Strengthening Internal Controls Over Drug Inventory: Insights from a Case Study at PT ABC Pharmacy

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ABSTRACT

This study evaluates the effectiveness of internal control over drug inventory at ABC Pharmacy, which is essential for operational continuity and healthcare quality. Weak controls can lead to overstocking, damage, and expired drugs, harming finances and reputation. The study using a qualitative case study method and referring to the COSO (2013) framework focusing on risk assessment and control activities, data were obtained through semi-structured interviews and document analysis. The findings show that although internal controls exist, several weaknesses remain. The company lacks a risk register and systematic risk assessment. Storage is not supported by SOPs applying the First Expired First Out (FEFO) method, and documentation for drug distribution is inadequate. These findings suggest the need for improved policies, formal procedures, and the development of internal control awareness across all levels.

Keywordsi: Internal Control, Drug Inventory, COSO, Pharmacy, FEFO

Evaluasi Pengendalian Internal Atas Persediaan Obat: Studi Kasus Pada Apotek PT ABC

ABSTRAK

Penelitian ini mengevaluasi efektivitas pengendalian internal atas persediaan obat di Apotek ABC, yang sangat penting untuk kelangsungan operasional dan kualitas pelayanan kesehatan. Pengendalian yang lemah dapat menyebabkan kelebihan stok, kerusakan, dan kedaluwarsa obat, yang pada akhirnya merugikan keuangan dan reputasi perusahaan. Penelitian ini menggunakan metode studi kasus kualitatif dan mengacu pada kerangka kerja COSO (2013) dengan fokus pada penilaian risiko dan aktivitas pengendalian. Data diperoleh melalui wawancara semi-terstruktur dan analisis dokumen. Temuan menunjukkan bahwa meskipun pengendalian internal telah diterapkan, masih terdapat beberapa kelemahan. Perusahaan belum memiliki daftar risiko (risk register) dan belum melakukan penilaian risiko secara sistematis. Penyimpanan obat tidak didukung oleh SOP yang menerapkan metode First Expired First Out (FEFO), serta dokumentasi distribusi obat masih belum memadai. Temuan ini menunjukkan perlunya perbaikan kebijakan, prosedur formal, dan pengembangan kesadaran akan pentingnya pengendalian internal di semua tingkat organisasi.

Kata Kunci: Pengendalian Internal; Persediaan Obat; *COSO*; Apotek; *FEFO*

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INTRODUCTION

The effectiveness of pharmacies within the pharmaceutical supply chain significantly contributes to the success of healthcare services, particularly by minimizing distribution errors and ensuring accurate medication delivery (Desai, 2024). As part of PT ABC's business line in pharmaceutical services, ABC Pharmacy is experiencing challenges in managing drug inventory effectively, especially concerning overstock issues. In 2023, expired drug losses reached IDR 82.6 million, and in 2024, IDR 39.6 million, representing 2.91% and 1.08% of total purchases (IDR 2.8 billion and IDR 3.6 billion, respectively). These figures indicate a recurring overstock problem that requires systematic evaluation.

Theoretically, inventory overstock can be viewed as a failure of both operational and control systems. According to the COSO 2013 framework, internal control is a process designed to provide reasonable assurance regarding operational efficiency, reliable financial reporting, and regulatory compliance. A lack of adequate control activities, ineffective risk assessment, or poor monitoring can result in the accumulation of unsold or expired inventory (Papalexi et al., 2020). This issue is particularly critical in the pharmaceutical field, where inventory management directly affects service quality and public health outcomes. Internal control not only strengthens operational discipline but also enhances transparency, accountability, and strategic decision-making in supply chain operations (Albrecht et al., 2021).

Inventory management plays an important role in ensuring the availability, safety, and timely distribution of medicines in pharmaceutical service systems. Inadequate inventory control can lead to overstocking or stock-outs, which not only hinder service continuity but also incur financial losses. In the healthcare system, pharmacies play a crucial role in ensuring the safe, effective, and timely availability and distribution of medications to the public. Moreover, managing inventory plays a vital role in ensuring the sustainability and ongoing operations of a company (Hudori & Tarigan, 2019). Efficient inventory practices also hinge on the implementation of proper costing methods such as FIFO (First-In First-Out), LIFO (Last-In First-Out), and Average Cost, which influence not only financial reporting but also practical decisions in procurement and usage. Studies such as those by Hassan et al. (2022) and Kim & Lee (2021) have shown that the use of FIFO in pharmaceutical inventories reduces expiration rates due to its chronological usage approach, aligning with safety and regulatory requirements. Conversely, inappropriate application of these methods may lead to inefficiencies and resource misallocation (Nguyen & Tran, 2020).

