

Logistics Management Practices and Quality of Service Delivery in the Health Sector of Ghana: Evidence from Bolgatanga Municipality.

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Abstract: *Logistics management in recent time is very important to many sectors of an economy including the military sector, the manufacturing and assembly industries and retailing which are goods-oriented, as well as transport and other distribution or service-oriented industries. All these industries have taken advantage of the use of logistics to respond to the challenges of rising customer demand and pressure from competition. The purpose of the study was to determine the effects of logistics management practices on quality of service delivery in health centres in the Bolgatanga Municipality. The population for the study comprised staff and clients of two health centers. Random sampling was used to select staff and clients for the study. The study revealed that both health centres do not have well-organized procurement units but have logistics management programmes. The study revealed insufficient drugs and medical supplies, lack of modern medical facilities and equipment, lack of modern storage facilities for medical supplies, irregular flow of medical supplies from suppliers and lack of qualified logistics officers as the major challenges to quality health service delivery in the various health centers. It was concluded that the health centres though have logistics management programmes, still suffer logistics related service delivery challenges such as insufficient drugs and medical supplies and lack of qualified logistics officers. The study recommends the establishment of a well-organized procurement unit to engage qualified logisticians to efficiently and effectively manage their logistics to enable the health centers function well*

Key Words: *Logistics; Management; Practices; Quality Service Delivery; Health Centres; Bolgatanga*

1. Introduction:

Before the 1950s, logistics was considered only in military terms. Logistics at the time had to do with procurement, maintenance, and transportation of military facilities, material, and personnel. It was also considered a custodial phenomenon where storekeepers were the custodians of materials stored in small storerooms and large warehouses (Rushton, Croucher & Baker, 2010). Beginning from the early 1960's, many elements, such as deregulation, competitive pressures, information technology, globalization, profit leverage, among others, have contributed to the increase in awareness about the essence of logistics science. The elements of

logistics have always been essential to the manufacturing, storage and movement of goods and services. Educational subjects and syllabi at the time were not focused on logistics or distribution, but they were mainly related to individual activities such as transportation and purchasing. There was little attempt to integrate and balance the activities, later to be known as logistics activities, that were in cost and/or service conflict. This therefore did not give an opportunity to managers to study the broader concepts of logistics (Rushton et al., 2010).

In Ghana, health service provision is wide spread as a result of the existence of both public and private

hospitals and health centers. This is an indication that logistics management in the health system is very important so far as the achievement of the country's health goals are concerned (Manso, Annan & Anane, 2013). Logistics management is an important role, which coordinates and optimizes all logistics activities, and hence necessities such as drugs and other essential logistics need to be available in hospitals and health centers in order to ensure delivery of quality health care in Ghana.

The primary aim of health facilities (both public and private) is to provide quality health services to existing and potential clients. This means that, health centers must work hard to provide medical services that are qualitative enough to cure the ailments of patients or clients as well as to attract new customers. This feat can primarily be achieved through the delivery of quality health care service to patients and potential patients. Quality health care service to clients demands that health centers are well equipped and resourced with the right logistics to achieve health security. Health security exists when every person is able to obtain quality medical services whenever the need arises. Also, a health centre that takes its logistics management seriously will benefit tremendously in terms of delivery of quality health services, achievement of cost savings on its operations, having short delivery cycles and most of all have reliable suppliers. Health centers that do not take their logistics management seriously may not only be able to achieve the objective above but may also be incapable of engaging in innovations for performance improvements. Thus, effective logistics management practices will help reduce costs of operations and deliver high quality health services to customers (Birk, 2008).

The Upper East Region is one of the most deprived regions of Ghana and very far from the capital city of Ghana, Accra where most of the essential drugs and other health products are situated. As a result, most of the health centers in the Bolgatanga Municipality run out of essential drugs and other

logistics needed for quality health care delivery in the Municipality. Also, there is the perception that even though effectiveness of logistics in general is not the best, the management situation is always better in the privately managed health centers than in the public health centers.

These scenarios bring to question the efficiency and effectiveness of the logistics management practices of the health centers in the Bolgatanga Municipality.

The objective of the study therefore is to determine the effect of logistics management practices on quality of service delivery of both private and public health centers in the Bolgatanga Municipality by assessing the current logistics management practices and their challenges. The remainder of this paper is organized into the following sections. The second section reviews the relevant literature on issues in logistics management whilst section three presents an outline of the methodology employed in the study. The fourth section presents a detailed analysis of the results whilst the conclusion and recommendations are presented in the fifth section of the paper.

