



Impact of the based information system model in the supply of medicines and medical devices at the Santo Tomas hospital in Panama

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Abstract. Information systems play a critical role in strengthening hospital clinical management by improving coordination, efficiency, and decision-making in healthcare processes. This study analyzes the impact of an information system-based supply model on the management of medicines and medical devices in a tertiary public hospital in Panama. A mixed-methods research design was applied, combining a descriptive field study with documentary analysis. Quantitative data were collected through structured interviews using a Likert-scale questionnaire administered to department heads and coordinators involved in medicines and medical devices distribution, while qualitative data were obtained through participant observation. Data validity was supported by descriptive statistical analysis and source triangulation. The results indicate that the implementation of the proposed information system model improves supply chain performance by increasing efficiency, availability, and traceability of medicines and medical devices, while reducing operational costs and minimizing risks associated with stockouts and outdated inventories. Furthermore, the model contributes to enhanced clinical safety by supporting timely access to essential medical products and improving inventory control. These findings suggest that information system-based supply models represent a viable strategy for strengthening clinical management and patient safety in public hospitals, with strong potential for replication in other healthcare institutions facing similar supply challenges.

Keywords: Information systems; Clinical management; Medicines supply; Medical devices; Patient safety.

1 Introduction

In the current context, organizations make intensive use of information and communication technologies (ICTs) in order to support organizational operations, strengthen managerial decision-making, and generate strategic competitive advantages [1]. Consequently, information systems have evolved from being simple data-processing tools to becoming essential strategic components for process integration, interdepartmental coordination, and organizational performance improvement. In this regard, it explicitly states that “information systems and technologies have become a fundamental component of successful companies and organizations” (p. 6), positioning them as a central field of study in management and business administration.

From a systemic perspective, organizations are conceived as integrated sets of subsystems that interact continuously for the management and allocation of resources, relying on information from multiple internal sources. Unlike the traditional accounting approach, which offers a partial view, modern organizational management requires comprehensive and timely information that enables the safeguarding and growth of institutional assets and rights. In this sense [2] defines a system as “a set of related elements or variables that interact with each other to achieve a common objective” (p. 130), allowing information systems to be understood as integrated structures of people, processes, resources, and technologies aimed at transforming data into useful information for efficient decision-making.

Managing an organization today involves high levels of complexity derived from information volume, efficiency pressures, and the need to ensure quality and safety in processes. To address these challenges, it is essential to have articulated information systems that integrate regulatory frameworks, operational procedures, and human and technological resources, particularly in critical sectors such as healthcare. Although information systems do not replace managerial judgment, they constitute key support for the management of operational data—such as inventories, procurement, billing, payroll, and medical supply control—which are determinants for the continuity of clinical services [3].

In the hospital setting, the implementation of integrated information systems contributes to the reduction of operational times, improves data accuracy, strengthens confidence in decision-making, and facilitates the traceability of medicines and medical devices. Likewise, it enables greater coordination among departments, optimizes inventory management, and reduces risks associated with stockouts, expiration, and dispensing errors—critical factors for patient safety ([4] & [5]).

In the Republic of Panama, public healthcare institutions, due to the high volume of patient care, require robust information systems that ensure the timely supply of medicines, medical devices, and other products for human health. However, despite having general-purpose information systems, many hospitals exhibit deficiencies in optimizing specific processes related to distribution, storage, dispensing, and

inventory control, which leads to manual practices, information inconsistencies, and increased clinical risks.

This issue is evident at Santo Tomás Hospital in Panama, where the existing information system presents limitations related to outdated inventories, technological restrictions of the ISTMO software, deficiencies in traceability, lack of strategic procurement planning, and gaps in staff training. These weaknesses negatively affect operational efficiency, the availability of medical supplies, and patient safety.

In this regard, the results obtained from an internal audit focused on the information system used for the supply of medicines, medical devices, and other products for human health at Santo Tomás Hospital are analyzed, with the aim of assessing whether the applicability and performance of the information system have a positive impact on the efficiency, availability, costs, quality, and safety of the supply process.