Referring to the study by Fei, Lv, and Ma (2023), improving employee competence, enhancing management's understanding of internal controls, optimizing the use of inventory information systems, encouraging interdepartmental communication, strengthening risk management, and increasing awareness of risk prevention are key factors that contribute to organizational growth. In line with this, Akib et al. (2023) found that weaknesses in control activities—such as the lack of written standard operating procedures (SOPs) and insufficient task segregation—play a significant role in drug expiration and inventory mismanagement. Similarly, Prabowo et al. (2022) emphasized that implementing internal control systems alongside inventory classification methods

such as ABC-VEN and stock rotation strategies like FIFO can help optimize inventory levels and reduce losses due to expiration. Moons et al. (2019) also highlighted that poor inventory management may lead to overstocking, which ties up resources and restricts cash flow, thereby hindering organizational performance. Conversely, understocking can result in supply shortages that disrupt service continuity. Furthermore, Indriasari et al. (2023) noted that drug availability in hospitals is critical, as it directly affects the quality of healthcare services. Therefore, effective inventory management practices are essential to ensure smooth operations and the ability to meet patient needs. Without adequate stock, hospitals may face serious challenges and operational risks.

However, despite existing frameworks and empirical evidence, the practical implementation of internal control systems in developing countries especially in newly established facilities such as ABC Pharmacy remains inconsistent. This creates a research gap in understanding how COSO based internal control frameworks are applied in early-stage pharmaceutical field and whether such applications effectively mitigate overstock risks.

To address this gap, this study evaluates the effectiveness of internal control over drug inventory at ABC Pharmacy using the COSO 2013 framework, focusing particularly on risk assessment and control activities. Through this approach, the study aims to provide a comprehensive understanding of how internal controls can be strengthened to prevent overstock, reduce expired drug losses, and improve overall inventory efficiency.

RESEARCH METHOD

This study employs a qualitative research method with a case study approach, conducted at ABC Pharmacy. Qualitative research is suitable for exploring complex phenomena within a specific context and providing in-depth explanations (Creswell, 2009). This study utilizes both primary and secondary data. Primary data refers to data obtained directly through various methods such as documentation, observation, interviews, focus group discussions, surveys, and experiments (Ganesha et al., 2022). Primary data were obtained through semi-structured interviews, where the researcher prepared a list of questions in advance but allowed flexibility for probing and adjusting questions during the interview process (Alijoyo, 2021). The interviews were conducted in August–September 2024 through both face-to-face and online meetings. Key informants involved in drug inventory management included the Director (as policymaker), the Head of Pharmacist (as procurement implementer), and the Assistant Pharmacist (as responsible for recording and monitoring). Informant details are presented in Table 1.

Table 1 Informants of the study

No	Title	Research Subject
1.	Director of PT ABC	Director of PT ABC who is responsible for the policies and procedures that must be implemented by ABC Pharmacy.
2.	Head of pharmacist	ABC Pharmacy employees who are responsible for the procurement process.
3.	Assistant of pharmacist	ABC Pharmacy employees who are responsible for recording and monitoring during the drug procurement process.

Source: Research Data, 2024

Secondary data were obtained through a review of internal documents, including PT ABC's annual reports and Standard Operating Procedures (SOPs) related to drug inventory. These documents were analyzed to validate and enrich the information gathered through interviews.