2. Literature Review:

2.1 The Development of Logistics:

Logistics started around the 1950s where a number of investigations were taken and the outcomes informed a number of people about the importance of logistics in modern businesses. This made a number of businesses to integrate logistics practices in their business activities. Since the advancement of logistics from the 1950s, there have been different studies on this subject in different applications leading to the importance and growth of logistics management in recent times. This makes logistics management an important avenue through which firms can better utilize their existing production and distribution processes to promote efficiency and win competition. Logistics is the process of identifying the needs of clients, acquiring the supplies, storing and passing them through

appropriate channels and networks to meet the needs of the clients (Tilanus, 1997). Thus, logistics has come to be seen as an essential role within the public and private sectors since it plays a major part in the success of many different operations and organizations both in the goods and service industries.

2.2 Logistics Management:

Logistics have facilitated a couple of activities in the past and still doing so today. Many production firms and the service sector have relied on logistics for their operational activities in order to attain their business or operational targets. The story is not different for many firms and businesses today since logistics is still a necessary ingredient in the production and provision of services (Christopher, 2005). Logistics is a means of tactically managing the buying, handling and issuing of supplies to the places where they are required.

When logistics management activities are better carried out, it leads to value addition and cost minimization. For many firms, a combination of value and cost advantages will enable them, emerge winners in present day keen competition. Thus logistics management practices which relate to areas such as transportation management and picking of orders when effectively managed may lead to a higher revenue flow, cost structure improvements, and reduction in transportation costs. Some companies use their own transportation vans to deliver goods to their retailers, and this is a sign of good logistics management practices (Hoske, 2009).

2.3 The Importance of Logistics Management:

At the beginning, logistics was considered a custodial activity where storekeepers were the only individuals handling materials and other stock of goods in small and big warehouses. At the time, the people who used to manage and handle these materials and stock (logistics) were considered less important in organizations and the health sector for that matter. However, over a period of time, businesses and health centers have come to

understand how important logistics is to a program's success (USAID/DELIVER, 2011).

Now, there is a clearer understanding that, the goal of a health logistics system is much bigger than just delivering a service. Eventually, the aim of every public and private health logistics system is to help ensure that every customer has service security. It can be said that, there is existence of service security when every person is able to obtain and use quality essential health supplies anytime the need arises. Thus, a good logistics system will not only help ensure service security but also determines the success or failure of any health service delivery. According to USAID/DELIVER (2011), a well-functioning logistics system increases programme impact, enhances the quality of care that will be given to clients and improves cost efficiency and effectiveness.

2.4 Role of Logistics Management in Quality Health Service Delivery:

An important role that logistics plays in the health centers is to increase the amount of demand that can be satisfied by having the product readily available when the customer needs it. Quality health service cannot be provided in time unless the required logistics are available in adequate quantities and qualities (Coyle, Bardi & Langley, 2003). According to these authors, logistics management plays a critical role in providing efficient health service delivery by ensuring that health care products are available and in time when clients need them. The safety of a patient is the top priority in health service delivery and logistics managers play a crucial role in protecting this goal by making sure that the commodities bought for clinical use are of good quality. Logistics managers should initiate serious cost cutting measures in order to get good deals since a greater number of patients are demanding high quality and reasonably priced health delivery services.

The global medical industry is one of the world's largest and fastest growing industries. This industry

is spending large sums of money in its various sectors such as medical equipment and supplies, pharmaceutical, healthcare services, biotechnology, and alternative medicine. The management and delivery of these health logistics throughout the healthcare supply chain is complex and important due to its size. Overall, the process of managing these logistics is important so far as the provision of health care needs are concerned (Beeny, 2010).

Furthermore, the number of services and service organizations are increasing constantly as the economics of most nations are dominated by the service industry. The medical service industry also makes an immense contribution to the economic development of many countries. It can be said that the medical service industry is very important in many economies as they continuously create new and more jobs as well as more opportunities to enhance the health of the people and the quality of lives of the people at large (Hinson, 2004). Services in general and for that matter medical services are intangible products that service providers normally offer to meet the needs of customers (Zeithaml & Bitner, 2003). The intangibility nature of services makes logistics management very necessary in order to increase the impact of the service provision positively on the clients. Thus, it is only when a medical facility is well resourced with the requisite logistics that it can efficiently and effectively provide quality health services to those who visit the facility.

