respondents Education Level

From the study findings 14% of the respondents have secondary education, 8% have certificate 28% have diplomas, 33% have university degrees, 17% have master degree while none has Phd. Majority of the staff have tertiary level education which means that they are more than capable to perform their day to day tasks effectively.
Table 4.5: How does shelf life of medical supplies affect inventory management

<table>
<thead>
<tr>
<th>How does shelf life of medical supplies affect inventory management</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organization uses FEFO method in issuing stocks</td>
<td>f 13.9%</td>
<td>f 41.7%</td>
<td>f 16.7%</td>
<td>f 0.0%</td>
<td>f 27.8%</td>
</tr>
<tr>
<td>There are tools/software in place to alert on the near to expire items</td>
<td>15 41.7%</td>
<td>2 5.6%</td>
<td>3 8.3%</td>
<td>6 16.7%</td>
<td>10 27.8%</td>
</tr>
<tr>
<td>The value of near to expire items is known &amp; documented monthly</td>
<td>24 66.7%</td>
<td>0 0.0%</td>
<td>2 5.6%</td>
<td>0 0.0%</td>
<td>10 27.8%</td>
</tr>
<tr>
<td>Value of losses due to expiry is known and documented</td>
<td>10 27.8%</td>
<td>9 25.0%</td>
<td>14 38.9%</td>
<td>2 5.6%</td>
<td>1 2.8%</td>
</tr>
<tr>
<td>There exists a stock rotation mechanism to avoid expiries</td>
<td>0 0.0%</td>
<td>f 41.7%</td>
<td>11 30.6%</td>
<td>6 16.7%</td>
<td>4 11.1%</td>
</tr>
</tbody>
</table>

**Source: Author (2017)**

From the study findings 55.56% of the respondents strongly agree & agree that warehouse uses FEFO. While this may be the majority the organization needs to improve the systems to ensure warehouse staff issue shortest expiry medical supplies first.

From the study findings 52.68% of the respondents strongly either not sure strongly disagree or disagree that there are tools in place for expiry alerts.

Despite some tools being available staff need to be more proactive in giving warnings for items that are about to expire.
From the study findings 66.67% of the respondents strongly agree that the value of near expiry items is known and documented. This is a good indicator that monetizing the inventory creates attention and therefore causes action to be taken.

From the study findings 52.78% of the respondents either strongly agree or agree that value of expired items is known and recorded. This shows that more needs to be done by the organization to ensure staff are sensitized to the volume of losses as a result of expiry

From the study findings 58.34% of the respondents are either not sure, strongly agree or disagree that there is a stock rotation mechanism in place to prevent expiry. 30.56%. This indicates that there is belief among staff that more can be done to ensure that medical supplies do not expire in the warehouse where as they could be utilized somewhere else.
Table 4.6: How does effective and qualified HR affect inventory management

<table>
<thead>
<tr>
<th>How does effective and qualified HR affect inventory management</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff have undergone formal training in the area of inventory management</td>
<td>0</td>
<td>0.0</td>
<td>6</td>
<td>16.7</td>
<td>10</td>
</tr>
<tr>
<td>The organization ensures that all staff in the warehouse are trained regularly</td>
<td>16</td>
<td>44.4</td>
<td>10</td>
<td>27.8</td>
<td>3</td>
</tr>
<tr>
<td>There is a policy and procedure for inventory management and it is well known by staff</td>
<td>12</td>
<td>33.3</td>
<td>0</td>
<td>0.0</td>
<td>11</td>
</tr>
<tr>
<td>There is a designated staff that has custody over emergency stock</td>
<td>1</td>
<td>2.8</td>
<td>2</td>
<td>5.6</td>
<td>3</td>
</tr>
<tr>
<td>The number of staff available marches with the volume of warehouse activities</td>
<td>2</td>
<td>5.6</td>
<td>9</td>
<td>25.0</td>
<td>22</td>
</tr>
</tbody>
</table>

Source: Author (2017)

From the study findings 83.34% of the respondents either are not sure, strongly disagree or disagree that staff have undergone formal training in the area of inventory management. This can have an impact in the manner in which work is executed since SCM and indeed inventory management has been professionalized.
From the study findings 72.22% of the respondents either strongly agree or agree that organization provides regular training for staff in the warehouse. This is a good indicator that the organization takes the training and development of staff seriously for improved output.

