



Effect of Medical Stock Management Practices on the Performance of District hospitals: A Case of Kibagabaga Hospital

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Abstract: This study examined the effect of inventory control systems on the performance of Kibagabaga District Hospital. It focused on the role of inventory control practices in supporting hospital operations, including stock monitoring, record accuracy, replenishment, and the use of computerized inventory systems. Data were obtained from 105 valid respondents out of 112, representing a response rate of 93.7%. The findings indicated that inventory control systems were generally practiced, with an overall mean of 3.62. Computerized inventory systems recorded the highest mean score ($M = 4.28$, $SD = 0.42$), while staff training in inventory control recorded the lowest ($M = 2.93$, $SD = 0.82$), highlighting a need to strengthen staff capacity. Pearson correlation analysis revealed a strong, positive, and statistically significant relationship between inventory control systems and hospital performance ($r = .919$, $p < .001$). Regression analysis also indicated a statistically significant association ($\beta = .374$, $p < .001$). These findings suggest that effective inventory control systems are closely associated with hospital performance. The study recommends strengthening staff training, improving the accuracy and regular updating of inventory records, and enhancing stock-level monitoring and replenishment procedures to support the availability and efficient management of hospital supplies.

Keywords: Inventory control systems, Hospital performance, Medical stock management, Stock-outs, Kibagabaga District Hospital

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1. Introduction

Globally, medical stock management is an essential function of healthcare institutions because the delivery of timely and quality healthcare depends on the availability of medicines and medical supplies. Hospitals require reliable systems to manage pharmaceutical products and other medical materials needed for diagnosis, treatment, and patient care. Inventory control systems provide structured procedures for determining appropriate stock levels, recording inventory movements, identifying replenishment

needs, and minimizing losses resulting from shortages, excess inventory, expiry, or inaccurate records. These practices are important for maintaining continuity of healthcare services and ensuring the efficient use of limited resources (Kabera & Mukanyangezi, 2024; Mfizi et al., 2023).

In developed countries, healthcare institutions face the continuing challenge of maintaining reliable medicine availability while controlling expenditure and improving operational efficiency. Inventory control methods,

including inventory classification, minimum and maximum stock levels, reorder points, safety stock, and economic order quantity, can help hospitals balance the availability of medical supplies against the costs of purchasing, storing, and replenishing inventory. These approaches support decisions concerning the quantities of stock to maintain and the timing of replenishment. Inadequate inventory controls may contribute to stock-outs, overstocking, expiry, unnecessary costs, and delays in treatment, whereas reliable controls can support operational efficiency and patient satisfaction (Ndekezi, 2023; Nzeyimana & Gitahi, 2022).

In Sub-Saharan Africa, healthcare institutions may experience additional difficulties in managing medical inventory because of limited financial resources, supply disruptions, inadequate information systems, and variations in staff capacity. These challenges can affect the ability of hospitals to maintain appropriate stock levels and ensure the timely availability of essential medicines and medical supplies. Effective inventory control is therefore important for monitoring stock consumption, identifying replenishment requirements, maintaining accurate records, and reducing avoidable losses. Reliable stock information can also support purchasing decisions and help healthcare institutions use available resources more efficiently (Ndekezi, 2023; Nzeyimana & Gitahi, 2022).

In East Africa, the management of medical supplies is important for supporting healthcare delivery and ensuring that hospitals can respond to the needs of patients. Healthcare institutions depend on effective stock management practices to monitor the availability of medicines, organize inventory records, and coordinate replenishment. Inventory control systems can help hospital personnel identify items requiring urgent replenishment, maintain suitable stock levels, and reduce discrepancies between recorded and physical inventory. However, the effectiveness of these practices depends on their consistent application, the accuracy of inventory information, and the capacity of staff responsible for managing medical supplies. These issues make hospital-level inventory control an important area of consideration in the efficient management of healthcare resources (Ndekezi, 2023; University of Rwanda, 2023).

In Rwanda, efforts have been undertaken to strengthen pharmaceutical supply chains, including the establishment of Rwanda Medical Supply and the use of logistics information systems. These arrangements form part of the broader context in which healthcare institutions obtain and manage medicines and medical commodities. Nevertheless, national supply arrangements must be supported by effective inventory management within individual hospitals. Hospital personnel need to maintain

accurate stock records, monitor consumption, establish appropriate stock levels, and place orders in a timely manner to ensure that supplies are available to clinical departments. Inventory control practices are consequently relevant to the efficient use of medical resources and the continuity of healthcare services in Rwandan hospitals (Ndekezi, 2023; University of Rwanda, 2023).

