

# Perceptions on Effectiveness of EPICOR System on Pharmaceutical Inventory Management in Tanzania: A Case Study of Medical Stores Department (MDS) in Dar es Salam

Venance E. Kalumanga

ORCID: <https://orcid.org/0000-0002-7818-3674>

Faculty of Leadership and Management Sciences; The Mwalimu Nyerere Memorial Academy, Tanzania

Email: [venance.kalumanga@mnma.ac.tz](mailto:venance.kalumanga@mnma.ac.tz)

Olivia N. Mwita

ORCID: <https://orcid.org/0009-0001-3997-115X>

Postgraduate Department: Institute of Accountancy Arusha, Dar es Salaam Campus

Email: [niol1989@gmail.com](mailto:niol1989@gmail.com)

Abstract	<i>NG-Journal of Social Development</i>
<p><i>This study aimed to assess the perceptions of the effectiveness of EPICOR-10 System on pharmaceutical inventory management in Tanzania taking the Medical Stores Department (MSD) in Dar es Salaam office as a case study. The study espoused qualitative and quantitative approaches under the case study design. Simple random and purposive designs were used to choose 76 samples while surveys and in-depth interviews were employed in data collection. Likert scale was used to measure respondents' perceptions of the effectiveness of the system whereas five (5) point ordinal scales were used to rate the respondent's degree to which they agree or disagree with its effectiveness on pharmaceutical inventory management at MSD. The study revealed that the majority of the respondents 57.9% and 42.1% strongly agree and agree respectively that the system is effective in customer service delivery, while 48.7% and 31.6% of respondents strongly agree and agree respectively that the system helped in inventory tracking. Nevertheless, 36.8% and 46.1% of the respondents strongly agree and agree correspondingly that the system helps in cost reduction. Moreover, 48.7% and</i></p>	<p><i>Vol. 13 Issue 1 (2024) ISSN(p) 0189-5958 ISSN (e) 2814-1105 Home page <a href="https://www.ajol.info/index.php/ngjsd">https://www.ajol.info/index.php/ngjsd</a></i></p> <p><b>ARTICLE INFO:</b> <b>Keyword:</b> <i>Effectiveness, EPICOR System, Medical Store Department, Perceptions, Pharmaceutical Inventory Management.</i></p> <p><b>Article History</b> <i>Received 28<sup>th</sup> November 2023 Accepted: 20<sup>th</sup> March 2024 DOI: <a href="https://dx.doi.org/10.4314/ngjsd.v13i1.8">https://dx.doi.org/10.4314/ngjsd.v13i1.8</a></i></p>

*35.5% of the respondents strongly agree and agree that the EPICOR-10 system enabled time-saving whereas 39.5% and 36.8% of the respondents also strongly agree and agree respectively that the system provides the accuracy of real-time information when managing pharmaceutical inventory issues. The study recommends that MSD should continue to utilize EPICOR-10 system effectively in inventory management practices while more considerations should be taken on improving the system in the areas of its flexibility when integrating with other activities of the organization. However, regular training programs to capacitate staff and other users on advanced features and functionalities of the system are essential for the continuous improvement of pharmaceutical inventory management in Tanzania and other health sectors in developing countries.*

## **1. Introduction**

Globally, pharmaceutical inventory management plays a crucial role in the effective functioning of organizations in the healthcare industry (Kanda et al., 2025; Samar, 2020; Zamiela et al., 2022). It involves planning, procurement, storage, and distribution of pharmaceutical products to ensure their availability when needed while minimizing costs and ensuring effective and efficient delivery of services (Kanda et al., 2015; Mwita, 2017). Effective pharmaceutical inventory management is essential for maintaining patient safety, optimizing operational efficiency, and maximizing financial performance (Omwansa, 2018; Sexena et al., 2023). The primary goal of pharmaceutical inventory management is to ensure that medications are readily available to meet patient needs (Modisakeng et al., 2020). By maintaining adequate stock levels, healthcare organizations can avoid medication shortages and delays in treatment (Garcia et al., 2019). This is particularly important for critical care medications and drugs used in emergency situations. Effective inventory management ensures that healthcare providers have access to the necessary pharmaceuticals to deliver timely and appropriate care to patients (Parmata et al., 2026; Orembo, 2017). Furthermore, pharmaceutical inventory management helps prevent medication wastage and expiration (Mwanyongo, 2017). Proper inventory control practices, such as first-in-first-out (FIFO) rotation and regular stock audits can minimize the risk of medications reaching their expiration dates before they are used (Hasan, 2020). This not only reduces financial losses but also contributes to patient safety by ensuring that patients receive medications with optimal efficacy (Achoki, 2017; Mackintosh, 2018). Efficient pharmaceutical inventory management also enables