The data analysis followed the qualitative descriptive analysis technique using three stages: data reduction, data display, and conclusion drawing (Sekaran & Bougie, 2019). In the data reduction information from interviews and documents was filtered and summarized, focusing specifically on two components of the COSO (2013) internal control framework risk assessment and control activities.Next, in the data display stage, the reduced data were organized into structured tables that included risk identification, risk impact, and control activities implemented by ABC Pharmacy. This step facilitated pattern recognition and the identification of key findings across different business processes. Finally, in the conclusion drawing stage, the organized data were interpreted to evaluate the effectiveness of existing internal controls and to formulate recommendations for improvement based on field findings and the researcher's interpretation. This triangulation between primary and secondary data, supported by structured qualitative analysis, ensures the reliability and depth of the conclusions drawn in this research. The framework used to analysis data in this research can be seen in Figure 2

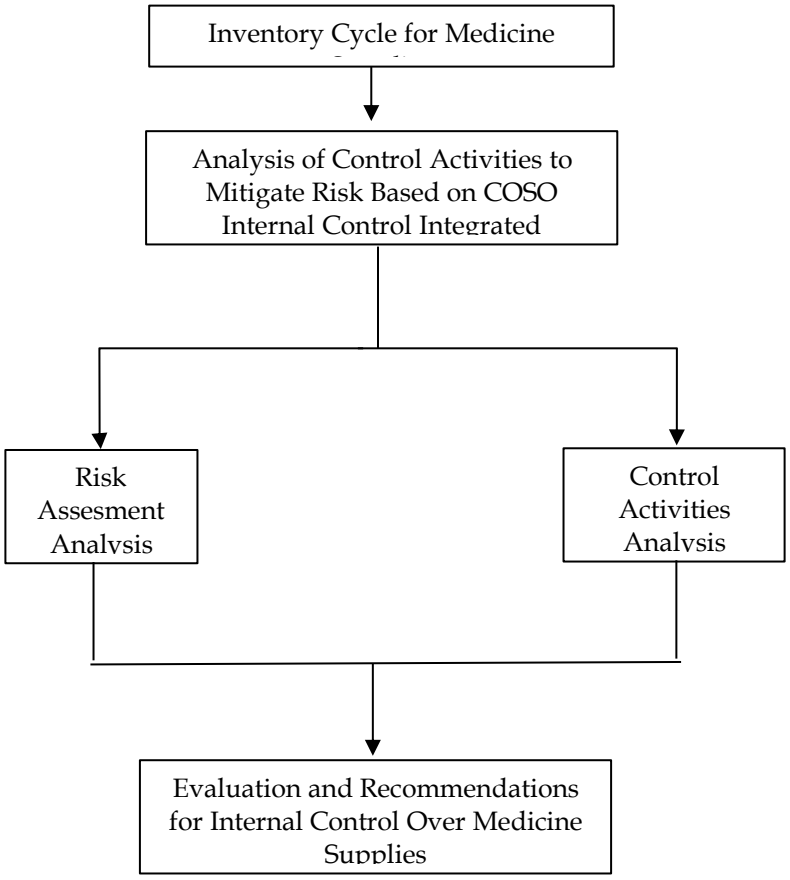

Figure 2: Research Data Analysis

Source: Research Data, 2024

RESULT AND DISCUSSION

Based on interviews with management, it was found that the company has implemented an internal control system aimed at achieving operational, compliance, and reporting objectives. However, this study focuses solely on operational and compliance objectives, as the business processes examined do not involve reporting activities In terms of operational objectives, ABC Pharmacy seeks to optimize inventory management by reducing the variety of drugs with similar active ingredients, in order to minimize overstocking and improve efficiency. For compliance objectives, the pharmacy adheres to relevant regulations, including the Ministry of Health Regulation No. 73 of 2016 concerning Pharmaceutical Service Standards in Pharmacies, and BPOM Regulation No. 24 of 2021 regarding the Supervision of Drug and Narcotics Management in Pharmaceutical Service Facilities.

However, based on interviews and document analysis, the implementation of internal control at ABC Pharmacy does not fully align with the Risk Assessment component of the COSO (2013) framework. The company lacks formal procedures for identifying and assessing risks, has not compiled a risk register, and does not conduct fraud risk assessments or analyze changes that may affect organizational objectives. Moreover, no structured risk management training is provided to staff as part of capacity building efforts.

The absence of a risk register significantly weakens the company's ability to systematically identify, evaluate, and respond to risks within its drug inventory processes. As a result, critical risks such as overstocking, drug expiration, procurement inaccuracies, and conflicts in distributor selection are not proactively managed. This is evident from the losses incurred due to expired drugs, amounting to Rp82.6 million in 2023 and Rp39.6 million in 2024. Such inefficiencies not only impact financial performance but also reduce the effectiveness and accountability of internal controls.

Since ABC Pharmacy does not maintain a documented risk register, risk assessment in this study was conducted by identifying risks through interviews and reviewing existing Standard Operating Procedures (SOPs) relevant to inventory.