At Kibagabaga District Hospital, medical stock management processes support the activities of clinical departments and the provision of healthcare services. The availability of medicines and medical supplies is important for enabling healthcare professionals to carry out their responsibilities and respond to patients' needs. The dissertation underpinning this manuscript examined four dimensions of medical stock management; however, this manuscript deliberately focuses only on the effect of inventory control systems on the performance of Kibagabaga District Hospital. Inventory control is considered through practices such as inventory classification, the establishment and monitoring of minimum and maximum stock levels, reorder and safety-stock arrangements, and the accuracy and effective use of inventory records. These practices provide a basis for examining how the management of stock quantities and inventory information relates to hospital performance, particularly in terms of resource utilization operational efficiency, and continuity of healthcare service delivery.

1.1 Statement of the Problem

Medical stock management is an essential component of healthcare service delivery because it determines the availability, accessibility, and efficient utilisation of medicines and medical supplies. Effective stock management enables hospitals to maintain appropriate inventory levels, minimise stock-outs and overstocking, reduce expiry and wastage, control operational costs, and ensure continuity of healthcare services. Conversely, weaknesses in inventory management can contribute to medicine shortages, delayed treatment, increased operational costs, and reduced quality of healthcare services (Bimenyimana & Irechukwu, 2022; Mfizi et al., 2023). In district hospitals, where the availability of essential medical commodities directly influences service delivery, effective inventory control, stock monitoring, demand forecasting, storage, and distribution are particularly important.

In Rwanda, district hospitals operate within a healthcare system that requires reliable availability and distribution of medicines and medical supplies. Kibagabaga District Hospital, located in Gasabo District, Kigali City, serves a large population and depends on effective medical stock management to support its healthcare services. Despite the importance of these practices, challenges related to inventory control, stock monitoring, forecasting, storage, and distribution may affect medicine availability, operational efficiency, cost management, and overall hospital performance. Although previous studies have examined healthcare supply chains and inventory management, limited empirical evidence has simultaneously examined how these four dimensions of medical stock management influence the performance of district hospitals in Rwanda. This study addresses this gap by examining medical stock management practices and hospital performance at Kibagabaga District Hospital.

1.2 Objective of the Study

The objective of this manuscript was to evaluate the effect of inventory control systems on the performance of Kibagabaga District Hospital.

2. Literature Review

Medical stock management practices refer to the procedures and activities used by healthcare institutions to plan, procure, receive, store, monitor, and distribute medicines and medical supplies. These practices aim to ensure that essential medical products are available in the required quantities, at the appropriate time, and in suitable conditions. Effective stock management also supports the control of inventory costs, prevention of wastage, and continuity of healthcare services. The World Health Organization emphasizes the importance of managing inventory movements, monitoring stock levels, and applying appropriate storage and distribution practices to maintain the quality and availability of medical products (World Health Organization, 2025).

Medical stock management is particularly important because weaknesses in forecasting, procurement, storage, and inventory monitoring can contribute to shortages, excess stock, expiry, and interruptions in service delivery. The Organisation for Economic Co-operation and Development (OECD, 2024) explains that disruptions in medical supply chains can delay treatment and diagnosis, increase healthcare costs, and place additional pressure on health systems. In Rwanda, the Ministry of Health's Health Sector Strategic Plan V (2024–2029) identifies challenges related to inventory management and distribution, including shortages of trained supply chain personnel, non-

standardized electronic logistics systems, and limitations in infrastructure for storing critical inventory. These issues demonstrate the importance of strengthening medical stock management at both system and healthcare-facility levels.

At the hospital level, medical stock management includes several connected activities, but this manuscript focuses specifically on inventory control systems and their relationship with the performance of Kibagabaga District Hospital. Evidence from public hospitals in Rwanda indicates that maintaining updated logistics tools, using stock cards and electronic logistics management information systems, applying Min–Max inventory control, and conducting regular physical stock counts are relevant to medicine availability. Kabera and Mukanyangezi (2024), in their study of emergency obstetric drugs in Southern Province hospitals, reported that updated logistics tools and appropriate inventory management practices were associated with improved stock availability and reduced stock-outs.

