Analysis of drug procurement processes in public health administration: a systematic review

Análisis de los procesos de adquisición de medicamentos en la administración pública de salud: una revisión sistemática

Tayron César Troya-Terranova
https://orcid.org/0000-0002-9082-6695
ttroya@utb.edu.ec
Universidad César Vallejo. Peru

REVISTA INVECOM ISSN: 2739-0063
Received: 20-03-2025 Accepted: 10-06-2025
2026. V6. N1.

Abstract

The objective of this study was to analyze the relationship between operational management efficiency and drug procurement processes in public hospitals, considering aspects such as availability, management, and the sustainability of the health system. To this end, a methodology based on the PRISMA method was used, allowing for a systematic and exhaustive review of six scientific studies published between 2022 and 2025. The search focused on indexed academic sources, applying inclusion and exclusion criteria that ensured the validity and reliability of the information collected. The results revealed that efficient operational management—which includes adequate strategic planning, trained leadership, advanced logistics systems, and effective contracting processes—positively impacts drug availability. This contributes to reducing stock shortages and optimizing the use of resources. However, the lack of adequate implementation and deficiencies in the enforcement of regulations diminish the expected impact, negatively affecting the quality of health services. In conclusion, the analysis demonstrates that administrative efficiency not only improves procurement management but is also a fundamental pillar for ensuring timely access to medicines, strengthening financial sustainability, and improving patient care in the public hospital system.

Keywords: operational efficiency, administrative management, public procurement.

Resumen

El objetivo de este estudio fue analizar la relación entre la eficiencia en la administración operativa y los procesos de adquisición de medicamentos en hospitales públicos, considerando aspectos como la disponibilidad, la gestión y la sostenibilidad del sistema de salud. Para ello, se empleó una metodología basada en el método PRISMA, lo que permitió realizar una revisión sistemática y exhaustiva de seis estudios científicos publicados entre 2022 y 2025. La búsqueda se centró en fuentes académicas indexadas, aplicando criterios de inclusión y exclusión que aseguraron la validez y confiabilidad de la información recopilada. Los resultados revelaron que una gestión operativa eficiente —que incluye una planificación estratégica adecuada, liderazgo capacitado, sistemas logísticos avanzados y procesos de contratación efectivos— incide positivamente en la disponibilidad de medicamentos. Esto contribuye a reducir las deficiencias de *stock* y a optimizar el uso de los recursos. Sin embargo, la falta de una implementación adecuada y las deficiencias en la aplicación de normativas disminuyen el impacto esperado, afectando negativamente la calidad del servicio de salud. En conclusión, el análisis demuestra que la eficiencia administrativa no solo mejora la gestión de adquisiciones, sino que también constituye un pilar fundamental para garantizar el acceso oportuno a los medicamentos, fortalecer la sostenibilidad financiera y mejorar la atención a los pacientes en el sistema hospitalario público.

Palabras clave: eficiencia operativa, gestión administrativa, contratación pública.

Introduction

It is important to highlight that the procedures for the procurement of medications in public health administration involve a series of fundamental stages, including needs assessment, bidding, contracting, supervision, and distribution. All these phases are aimed at ensuring a continuous and transparent supply, adhering to the principles of legality, efficiency, and quality (Vallés, 2024).

The identification of the need for medications in health centers is primarily based on the analysis of epidemiological data, consumption history, and the availability of pharmaceutical resources. Subsequently, the bidding and supplier selection process begins, governed by the public procurement mechanisms established in current regulations. Once the contract is awarded, the purchase is formalized, and logistics are managed, ensuring monitoring and compliance in the delivery of medications (Iglesias et al., 2020).

Currently, the supply of medications in the pharmaceutical centers of the public health system is essential for guaranteeing the right to health and improving the quality of life for the population (Organización Mundial de la Salud, 2024). In many countries, particularly those with fragmented or developing health systems, the procurement of medications represents one of the most sensitive aspects of public management (Valeria, 2021). Therefore, it is crucial to examine the interaction of various processes within public health administration using a systematic approach that identifies patterns, challenges, best practices, and areas requiring further knowledge.