organizations to optimize their operational efficiency through the application of special systems that aid facilitative effective inventory management (Mapunda, 2016).

Pharmaceutical inventory management activities in Tanzania before the adoption of EPICOR-9 systems were carried out using paperwork that was time-consuming, lack of reliable information accompanied by human errors, and wastage of paper (Mwanyongo, 2017). Later the government introduced the Oracle database system intending to improve and overhaul the whole system (URT, 2020). The system was somehow effective and addressed challenges that were related to the usage of paperwork. Nevertheless, the Oracle database system was constrained by many challenges such as being complex to set up, it does not support all Oracle objects and it had performance issues. This led the government to think of other alternatives, hence EPICOR was found to be the most effective tool for managing public funds. Given the above justifications, little is known regarding its effects on improving pharmaceutical inventory management. Hence this study seeks to assess the effectiveness of EPICOR software on pharmaceutical inventory management. Several studies that were carried out in Tanzania including Kikongi (2021) investigated the effectiveness of the ERP system on healthcare service delivery thus; there is scanty literature on the EPICOR system. In addition, other studies that were conducted based on EPICOR did not connect EPICOR with pharmaceutical inventory management. Despite the EPICOR system being used in public institutions little is known about its effectiveness in the area of inventory management, hence this paper aimed to assess perceptions on the effectiveness of EPICOR on pharmaceutical inventory management taking MSD as a case study.

## **2. Literature Review**

### **2.1 Theoretical Review**

This part presents the existing theory based on the study perspective. It gives the foundation of the study. It explains and predict phenomenon and generate new ideas and insights of the study context.

#### **2.1.1 Diffusion of Innovation Theory**

Diffusion of Innovation (DOI) theory was introduced by Everett Rogers (1962). The theory explains that diffusion is the process of communicating invention for a period to members of a community utilizing specified channels or technology. Rogers outlines many stages that people or businesses go through while adopting new technologies. The knowledge phase, the persuading phase, the choice phase, the execution phase, and the confirmation phase. The adoption process is influenced by ideas about the technology's properties, including compatibility, relative advantage, complexity, observation, and triangulation. An individual discovering the existence of new technology and looking for information about it are characteristics of the knowledge phase that enhance the productivity and performance of the system or organization. The person develops a good or negative attitude toward the new technology throughout the persuasion phase, but this attitude does not always translate into acceptance or rejection of the new technology. In the context of pharmaceutical inventory management, the diffusion of innovation theory helps explain how new inventory management practices and technologies such as the EPICOR system are adopted and implemented within the pharmaceutical industry. It also shows how the EPICOR system can help to manage the inventory management process in the organization. The theory also tells how

the system can enable efficient tracking, monitoring, and control of pharmaceutical inventory. These systems can help streamline processes, reduce costs, minimize stock outs, and improve overall supply chain performance. The diffusion of innovation theory can shed light on the factors influencing the adoption and diffusion of such technologies within the pharmaceutical industry as the study base.