From the study findings 66.67% of the respondents are either not sure, strongly disagree or disagree that policies and procedures exists and are well known by the warehouse staff. This shows that generally that staff are not aware that standard operating procedure exist in inventory management and should be followed for more efficient service.

From the study findings 91.66% of the respondents either are not sure, strongly disagree or disagree that there is designated staff for emergency stock. This shows that despite the organization core activity being dealing with emergency, no HR has been specifically allocated to deal with emergency stock when the need arises.

From the study findings 69.44% of the respondents are either not sure or disagree that the volume of inventory marches with the human resource available. This indicates that HR is stretched to the limits in the warehouse.
Table 4.7: How do emergencies affect inventory management

<table>
<thead>
<tr>
<th>How do emergencies affect inventory management</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The top ten priority items during emergencies are known and easily accessible</td>
<td>7 19.4</td>
<td>5 13.9</td>
<td>10 27.8</td>
<td>6 16.7</td>
<td>8 22.2</td>
</tr>
<tr>
<td>There is an emergency plan that exists is known by the staff and is updated</td>
<td>0 0.0</td>
<td>10 27.8</td>
<td>6 16.7</td>
<td>0 0.0</td>
<td>20 55.6</td>
</tr>
<tr>
<td>There are adequate resources in place when responding to emergencies</td>
<td>15 41.7</td>
<td>11 30.6</td>
<td>0 0.0</td>
<td>6 16.7</td>
<td>4 11.1</td>
</tr>
<tr>
<td>The emergency stock is pre packed and ready to be shipped within 48 hours</td>
<td>0 0.0</td>
<td>19 52.8</td>
<td>9 25.0</td>
<td>5 13.9</td>
<td>3 8.3</td>
</tr>
<tr>
<td>There is staff who has access to inventory after hours in case of emergency</td>
<td>0 0.0</td>
<td>10 27.8</td>
<td>16 44.4</td>
<td>4 11.1</td>
<td>6 16.7</td>
</tr>
</tbody>
</table>

Source: Author (2017)

From the study findings 66.67% of the respondents either are not sure, strongly disagree and disagree that top ten priority items during emergencies are known and easily accessible. This shows that there is need for more effort in enlightening staff on the critical items during emergencies and to facilitate their accessibility.

From the study findings 72.23% of the respondents either are not sure or disagree that an emergency plan exists, is known by staff and is updated. This indicates that the organization needs to have in place a formal emergency plan and this plan needs to be communicated frequently so that staff are aware of their role and expectations when emergency strikes.
From the study findings 72.23% of the respondents either strongly agree or agree that resources are available when responding to emergencies.

This indicates that the organization has put in place mechanisms that ensure that it is able to provide the necessary resources to respond during emergencies.

From the study findings 52.78% of the respondents strongly agree that emergency stock is pre packed and ready to ship within 48 hours. This indicates that more could be done by the organization for emergency preparedness by having ready and packed material to respond in the shortest time possible.

From the study findings 72.22% of the respondents either are not sure, strongly disagree or disagree that there is staff that have access to inventory after working hours in case of emergency. Despite control mechanism taking precedent in this issue, the organization needs to have more flexibility to ensure emergencies are responded to in shortest time with minimal red tape.
Table 4.8: How does warehouse structure and equipment affect inventory management

<table>
<thead>
<tr>
<th>How does warehouse structure and equipment affect inventory management</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are adequate equipment that help in the movement of items in and out of the warehouse</td>
<td>15</td>
<td>41.7</td>
<td>3</td>
<td>8.3</td>
<td>10</td>
</tr>
<tr>
<td>The warehouse capacity is sufficient for the level of inventory</td>
<td>12</td>
<td>33.3</td>
<td>7</td>
<td>19.4</td>
<td>17</td>
</tr>
<tr>
<td>There are enough cold chain equipment to store &amp; monitor temperature sensitive drugs</td>
<td>2</td>
<td>5.6</td>
<td>20</td>
<td>55.6</td>
<td>14</td>
</tr>
<tr>
<td>There exists a proper layout plan of the inventory storage facility</td>
<td>15</td>
<td>41.7</td>
<td>11</td>
<td>30.6</td>
<td>7</td>
</tr>
<tr>
<td>The stocks are tidy, easily accessible and zones are defined</td>
<td>6</td>
<td>16.7</td>
<td>12</td>
<td>33.3</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Author (2017)