2 Materials and Methods

The study was conducted under a mixed-methods (qualitative–quantitative) epistemological approach, which allowed for a comprehensive analysis of organizational and clinical management processes related to the supply of medicines and medical devices in a hospital setting. Mixed methods were employed because they enable the systematic, empirical, and critical collection and analysis of both quantitative and qualitative data, as well as their integration to generate meta-inferences and achieve a deeper understanding of the phenomenon under study [6].

A field-based and descriptive research design was adopted. Field research involved the direct collection of primary data from participants in their natural work environment, without manipulating variables or altering existing conditions [7]. The descriptive scope made it possible to characterize and specify the main properties of the information system and the processes associated with the supply of medicines, medical devices, and other products for human health, independently measuring relevant dimensions in order to accurately describe the studied reality [6].

Data were collected through structured interviews using a Likert-type scale and participant observation. The study population consisted of 166 individuals working in departments responsible for the supply, distribution, and control of medicines, medical devices, and other health-related products at Santo Tomás Hospital in Panama City. As defined by Flick [8], the population represents the group for which the study conclusions are intended to be valid. From this population, a non-probabilistic purposive sample of 52 department heads and coordinators was selected due to their direct involvement in decision-making and operational management of the supply process.

Quantitative data were obtained through a structured instrument using an ordinal Likert-type scale. Qualitative data were collected through participant observation in

the relevant departments and were systematically recorded using a three-column matrix that included units of information, observed aspects, and analytical synthesis.

Instrument validity was established through expert judgment, ensuring content relevance, clarity, and coherence. Instrument reliability was assessed using Cronbach's alpha coefficient, which yielded a value of 0.82, considered acceptable and satisfactory for research in the social and health sciences. This result indicates a high level of internal consistency, implying that the items of the instrument were adequately correlated and measured in a homogeneous manner, thereby ensuring the reliability and stability of the collected data [9].

Quantitative data were analyzed using SPSS version 25, applying descriptive statistical techniques, while qualitative data were analyzed through source triangulation, which strengthened the credibility, internal validity, and methodological rigor of the findings [8].

3 Resulted

3.1 Analysis and Interpretation of the Results

The results presented derive from the quantitative and qualitative analysis of the information system and the supply process. The results presented derive from the quantitative and qualitative analysis of the information system and the supply process of medicines, medical devices, and other products for human health at the Santo Tomás Hospital in Panama. Through a systematic process of data collection and analysis, the performance of the information system and its impact on the efficiency, availability, costs, quality, and safety of the supply process were evaluated, allowing the identification of structural and operational weaknesses relevant to hospital management. The combined use of quantitative and qualitative evidence provided a comprehensive understanding of the organizational context, enabling the identification of patterns, operational deficiencies, and opportunities for improvement that would not have been fully captured through a single methodological approach. This methodological integration strengthened the interpretation of the findings by facilitating the triangulation of information obtained from different sources and perspectives, thereby increasing the consistency and credibility of the results ([6], [7] & [8]). less of medicines, medical devices, and other products for human health at the Santo Tomás Hospital in Panama. Through a systematic process of data collection and analysis, the performance of the information system and its impact on the efficiency, availability, costs, quality, and safety of the supply process were evaluated, allowing the identification of structural and operational weaknesses relevant to hospital management.

3.2 Results for the Variable: Information Systems

The quantitative results reveal significant weaknesses in information system management, particularly in relation to human capital, technological training, and the functionality of the system currently in use. Overall, the findings indicate that the

existing information system does not fully support the operational and administrative requirements of the hospital's supply process, thereby limiting its effectiveness as a strategic tool for planning, monitoring, and decision-making. This finding is consistent with the principles of management information systems, which establish that technological systems should provide accurate, timely, and relevant information to support organizational planning, operational control, and strategic decision-making ([1] & [2]).

Regarding staff specialization, it was observed that only a small proportion of participants consider that departmental personnel consistently possess specialized training. This situation reveals a gap in the technical competencies required to operate complex information systems, limiting their effective use and reducing operational efficiency. The lack of specialized knowledge also increases dependence on empirical practices, reducing the capacity of personnel to fully exploit the system's functionalities and to respond efficiently to operational demands. This finding highlights the importance of continuous professional development as an essential component for ensuring the successful implementation and sustainability of information systems within healthcare organizations ([10] & [11]).