## **2.2 Empirical Review**

Inventory management is the practice of supervising and controlling the flow of goods and materials through a business (Simatupang et al., 2020). The study by Achuora et al., (2016) indicated that effective inventory management tracking enables organizations to optimize their supply chain management processes. By accurately monitoring stock levels, organizations can identify patterns in demand, forecast future needs, and make informed decisions about procurement and distribution. In order for inventory management to operate effectively technology can work to help prevent overstocking or under stocking situations in the organization while helping reduce costs associated with excess inventory or lost sales due to stockouts (Bresnahan et al., 2017). Inventory management directly impacts the financial performance of pharmaceutical organizations (Lee et al., 2011). By implementing efficient inventory tracking systems, ICT can minimize the carrying costs associated with excess inventory (Mgongolwa, 2018). Accurate inventory tracking helps prevent medication waste due to expiration or obsolescence (Subramanian et al., 2020). On the other hand, Hassan (2020) found that ICT facilitates effective inventory management systems that comply with standards, leading to better quality control and regulatory adherence. Information Communication and Technology can regulate inventory management by helping optimize working capital, reducing excess inventory, and freeing up financial resources that can be invested in other areas of the business (Mackintosh et al., 2018). In the same vein, (Kaudunde, 2013) reported that ICT helps pharmaceutical companies allocate resources more effectively and improve overall financial performance.

According to Gupta (2020), ICT supports efficient inventory management and facilitates smoother coordination between suppliers, manufacturers, and distributors, resulting in a more streamlined supply chain. This can lead to reduced lead times, improved demand forecasting, and better negotiation power with suppliers, thus cutting down on overall operational costs (Mwangi, 2016). Generally, ICT allows inventory management businesses to make informed decisions about procurement, production, and sales strategies. This helps in identifying trends, understanding customer preferences, and optimizing product offerings, all of which contribute to reducing unnecessary costs and maximizing profitability (Simatupang et al., 2020). Basically, ICT is an essential tool for maintaining a balance between supply and demand, reducing operational expenses, and enhancing overall organizational efficiency. It allows businesses to operate more smoothly and with better control over costs, contributing to improved financial performance and long-term sustainability (Chiarini et al., 2018). ICT enhances flexibility in inventory management and provides organizations with the opportunity to experiment and innovate (Bharsakade et al., 2021). Through the ability to make decisions regarding inventory levels, businesses can test new products or variations of existing products without committing to large-scale production it also allows for gauging customer response and demand before making significant investments (Hasan, 2020). Furthermore, ICT amplifies flexibility in inventory management and enables businesses to introduce seasonal or limited-time offers, which can create a sense of urgency among customers

and drive sales. In that regard, satisfaction in the flexibility of making inventory management decisions stems from the ability to adapt to changing market conditions. However, ICT optimizes supply chain operations, and experiment with new products while empowering businesses to stay competitive, reduce costs, and meet customer demands effectively (Bresnahan et al., 2017).

### **3. Methodology**

#### **3.1 Research Approach**

The study employed the mixed research approach, this approach allowed the use of both qualitative and quantitative methods in the analysis and presentation of data (Alvi, 2016).

#### **3.2 Research Design**

This study applied the descriptive research design which enabled the researcher to provide more insight into the different characteristics under study, (Blumberg, 2018). This was particularly done in determining the effectiveness of pharmaceutical inventory management.

#### **3.3 Area of the Study**

The study was conducted at the Medical Store Department in Dar es Salaam because at MSD there is a large-scale procurement, distribution, and storage system for pharmaceutical products (URT, 2019). In addition, MSD uses the EPICOR system in pharmaceutical inventory management practices.

#### **3.4 Population of the study**

The study population was drawn from 94 MSD workers particularly those departments highly utilizing the EPICOR system. These departments included warehouse, procurement, transport, distribution, and user departments.

#### **3.5 Sample size of the study**

The sample size for this particular study was determined using Yamane (1967) as it provides an effective method of determining sample size. The following formula was applied.

$$n = \frac{N}{1 + N(e)^2}$$

Where: n= is the number of samples (required)

N = Total population (94)

e = Error tolerance (level) or margin of error (0.05)

$$94 / (1 + 94(0.05)^2) = 94 / 1.235$$

$$= 76.$$

Hence study sample size was 76 respondents

#### **3.6 Data Collection Methods**

The study employed different methods and tools in data collection. The choice of a tool depends on the nature of both primary and secondary data. Survey, Interview, and Focus Group discussion methods were used to collect primary data. Documentary review method was used in the collection of secondary data from various sources including printed and online information. It involved the analysis of documents that contain information about EPICOR systems.

## **4. Results and Discussion**

### **4.1 Demographic characteristics of respondents**

This study captured demographic variables of respondents including sex, age, level of education, and working experience. Demographic characteristics play a role in understanding the social-demographic characteristics of the respondents.