2.1.1. Inventory Control Systems

Inventory control systems comprise the policies, procedures, and information tools used to monitor stock quantities, record inventory movements, and determine replenishment requirements. In healthcare institutions, these systems help ensure that essential medicines and medical supplies are available when needed while reducing losses associated with shortages, overstocking, and expiry. The World Health Organization (2024) emphasizes the importance of resilient supply chains and reliable management of health products to support access to essential medicines. Similarly, the Organisation for Economic Co-operation and Development (2024) discusses the vulnerability of pharmaceutical supply chains to disruptions and the importance of improving supply reliability. These perspectives highlight the relevance of structured inventory control in maintaining medicine availability and supporting the continuity of hospital services.

Inventory control systems incorporate techniques that guide decisions about stock classification, order quantities, and replenishment timing. ABC analysis enables managers to classify items according to their financial value, while VEN analysis categorizes medicines according to their clinical importance. Other techniques include minimum and maximum stock levels, reorder points, safety stock, and economic order quantity. Research by Kumar and Soni (2024) on pharmaceutical inventory optimization discusses the use of analytical and technology-supported approaches to improve inventory decisions in healthcare supply chains. In addition, Raghavan et al. (2024) examined a smart hospital inventory management approach that accounts for

dependencies between medicine demands and seeks to balance product availability with inventory costs. These studies illustrate how inventory classification and quantitative control methods can support decisions on stock prioritization and replenishment, although the applicability of specific techniques depends on the hospital's data and operating conditions.

Inventory control systems also contribute to accountability by supporting the maintenance of accurate records, documentation of stock movements, and reconciliation of physical inventory with recorded balances. Reliable information can help hospital managers identify discrepancies, monitor expiry dates, and make informed procurement and distribution decisions. Namagembe et al. (2025) evaluated an electronic logistics management information system in Ugandan public hospitals, examining ordering, reporting, medicine availability, and stock-out patterns. Their study illustrates the importance of information systems in monitoring inventory performance. Likewise, Kanyika et al. (2025) examined logistics management information systems in public hospitals in Zambia, focusing on medicine availability and supply-chain performance.

2.1.2. Performance of District Hospitals

Hospital performance refers to the extent to which a healthcare institution delivers services effectively and efficiently while making responsible use of its resources. In the context of medical stock management, performance may be reflected in the availability of medicines and medical supplies, continuity of clinical services, efficient resource utilization, reduced inventory wastage, and the ability to meet patients' treatment needs. The World Health Organization (2024) emphasizes the importance of access to essential medicines and resilient health systems in supporting healthcare delivery. The OECD (2024) also highlights how pharmaceutical supply-chain disruptions can affect the availability of medicines and create operational challenges for healthcare systems. These perspectives establish medicine availability and supply continuity as relevant considerations when examining hospital performance.

Effective inventory control may support hospital performance by helping clinical departments obtain required medicines and supplies in a timely manner. Accurate records, regular stock monitoring, and timely replenishment can help reduce avoidable shortages and the time spent resolving inventory discrepancies. Appropriate inventory levels may also help limit unnecessary stock accumulation and losses associated with expiry. Namagembe et al. (2025) examined the contribution of an electronic logistics management information system to

medicine availability and stock-out patterns in public hospitals in Uganda. Similarly, Raghavan et al. (2024) investigated a smart inventory management approach designed to meet medicine demand while controlling inventory costs in a hospital supply chain. These studies provide evidence that inventory information and replenishment decisions are important operational concerns, although they do not establish that inventory control alone determines overall hospital performance.

The relationship between inventory control systems and hospital performance should be understood within the wider organizational and supply-chain environment. Inventory control operates alongside procurement, supplier reliability, financial resources, storage capacity, staffing, and information technology. Weaknesses in any of these areas may affect the practical results of stock management, even where inventory procedures are established. The OECD (2024) identifies pharmaceutical supply-chain vulnerabilities as a concern for medicine availability, while Kanyika et al. (2025) examined how logistics information systems relate to essential medicine availability and supply performance in Zambian public hospitals. Namagembe et al. (2025) also considered ordering and delivery-related indicators when assessing the electronic logistics system in Uganda. These studies suggest that inventory control should be considered as one component of a broader system influencing hospital operations. Accordingly, this manuscript focuses on inventory classification, stock-level controls, reorder and safety-stock arrangements, and the accuracy and use of inventory records in relation to the performance of Kibagabaga District Hospital.

2.2 Theoretical Framework

The theoretical framework presents the theories that guide this study and explains how they relate to the effect of inventory control systems on the performance of Kibagabaga District Hospital. It provides a basis for understanding how effective inventory control practices may contribute to the availability of medical supplies, efficient use of resources, and improved hospital operations. This study is guided by Inventory Management Theory, which explains the importance of planning, monitoring, and controlling stock to ensure that the required items are available when needed while minimizing shortages, wastage, and excess inventory. The theory therefore provides a foundation for examining the relationship between inventory control systems and hospital performance.