With respect to training in the use of software applications, the results show that a considerable proportion of respondents perceive that staff rarely receive adequate training to manage the software used for requisitions and inventory control. This shortcoming negatively affects proper system utilization and the quality of the information generated, thereby impairing decision-making. In addition, insufficient training contributes to inconsistencies in data management, limits the standardization of administrative procedures, and reduces the reliability of information used to support procurement and inventory decisions. From a systems perspective, technological performance depends not only on software quality but also on the interaction between technological resources, organizational processes, and human capabilities [4].

In relation to purchase control and monitoring, the data indicate the absence of inadequacy of programs capable of meeting departmental needs, suggesting deficiencies in internal control mechanisms and in the traceability of procurement processes. As a result, monitoring activities become more complex, making it difficult to verify the status of purchase requests, evaluate supplier performance, and maintain effective oversight throughout the supply chain. These deficiencies weaken internal control practices and increase operational risks associated with procurement management, emphasizing the need for integrated risk management frameworks capable of supporting organizational performance ([12] & [13]).

Similarly, results associated with inventory management reflect a lack of familiarity with the system in use and insufficient periodic software updates, which lead to outdated inventories and information inconsistencies. This situation compromises data reliability, limits the organization's ability to anticipate supply shortages, and reduces the effectiveness of inventory planning. Furthermore, outdated technological tools hinder the integration of accurate and timely information, affecting operational

continuity and increasing the risk of stock imbalances. International guidelines emphasize that digital information systems play a critical role in improving inventory visibility, product traceability, and the availability of essential medicines throughout healthcare supply chains ([3] & [14]).

Regarding purchase planning, it was identified that the information system does not provide the timely information required for annual programming, affecting efficient resource allocation and budget management. The absence of reliable planning information also restricts the institution's capacity to forecast future requirements, prioritize procurement activities, and optimize the use of available financial resources. Effective strategic planning of information systems has been recognized as a key factor for aligning technological resources with institutional objectives and improving operational performance [5]. Likewise, efficient supply planning contributes to reducing operational uncertainty and strengthening logistical coordination across healthcare organizations [15].

Adaptation to technological innovation also emerges as a relevant weakness, as a significant portion of staff do not remain aligned with new technologies, restricting process modernization and continuous improvement. This limited adaptability not only affects individual performance but also slows the implementation of organizational changes aimed at improving efficiency, service quality, and the overall performance of the supply management process. Recent international initiatives have highlighted that digital transformation in healthcare requires continuous investment in technological capabilities, workforce development, and organizational innovation to ensure sustainable improvements in service delivery ([16] & [11]).

Concerning the consistency, adaptability, and timeliness of information, the results show that the system does not generate information fully aligned with departmental functions nor provide rapid and timely responses, directly affecting the quality of decision-making processes. Inaccurate or delayed information reduces managers' ability to respond proactively to operational challenges, increasing uncertainty and limiting the effectiveness of strategic and administrative decisions. Consequently, strengthening information quality should be considered a strategic priority for improving institutional governance, operational transparency, and the overall effectiveness of healthcare management [17].

Finally, a large majority of department heads and coordinators consider that the information system requires frequent redesign, confirming a generalized perception of functional and technological insufficiency. This finding reflects the need to modernize the existing system in order to improve its usability, strengthen information reliability, enhance integration among hospital departments, and support a more efficient and transparent management of the procurement and supply process. Such improvements would contribute not only to greater operational performance but also to the achievement of institutional objectives related to quality, accountability, and continuity of healthcare services. Furthermore, the redesign of the information system should be approached as a strategic organizational initiative that integrates technological innovation, internal control, risk management, and continuous process

improvement to ensure a more resilient and sustainable healthcare supply system ([18] & [19]).