#### **4.1 Age**

The results finding from Table 4.1 shows that a large number of respondents 40 (52.6%) were aged between 36 to 45 years, followed by those with 25 to 35 years (22.7%), 19.7% of the respondents were aged 46-55 years and 5.3% were aged 56 years and above. Research findings imply that the majority of workers particularly those who utilize more EPICOR range at the young age of 36-45 years. It also implies that the majority of workers at MSD are at workforce age where it is easy for them to learn and adopt any changes to the system. Studies by Mgongolwa (2018) on the roles of ICT in improving the E-Health system revealed that there is little resistance to the adoption of new technological systems in healthcare practices for younger people than older people. Thus, in the study majority of the respondents are able to adopt any changes to EPICOR systems when practicing inventory management activities.

#### **4.2 Sex**

Findings in Table 4.1 also show that 51.3% of the respondents were male while 48.7% of them were female. This implies that there was about equal sex distribution of workers at MSD for those who operate their inventory management activities using the EPICOR system. Sex diversity within leadership and the workforce can impact decision-making and strategy formulation. A study by Champion et al., (2014) demonstrated that sex diverse workforce can enhance creativity and problem-solving, ultimately leading to better organizational performance. Thus, the sense of equality among workers at MSD leads the organization to perform its activities smoothly.

#### **4.3 Education Level**

Findings in Table 4.1 indicate that 36.8% of the respondents had a diploma education level, 31.6% had a Bachelor's degree education, and 21.1% of the respondents had a certificate education level, meanwhile, 10.5% of the respondents had a Postgraduate education level. The findings imply that most of the respondents are well educated with secondary or high school, certificates or diplomas, and bachelor's degree or advanced diploma qualifications. Findings comply with the study done by Hermes and Lensink (2011), and Parmata et al., (2016) emphasized that both academic qualifications and practical know-how are equally vital to the improvement of organizational

performance. Executives with higher education often possess analytical and strategic skills that can enhance decision-making and organizational efficiency, thereby improving organizational performance.

#### 4.4 Working Experience

Findings as shown in Table 4.1 indicates that 7.9% of the respondent have worked at MSD for a period of 1-5 year, 46.1% of respondents have worked at MSD for a period between 6-10 years, and 40.8% of the respondents worked in Medical Stores Department in Dar es Salaam for a period of 11-15 years while 5.2% of the respondents worked in Medical Stores Department in Dar es Salaam region for a period of 16+ years.

According to Samar (2020) reported that staff with substantial experience tends to understand clients better, optimize internal processes, and align operations with the organization's goals, contributing to organizational sustainability.

**Table 4.1 Social demographics Characteristics of the respondents**

	Frequency	Percentage
<b>Sex</b>		
Male	39	51.3
Female	37	48.7
<b>Age groups</b>		
25-35	17	22.4
36-45	40	52.6
46-55	15	19.7
56+	4	5.3
<b>Level of Education</b>		
Certificate	16	21.1
Diploma	28	36.8
Bachelor degree	24	31.6
Post graduate and above	8	10.5
<b>Working experience (years)</b>		
1-5	6	7.9
6-10	35	46.1
11-15	31	40.8
16+	4	5.2

**Source:** Field data, (2023).

#### 4.2 Effectiveness of EPICOR System on Pharmaceutical Inventory Management

### **4.2.1 Effectiveness on Inventory Tracking**

The findings from Table 4.2 indicated a positive perception regarding the effectiveness of the EPICOR system on inventory tracking, which ensures pharmaceutical inventory availability at MSD. 48.7% and 31.6% of respondents strongly agree and agree respectively. These findings are in alignment with the study by Achuora et al. (2016), and Sexena et al., (2023) as they reported that effective inventory tracking enables organizations to optimize their supply chain management processes by accurately monitoring stock levels, organizations can identify patterns in demand, forecast future needs, and make informed decisions about procurement and distribution. This helps prevent overstocking or understocking situations, reducing costs associated with excess inventory or lost sales due to stock outs. Inventory management directly impacts the financial performance of pharmaceutical organizations. Through implementing efficient inventory tracking systems, organizations can minimize carrying costs associated with excess inventory while avoiding costs related to stock outs or emergency orders. Additionally, accurate inventory tracking helps prevent medication waste due to expiration or obsolescence.