Inventory Management Theory explains how organizations plan, control, and manage stock to ensure that required items are available when needed while minimizing costs associated with shortages, excess inventory, and wastage.

It emphasizes maintaining appropriate stock levels, establishing reorder points, determining order quantities, and keeping accurate inventory records. Silver (2008) discusses inventory management as a field concerned with different inventory problems and the models used to address them. In healthcare institutions, inventory control methods such as minimum–maximum stock levels and stock-record systems can support timely replenishment and better inventory information (Lindley & Mackowiak, 1985).

In hospitals, inventory management is particularly important because medicines and medical supplies are essential for continuous healthcare service delivery. Hospitals must balance the need to maintain sufficient supplies against the costs and risks of holding excessive stock, including expiry and wastage. Research on healthcare inventory systems highlights the need to consider both inventory-related costs and service levels, given the importance of having appropriate medical items available for patient care (Modelling and Analysis of Inventory Management Systems in Healthcare, 2019). Chapman (1986) also discusses the application of just-in-time inventory principles in hospitals, particularly in relation to productivity and waste reduction.

This theory is relevant to the present study because it provides a basis for examining the relationship between inventory control systems and the performance of Kibagabaga District Hospital. The study focuses on inventory classification, stock-level controls, reorder and safety-stock arrangements, and the accuracy and use of inventory records. These practices are relevant to ensuring that medicines and medical supplies are available while reducing stock-outs, overstocking, and wastage.

2.3 Empirical Review

Kabera and Mukanyangezi (2024) examined inventory management practices and the availability of emergency obstetric drugs in public hospitals in Rwanda's Southern Province. The researchers used a quantitative research approach to assess inventory management practices and medicine availability in healthcare facilities. Data were collected using structured questionnaires and inventory-related records, and the analysis examined the relationship between inventory practices and the availability of essential medicines. The findings indicated that the use of updated logistics tools, stock-monitoring practices, and inventory control mechanisms was associated with improved medicine availability. The study concluded that systematic inventory management is important for reducing stock-outs and supporting continuity of healthcare services. It recommended strengthening the use of logistics management tools, improving stock

monitoring, and ensuring that healthcare personnel consistently update inventory records. Although the study provides evidence from Rwanda, its focus on emergency obstetric medicines in Southern Province hospitals differs from the present study's focus on inventory control systems and performance at Kibagabaga District Hospital.

Mfizi et al. (2023) investigated pharmaceutical inventory management using ABC-VEN analysis at Rwanda Medical Supply's Nyamagabe branch. The study applied an inventory classification approach to identify medicines according to their financial value and clinical importance. The researchers analyzed pharmaceutical inventory data to determine which medicines required greater management attention. The findings demonstrated the usefulness of combining ABC and VEN classifications to identify priority medicines and support inventory management decisions. The study concluded that classification-based inventory management can help improve the monitoring and prioritization of pharmaceutical products. It recommended applying appropriate inventory classification techniques to support the management of essential and high-value medicines. The study is relevant to the present research because inventory classification is one of the practices considered under inventory control systems. However, its focus was on pharmaceutical inventory at a supply branch rather than the overall performance of a district hospital.

Nzeyimana and Gitahi (2022) examined issues related to logistics information and medical supply management. Their work emphasized the importance of reliable information for coordinating inventory activities and supporting decisions concerning stock availability and replenishment. The study's methodological details, including its research design, sample size, and specific data analysis procedures, are not provided in the material summarized for this manuscript; therefore, these details cannot be reported reliably here. The reported discussion links accurate logistics information with improved coordination and reduced inefficiencies in supply management. The study's conclusion supports the importance of dependable inventory information in facilitating stock management decisions. It recommends improving the accuracy, accessibility, and use of logistics information to support coordination among supply-chain actors. This evidence is relevant because accurate inventory records and information use are important components of inventory control systems at Kibagabaga District Hospital.

Ayer et al. (2023) discussed the relationship between medical supply management and healthcare operational performance. The work associated effective management of medical supplies with operational efficiency and the availability of medicines. However, the specific research

methodology, study population, sample size, and statistical results are not available in the material provided for this review. Consequently, these methodological details cannot be stated without consulting the original publication. The reported findings suggest that effective medical supply management is relevant to the availability of essential products and the efficient functioning of healthcare services. The study concluded that systematic management of medical supplies can support healthcare operations. It recommended strengthening supply management practices and improving the coordination of activities related to medical products.