These findings contrast with Laudon and Laudon [20], who argue that an effective management information system should integrate organizational processes and provide accurate, timely, and reliable information to support planning, control, and managerial decision-making. In the case analyzed, the lack of system integration, periodic updating, and alignment with departmental requirements limits the system's ability to fulfill these functions effectively.

3.1.1 Results for the Variable: Supply of Medicines, Medical Devices, and Other Products for Human Health

The analysis of results related to the supply process reveals structural deficiencies in the planning, execution, and control of hospital procurement activities. First, insufficient short-term planning was evidenced, limiting the department's ability to anticipate immediate needs and respond promptly to healthcare demand. Likewise, the results show limited projection of activities aimed at process improvement, reflecting a weak culture of continuous improvement and a limited strategic orientation.

Regarding the adaptation of the information system to administrative requirements, it was identified that the system does not adequately respond to the hospital's operational needs, generating delays, reprocessing, and dependence on manual procedures. Internal communication channels also present significant deficiencies, hindering interdepartmental coordination and affecting the efficiency of the supply process.

With respect to supply control, the results indicate that the information system does not guarantee effective control, increasing the risk of stockouts, overstocking, and losses due to expiration. The lack of periodic updating of the information system constitutes another critical weakness, as it prevents the incorporation of functional improvements and adaptation to regulatory or technological changes.

In relation to compliance with established timelines for the purchasing process, recurrent non-compliance was observed, associated with administrative delays, planning deficiencies, and problems in contract award and formalization. Additionally, frequent causes of shortages were identified, including delays in procurement processes, poor planning, lack of suppliers, absence of sanitary registrations, and high prices of supplies—factors that directly affect service continuity and patient safety.

A relevant finding is the high level of support for the development of special regulations for the acquisition of medicines and medical devices, reflecting the perception that current regulatory frameworks do not adequately respond to hospital system needs. These results contradict Boland, L. [15], who argue that an efficient supply system must ensure timely provision of resources in appropriate form,

contributing to organizational competitiveness and the optimization of costs and finances.

3.1.2 Qualitative Findings

From the qualitative analysis, it was identified that weaknesses in the information system are associated with limitations in technological infrastructure, particularly regarding hardware specifications required to support the current system. Additionally, low information reliability was evidenced due to the lack of timely data updates by some departments, resulting in outdated inventories and inconsistencies that hinder decision-making. These limitations affect the capacity of the hospital to generate accurate and timely information, which is essential for planning procurement activities, monitoring inventory levels, and improving the efficiency of supply management processes ([1] & [17]).

This situation contrasts with Johansen. [4] General systems theory, which conceives a system as an organized and interdependent whole whose effectiveness depends on the coherence and articulation of its components. From this perspective, the identified weaknesses are not only related to technological deficiencies but also to the interaction between information management, organizational processes, and human resources. Therefore, the effectiveness of the information system depends on the proper coordination between technological tools, institutional procedures, and the personnel responsible for managing and updating information.

Regarding the supply process, it was observed that purchase requests are made without adequate planning, leading to excessive or insufficient orders. This is compounded by insufficient training of inventory personnel, delays in award processes, budgetary constraints, and the absence of updated inventories. These conditions may generate inefficiencies such as stock imbalances, difficulties in forecasting demand, and limitations in ensuring the continuous availability of essential products. According to [14], efficient health supply systems require coordinated processes supported by reliable information, adequate planning, and effective inventory management practices.

These findings diverge from the WHO [21]. Definition of medicine supply as a comprehensive process that must ensure availability, accessibility, quality, and rational use, supported by reliable information systems and efficient logistical processes. In this context, the results highlight the importance of strengthening information systems and supply management practices as key elements for improving hospital performance, reducing operational risks, and supporting more effective decision-making.

3.1.3 Final Results from an Internal Audit Perspective

The results obtained reveal, from an internal audit perspective, structural weaknesses in the information system and in the supply process of medicines, medical devices, and other products for human health. These weaknesses directly affect operational

efficiency, information reliability, internal control, and institutional risk management. Narratively, the findings confirm that the lack of staff specialization and training, combined with obsolete and poorly adaptable information systems, limits the hospital's capacity to ensure timely and safe supply. These results are consistent with [12], which states that human resource competence and information quality are essential pillars of internal control. In this regard, effective internal control systems require not only adequate procedures but also qualified personnel capable of generating, interpreting, and applying reliable information for decision-making [12].