### **4.2.2 Effectiveness on Optimum Inventory Levels**

The findings from Table 4.2 revealed the majority of respondents (36.8%) strongly agreed, and 46.1% agreed, indicating a positive perception of the EPICOR system's effectiveness in optimizing inventory levels. This resonated with existing literature as pointed out by Mackintosh et al., (2018) which emphasized the importance of efficient inventory management in healthcare settings and administration.

During an interview one of the respondents stated that *“EPICOR system has enabled utilization of real-time data and inventory tracking systems, MSD identifies slow-moving and obsolete stock more efficiently leading to reduction of excess inventory and prevent the accumulation of expired or obsolete drugs, thereby minimizing storage costs and potential losses (August, 2023).*

The study findings are supported by Hassan (2020) who revealed that the pharmaceutical industry is subject to stringent regulatory requirements, including maintaining proper inventory records and ensuring the safety and efficacy of pharmaceutical products. Effective inventory management systems facilitate compliance with these standards, leading to better quality control and regulatory adherence. Efficient inventory management helps optimize working capital by reducing excess inventory and freeing up financial resources that can be invested in other areas of the business. This allows pharmaceutical companies to allocate resources more effectively and improve overall financial performance.

### **4.2.3 Effectiveness on Cost Reduction**

The data from Table 4.2 indicated a positive perception of the effectiveness of the current inventory management system which is EPICOR in optimizing pharmaceutical inventory levels at MSD. The majority of respondents, comprising 36.8% strongly agreeing and 46.1% agreeing, conveyed a favorable view regarding the system's ability to maintain optimal inventory levels.



During an Interview, one of the distribution officers at MSD said “*Through the use of EPICOR system in managing inventory levels, MSD avoided the costs associated with carrying excessive stock. This includes expenses such as storage, maintenance, insurance, and the risk of obsolescence. Also, efficient inventory management helps prevent stock outs; it has reduced spoilage and theft* (August, 2023).

The study findings are supported by Gupta (2020) that efficient inventory management facilitates smoother coordination between suppliers, manufacturers, and distributors, resulting in a more streamlined supply chain. This can lead to reduced lead times, improved demand forecasting, and better negotiation power with suppliers, thus cutting down on overall operational costs. Data-driven inventory management enables businesses to make informed decisions about procurement, production, and sales strategies. This helps in identifying trends, understanding customer preferences, and optimizing product offerings, all of which contribute to reducing unnecessary costs and maximizing profitability. Findings by Vachon et al., (2018) supported that an effective inventory management system is essential for maintaining a balance between supply and demand, reducing operational expenses, and enhancing overall organizational efficiency. It allows businesses to operate more smoothly and with better control over costs, contributing to improved financial performance and long-term sustainability.

#### **4.4.4 Effectiveness on Time Saving**

The data from Table 4.2 supports that the EPICOR system on pharmaceutical inventory management has led leads to time savings. A substantial majority of respondents, totaling 48.7% strongly agreeing and 35.5% agreeing, expressed a strong belief in the time-saving benefits associated with using the EPICOR system's inefficient inventory management. This consensus underscores the perceived efficiency and efficacy of the EPICOR system in streamlining processes and ensuring timely access to pharmaceuticals. A smaller proportion of respondents had varying degrees of disagreement, the overall sentiment overwhelmingly aligns with the widely acknowledged notion that effective inventory management indeed contributes to significant time savings, crucial in the fast-paced healthcare environment where time is of the essence.

During interview, one of the respondents stated that. “*EPICOR system on inventory management has helped in the prevention of products from expiration and obsolescence. Through accurately tracking expiration dates and proactively managing inventory levels* (July, 2023).