A service package is essential in the provision of efficient and effective medical services to clients. To have a complete service package, the presence of certain essential logistics cannot be compromised. According to Fitzsimmons, Fitzsimmons & Bordoloi (2014), the following components: a supporting facility; for instance the existence of a service facility to serve as a medical service delivery centre and facilitating goods such as drugs, medicines, machines, equipment and all medical resources are all medical logistics which

should be present in order to provide quality health services to clients.

3. Methodology:

The research is purely descriptive. The study considered the logistics management practices of health centers in the Bolgatanga Municipality for the period of 2010 to 2015. The population of the study comprised management, staff and clients of two selected health centers in the Bolgatanga Municipality. The management comprises medical directors, administrators and finance directors. The staff considered for the study included nurses, other health practitioners and technicians. The clients include patients in the outpatient department, maternity and those on admission. The study purposively selected one public health center out of four (4) and one private health center out of the three (3) in the Bolgatanga Municipality. The study considered patients from three departments of the health centers. The two selected health centers in the Bolgatanga Municipality are the only two that have all the three departments considered in this study.

The study used random sampling technique to select management, staff and clients of the various health centers. The study chose randomly 15 management and staff members and 100 clients each from each of the health centers. The study gathered primary data from respondents on the following objects below;

Current logistics management practices:

Client's perception of quality of service delivery:

Challenges in delivering quality health service to clients

Relationship between logistics management practices and quality service delivery

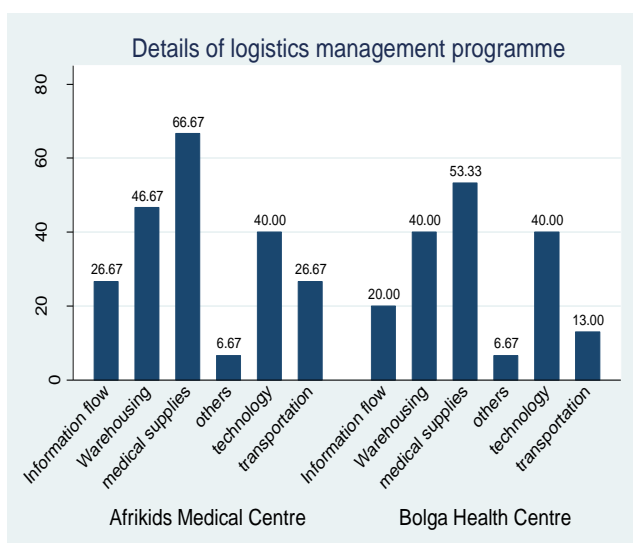
The data collected were analyzed using Stata version 12.02 and the results presented using percentages, tables and figures.

4. Results and Discussions:

4.1 Current logistics management practices:

One of the main objects of this study is to assess the logistics management practices of the selected health centers. The outcome of the views of the staff about the details of logistics management in the health centers revealed that over 40 percent of staff respondents of Afrikids Medical Centre (AMC) identified medical supplies, warehousing and technology as the details of logistics that the health centre had whilst at Bolgatanga Health Centre (BHC), majority of the staff respondents also mentioned warehousing, medical supplies and technology as the details of logistics the health centre also had. Medical supplies as a logistics management practice was regarded by the staff of both health centers as number one priority followed by warehousing to the smooth running and delivery of quality health service. This supports the report of USAID/DELIVER (2011) which says that warehousing is very important in logistics management practices on account that when medical logistics are received by health centers, they are put in store until they are needed at the service delivery point of the health centre just as in the case of businesses where most businesses store a quantity of stock in anticipation of future demand.

Figure 1: Details of logistics management programme in health centre (Staff)



Source: Field survey data, (2016).

4.2 Perception of Clients on Availability of Logistics:

As shown in table 2, 40.40 percent of client respondents of BHC agreed that the health centers had the requisite logistics to provide health care services whilst 59.60 percent of the client claimed the health centers do not have the requisite logistics to provide health care service. Also, the results from AMC indicated that 40.0 percent of client respondents agreed that the health centre had the requisite logistics to provide health care services whereas 60.0 percent of the client respondents believed the health centers do not have the requisite logistics to ensure quality health delivery.