Additionally, previous studies emphasize that healthcare organizations must integrate technological capabilities, organizational processes, and employee competencies to achieve efficient information management and improve supply chain performance ([1] & [22]). Therefore, the weaknesses identified suggest the need to strengthen staff training, update information systems, and improve control mechanisms to reduce operational risks and enhance the reliability of hospital supply processes [14].

3.1.4 Internal Audit Indicators of the Information System

The results reflect significant weaknesses in the reliability and timeliness indicators of information, which directly affect decision-making. According to Fernández, A. [17], an information system must ensure reliable inputs, processes, and outputs—conditions that are not fully met in the analyzed context (see Table 1). These deficiencies may limit the hospital's ability to generate accurate reports, monitor inventory conditions, and respond efficiently to supply requirements. The quality of information is a critical factor in organizational performance, as incomplete or outdated data can increase uncertainty and affect the effectiveness of managerial decisions ([1] & [22]).

In healthcare environments, reliable information systems are essential for coordinating supply activities, optimizing resource allocation, and strengthening internal control mechanisms. Therefore, improving data updating processes and ensuring adequate system management are necessary actions to increase the efficiency and reliability of hospital supply operations ([10] & [16]).

Table 1. Internal audit indicators associated with the information system for supply management.

Evaluated dimension	Internal audit indicator	Empirical evidence	Identified impact	Associated risk
Human capital	Staff competence and training	Limited training in system use	Reduced efficiency and operational errors	Operational risk
Information system	Information reliability	Incomplete and outdated records	Inadequate decision-making	Information risk
Internal control	Process traceability	Lack of comprehensive	Loss of process control	Control risk

		purchase tracking		
Technological innovation	Technological adequacy	Low system adaptability	Poor system performance	Technological risk
Planning	Timeliness of information	Insufficient data for planning	Deficient planning	Strategic risk

Note. Own elaboration.

3.1.5 Internal Audit Indicators of the Supply Process

These indicators demonstrate a reactive supply management approach, where decision-making is mainly focused on responding to immediate needs rather than being supported by preventive planning and continuous monitoring mechanisms. [15] Narratively argue that supply systems must ensure availability, timeliness, and cost efficiency—elements that are not achieved when planning and monitoring controls fail, as observed in the results (see table 2). Effective healthcare supply management requires adequate information systems, inventory control mechanisms, and performance indicators that allow organizations to identify deviations and improve operational efficiency ([14] & [23]).

From an internal audit perspective, these indicators provide evidence of weaknesses in control activities, risk monitoring, and process evaluation. According to [12], reliable information and continuous monitoring are essential components of effective internal control systems, as they allow organizations to detect operational risks and implement corrective actions. Similarly, healthcare supply chains depend on coordinated planning and accurate information to reduce shortages, excessive inventories, and inefficient resource allocation [24].

Table 2. Internal audit indicators of the hospital supply process.

Audited process	Indicator	Observed result	Audit implication	Operational consequence
Purchase planning	Operational planning	Absence of formal planning	Non-compliance with preventive control	Stockouts
Inventory management	Inventory integrity	Outdated inventories	Unreliable information	Stock breaks
Purchasing cycle	Compliance with timelines	Frequent delays	Operational inefficiency	Service interruption
Suppliers	Risk management	Lack of suppliers and sanitary registrations	Supply risk	Cost increases
Regulatory compliance	Regulatory framework	Inadequate procedures	Regulatory weakness	Inefficient purchasing

Note. Own elaboration.

3.1.7 Integration of Qualitative Findings with Internal Audit Criteria

From a systemic perspective, [4] textually explains that a system is efficient only when its components function in an integrated manner. Qualitative evidence confirms that the lack of coordination between departments and the absence of regular updates in the information system weaken internal control and increase operational risk (see table 3).