Regarding the Control Activities component of the COSO framework, internal control measures were analyzed and categorized according to key business processes: (1) drug procurement requests and distributor selection, (2) drug receipt, (3) drug storage, and (4) drug distribution. Each control activity was further classified based on its nature preventive, detective, or corrective and was assessed through triangulation of interview findings and SOP documentation.

In the first stage, The process begins with the head pharmacist and assistant pharmacist checking drug availability using a defecta book recorded in a spreadsheet and the Pharmacy Health Information System (SIKA) website. If a low stock is detected, the head pharmacist prepares a drug procurement proposal based on historical data of the most frequently used drugs in the previous month and determines the brands to be selected. The assistant pharmacist then categorizes the drug list into ethical drugs (prescription), over-the-counter (OTC) drugs, and special drugs (narcotics, psychotropics, and precursors). The head

pharmacist prepares a pharmaceutical budget plan for submission to the director. If rejected, the plan is revised per the director's feedback; if approved, procurement proceeds based on the endorsed plan.

The head pharmacist and assistant pharmacist jointly coordinate to select distributors in accordance with the approved budget. The assistant pharmacist sets several criteria based on the Ministry of Health Regulation No. 73/2016 and BPOM Regulation No. 24/2021, which include: Procurement must be conducted through licensed pharmaceutical wholesalers (PBF) or pharmaceutical manufacturers, Use of either manual or electronic purchase orders, Distributors must be fully licensed and ensure the safety, quality, and efficacy of drugs.

Table 2 Risk Analyze and Control Activities for drug procurement requests and distributor selection

Risk	Control Activities	P/D/C*)	*Checklist*
Medication procurement was unfulfilled due to unavailability from the selected distributor.	Establish clear selection criteria prioritizing distributors with a comprehensive list of required medications.	P	✓
The prices of certain medications exceeded prevailing market prices.	Compare and evaluate the lowest price offers only from distributors that meet the selection criteria.	P	✓
The selection of distributors did not adhere to established criteria.	Ensure procurement proposals are subject to review and approval by the Head of Pharmacist.	P	✓
There was a high dependency on a single distributor.	Establish partnerships with multiple distributors to mitigate supply disruptions.	P	✓
Potential conflicts of interest and collusive practices were identified in the distributor selection process.	Although the selection of distributors is conducted by pharmacy assistants and reviewed by the Head of Pharmacist, no further review by higher-level authorities exists to ensure independence and prevent possible collusion.	P	X
	The organization lacks a written code of conduct governing the procurement process.	P	X

*) P = Preventive actions D = Detective actions C= Corrective actions ✓=Effective X=Not Effective

Source: Research Data, 2024

In addition to these regulatory criteria, ABC Pharmacy requires that distributors maintain a stock list that aligns with the pharmacy's needs. The assistant pharmacist compares drug prices offered by qualified distributors and selects two to five vendors offering the lowest prices. These shortlisted distributors are included in the budget document for review and approval by the head pharmacist. Once approved, the head pharmacist issues a triplicate purchase

order, one copy of which is sent to the distributor and the others archived for recordkeeping. analyzes the risks and control activities applied to inventory: drug procurement requests and distributor selection presented in Table 2

Based on the results of interviews with the company's management, It can be concluded that the control activities related to medication procurement requests and distributor selection have not been fully effective. Several identified weaknesses in the implementation of these internal control activities serve as the basis for the improvement recommendations proposed in this study to the management presented in Table 3

Table 3 Recommendations for Improving Control Activities

Risk	Weakness Control Activities	Recommendations
Potential conflicts of interest and collusive practices were identified in the distributor selection process.	The existing control measures were unable to mitigate the risk of fraud in the distributor selection process due to the absence of review by a higher-level authority.	Conduct regular reviews of the distributor selection process by the Director or other higher-level authorities.
Potential conflicts of interest and collusive practices were identified in the distributor selection process.	The current control environment failed to address potential fraud risks because no formal written code of ethics or conduct guidelines were in place.	Develop, ratify, and disseminate a formal code of conduct to all employees to guide ethical behavior and decision-making.