On the other hand it was revealed that 63.92 percent of clients respondents of BHC confirmed that the health centers stand to benefit in managing their logistics efficiently and effectively whilst the 36.08 percent clients respondents disagreed. On the side of AMC, 53.0 percent of client respondents agreed that the health centers stand to benefit in managing their logistics efficiently and effectively whilst 47.0 percent of client respondents stated that the health centers do not stand to benefit in managing their logistics efficiently and effectively.

Majority of the clients respondents as shown in table 2.0 believed that the health centers do not have the requisite logistics to provide health care services to clients. This outcome is an indication that, the health centers may encounter health service delivery challenges since the report of USAID/DELIVER (2011) indicates that a good logistics system will not only help ensure service security but it also determines the success of a health service delivery system. In the second question where respondents were asked whether the health centers stand to benefit in managing their logistics efficiently and effectively, majority of the client respondents responded in the affirmative. This outcome agrees with USAID/DELIVER (2011) report which says

that, a well-functioning logistics system benefit health service delivery.

Table 2. 0: Availability of requisite logistics and benefits derived (Clients)

	BHC (%)	AMC (%)
Health centre has the requisite logistics to provide health care		
Yes	40.40	40.00
No	59.60	60.00
Health centre stand to benefit in managing its logistics efficiently and effectively		
Yes	63.92	53.00
No	36.08	47.00

Source: Field survey data, (2016).

4.3 Challenges in delivering quality health service to clients:

From table 3.0, 60.0 percent of staff respondents from AMC revealed that insufficient drugs and medical supplies, lack of modern medical facilities and equipment and lack of modern storage facilities for medical supplies are the challenges faced by health centers in delivering quality health service to clients. Also, 53.33 percent of staff respondents lamented that the challenges include irregular flow of medical supplies from suppliers. Finally, 20.0 percent of staff respondents of AMC indicated other challenges such as lack of logistics officers.

On the other hand, when the staff of BHC were asked about the challenges they face in quality health delivery, 73.33 percent mentioned lack of modern medical facilities and equipment, 66.67 percent indicated insufficient drugs and medical supplies whereas 60.0 percent mentioned modern storage facilities for medical supplies and irregular flow of medical supplies from suppliers as challenges of quality health service delivery to

clients. In addition, 13.33 percent indicated other challenges such as lack of logistics officers.

Table 3: Challenges of health service delivery (Staff)

	AMC n (%)	BHC n (%)
Insufficient drugs and medical supplies	60.0	66.67
Lack of modern medical facilities and equipment	60.0	73.33
Lack of modern storage facilities for medical supplies	60.0	60.0
Irregular flow of medical supplies from suppliers	53.33	60.0
Others	20	13.33

Source: Field survey data, (2016).

When clients were asked to identify the various challenges that health centers face in delivering quality service to clients, the outcomes were as follows. From AMC, over 50.0 percent of client respondents indicated lack of modern medical facilities and equipment, lack of modern storage facilities for medical supplies, irregular flow of medical supplies from suppliers and others such as the non existence of laboratory, scan and X-ray services as the challenges that health centers face in delivering quality services to clients. Those who indicated insufficient drugs and medical supplies were the minority.

On the other hand, majority of the client respondents of BHC indicated lack of modern medical facilities and equipment, lack of modern storage facilities for medical supplies, irregular flow of medical supplies from suppliers and insufficient drugs and medical supplies as the various challenges facing health centers in delivering quality services. The minority on this side also indicated others which talks about the non-existence of laboratory, scan and X-ray services as the challenges that health centers face in delivering quality services to clients. This means that, when the above challenges are not addressed, then it will really be challenging for health centers to be able to

deliver quality health services to patients. As Coyle, Bardi & Langley, (2003) indicates, logistics plays an important role towards the provision of quality health services and for that matter logistics should be given maximum attention by ensuring that logistics are available in adequate quantity and quality.

Table 3: Challenges in delivering quality health service to clients (Clients)

	AMC (%)	BHC (%)
Insufficient drugs and medical supplies	42.0	64.0
Lack of modern medical facilities and equipment	62.0	58.0
Lack of modern storage facilities for medical supplies	50.0	58.0
Irregular flow of medical supplies from suppliers	53.0	61.62
Others	57.0	36.0

Source: Field survey data, (2016).