These findings are in alignment with the study done by Chiarini et al., (2018) revealed that well-managed inventory systems can lead to faster and more accurate order fulfillment. Having a clear overview of available stock helps companies respond promptly to customer orders and ensures that the right products are delivered on time. This can enhance customer satisfaction and save time spent on rectifying errors or delays in the fulfillment process. Effective inventory management system enables better coordination within the supply chain and this leads to smoother collaborations with suppliers and distributors, resulting in reduced lead times and quicker response to market demands. Optimizing the supply chain can ultimately save time and resources by minimizing delays and improving the overall efficiency of the distribution process.

#### **4.2.5 Effectiveness on Customer Service Delivery**

The findings from Table 4.2 indicate that pharmaceutical inventory management significantly contributed to an improvement in customer service at MSD. A vast majority of respondents, comprising 57.9% strongly agreeing and 42.1% agreeing, emphasized the positive impact of the EPICOR system on inventory management in enhancing customer service delivery. This alignment resonates with established literature that emphasizes how effective inventory management directly influences customer service levels. The study findings are supported by Mwayongo (2017) who reported that through analyzing trends and historical data, pharmaceutical companies can predict demand more accurately. This helps them plan their inventory levels accordingly, reducing the chances of overstocking or under stocking. Accurate forecasting leads to improved service as customers can count on the availability of the medicines they require. Proper inventory management ensures that pharmaceuticals are sold before their expiration dates. This reduces wastage and ensures that customers receive fresh and effective medications, thereby improving the overall quality of service provided. Moreover study by Subramanian (2020), and Zamiela et al., (2022) asserted that effective inventory management streamlines processes, reducing the time and effort required for inventory-related tasks. This enables staff to focus more on providing personalized customer service and counseling, leading to an overall improvement in the customer experience.

#### **4.2.6 Effectiveness on Accuracy of Real-Time Information**

The findings from Table 4.2 suggested that the EPICOR system has provided accurate real-time information flow about inventory. A significant majority of respondents, totaling 39.5% strongly agree and 36.8% agree, conveyed a clear endorsement of the system's effectiveness in providing accurate real-time information. This consensus highlights the perceived reliability and precision of the inventory management system in keeping track of inventory in real-time, a critical aspect of efficient operations and decision-making. Similarly, findings by Kwamboka (2017), and Waweru, (2013) acknowledged that accurate real-time information is crucial in the context of inventory management, as it ensures that organizations can make informed and timely decisions regarding procurement, distribution, and overall inventory control.

During an interview one of the respondents stated that *“EPICOR system has enabled utilization of real-time data and inventory tracking systems, MSD identifies slow-moving and obsolete stock more efficiently leading to reduction of excess inventory and prevent the accumulation of expired or obsolete drugs, thereby minimizing storage costs and potential losses (July, 2023).*

Through continuously monitoring inventory levels in real-time, businesses can quickly identify and rectify any issues that may arise. Real-time inventory data enables businesses to fulfill customer orders promptly and accurately. This helps in maintaining a good reputation and building trust among customers, leading to increased customer loyalty and repeat business.

#### **4.2.7 Effectiveness on Information Flow**

Findings from Table 4.2 indicate that the majority of respondents, totaling 39.5% strongly agree and 34.2% agree that the EPICOR system is more effective on information flow while conducting inventory management activities. This consent underscores the perceived effectiveness of the EPICOR system on information dissemination related to inventory management across various

levels of staff within the organization. While a smaller proportion of respondents 22.4% had varying degrees of neutrality, the overall sentiment overwhelmingly supports the presence of effective information flow in the context of inventory management.

During an interview one of the warehouse officers at MSD stated that the “*EPICOR system ensures the right products are available at the right time, preventing delays and bottlenecks in production or distribution processes. In similar cases access to comprehensive information on inventory levels allows staff to make informed decisions about procurement, storage, and distribution. This helps in avoiding overstocking or under stocking, thus optimizing inventory levels and minimizing associated costs* (August, 2023).

In support of these findings, Achuora et al., (2016) showed that proper information flow aids in tracking and monitoring inventory costs, preventing unnecessary spending, and identifying cost-saving opportunities. It allows businesses to implement cost-effective inventory management strategies and reduce overall operational expenses. Having transparent information about inventory enables businesses to anticipate and mitigate potential risks such as stock outs, supply chain disruptions, or overstocking. This proactive approach to risk management helps in maintaining stability and sustainability in business operations. Conversely, Omwansa (2018) pointed out that access to accurate inventory information empowers staff at all levels to make data-driven decisions. Data-based insights help in identifying trends, forecasting demand, and making strategic choices that can enhance overall operational efficiency and profitability.