From the study findings 50% of the respondents either strongly agree or agree that there is adequate equipment that helps to move stock in and out of the warehouse, the other 50% are either not sure, strongly disagree or disagree that there is adequate equipment that helps to move stock in and out of the warehouse.
This indicates that the organization should invest in additional equipment that helps in the efficient movement of cartons from one point to the other in a warehouse and reduce overall time taken to process items from stock.

From the study findings 52.77% of the respondents either strongly agree or agree that the warehouse capacity is enough for the level of inventory. These results indicate that additional space may be required in the future to increase the storage capacity in case the activities increase.

From the study findings 61.12% of the respondents either strongly agree or agree that there is enough cold chain material. This indicates that the cold chain material that is used to store temperature sensitive drugs is sufficient at least in the meantime.

From the study findings 72.23% of the respondents either strongly agree or agree that there is a proper layout plan for the storage facility. This shows that the warehouse mapping is known for direction purposes and staff can find their way around the facility.

From the study findings 50% of the respondents either strongly agree or agree that the stocks are tidy, easily accessible and zones were defined, the other 50% are either not sure, strongly disagree or disagree that stocks are tidy, easily accessible and zones were defined. Despite the stores being tidy there is still more that can be done to ensure that stocks are easily accessible and visible.
4.3 Summary of Data Analysis

The organization needs to improve the systems in place so that there are expiry alerts to ensure that staff issue stock on FEFO basis. In case the short expiry items cannot be consumed the organization needs to have a stock rotation policy to make sure less items expire in the warehouse.

The organization provides opportunities for training and development of staff however it has so far not ensured that only professionals in SCM are employed in the warehouse. In addition, the organization needs to march the human resources to the volume of work in the warehouse and give specific responsibilities to staff within the warehouse to manage emergencies. The staff need to continuously be informed of the SOP in place.

The organization needs to have an emergency plan that is updated frequently and shared among the staff so that the staff are aware of their various roles and responsibilities when emergency happens. The organizations needs to ensure that items are prepared in the warehouse are ready to respond within the shortest period and that they ensure that they give responsibility to staff to access the warehouse outside working hours.

The organization warehouse is well planned although more focus should be put on ensuring that the stocks are visible. Despite the warehouse equipment being sufficient in the current context, they is possibility that they will be fully stretched with increased activities and therefore might require more investment of the same to be put in place.
CHAPTER FIVE
SUMMARY OF FINDINGS CONCLUSION AND RECOMMENDATION

5.0 Introduction
This chapter presents the various summaries derived from the findings and conclusion and recommendation that were drawn by the researcher form this study.

5.1 Summary of findings
Within the organization, the level of education of the respondents indicated that the organization has qualified staff as shown by the majority of the respondents having college and university qualification.

Most of the respondents agree that the organization promotes training and development of staff even when they may not be professionals in the areas with which they perform their tasks.

Majority of the respondents believe that despite the organization providing resources to respond to emergencies, it needs to have a well-defined plan that is regularly updated and communicated to the staff.

There are tools in place to monitor the expiry dates of the medical supplies however strict rules and improved systems along the supply chain need to be put in place to ensure that at all time items are issued on FEFO basis.

Majority of the respondents agree that the capacity of the warehouse and the tools in place are enough to sustain the warehouse operations, however more needs to be done to ensure better accessibility and visibility of the stock by improving the arrangement.

5.2 Answers to research questions

5.2.1 What is your educational level?
From the study findings 13.89% of the respondents have studied up to secondary level, 8.33% have studied up to certificate level, 27.78% are diploma holders, 33.33% are degree holders and 16.67% have studied up to master’s level.

This shows that within the organization there is a mix in terms of the staff and this mix is depends staff responsibilities and tasks performed.