Kabera (2022) examined medicine stock-outs in health facilities, with particular attention to the duration of shortages. The study is cited in the dissertation as evidence of challenges associated with medicine availability in Rwanda. However, the research design, sample size, data collection instruments, and detailed statistical results are not included in the material currently available for this section. The reported evidence identifies stock-outs as a practical concern for healthcare facilities and highlights their potential implications for access to medicines. The study's conclusion underscores the importance of addressing medicine shortages within health service delivery. Its recommendations, as available from the dissertation summary, relate to strengthening stock management and reducing stock-out challenges.

Nsanzimana and Akumuntu (2024) reported shortcomings in pharmacy stock management in Gasabo District. Their work is relevant to the present study because Kibagabaga District Hospital is located in Gasabo District and faces the operational need to maintain reliable medical inventory. The detailed methodology, including the study design, sample size, data collection instruments, and statistical procedures, is not provided in the material summarized for this manuscript. The reported findings identify weaknesses in pharmacy stock management, indicating the importance of improving inventory-related practices at healthcare-facility level. The study concluded that strengthening pharmacy stock management is necessary to support medicine availability and effective healthcare operations. It recommended improving inventory procedures and addressing weaknesses affecting the management of medicines. Nevertheless, the specific findings should be verified against the original study before being attributed to particular inventory control mechanisms or outcomes at Kibagabaga District Hospital.

2.4 Research Gap

Previous studies have examined medical stock management and pharmaceutical inventory practices in healthcare institutions. Kabera and Mukanyangezi (2024) investigated inventory management practices and the

availability of emergency obstetric drugs in public hospitals in Rwanda, while Mfizi et al. (2023) examined pharmaceutical inventory management using ABC-VEN analysis at Rwanda Medical Supply's Nyamagabe branch. Other studies, including Kabera (2022) and Nsanzimana and Akumuntu (2024), addressed medicine stock-outs and pharmacy stock management challenges in Rwanda. Although these studies provide useful evidence on medicine availability, inventory management, and supply-chain challenges, their specific research settings and areas of emphasis differ from the present study.

A further gap concerns the specific focus on inventory control systems as a distinct component of medical stock management. Existing studies have considered different inventory practices, including stock monitoring, medicine classification, logistics information systems, and the management of pharmaceutical supplies. However, the evidence summarized for this manuscript does not sufficiently establish how inventory control systems, considered through inventory classification, stock-level controls, reorder and safety-stock arrangements, and the accuracy and use of inventory records, relate specifically to the performance of Kibagabaga District Hospital. This creates a need for a focused examination of inventory control systems rather than treating them only as part of broader medical stock management practices.

There is also a contextual gap because findings from other hospitals, pharmaceutical supply branches, and healthcare facilities cannot automatically be generalized to Kibagabaga District Hospital. Differences in institutional arrangements, inventory procedures, resource availability, and operational conditions may influence how inventory control practices relate to performance. Although studies conducted in Rwanda provide relevant contextual evidence, the findings summarized in this manuscript do not directly resolve the relationship between inventory control systems and performance at Kibagabaga District Hospital. Therefore, facility-specific evidence is needed to address this contextual limitation.

3. Methodology

The study adopted a quantitative research approach to examine the effect of inventory control systems on the performance of Kibagabaga District Hospital. This approach enabled the collection and analysis of numerical data concerning inventory control practices and hospital performance. The methodology focused exclusively on inventory control systems, including inventory classification, stock-level controls, reorder and safety-stock arrangements, and the accuracy and use of inventory records.

The study employed a descriptive and correlational research design. The descriptive component was used to examine existing inventory control practices at Kibagabaga District Hospital, while the correlational component focused on investigating the relationship between inventory control systems and hospital performance. This design enabled the study to assess the variables as they existed without manipulating the hospital's inventory management procedures.

The study was conducted at Kibagabaga District Hospital in Rwanda. The hospital was selected because the research focused on understanding the relationship between inventory control systems and performance within this healthcare institution. The study considered inventory control practices used in managing medicines and medical supplies required by clinical departments. The target population consisted of individuals involved in or knowledgeable about medical stock management and hospital operations at Kibagabaga District Hospital. These respondents were considered relevant because their responsibilities and experience enabled them to provide information on inventory control systems and hospital performance. The study identified 112 respondents, from whom valid responses were obtained for analysis.