Table 3. Relationship between qualitative findings and internal audit criteria.

Qualitative finding	Audit criterion	Interpretation	Theoretical support
System fragmentation	Systemic approach	Lack of process integration	Johansen (2004)
Deficient communication	Internal coordination	Frequent reprocessing	COSO (2017)
Irregular updates	Continuous monitoring	Loss of operational control	ISACA (2020)
Manual processes	Automation	Low efficiency	Fernández (2006)

Note. Own elaboration.

3.1.8 Synthesis of Final Results

Overall, the final results indicate the existence of structural deficiencies in information systems and in the supply process, which translate into operational, strategic, and compliance risks. These deficiencies affect not only the operational performance of the hospital but also the reliability of the information used to support managerial and clinical decision-making. Weaknesses related to system integration, information quality, and process coordination reduce the institution's capacity to respond efficiently to fluctuations in demand, increasing the likelihood of stockouts, procurement delays, and inefficient use of financial and material resources. From a management perspective, these shortcomings limit the effectiveness of internal control mechanisms and hinder the achievement of institutional objectives.

Furthermore, the findings confirm that redesigning the information system, strengthening staff training, and reinforcing internal controls are priority actions to improve the efficiency and sustainability of hospital supply management, in line with the recommendations of the World Health Organization. The implementation of a more integrated information system should be accompanied by continuous staff

development programs and periodic monitoring of operational performance to ensure that technological improvements translate into measurable organizational benefits. Likewise, strengthening internal control procedures would improve process traceability, increase the reliability of inventory records, and facilitate more transparent procurement practices, thereby contributing to better governance of hospital resources.

Finally, improving the information system should be understood as a strategic initiative that supports continuous improvement in hospital management. An information system capable of generating accurate, timely, and consistent information enhances coordination among departments, supports more effective planning, and contributes to reducing operational uncertainty. Consequently, the integration of technological modernization with sound internal control practices can strengthen institutional performance, improve the sustainability of the supply process, and support the provision of safe and uninterrupted healthcare services, consistent with international recommendations for strengthening health supply systems ([10], [14] & [16]).

4 Discussion

The findings related to information systems reveal weaknesses that directly affect several key internal audit indicators, particularly those associated with the control environment, risk management, control activities, and information and communication, in accordance with the COSO framework [13].

First, the limited specialization and training of personnel adversely affect the human resource competency indicator, which is considered an essential component of the control environment. Recent studies indicate that the absence of digital competencies among healthcare staff increases operational risks and reduces the reliability of clinical and administrative information systems. [16] From an internal audit perspective, this situation translates into a high risk of errors in data recording, processing, and use.

Likewise, insufficient technological training negatively impacts the information reliability and quality indicator, as improper use of software compromises data integrity and consistency. Recent literature emphasizes that information systems in healthcare generate value only when the information produced is timely, complete, and understandable for end users [10].

Regarding procurement control and monitoring, the absence of adequate programs reflects weaknesses in the process traceability indicator, which is critical for internal auditing in hospital institutions. According to the Institute of Internal Auditors [19], the lack of traceability increases the likelihood of rework, budget deviations, and accountability failures.

The results also show deficiencies in system updates and inventory management, which negatively affect the operational risk management indicator, as outdated

inventories limit the ability to anticipate stockouts and increase exposure to supply risks. Recent research in public hospitals in Latin America confirms that technological obsolescence is a recurring factor contributing to inefficiency and institutional risk [11].

Finally, the widespread perception of the need to frequently redesign the information system reinforces weaknesses in the strategic alignment indicator, understood as the degree to which technology supports organizational objectives. From an internal audit standpoint, this lack of alignment limits the system's ability to function as a continuous monitoring and control tool [13]. Medical Supply Management and Internal Audit of the Process. With respect to the supply process, the results reveal deficiencies that directly impact operational efficiency, regulatory compliance, and resource control indicators, which are widely used in internal audits within the healthcare sector [19].

Insufficient short-term planning and limited projection of improvement activities affect the procurement planning and scheduling indicator, evidencing a reactive management approach. Recent studies highlight that the absence of structured planning increases costs, prolongs procurement timelines, and raises the risk of shortages in public hospitals [18].