5.2.2 How many years have you worked for this organization?
From the study findings 59% of the respondents had worked for between 0-5 years while 41% have worked for more than 5 years.
This indicates that a majority of the staff have experience and knowledge of the organizations operations which assist in faster response to emergencies.

**5.2.3 Would you say that the organization uses FEFO method in issuing stocks?**

From the study findings 13.89 of the respondents strongly agree that warehouse uses FEFO, 41.67% agree that the organization uses the FEFO while issuing stocks. 16.67% are not sure if the warehouse issues shortest expiries first. 27.78% disagree that the warehouse issues the short expiry first. This shows that the organization needs to improve the systems to ensure warehouse staff issue shortest expiry medical supplies first.

**5.2.4 Would you say there are tools/software in place to alert on the near to expire items?**

From the study findings 41.67% of the respondents strongly agree that there are tools in place for expiry alerts, 5.56% agree that there are tools in place for expiry alerts. 8.33% are not sure if the tools exist. 16.6% strongly disagree that there are tools in place for expiry alerts while 27.78% disagree. Despite some tools being available staff need to be more proactive in giving warnings for items that are about to expire.

**5.2.5 Would you say that the value of near to expire items is known and documented monthly?**

From the study findings 66.67% of the respondents strongly agree that the value of near expiry items is known and documented, 5.56% are not sure whether there is knowledge of expiry and records while 27.78% disagree that there is neither knowledge nor records of near expiry.

This is a good indicator that monetizing the inventory creates attention and therefore causes action to be taken.

**5.2.6 Would you say that the value of losses due to expiry is known and documented?**

From the study findings 27.78% of respondents strongly agree that value of expired items is known and recorded, 25% agree that value of expired is known and documented, 38.89% are not sure whether value of expired is known and recorded. 5.56% strongly disagree that the value of expired is known and documented while 2.78% disagree that value of expired is known and documented. This shows that more needs to be done by the organization to ensure staff are sensitized to the volume of losses as a result of expiry.
5.2.7 Would you say that there exists a stock rotation mechanism to avoid expiries?
From the study findings 67% of the respondents agree that there is a stock rotation mechanism in place to prevent expiry. 30.56% are not sure that such a mechanism is in place, 16.67% strongly disagree that the mechanism exists while 11.11% disagree that the mechanism exists. This indicates that there is belief among staff that more can be done to ensure that medical supplies do not expire in the warehouse where they could be utilized somewhere else.

5.2.8 Would you say that staff have undergone formal training in the area of inventory management?
From the study findings 16.67% of the respondents agree that staff have undergone formal training in the area of inventory management, 27.78% are not sure whether staff have undergone any kind of training. 41.67% strongly disagree that staff have undergone formal training in inventory management while 13.89% disagree that staff have undergone the training in inventory management. This can have an impact in the manner in which work is executed since SCM and indeed inventory management has been professionalized.

5.2.9 Would you say that the organization ensures that all staff in the warehouse are trained regularly?
From the study findings 44.44% of the respondents strongly agree that organization provides regular training for staff in the warehouse, 27.78% agree that the organization provides regular training, 8.33% are not sure whether the organization provides warehouse staff opportunities for training. 11.11% strongly disagree that the organization provides staff with training while 8.33% disagree that the organization provides staff with regular training.
This is a good indicator that the organization takes the training and development of staff seriously for improved output.

5.3.1 Would you say that there is a policy and procedure for inventory management and it is well known by staff?
From the study findings 33.33% of the respondents strongly agree that policies and procedures exists and are well known by the warehouse staff, 30.56% are not sure whether the procedures exists and are known. 8.33% strongly disagree that procedures exists and are
known by staff while 27.78% disagree that the procedures exists and are known by staff. This shows that generally that staff are not aware that standard operating procedure exist in inventory management and should be followed for more efficient service.

5.3.2 Would you say that there is a designated staff that has custody over emergency stock?

From the study findings 2.78% of the respondents strongly agree that there is designated staff for emergency stock, 5.56% agree that there is designated staff for emergency stock, 8.33% are not sure whether there is designated staff for emergency stock. 69.44% strongly disagree that there is designated staff for emergency stock while 13.89% disagree that there is designated staff for emergency stock. This shows that despite the organization core activity being dealing with emergency, no HR has been specifically allocated to deal with emergency stock when the need arises.