Thus, the central problem of this study lies in detecting inefficiencies, lack of transparency, or exposure to irregular practices in the mechanisms of medication procurement. These situations have consequences that affect not only the financial viability of the health system but also limit citizens' equitable access to essential medical treatments (Tello, 2025). Frequently, the absence of adequate planning, institutional weaknesses, and excessive bureaucracy hinder this crucial process, potentially leading to shortages, cost increases, and even acts of corruption (Vázquez, 2024).

The importance of addressing the processes of medication procurement in public administration lies in its close relationship with social well-being and equity. The procurement of medications transcends administrative realms, constituting a decisive state action for the lives of thousands of people, as established by Article 154 of the Ley Orgánica de Salud (2015). Furthermore, the Ley Orgánica del Sistema Nacional de Contratación Pública (2024) regulates and organizes these procedures, defining the involved actors, applicable norms, and main challenges, which allows for the identification of opportunities to strengthen institutions and improve their performance.

For these reasons, this research seeks to provide a deeper and more critical view of this issue, grounded in scientific evidence and aimed at proposing solutions. Through systematic and comprehensive analysis, it intends to offer a holistic perspective that contributes to strategic decision-making in hospital administration, particularly regarding the economic viability of health institutions.

This study's content details the procedures employed in the review, the most relevant findings, and a critical reflection on the obtained results. The aim is to provide useful tools for both institutional administrators and public policy makers to advance toward more sustainable, effective, and equitable healthcare models.

Methodology

The study focuses on a systematic review method aimed at examining and compiling available information on the difficulties and strategies related to the procurement processes of medications in public health administration. By utilizing the PRISMA method, an organized, transparent, and reproducible procedure is ensured, facilitating the rigorous identification of the most relevant financial practices, as well as the internal and external factors affecting the economic viability of these institutions.

Identification stage

In this phase, the existing information about obstacles and strategies related to financial sustainability in public and private hospitals in Ecuador is examined and synthesized. A systematic search was conducted in recognized academic databases, such as ERIC, Scopus, Dialnet, Springer, and Google Scholar. The searches focused on key terms such as "private hospitals," "hospital management," "public hospitals," "healthcare management," and "resource allocation," applying Boolean operators AND and OR to optimize the relevance and accuracy of the obtained results.

Table 1

Search strategy for the study

Database	Keywords with Boolean operators	Identified studies
ERIC	(“financial sustainability" AND "public hospitals") OR ("private hospitals" AND "healthcare management")	32 studies
Scopus	("hospital finance" AND "sustainability") OR ("health policy" AND "public-private healthcare")	47 studies
Dialnet	("sostenibilidad financiera" AND "hospitales públicos") OR ("gestión hospitalaria" AND "sector privado")	25 studies
Google Scholar	("financial sustainability" AND "healthcare systems") OR ("cost-efficiency" AND "hospital management" AND "Ecuador")	65 studies
Springer	("hospital management" AND "resource allocation") OR ("health sector" AND "public-private partnership" AND "Latin America")	12 studies

As a result of the initial process, a total of 181 records were identified. After removing 26 duplicate studies, 155 studies remained available for the selection stage.

Selection stage

In this phase, to ensure the quality and relevance of the studies, inclusion and exclusion criteria based on the PRISMA model were applied.

The inclusion criteria are as follow:

- Articles published between January 2020 and March 2025.
- Publications in Spanish and English.
- Research focused on various medication procurement processes in public health administration.
- Studies conducted in higher education or relevant contexts.

On the other hand, the exclusion criteria establish the discarding of:

- Duplicate articles or those written in languages other than Spanish or English.
- Research focused on areas unrelated to medication procurement processes in public health administration.
- Works lacking access to the full text or lacking methodological rigor.
- Opinion pieces, editorials, or essays without scientific grounding.