Source: Research Data, 2024

Based on Table 3, presents a set of improvement recommendations to address weaknesses in the current internal control activities related to medication procurement and distributor selection. These recommendations were developed based on the observation that several existing control activities have not been effective in mitigating potential risks. The identified weaknesses include the following:

weaknesses were identified in the distributor selection process, which is carried out directly by the Head of Pharmacist and assistant pharmacists without any formal review or subsequent approval by the Director. The absence of a supervisory mechanism at this stage exposes the company to multiple risks, including the procurement of medications with low profit margins, mismatches between the purchased quantity and actual needs, reduced quality of received medications rendering them unfit for consumption, and potential collusion between pharmacy personnel and distributors. To mitigate these risks, it is recommended that the Director of ABC Pharmacy conduct regular evaluations and oversight of the distributor selection process. This evaluation should include a review of distributor selection criteria, the accuracy of price quotations, and the independence of the decision-making process. Involvement of higher-level management in this oversight is expected to prevent abuse of authority, reduce the likelihood of conflicts of interest, and enhance accountability in ABC Pharmacy's procurement practices.

Interview results also revealed a lack of a formal written code of ethics or behavioral guidelines that explicitly establish standards of integrity and principles of objectivity in decision-making. The absence of such formal reference materials weakens the mitigation of fraud risks such as gratuities and conflicts of interest making the distributor selection process vulnerable to subjective influence and potential abuse of power. Without clear ethical and governance policies to ensure transparency and accountability, internal controls cannot function optimally to prevent fraudulent practices at this critical stage. As a corrective measure, the company is advised to promptly develop and ratify a formal Code of Conduct applicable to all employees. The development process should involve leadership and representatives from various departments, and take into account core values such as integrity, legal compliance, and relevant professional ethics. A formal code of conduct is expected to serve as a behavioral reference, strengthening internal control, enhancing accountability, and fostering a professional and ethical work environment in all decision-making processes, including distributor selection.

The Second cycle is drug receipt process, the drug receipt process at ABC Pharmacy begins when the ordered drugs arrive from the distributor. In accordance with BPOM Regulation No. 24/2021, the receipt of special drugs must be handled separately from ethical and OTC drugs. Ethical and OTC drugs may be received by any pharmacy personnel on duty—including the head pharmacist, assistant pharmacist, pharmaceutical technical personnel, or assistant technical personnel. However, narcotics and psychotropics must only be received by the head of pharmacist, while precursors may be received by an assistant of pharmacist with a valid pharmacist practice license (SIPA).

The receiving personnel conduct a physical verification by matching the distributor's invoice against the physical drug shipment, including: Drug name and quantity, Batch number, Expiry date, and Consistency with the purchase order. If all information matches, the invoice is signed by the head pharmacist as confirmation and approval of receipt. The signed invoice is handed to the designated assistant pharmacist for entry into the SIKA system, which includes: Date of drug receipt (as per invoice), Invoice number, Distributor name and code, Payment due date, Total invoice value, and Payment status (paid/unpaid). The head pharmacist verifies the data entered into SIKA to ensure accuracy with the invoice. A copy of the invoice is submitted to the finance department for transaction recording and payment processing, while the original invoice is archived by the head pharmacist. analyzes the risks and control activities applied to inventory: drug receipt presented in Table 4

Table 4 Risk Analyze and Control Activities for drug receipt

Risk	Control Activities	P/D/C*)	*Checklist*
Medications designated as restricted were received by unauthorized personnel.	ABC Pharmacy has implemented a segregation of duties in the drug receipt process. In accordance with the provisions of the Indonesian Food and Drug Authority Regulation No. 24 of 2021, the receipt of special drugs is strictly carried out by the head of pharmacist.	P	✓
Drug acceptance was conducted without proper verification procedures.	Upon receipt of the medications, the head of Pharmacist or assistant of pharmacist conducts verification procedures, which include: Confirming the name and quantity of medications received, Checking the batch number, Inspecting the expiration date, Verifying consistency with the purchase order.	D	✓
Discrepancies were found between the names and quantities of medications received and those ordered.	Physical verification is conducted to ensure the drug name and quantity listed on the packaging match the invoice data.	D	✓
Some medications were already expired upon receipt.	Physical verification is conducted to ensurethe expiration date indicated on the drug packaging match the invoice. .	D	✓
Medications received did not match the purchase order.	The invoice data is also reconciled with the purchase order to confirm consistency.	D	✓
Errors occurred in the data entry of medication information.	the head of pharmacist reviews and verifies the drug data input performed by the assistant of pharmacist to ensure data accuracy.	D	✓

Source: Research Data, 2024

Based on the analysis presented in Table 4, it can be concluded that the drug receipt activities have been fully effective.