5.3.3 Would you say that the number of staff available marches with the volume of warehouse activities?

From the study findings 5.56% of the respondents strongly agree that the volume of inventory marches with the human resource available, 25% agree that the volume of inventory marches with the human resource, 61.11% are not sure whether the volume of inventory marches with the human resource while 8.33% disagree whether the inventory marches with the human resource. This indicates that HR is stretched to the limits in the warehouse.

5.3.4 Would you say you know the top ten priority items during emergencies are known and easily accessible?

From the study findings 19.44% of the respondents strongly agree that top ten priority items during emergencies are known and easily accessible, 13.89% agree that the top ten priority items during emergencies are known and easily accessible, 27.78% are not sure whether top ten priority items during emergencies are known and easily accessible. 16.67% strongly disagree that top ten priority items during emergencies are known and easily accessible while 22.22% disagree that top ten priority items during emergencies are known and easily accessible. This shows that there is need for more effort in enlightening staff on the critical items during emergencies and to facilitate their accessibility.
5.3.5 Would you say there is an emergency plan that exists, is known by the staff and is updated

From the study findings 27.78% of the respondents strongly agree that an emergency plan exists, is known by staff and is updated, 16.67% are not sure whether there is an emergency plan, that it is known by staff and updated. 55.56% disagree that there is an emergency plan, that it is known by staff and it is updated. This indicates that the organization needs to have in place a formal emergency plan and this needs to be communicated frequently so that staff are aware of their role and expectations when emergency strikes.

5.3.6 Would you say there are adequate resources in place when responding to emergencies?

From the study findings 41.67% of the respondents strongly agree that resources are available when responding to emergencies, 30.56% agree that resources are available when responding to emergencies, 16.67% strongly disagree that resources are available when responding to emergencies while 11.11% disagree that resources are available when responding to emergencies. This indicates that the organization is able to provide the necessary resources to respond during emergencies.

5.3.7 Would you say that the emergency stock is pre-packed and ready to be shipped within 48hrs?

From the study findings 52.78% of the respondents strongly agree that emergency stock is pre packed and ready to ship within 48hrs, 25% are not sure whether emergency stock is pre packed and ready to ship within 48 hours, 13.89% strongly disagree that stock is pre packed and ready to ship while 8.33% disagree that emergency stock is pre packed and ready to ship within 48 hours. This indicates that more could be done by the organization for emergency preparedness by having ready and packed material to respond in the shortest time possible.

5.3.8 Would you say that there is staff who has access to inventory after hours in case of emergency?

From the study findings 27.78% of the respondents agree that there is staff that have access to inventory after working hours in case of emergency, 44.44% are not sure whether there is staff who have access to the inventory after working hours in case of
emergency. 11.11% strongly disagree that there is staff that has access to inventory after working hours in case of emergency while 16.67% disagree that there is staff who has access to inventory after working hours in case of emergency. Despite control mechanism taking precedent in this issue, the organization needs to have more flexibility to ensure emergencies are responded to in shortest time with minimal red tape.

5.3.9 Would you say that there are adequate equipment that help in the movement of items in and out of the warehouse?

From the study findings 41.67% of the respondents strongly agree that there is adequate equipment that helps to move stock in and out of the warehouse, 8.33% agree that there is adequate equipment to move stock in and out of the warehouse, 27.78% are not sure whether there is enough equipment to move stock in and out of the warehouse. 13.89% strongly disagree that there is enough equipment to move stock in and out of the warehouse while 8.33% disagree that there is adequate equipment to move stock in and out of the warehouse. This indicates that the organization should invest in additional equipment that helps in the efficient movement of cartons from one point to the other in a warehouse.

5.4.1 Would you say that the warehouse capacity is sufficient for the level of inventory?

From the study findings 33.33% of the respondents strongly agree that the warehouse capacity is enough for the level of inventory, 19.44% agree that the warehouse capacity is enough for the level of inventory while 47.22% are not sure whether the warehouse capacity is enough for the level of inventory. These results indicate that additional space is required to increase the storage capacity.