Eligibility stage

The titles and abstracts of 155 studies were reviewed, with 78 being excluded for not aligning with the research objectives. Of the remaining 77, attempts were made to access the full texts, but 45 could not be retrieved due to access restrictions. Additionally, after a thorough review, 15 articles were excluded for reasons related to:

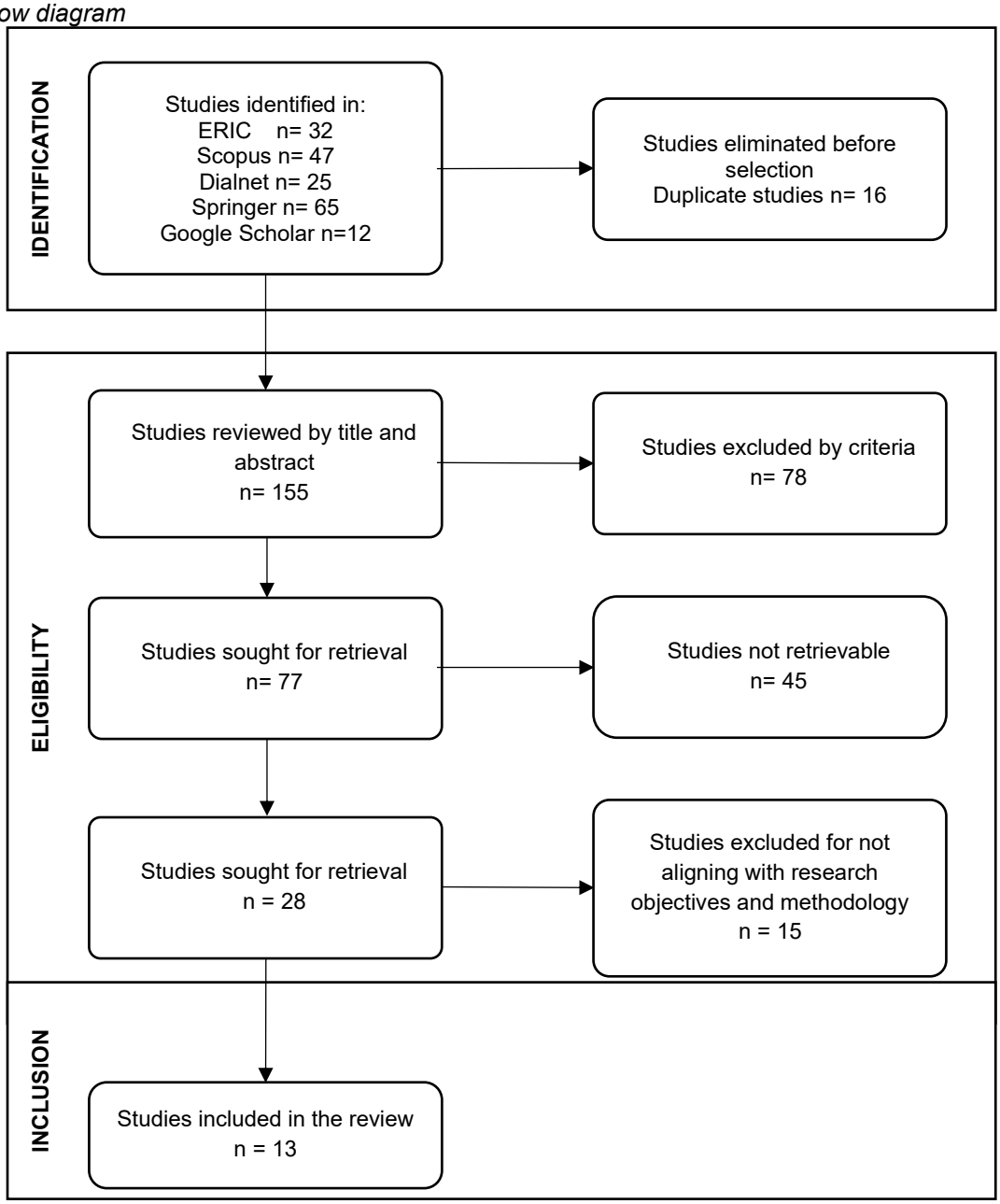
- The relevance and appropriateness of the methodological approaches employed.
- The pertinence of the healthcare context in which the medication procurement processes in public administration were applied.

Inclusion and synthesis stage

Finally, 13 studies that met all established criteria were included for definitive analysis. These works underwent deep analysis to extract relevant findings regarding the benefits and challenges associated with medication procurement in public health administration.

Figure 1

PRISMA flow diagram



Results and discussion

Based on the analysis of the 13 articles selected for the systematic review, the findings corresponding to each of the proposed headings are presented in table format.