4.4 Relationship between logistics management practices and quality of service delivery:

Again, the researcher wanted to gather the views of respondents on the relationship between logistics management practices and quality service delivery. The results revealed the following

when respondents were asked about the relationships that exist between logistics management practices and service quality. Over 66 percent of the staff respondents at AMC said that logistics management practices increase the demand for quality health services, it leads to the delivery of affordable quality health service and that quality health service cannot be provided if logistics are not provided. On the other hand, over 60 percent of the staff respondents at BHC also said that logistics management practices increase the demand for quality health, it leads to the delivery of affordable quality health service and that quality health service cannot be provided if logistics are not provided. This makes the responses from both health centers similar.

Table 4: Relationships that exist between logistics management practices and service quality (Staff)

	AMC (%)	BHC (%)
Logistics management practices increase the demand for quality health	66.67	66.67
Quality health service cannot be provided if the requisite logistics is not available	73.33	60.00
Logistics management practices can lead to the delivery of affordable quality health service	73.33	66.67
Logistics management practices is crucial to safer and confidential health service delivery	46.67	46.67

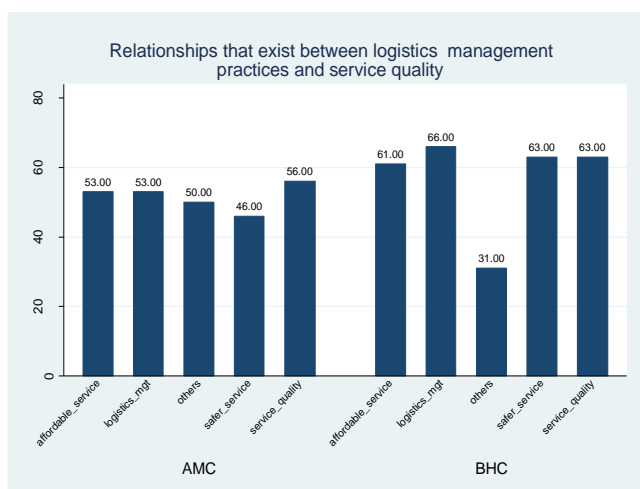
Relationship that exists between logistics management practices and service quality (Clients):

When clients were asked about the relationships that exist between logistics management practices and service quality, majority of clients respondents of AMC indicated that logistics management practices increase the demand for quality health services, quality health service cannot be provided if the required logistics is not available, logistics management practices can lead to the delivery of affordable quality health services and others such as, recommendations by current clients to potential clients.

On the other hand, over 60.0 percent of the client respondents of BHC said that logistics management practices increase the demand for quality health services, quality health service cannot be provided if the required logistics is not available, logistics management practices can lead to the delivery of affordable quality health services and finally, logistics management practices is crucial to safe and confidential health service delivery. The above arguments are related to the USAID/DELIVER (2011) report which indicates that, if a particular health centre is able to provide a consistent health service logistics, then the logistics will have impact on its demand such that people are more likely to

visit that health centre than other health centers and the logistics will also contribute to improve cost effectiveness and enhance quality health service delivery.

Figure 2: Relationship that exists between logistics management practices and service quality (Clients)



Source: Field survey data, (2016).

5. Conclusion and Recommendations:

5.1 Conclusion:

It can be concluded that these health centers though have logistics management programs, but still face service delivery challenges such as insufficient drugs and medical supplies, lack of modern medical facilities and equipment, lack of modern storage facilities for medical supplies, non existence of laboratory, scan and X-ray services, lack of qualified logistics officers and irregular flow of medical supplies from suppliers. These challenges are all logistics related because the centers do not have logistics management departments solely for managing its logistics and other supply related functions. Again it can be concluded that the relationship between logistics management practices and quality health service delivery is very significant such that, logistics facilitate every health service delivery role. This means that quality health services cannot be provided if the required logistics is not available.

5.2 Recommendations

It has been revealed that quality health services cannot be provided if the required logistics are not available hence the health centers should work hard to address the service delivery challenges identified which are mainly logistics related.

There should be the establishment of laboratory, X-ray and scan departments in the various health centers to facilitate quality health service delivery in the health centers.

Finally, the health centers should establish a well organized procurement unit and engage qualified logisticians to efficiently and effectively manage their logistics to enable the health centres function well.

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