5.4.2 Would you say that there are enough cold chain equipment/monitoring tools to store & monitor temperature sensitive drugs?

From the study findings 5.56% of the respondents strongly agree that there is enough cold chain material, 55.56% agree that there is enough cold chain material while 38.89% are not sure whether there is enough cold chain material. This indicates that the cold chain material that is used to store temperature sensitive drugs is sufficient.
5.4.3 Would you say that there exists a proper layout plan of the inventory storage facility

From the study findings 41.67% of the respondents strongly agree that there is a proper layout plan for the storage facility, 30.56% agree that there is proper layout plan for the storage facility, 19.44% are not sure whether there is proper layout plan for the storage facility while 8.33% disagree that there is proper layout plan for storage facility. This shows that the warehouse mapping is known for direction purposes and staff can find their way around the facility

5.4.4 Would you say the stocks are tidy, easily accessible and zones are defined

From the study findings 16.67% of the respondents strongly agree that the stocks are tidy, easily accessible and zones were defined, 33.33% agree that stocks are tidy, easily accessible and zones were defined, 27.78% are not sure whether stocks are tidy, easily accessible and zones were defined. 8.33% strongly disagree that stocks are tidy easily accessible and zones were well defined while 13.89% disagreed that stocks are tidy, easily accessible and zones were well define. Despite the stores being tidy there is still more that can be done to ensure that stocks are easily accessible and visible.
5.3 Conclusion

Some of the conclusions that were drawn from the study includes:-

Although some of the staff have not been through any formal training in warehousing or supply chain management, the organization ensures that staff undergo trainings so that they are able to improve their competence in warehousing skills. This is a positive aspect about the organization as it indicates the institution’s willingness in the learning and development of staff. Learning and development of staff not only increases the competencies but ensures that staff are motivated to carry out their day to day task and assist the organization in achieving its overall goal.

The organization provides resources to be able to respond to emergencies however, most of the staff do not have knowledge of the emergency plan neither are they fully aware of what items are priority when emergency cases occur. This could be an impediment when operations have to respond to an emergency as the staff would not be aware of the different roles they have to play in order to make the response a success. This can lead to frustration both to the staff and the organization for not meeting the expected objectives.

Staff agree that there is a system in place to alert the short expiry items, although this system is not fully functional. Staff are of the opinion that the organization should put in place strict measures that would ensure that only FEFO method is used in issuing stocks. Staff are of the opinion that not much is done in terms of stock rotation in order to ensure that less items expire while in the warehouse.

The organization has sufficient equipment as well as warehousing space that met the volume of the stock. However there is no clear visibility of how items are stored within the warehouse since most items are not regrouped. Regrouping in the warehouse can be the defining factor between how fast staff in the warehouse are able to process orders. Visibility and traceability of stocks within the warehouse is one of the key elements of a warehouse that follows good distribution practices and the organization should strive to achieve this.

5.4 Recommendation

5.4.1 Human Resource

Some of the recommendations from the study includes that the organization needs to recruit staff that have supply chain management/warehousing profile to ensure that the
inventory is managed in a more efficient and effective way. The recruitment process should be open to the general public so that it can attract various individuals with supply chain experience and expertise. Once the people with relevant expertise are recruited inducting them to the specific working and context of the organization becomes easy.

5.4.2 Operations
A proper emergency plan should be developed, shared and updated to the staff regularly so that the staff are aware of what is expected of them and how to respond more efficiently. During the development of the emergency plan it is key that staff are involved so that there is more ownership of the processes. It is clear that once staff have knowledge and ownership of the emergency process, then response rate to this emergencies will be within the organization preferred time of 48 hours.

5.4.3 Inventory Control
There is need to monetize the inventory so that stock losses are captured in form of money and not a list and this will definitely capture not only the attention of the warehouse staff but globally the decision makers within the organization. Staff must start viewing inventory as money because everyone is sensitive to money and does not want to loose money, then staff will ensure that no losses are observed within the organization as a result of items expiring.