Administrative and operational factors in the procurement of medications in hospitals

The following results from various studies addressing the administrative and operational factors involved in the procurement of medications in hospitals across the country are summarized. The information gathered comes from recent research highlighting how these factors have influenced different stages of the medication procurement process.

Table 2

Results of the systematic review focused on administrative and operational factors

No.	Authors (Year)	Title	Study Type	Results	Relation to administrative and operational factors
1	(Pizarro et. al., 2022)	Optimization of Economic Resources for the Purchase of Medications and Medical Supplies Using Deterministic and Stochastic Mathematical Models	Non-experimental quantitative design. Data collected through the National Public Procurement System (SERCOP)	Between 2017 and 2020, $59 million was invested in purchasing medications and supplies. Due to supply issues, many processes were conducted through direct contracts with suppliers. The application of inventory models could effectively optimize resource use.	The lack of adequate planning and improvised reactions to product shortages often lead to hasty decisions, such as immediate direct procurement without proper preparation. Incorporating mathematical models for inventory management optimizes resource use and reflects a significant shift in decision-making within administration.
2	(Macías et al., 2024)	Audit of Public Procurement Processes in Ecuadorian Health Units	Basic, non-experimental, and descriptive research.	Auditing public procurement in Ecuador's health sector is essential for controlling inappropriate conduct, which negatively affects service quality and public satisfaction.	The absence of proper controls in procurement processes can generate irregularities that damage institutional reputation and service quality. Thus, auditing serves as an indispensable operational tool ensuring transparency, efficiency, and public trust.
3	(Rodríguez, 2021)	Factors Influencing the Allocation of Economic Resources and Budget Execution at Chone Basic Hospital – IESS	Non-experimental research with a cross-sectional design.	Various factors influence resource allocation and budget execution. Lack of knowledge in planning, evaluation, and budget execution reflects insufficient training among staff, hindering the achievement of medical unit objectives.	The insufficient training of administrative staff limits the operational effectiveness of the institution, causing deviations in budget execution that hinder timely procurement of essential medications and strategic goal achievement.

4	(Mazón & Haro, 2023)	Management of Public Procurement Processes and Their Impact on Public Hospital Distribution: A Bibliographic Review	Bibliographic review analyzing information from various articles.	Transparency in procurement processes and accountability are fundamental, especially given frequent regulatory non-compliance and corruption. Efficient management of delivery times is crucial to ensure uniformity and quality in healthcare.	The study emphasizes that procurement management in the public health sector must focus not only on transparency and legal compliance but also on operational efficiency, especially in logistics, advocating for rigorous administrative approaches and agile operational processes.
5	(Alcántara et al., 2022)	Strategic Management Proposal for the Development of Purchases in a Public Hospital	Descriptive documentary research with a quantitative approach.	It was identified that purchases in public hospitals are not always fully executed due to coordination deficiencies and ignorance or non-compliance with regulations governing these processes.	Effective strategic management requires strong leadership and well-structured operational coordination, which are key elements for improving procurement processes.
6	(Cajo & Negrete, 2025)	Government Policies and Their Impact on the Supply of Medications and Medical Instruments at Riobamba Provincial General Teaching Hospital, 2021-2023	Longitudinal descriptive quantitative analysis.	In 2022, budget execution reached historic levels, with 100% for medical devices and 94% for medications, reflecting significant management effectiveness. Sequential and adaptive policy implementation could further strengthen supply management.	The evaluation of proposals like the Substitute Regulation and the Medicine Close Plan concludes that gradual, flexible, and technically supported implementation could significantly enhance administrative and operational efficiency, although challenges remain.
7	(Villacrés & Mena, 2021)	Mechanisms for Cancellation and Direction of Financial Resources to Strengthen Ecuador's Health System	Systematic analysis conducted through consultation of PubMed, SciELO, LILACS Ecuador, and LILACS databases.	Adopting these modifications would improve health system efficiency, distribute risks more equitably, incentivize the achievement of health objectives, and strengthen system sustainability, moving towards universal health coverage.	Despite designed payment methods to enhance efficiency and sustainability, legal, political, and operational limitations hinder effective implementation. This gap between technical design and practical execution highlights the urgent need to strengthen administrative and operational capacities to achieve fair and effective coverage.