Data were collected using structured questionnaires designed to gather information about inventory control systems and hospital performance. The questionnaire addressed inventory classification, stock-level management, replenishment arrangements, and inventory record management. It also included items related to hospital performance, particularly the availability of medicines and medical supplies, service delivery efficiency, cost efficiency, and other performance indicators covered in the underlying dissertation.

The collected data were analyzed using descriptive and inferential statistical techniques. Descriptive statistics were used to summarize respondents' assessments of inventory control systems and hospital performance. Pearson correlation analysis was applied to examine the relationship between inventory control systems and hospital performance. Multiple regression analysis was also used to examine the association between inventory control systems and hospital performance while accounting for other medical stock management dimensions included

in the original dissertation. For this study, the analysis and interpretation focused specifically on inventory control systems.

Ethical considerations were observed throughout the research process, with attention given to the appropriate collection and use of respondents' information. The study was conducted within the specific context of Kibagabaga District Hospital, and the analysis was based on the data and methodology reported in the underlying dissertation. The observational research design was recognized as a limitation when interpreting relationships between variables, as the findings do not establish causality

4. Results and Discussion

This section presents and discusses the findings of the study on the effect of inventory control systems on the performance of Kibagabaga District Hospital. The discussion focuses on inventory control practices, including structured systems, stock-level updates, reorder levels, record accuracy, computerized systems, staff training, and controls intended to reduce stock-outs, overstocking, and medicine wastage. The findings are presented in tables and interpreted in relation to the study objective. The analysis is based on responses from hospital personnel involved in medical stock management. Descriptive findings summarize respondents' assessments of inventory control systems. The statistical associations with hospital performance are addressed separately using the inferential analyses reported in the underlying dissertation.

4.1. Inventory Control Systems at Kibagabaga District Hospital

Respondents assessed statements about inventory control using a five-point Likert scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). Table 4.1 presents the questionnaire response rate, followed by the inventory control results.

Table 1: Response Rate

Questionnaire status	Frequency	Percentage (%)
Returned questionnaires	105	93.7
Unreturned questionnaires	7	6.3
Total	112	100.0

Source: Field Data (2026), underlying dissertation.

Table 1 shows that 105 questionnaires were returned from 112 distributed, representing 93.7%. Seven questionnaires (6.3%) were not returned. The returned questionnaires

formed the respondent data used in the analysis. This response rate describes participation; by itself, it does not establish representativeness or rule out non-response bias.

Table 2: Views on Inventory Control Systems at Kibagabaga District Hospital

Statements	N	Mean	SD
Well-structured inventory control system	105	3.64	0.67
Stock levels regularly updated	105	3.63	0.72
Reorder levels clearly defined for all medicines	105	3.57	0.78
Stock records accurate and reliable	105	3.61	0.67
Avoids stock-outs through effective control	105	3.56	0.72
Minimizes overstocking through proper controls	105	3.6	0.66
Inventory control reduces medicine wastage	105	3.6	0.65
Uses computerized inventory systems	105	4.28	0.42
Staff trained in inventory control procedures	105	2.93	0.82
Inventory control improves hospital efficiency	105	3.73	0.62
Overall mean	105	3.62	

Source: Field Data (2026)

Note: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree; Std. Dev. = standard deviation.

The findings presented in Table 4.2 show respondents' views on inventory control systems at Kibagabaga District Hospital. All statements were assessed by 105 respondents, and the overall mean was 3.62. This indicates that respondents generally leaned toward agreement regarding the implementation of inventory control practices, although the level of agreement varied across the statements. The results cover the use of structured inventory systems, stock-level updates, reorder levels, record accuracy, stock-out prevention, overstocking control, medicine wastage, computerized systems, staff training, and hospital efficiency. The findings provide an overview of how respondents perceived the inventory control practices used at the hospital.

The use of computerized inventory systems recorded the highest mean of 4.28, with a standard deviation of 0.42. This indicates strong agreement among respondents that computerized systems were used in inventory management. The relatively low standard deviation

suggests that respondents' answers were closely grouped around the mean. The statement on inventory control systems improving hospital efficiency also received a relatively high mean of 3.73 and a standard deviation of 0.62. This suggests that respondents generally recognized the importance of inventory control in supporting hospital operations. However, these results reflect respondents' perceptions and do not independently demonstrate the actual level of efficiency achieved through computerized systems.