5.4.4 Warehousing
The warehousing strategy for the next few months should focus on ensuring that there is better visibility of stocks by regrouping them within the warehouse to ensure that the rate of output increases and the lead time for processing stock requests is reduced. Visibility is an important element in the warehouse as it not only makes the process of work much easier but it also provide a better a faster way of management making spot checks within the warehouse that greatly helps with control.

5.5 Suggestions for further studies
The study did not go too much into details of human resource requirements in terms of characteristics or traits that are necessary for staff that work in the warehouses especially in the humanitarian context. Inventory management requires specific set of skills and traits that if staff do not possess they tend to struggle while performing their day to day tasks, this calls for further studies in this area
REFERENCES


Lt Col R Gupta, Col KK Gupta (Retd), Brig BR Jain (Retd), Maj Gen RK Garg, (2007). *ABC and VED Analysis in Medical Stores Inventory Control*. MJAFI Vol 63, No.4 pp 325 -326
APPENDIX I
INTRODUCTION LETTER

Paul Ndivo,
P.O Box 38032 00625,
1st October, 2015

Logistics Coordinator,
MSF Kenya
Nairobi
Re: Request to Conduct Research Study In MSF Kenya

Dear Sir,

This is in reference to the above. Am currently pursuing a course In Purchasing and Supplies Management. It is a requirement that we carry out research study before completion of the said course. My study is on **FACTORS AFFECTING INVENTORY MANAGEMENT IN RELIEF ORGANIZATIONS**, the case study being MSF Kenya. I would appreciate if you gave me permission to conduct the said research in your esteemed organizations.

Yours faithfully,

Paul Ndivo
## APPENDIX II
### BUDGET

<table>
<thead>
<tr>
<th>Activity</th>
<th>Amount (kes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport by bus</td>
<td>5,500.00</td>
</tr>
<tr>
<td>Lunch</td>
<td>4,200.00</td>
</tr>
<tr>
<td>Printing and photocopies</td>
<td>2,900.00</td>
</tr>
<tr>
<td>Binding</td>
<td>2,660.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15,260.00</strong></td>
</tr>
</tbody>
</table>
APPENDIX III
QUESTIONNAIRE

Part A
1. Name:

........................................................................................................................................
........................................................................................................................................
........................................................................................................................................

2. Sex:
Male □
Female □

3. What is your age?
(18-24) □
(25-34) □
(35-44) □
(45-54) □
(55-65) □

4. What is your educational level?
(Secondary) □
(Certificate) □
(Diploma) □
(Degree) □
(Masters) □
(Phd) □

5. What is your position?
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................

6. How many years have you worked for this organization?
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
### Part B

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organization uses FEFO method in issuing stocks</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>There are tools/software in place to alert on the near to expire items</td>
<td></td>
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<tr>
<td>The value of near to expire items is known and documented monthly</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Value of losses due to expiry is known and documented</td>
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<tr>
<td>There exists a stock rotation mechanism to avoid expiries</td>
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<tr>
<td>Staff have undergone formal training in the area of inventory management</td>
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<tr>
<td>The organization ensures that all staff in the warehouse are trained regularly</td>
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<tr>
<td>There is a policy and procedure for inventory management and it is well known by staff</td>
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<tr>
<td>There is a designated staff that has custody over emergency stock</td>
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<tr>
<td>The number of staff available marches with the volume of warehouse activities</td>
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<tr>
<td>The top ten priority items during emergencies are known and easily accessible</td>
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<tr>
<td>There is an emergency plan that exists, is known by the staff and is updated</td>
<td></td>
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<tr>
<td>There are adequate resources in place when responding to emergencies</td>
<td></td>
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<tr>
<td>The emergency stock is prepacked and ready to be shipped within 48hrs</td>
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</tr>
<tr>
<td>There is staff who has access to inventory after hours in case of emergency</td>
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<tr>
<td>There are adequate equipment that help in the movement of items in and out of the warehouse</td>
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<tr>
<td>The warehouse capacity is sufficient for the level of inventory</td>
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<tr>
<td>There are enough cold chain equipment/monitoring tools to store &amp; monitor temperature sensitive drugs</td>
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<tr>
<td>There exists a proper layout plan of the inventory storage facility</td>
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<tr>
<td>The stocks are tidy, easily accessible and zones are defined</td>
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</tbody>
</table>