The discussion reveals that, from an economic perspective, studies such as those by Pizarro et al. (2022) and Rodríguez (2021) indicate significant deficiencies in budget management. These manifest as low expenditure execution, insufficient coordination between financial and technical departments, and hasty decision-making in response to resource shortages.

In the administrative realm, Macías et al. (2024) and Alcántara et al. (2022) emphasize the lack of experience and training among personnel responsible for public procurement, along with weak application of regulations and audits. These deficiencies generate a lack of transparency, negatively affect expenditure quality, and hinder proper monitoring of processes.

On the operational side, studies by Mazón & Haro (2023) and Cajo & Negrete (2025) underscore the importance of efficient logistical management, implementation of appropriate public policies, and utilization of

control methods to optimize supply. Aspects such as delivery time management, supplier monitoring, and adoption of digital tools are still in the process of improvement but are fundamental to ensuring continuity of care in hospitals.

Finally, Villacrés & Mena (2021) expand the analysis by noting that while payment and financing methods seek to modernize the system, political obstacles persist that limit their effectiveness.

Impact of operational efficiency and economic viability of hospitals

The following table analyzes the impact of operational efficiency on the procurement of medications within health centers, aiming to establish its relationship with administrative public policies.

Table 3

Results of the systematic review on the impact of administrative operational efficiency

No.	Authors (Year)	Title	Study Type	Results	Relation of operational efficiency impact in hospitals
1	(Borja & Negrete, 2025)	The Procurement of Medications Defined SICM2022 and Its Impact on the Supply of Medications at Riobamba Provincial General Teaching Hospital, 2022-2023	Longitudinal descriptive quantitative analysis. Examined 270 studies using statistical tools.	Adaptive and dynamic purchasing strategies based on maintaining high inventories have proven effective. The transformation of ministerial decrees has shown a 51.58% increase in medication reserves and a significant reduction in supply shortages.	Effective administrative operations can positively influence medication availability. The study demonstrates that efficient management, supported by longitudinal statistical analysis, optimizes resources and facilitates timely access to essential health supplies.
2	(Jara & Rosas, 2024)	Procurement of Goods and Services and Administrative Management in a Public Hospital in Lima	Qualitative descriptive study with a sample of 30 institution managers, using two expert-validated questionnaires.	In the Lima General Hospital (HGAI-ESSALUD), the analysis of the procurement process and administrative management showed a low correlation (r = 0.050; p-value = 0.794), indicating areas needing practical improvement.	Although operational efficiency does not always translate into immediate positive results, the study shows a slight correlation between administrative management and procurement, suggesting the need to strengthen institutional and human capacities within hospital structures.
3	(Faz et al., 2023)	Public Procurement in Ecuador: Analysis and Perspective	Documented review methodology, considering current regulations.	The results indicated that the lack of annual programming and adequate budget allocation are key issues in public procurement in the country, emphasizing the need for new guidelines established by the Organic Law of the National Public Procurement System.	In Ecuador, administrative efficiency in public procurement faces significant obstacles, particularly in annual planning and budget allocation. Thus, there is an urgent need to implement modern and transparent mechanisms to improve efficiency and reduce delays and excessive costs.

4	(Vargas, 2022)	Assessment of Supply Management in Hospital Logistics	Qualitative descriptive methodology based on review articles in hospital logistics for medication procedures.	Proposed improvement models in the supply chain, such as the combined SIPOC model and Economic Order Quantity with periodic and continuous review, promoting continuous improvement strategies centered on hospital logistics phases.	The adoption of effective operational models can transform medication supply management. Operational effectiveness is reflected in the hospital's capacity to supervise and coordinate critical stages such as production, storage, and distribution, ensuring timely delivery to patients.
5	(Cerda-Bustos, 2023)	Results of the New Public Management and Performance: Analysis of Chilean Public Hospitals	Analysis of data from 181 Chilean public hospitals obtained through the Public High Management System (SADP).	The reform under the New Public Management (NGP) emphasizes incorporating professionals in high management roles in Chilean public hospitals, improving performance and highlighting the need for appropriate professional profiles for hospital management.	The NGP reform in Chile underscores that operational efficiency in public hospitals is closely linked to the quality of administrative leadership, promoting greater coherence in procurement processes and healthcare delivery.
6	(Ramírez, 2023)	Efficient Processes in Public Procurement Analysis in Ecuador	Systematic, controlled, critical, and creative study.	The analysis of efficient processes in public procurement in Ecuador concludes that it is integral to both governments and state-owned enterprises responsible for goods, works, and services, promoting economic growth.	The study highlights the importance of effective mechanisms that turn medication procurement into a driver of economic and operational efficiency within the health sector, necessitating a review and update of institutional procedures aligned with strategic health system objectives.