The Third cycle is drug storage process, the storage process begins with the head pharmacist instructing the assistant pharmacist to classify drugs based on their main categories, namely: Ethical drugs (prescription), and Over The Counter (OTC) drugs, including free drugs, limited OTC drugs, and herbal products.

The assistant pharmacist transfers the classified drugs to a dedicated storage room, where shelves or storage boxes are clearly labeled by drug category. Drug arrangement in the storage area follows the standards set by Ministry of Health Regulation No. 73/2016 and BPOM Regulation No. 24/2021, with attention

to: storage in original packaging, and if repacked, labels must include drug name, batch number, and expiry date, separation from other drug types, organization by pharmacological class, alphabetical order, First Expired First Out (FEFO) method, and appropriate storage temperature, distinguishing between room temperature and refrigerated storage.

Table 5 Risk Analyze and Control Activities for drug storage

Risk	Control Activities	P/D/C*)	*Checklist*
improper classification of drugs	the Head of pharmacist assigned assistant of pharmacists to classify drugs into two main categories: ethical drugs (prescription-only medicines) and over-the-counter (OTC) drugs, which include general OTC medicines, limited OTC medicines, and herbal products	P	✓
failure to store drugs with similar types together	Drug storage is carried out by assistant of pharmacists in a designated storage area equipped with racks or boxes, each clearly labeled according to the primary classification of the drugs, to facilitate identification and inventory management.	P	✓
disorganized drug arrangement	The arrangement of drugs is based on the guidelines stipulated in the Ministry of Health Regulation No. 73 of 2016 and the National Agency of Drug and Food Control (BPOM) Regulation No. 24 of 2021, which require that drugs be stored in their original containers, grouped by pharmacological class, arranged alphabetically, and maintained under appropriate storage temperatures.	P	✓
presence of expired drugs in storage	Assistant of pharmacists organize the drugs following the First Expired First Out (FEFO) principle. However, this principle has not yet been formalized in a written Standard Operating Procedure (SOP).	P	X
inappropriate storage of special drugs contrary to applicable regulations	Special drugs at ABC Pharmacy are stored by the Head pharmacist in a dedicated cabinet, separate from other medications, in compliance with BPOM Regulation No. 24 of 2021.	P	✓
lack of segregation in dual key access for special drug cabinets	ABC Pharmacy has also implemented a dual-key system for special drug cabinets, where the Head pharmacist and assistant pharmacist each hold one of the keys, as mandated by BPOM Regulation No. 24 of 2021.	P	X
the absence of active monitoring in the storage room	Although the drug storage area is equipped with CCTV, there is no assigned personnel specifically responsible for monitoring the surveillance system.	D	✓

Source: Research Data, 2024

Special drugs may only be stored by the head pharmacist and must follow additional requirements under BPOM Regulation No. 24/2021: special drugs must be stored in a separate locked cabinet, the cabinet must have dual locks held by two different personnel, expired excess stock must be destroyed under supervision of the Health Office, with official documentation. To ensure security and monitoring, the storage room is also equipped with CCTV cameras covering both interior and exterior areas. analyzes the risks and control activities applied to inventory: drug storage presented in Table 5

Based on the results of interviews with the company's management, It can be concluded that the control activities related to drug storage have not been fully effective. Several identified weaknesses in the implementation of these internal control activities serve as the basis for the improvement recommendations proposed in this study to the management presented in Table 6

Table 6 Recommendations for Improving Control Activities

Risk	Weakness Control Activities	Recommendations
Presence of expired drugs in storage	The existing control measures have not been effective in mitigating the risk of non-compliance with the First Expired First Out (FEFO) principle in the storage process, due to the absence of a written Standard Operating Procedure (SOP).	Recommended to develop a written SOP outlining the procedures for drug arrangement based on the FEFO principle
The absence of active monitoring in the storage room	The current control mechanisms have not been able to mitigate the risk of fraud, as there is no designated personnel assigned to monitor the CCTV in the storage area.	To assign dedicated personnel responsible for actively monitoring the CCTV system in the storage room.