Similarly, the inadequate adaptation of the information system to administrative requirements compromises the procurement process efficiency indicator, as it leads to delays, reprocessing, and reliance on manual procedures. The OECD [16], emphasizes that integrated digital systems are essential for strengthening internal control and efficiency in public health procurement management.

Deficiencies in internal communication channels impact the information and communication indicator, a critical component of internal control, as they hinder interdepartmental coordination and timely decision-making. According to COSO [13], ineffective communication increases operational risks and limits the effectiveness of controls.

Regarding supply control, the findings indicate that the information system does not ensure effective monitoring, which affects the inventory control and operational continuity indicator. The WHO [14], warns that inadequate control of hospital inventories compromises the availability of essential medicines and patient safety.

Noncompliance with established procurement timelines and delays in contract award processes affect the compliance with deadlines and administrative efficiency indicators, identified as one of the main risk factors in internal audits of hospital supply chains [11].

Finally, the strong support for the creation of special regulations for the purchase of medicines is linked to the regulatory compliance indicator, reflecting the perception that current regulatory frameworks do not adequately meet operational needs. Recent studies suggest that specific regulatory reforms can strengthen the efficiency and

transparency of supply processes, provided they are accompanied by robust information systems and effective controls [16].

5 Conclusions

The results of this study indicate that the information system used for the supply of medicines, medical devices, and other products for human health at Santo Tomás Hospital presents structural and operational weaknesses that limit its contribution to operational efficiency, information reliability, and the effectiveness of internal control throughout the supply process. These findings suggest that the current system does not fully support the hospital's strategic and operational requirements, reducing its capacity to generate accurate, timely, and reliable information for administrative planning and decision-making ([1] & [2]).

From an internal audit perspective, significant risks were identified in the control environment, particularly with respect to human resource competency and technological training. Insufficient staff specialization and limited training in the use of information systems directly affect the quality of the information generated, increasing the likelihood of errors in the recording, processing, and analysis of critical data for decision-making. These deficiencies also weaken organizational control mechanisms, limiting the institution's ability to identify operational risks, monitor compliance with established procedures, and promote continuous improvement. Such findings reinforce the importance of integrating effective internal control and risk management practices into information system governance ([12], [13] & [19]).

Furthermore, it is concluded that the information system lacks adequate alignment with the hospital's administrative and logistical processes, negatively affecting indicators related to traceability, inventory control, and operational risk management. The absence of periodic system updates and the generation of information that is neither timely nor fully consistent with departmental needs compromise the institution's ability to anticipate and mitigate supply shortages. International organizations have emphasized that modern digital health systems should facilitate interoperability, real-time information exchange, and end-to-end traceability in order to improve supply chain performance and ensure the continuous availability of essential health products ([3] & [14]).

Regarding the supply process, the findings reveal deficiencies in procurement planning, compliance with established timelines, and interdepartmental coordination. These weaknesses result in administrative delays, rework, and a high exposure to supply risks, ultimately affecting service continuity and patient safety. External factors such as supplier shortages, lack of sanitary registrations, and high input prices further exacerbate these challenges, highlighting the need for comprehensive management approaches. Strengthening procurement planning, logistics coordination, and inventory management has been recognized as a key strategy for improving efficiency and resilience within healthcare supply chains ([15], [18] & [11]).

Finally, this study demonstrates that strengthening the information system represents a strategic component of hospital internal auditing and organizational management. Its appropriate redesign and implementation can significantly improve operational efficiency, transparency, expenditure control, information quality, and the long-term sustainability of the supply process. Likewise, the adoption of integrated technological solutions should be accompanied by continuous staff training, effective governance practices, and permanent system evaluation to ensure that technological resources remain aligned with institutional objectives. The widespread perception of the need to redesign the system underscores the urgency of adopting integrated technological solutions aligned with internal control principles, digital transformation strategies, and continuous improvement initiatives that support safer, more transparent, and more efficient healthcare services ([16], [10] & [17]).

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