The collection of research underscores the importance of operational effectiveness in the administrative management of medication procurement processes within public health. Borja & Negrete (2025) present a successful case where the implementation of flexible approaches, aligned with ministerial guidelines like the SICM2022 catalog, resulted in a significant increase in medication availability, demonstrating management based on concrete data and clear objectives.

Conversely, Jara & Rosas (2024) indicate that having an adequate regulatory framework is insufficient without effective execution in practice. The disconnect between regulation and its real-world application hinders genuine improvements, highlighting the need for trained and committed administrators.

Faz et al. (2023) propose strategic planning as a fundamental element in administrative functioning, emphasizing that a lack of planning and adequate economic resources can lead to the total collapse of the procurement system. Similarly, Vargas (2022) focuses on hospital logistics, where efficient operational models like EOQ and SIPOC optimize the flow of medications and ensure their timely availability.

From an institutional perspective, Cerda-Bustos (2023) emphasizes that technical leadership in management roles is essential for achieving effective administration, reaffirming the need to professionalize leadership in hospitals.

Finally, Ramírez (2023) highlights the crucial role of public procurement mechanisms, indicating that their proper implementation not only improves financial efficiency but also promotes the appropriate and responsible use of public resources, thereby enhancing the service provided to patients.

Conclusion

The detailed analysis of the reviewed studies reveals that operational effectiveness in management is fundamental to the success of medication procurement processes in public hospitals. Strategic administration, based on efficient organization, strong technical leadership, well-structured logistics, and clear procurement procedures, not only increases the availability of medical supplies but also optimizes the use of public resources. This, in turn, strengthens the viability of the health system and improves the quality of service offered to patients. Conversely, the lack of effective implementation, adequate planning, or firm direction represents a significant obstacle that limits the impact of any existing regulations.

References

Alcántara, Z. d., Núñez, J. K., Gonzales, M. A., & Callao, M. (2022). Gestión estratégica aplicada al proceso de compras de un hospital público. *Revista Científica Emprendimiento Científico Tecnológico, 3*(1), 1-14. https://doi.org/10.54798/RRPI9609

Borja, B. A., & Negrete, O. P. (2025). La adquisición de medicamentos catalogados SICM2022 y su incidencia en el abastecimiento de medicamentos del Hospital Provincial General Docente de Riobamba, periodo 2022 a 2023. *Tesla Revista Científica, 5*(1), e449. https://doi.org/10.55204/trc.v5i1.e449

Cajo, H. G., & Negrete, O. P. (2025). Políticas gubernamentales y su incidencia en el abastecimiento de medicamentos y dispositivos médicos en el Hospital Provincial General Docente Riobamba del MSP, periodo 2021-2023. *Tesla Revista Científica, 5*(1), e448. https://doi.org/10.55204/trc.v5i1.e448

Cerda-Bustos, M. M.-C.-G. (2023). Efectos de la Nueva Gestión Pública en el desempeño: análisis de los hospitales públicos chilenos. *Revista Salud Pública, 21*(3), 292-298. https://doi.org/10.15446/rsap.v21n3.77323

Faz, W. E., Fuentes, L. E., Hidalgo, M., & Guerrero, K. G. (2023). La contratación pública en el Ecuador: análisis y perspectiva. *Revista Ciencia y Tecnología, 27*(119), 316-4821. https://doi.org/10.47460/uct.v27i119.714

Iglesias, I. A., Rovira-Vila, M., Izko-Gartziac, N., Pérez-Rodríguez, O., Rodríguez-Rincón, R., & Álvarez-Arroyo, L. (2020). Suministro de medicamentos desde hospitales a centros de atención primaria y gestión de la calidad. *Revista Farmacéuticos de Atención Primaria, 17*(3), 123-134. https://www.elsevier.es/es-revista-farmaceuticos-atencion-primaria-317-articulo-suministro-medicamentos-desde-hospitales-centros-X217237611103295X