#### **4.2.8 Effectiveness on Integration with other Operation Systems**

Findings from Table 4.2 show that 47.4% of the respondents were neutral while 28.9% agree that EPICOR system has a substantial level of integration between inventory management and other organizational operation activities. Contrary to other effectiveness components of the system majority do not appreciate how the systems integrate with other operation systems. This accord stresses the perceived importance of seamless integration, emphasizing the harmonization of inventory management with the broader organizational framework for optimal performance and efficiency. In a similar vein, the study by Mzenzi (2015) on the adoption and implementation of EPICOR in local government in Tanzania reported that among other challenges facing the systems was the difficulty of integrating with other operation systems. Integration allows for improved coordination and communication across departments, optimized resource allocation, and informed decision-making. Through integration with other operation systems organizations can enhance their overall performance and competitiveness. Anecdotal evidence suggests that the improved version of EPICOR needs more professionals to understand it thus capacity building is required for its effective operations.

#### **4.2.9 Effectiveness in Making Inventory Management Decisions**

Findings as indicated in Table 4.2 indicate that 21.1% of the respondents strongly agree and 34.2% agree that the EPICOR system offers flexibility of decision-making when managing inventory. These findings align with the study done by Nyamwihula (2014) which accentuated that flexibility in inventory management provides businesses with the opportunity to experiment and innovate. Through decision-making regarding inventory levels, businesses can test new

products or variations of existing products without committing to large-scale production. This allows them to gauge customer response and demand before making significant investments.

During the focus group discussion participants stated that “flexibility in inventory management systems such as EPICOR enabled us to make quick and reasonable decisions regarding inventory levels, the systems can ensure we have the right amount of stock at the right time and in the right location. This helps reduce costs associated with overstocking or stock outs and minimizes storage and transportation expenses. They also seconded that, flexible inventory management allows us to respond efficiently to unforeseen events such as natural disasters or supplier disruptions (August, 2023).

**Table 4.2 Effectiveness of EPICOR System on Pharmaceutical Inventory Management**

Effective attribute	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%	F	%
Inventory tracking	37	48.7	24	31.6	8	10.5	5	6.6	2	2.6
optimal levels of inventory	28	36.8	35	46.1	8	10.5	4	5.3	1	1.3
Cost reduction	28	36.8	35	46.1	8	10.5	4	5.3	1	1.3
Time saving	37	48.7	27	35.5	6	7.9	3	3.9	3	3.9
Improvement in customer service delivery	44	57.9	32	42.1	-	-	-	-	-	-
Accuracy of real time information	30	39.5	28	36.8	6	7.9	9	11.8	3	3.9
Availability of good information flow	30	39.5	26	34.2	17	22.4	-	-	3	3.9
Integration of EPICOR with other operation systems	8	10.5	22	28.9	36	47.4	6	7.9	4	5.3
Flexibility in decision making	16	21.1	26	34.2	18	23.7	10	13.2	6	7.9

**Note:** F means frequency and P means percentage

**Source:** Field data (2023)

## 5. Conclusion and Recommendations

The study findings conclude that EPICOR system is effective in pharmaceutical inventory management at MSD Dar es Salaam. The effectiveness of EPICOR has been strongly demonstrated in many areas including; inventory tracking, cost reduction, time-saving, and improvement of customer service. Regardless of the system's effectiveness in the operation of the inventory management activities still it is not more integrative with other operation activities of the organization. Thus, the study recommends that the Medical Store Department should continue to utilize the EPICOR system in inventory management; however, improvements can be made to the current system to make it even better especially in areas of flexibility in inventory management decisions and integration with other activities of the organization. Attracting more advanced systems is important for the effective performance of inventory management systems of the organization. However, regular training programs for staff on the utilization of advanced features and functionalities of EPICOR have to be enhanced for the continuous improvement of

pharmaceutical service delivery not only at MSD but also in health sectors throughout the country, and other developing countries at large.

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