Staff training in inventory control procedures recorded the lowest mean of 2.93, with a standard deviation of 0.82. This suggests that respondents had less positive and more varied views about staff training compared with the other inventory control practices. The result may indicate differences in respondents' experiences or awareness of training arrangements at the hospital. Other practices, including maintaining a well-structured inventory control system, regularly updating stock levels, defining reorder

levels, and ensuring accurate stock records, recorded mean values ranging from 3.57 to 3.64. These findings indicate moderate agreement regarding the implementation of these practices, although the variation in responses suggests that their implementation may not be experienced uniformly by all respondents.

The statements concerning stock-out prevention, minimizing overstocking, and reducing medicine wastage recorded mean values of 3.56, 3.60, and 3.60, respectively. These results indicate that respondents generally perceived inventory control systems as contributing to the management of medicine availability and stock levels. Nevertheless, the responses also show that some participants did not fully agree with these statements, suggesting that challenges or differences in experience may exist. Overall, the findings indicate that respondents recognized several inventory control practices at Kibagabaga District Hospital, particularly computerized inventory systems, while staff training received comparatively less positive assessments. These descriptive findings provide a basis for examining the relationship between inventory control systems and hospital performance, without establishing that inventory control practices alone caused changes in performance.

From the findings, it can be observed that inventory control systems play an important role in the performance of Kibagabaga District Hospital. Effective inventory control practices support the availability of medicines, help prevent stock-outs, minimize overstocking, and reduce medicine wastage. The use of computerized inventory systems facilitates the management of stock records and supports timely inventory updates. However, staff training in inventory control procedures remains an area that requires attention. Strengthening staff capacity and maintaining effective inventory management practices may contribute to improved hospital efficiency, better resource utilization, and reliable service delivery.

These findings are in agreement with Kabera and Mukanyangezi (2024), who emphasized the importance of effective medical stock management in supporting healthcare service delivery and operational efficiency. Effective inventory control helps ensure the availability of essential medicines, minimize wastage, and improve the use of hospital resources. In the context of Kibagabaga District Hospital, well-organized inventory control practices can support the timely identification of stock requirements, proper maintenance of inventory records, and informed decisions regarding the management of medical supplies.

Furthermore, the findings highlight the importance of computerized inventory systems in strengthening inventory management. Such systems can facilitate the recording and updating of stock information, making it easier for hospital personnel to monitor medicine availability and identify potential shortages. When inventory information is accurate and regularly updated, hospital managers can make more informed decisions regarding the replenishment and distribution of medical supplies. This can contribute to improved coordination of inventory activities and support the continuity of healthcare services

4.2 Correlation Analysis

Correlation analysis was used to examine the relationship between inventory control systems and the performance of Kibagabaga District Hospital. Pearson’s correlation coefficient was applied to determine the strength and direction of the relationship between the two variables. The correlation coefficient ranges from -1 to +1, where +1 indicates a perfect positive relationship, -1 indicates a perfect negative relationship, and 0 indicates no linear relationship. The findings were used to establish whether inventory control systems were associated with hospital performance.

Table 3: Pearson Matrix between independent and dependent variables

		Inventory control systems	Hospital performance
Inventory control systems	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	105	
Hospital performance	Pearson Correlation	.919**	1
	Sig. (2-tailed)	.000	
	N	105	105

Source: Field data, 2026

Table 3 presents the Pearson correlation between inventory control systems and the performance of Kibagabaga District Hospital. The findings indicate a very strong positive and statistically significant relationship between

the two variables (r=0.919, p<0.001, N=105). This means that improvements in inventory control systems are strongly associated with improvements in hospital performance. The positive relationship suggests that

effective inventory control practices, such as maintaining accurate stock records, monitoring inventory levels, setting appropriate reorder levels, and preventing stock-outs and overstocking, may contribute to the availability of medicines and medical supplies, efficient resource utilization, and timely healthcare service delivery. The implication is that strengthening inventory control systems could support better hospital performance by reducing medicine wastage, minimizing shortages, and ensuring that essential supplies are available when needed

4.3 Regression Results

Regression analysis was conducted to examine the effect of inventory control systems on the performance of Kibagabaga District Hospital. The analysis aimed to determine whether inventory control systems significantly predict hospital performance. The regression coefficient, t-value, and significance level were used to assess the direction, magnitude, and statistical significance of the relationship. The results provide evidence on the extent to which inventory control systems contribute to explaining variations in hospital performance

Table 4: Regression Coefficient Results

Predictor	B	Std. Error	β	t	p-value	Decision
Constant	-.488	0.174	—	-2.807	0.006	—
ICS	0.392	0.107	0.374	3.659	< .001	Significant