Jara, C. A., & Rosas, C. E. (2024). Adquisición de bienes y servicios y la gestión administrativa en hospital público de Lima. *UCV Hacer, 13*(1), 43-51. https://doi.org/10.18050/revucvhacer.v13n1a4

Ley Orgánica de Salud (2015). Registro Oficial Suplemento 423 de 22-dic-2006. En L. Finder. https://www.salud.gob.ec/wp-content/uploads/2017/03/LEY-ORG%C3%81NICA-DE-SALUD4.pdf

Ley Orgánica del Sistema Nacional de Contratación Pública (2024). Última reforma: Registro Oficial 575, 10-VI-2024. En Suplemento del Registro Oficial No. 395. https://www.sot.gob.ec/wpfd_file/12-ley-organica-del-sistema-nacional-de-contratacion-publica/

Macías, E., Vásconez, V., Vásconez, H., & Mayorga, M. (2024). Auditoría a los procesos de compras públicas en unidades de salud ecuatorianas. *Revista Cubana de Reumatología, 26*(1), e1259. https://revreumatologia.sld.cu/index.php/reumatologia/article/view/1259/pdf_1

Mazón, J. E., & Haro, A. G. (2023). Gestión de procesos de compras públicas y su incidencia en la logística de los hospitales públicos: artículo de revisión bibliográfica. *Revista Polo del Conocimiento, 8*(11), 466-473. https://doi.org/10.23857/pc.v8i11.6219

Organización Mundial de la Salud (2024, 25 de septiembre). Medicamentos esenciales. https://www.who.int/es/news-room/fact-sheets/detail/essential-medicines

Pizarro, K., Ruilova, M., & Martínez, O. (2022). Optimización de recursos económicos para compras de medicamentos e insumos médicos, aplicando modelos matemáticos determinísticos y estocásticos. *Journal of Science and Research, 7*(1), 80–99. https://doi.org/10.5281/zenodo.6506085

Ramírez, S. P. (2023). Mecanismos eficientes, referentes al análisis de la contratación pública en el Ecuador. *Ciencia Latina Revista Científica Multidisciplinar, 7*(2), 8450-8467. https://doi.org/10.37811/cl_rcm.v7i2.5968

Rodríguez, G. A. (2021). Factores que inciden en la asignación de recursos económicos y en la ejecución presupuestaria en el Hospital Básico Chone – IESS. *Digital Publisher CEIT, 7*(3), 30-47. https://doi.org/10.33386/593dp.2022.3-1.1020

Tello, P. J. (2025). Desafíos y estrategias de sostenibilidad financiera en los hospitales públicos y privados del Ecuador. *Educación Superior de Calidad en Quito, Ecuador (UDLA)*. https://dspace.udla.edu.ec/bitstream/33000/17544/1/UDLA-EC-TMGIS-2025-30.pdf

Valeria, A. R. (2021). *Análisis de la gestión y procedimientos del suministro de medicamentos en el servicio de farmacia, Centro de Salud La Vicentina y propuesta de mejora*. Carrera de Química Farmacéutica de la Universidad Central del Ecuador (UCE). https://www.dspace.uce.edu.ec/entities/publication/5d26e7f3-39f4-4b15-9a6b-712c1e633baf

Vallés, V. (2024, 26 de agosto). La cadena de suministro en la industria farmacéutica: aspectos clave. https://acortar.link/3ec2dt

Vargas, J. S. (2022). Análisis de la gestión de abastecimiento en la logística hospitalaria. *Revista Científica Anfibios, 5*(2), 110-125. https://doi.org/10.37979/afb.2022v5n2.117

Vázquez, S. M. (2024). La debilidad de las instituciones como instrumento político. *Revista Mexicana de Ciencias Políticas y Sociales, 69*(251), 143-156. https://doi.org/10.22201/fcpys.2448492xe.2024.251.84524

Villacrés, T., & Mena, A. C. (2021). Mecanismos de pago y gestión de recursos financieros para la consolidación del sistema de salud de Ecuador. *Revista Panamericana de Salud Pública, 41*(8), 1-16. https://www.scielosp.org/article/rpsp/2017.v41/e51/es/?utm_source=chatgpt.com