Dependent Variable: Hospital Performance

Table 4 presents the regression coefficient results showing the effect of inventory control systems (ICS) on the performance of Kibagabaga District Hospital. The findings indicate that inventory control systems have a positive and statistically significant effect on hospital performance ($B = 0.392$, $\beta = 0.374$, $t = 3.659$, $p < 0.001$). The unstandardized coefficient ($B = 0.392$) means that a one-unit increase in inventory control systems is associated with a 0.392-unit increase in hospital performance, holding other factors constant. The standardized beta ($\beta = 0.374$) indicates the positive direction and relative strength of this effect. Since the p-value is below 0.05, the effect is statistically significant. The implication is that strengthening inventory control practices, such as maintaining accurate stock records, monitoring stock levels, and setting appropriate reorder levels, may contribute to improved medicine availability, reduced wastage, and more efficient service delivery. Therefore, hospital management should prioritize effective inventory control systems to support better organizational performance

4.4 Discussion of Findings

The descriptive findings indicate that inventory control systems were implemented at Kibagabaga District Hospital, although some practices require further strengthening. The study highlights the importance of maintaining accurate inventory records, updating stock levels, establishing reorder levels, and using computerized inventory systems. These practices help ensure that essential medicines and medical supplies are available when needed. The findings are consistent with Kabera and Mukanyangezi (2024), who emphasized that structured inventory control and minimum–maximum stock policies

support medicine availability and help reduce emergency procurement.

The correlation analysis revealed a strong positive relationship between inventory control systems and hospital performance. This suggests that improvements in inventory control practices tend to occur alongside improvements in hospital performance, including medicine availability, service delivery efficiency, and the use of resources. This finding is consistent with the literature reviewed in the study. Mfizi et al. (2023) reported that inventory classification using ABC and VEN analysis can support stock optimization, improve decision-making, and reduce wastage caused by expired medicines. However, correlation indicates an association and does not establish that inventory control alone causes changes in hospital performance.

The regression coefficient findings further indicate that inventory control systems make a statistically significant contribution to explaining hospital performance in the study's regression model. This suggests that inventory control remains relevant when examining hospital performance through statistical analysis. The finding is consistent with Ayer et al. (2023), who associated automated inventory systems with operational efficiency and improved service delivery. It also corresponds with Nzeyimana and Gitahi (2022), who highlighted the role of effective inventory control in improving procurement efficiency and managing operational costs.

Despite these positive findings, previous studies have identified challenges that may weaken inventory control, including reliance on manual records, limited staff training,

and fragmented information systems. Kabera and Mukanyangezi (2024) noted that manual systems may be prone to errors and delays, while Mfizi et al. (2023) identified technical capacity and training as important implementation concerns. Ndekezi (2023) also highlighted coordination problems when procurement, pharmacy, and clinical departments use disconnected systems. Therefore, Kibagabaga District Hospital should continue strengthening inventory procedures, staff capacity, record accuracy, and coordination among departments to support medicine availability and efficient service delivery

5. Conclusion and Recommendations

5.1 Conclusion

This study examined the effect of inventory control systems on the performance of Kibagabaga District Hospital. The findings indicate that inventory control systems contribute to hospital performance through improved medicine availability, efficient service delivery, cost management, and reduced stock-outs. Computerized inventory systems were widely recognized, while staff training remained an area requiring further attention. The findings are consistent with previous studies that associate structured inventory control practices and automated systems with improved operational efficiency and patient service. In conclusion, effective inventory control systems are important for supporting the performance of Kibagabaga District Hospital, particularly when combined with accurate inventory records, appropriate stock-level monitoring, and continuous staff training

5.2. Recommendations

Based on the findings of the study, the following three recommendations are proposed:

1. Kibagabaga District Hospital management should organize regular training sessions for pharmacy and stores personnel on inventory recording, stock monitoring, use of computerized systems, and prevention of medicine wastage. This recommendation addresses the need to improve staff capacity in inventory management.
2. The hospital should ensure that inventory records are updated regularly and that computerized systems are consistently used to monitor medicine quantities, track stock movements, and identify items approaching expiry. This would support timely decision-making and help reduce stock-outs and overstocking.
3. The hospital's pharmacy and procurement departments should set appropriate reorder levels for essential medicines and conduct routine stock

checks. This would help ensure that medicines are replenished on time, reduce emergency procurement, and support continuous healthcare service delivery

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