Source: Research Data, 2024

Based on Table 6, presents a set of improvement recommendations to address weaknesses in the current internal control activities related to drug storage. These recommendations were developed based on the observation that several existing control activities have not been effective in mitigating potential risks. The identified weaknesses include the following:

Based on interview findings, a key weakness was identified in the drug storage activities namely, the absence of a Standard Operating Procedure (SOP) to regulate how drugs should be stored. As a result, storage practices rely heavily on the habits of individual staff members, leading to inconsistent application of the First Expired First Out (FEFO) principle. Sometimes FEFO is followed, and sometimes it is not. This irregularity increases the risk of drug damage or expiration, dispensing drugs with longer expiry dates to patients, and difficulties in conducting stock-taking. Ultimately, these issues may compromise patient safety and result in financial losses for the organization. To ensure consistent application of the FEFO method, a written SOP is essential not only to serve as a storage guideline but also as a supervisory tool to ensure compliance.

The segregation of duties between personnel responsible for inventory record-keeping and those in charge of physical drug storage is a fundamental principle of internal control. This separation is intended to reduce the risk of loss, theft, and data manipulation. By clearly delineating these functions, access to the drug storage area can be more effectively restricted and monitored through the use of electronic access controls and CCTV surveillance.

The final cycle is drug distribution process, the drug distribution process begins when the head pharmacist or assistant pharmacist receives a drug request from a patient, with or without a prescription. Non-prescription drug requests are limited to: Free drugs (green label), Limited OTC drugs (blue label), and Herbal products. Requests for special drugs such as narcotics, psychotropics, and precursors must be accompanied by a specialist's prescription and must be fulfilled in person at the pharmacy. Remote orders are not permitted for such items.

If the requested drug is out of stock, the assistant of pharmacist offers an alternative drug with the same active ingredients. If the patient insists on a specific brand, a special order via Purchase Order (PO) can be initiated, subject to a down payment (DP). Once approved, delivery is arranged through a third-party courier (e.g., Gojek), booked either by the patient or the pharmacy. Proof of delivery is obtained through: A photo of the patient receiving the drug, sent by the courier, and/or Confirmation via WhatsApp between the pharmacy and patient, if needed.

Table 7 Risk Analyze and Control Activities for drug distribution

Risk	Control Activities	P/D/C*)	*Checklist*
Patients requesting prescription-only medications without a valid prescription	At ABC Pharmacy, the ordering of special (prescription-only) drugs is strictly limited to patients who present a prescription from a specialist physician. Requests for medications without a prescription are only accepted if the requested drugs fall under the following categories: over-the-counter (OTC) drugs with a green logo (general OTC), limited OTC drugs with a blue logo, or herbal products.	P	✓
Stock unavailability at the time of order	In the event of stock unavailability, The pharmacy offers a special ordering system through a Purchase Order (PO) mechanism, which is only processed after the patient makes a Down Payment (DP).	P	✓
	In the event of stock unavailability, the pharmacy may offer alternative drugs containing the same active ingredients.	C	✓
Undelivered drugs to customers	To ensure the accuracy and reliability of the delivery process, the head of pharmacist or assistant of pharmacist performs a verification procedure that includes: photographic confirmation of receipt sent by the delivery courier and patient confirmation via WhatsApp communication with the pharmacy.	D	✓
Delivery of expired medications	Drugs are rechecked prior to dispatch to ensure accuracy and suitability.	P	✓
Failure to record outgoing stock	After distribution, the assistant of pharmacist updates drug inventory data on the SIKA (Pharmacy Information System) website and compiles daily sales records.	D	✓

Source: Research Data, 2024

Upon completion of the distribution, the assistant pharmacist updates the stock records in the SIKA system and compiles daily sales data. This data is then submitted to the head of pharmacist for archiving and monthly sales reporting, which is forwarded to the finance department for reconciliation and transaction recording. analyzes the risks and control activities applied to inventory: drug distribution presented in Table 7

Based on the analysis presented in Table 7, it can be concluded that the drug distribution activities have been fully effective.

CONCLUSION

Based on the recommendations provided, it can be concluded that improving the internal control activities at ABC Pharmacy, particularly in drug procurement, storage, and distribution, is essential to ensure more efficient and compliant operations. The key takeaways from the recommendations are: to strengthen internal control over drug inventory, the company should perform periodic reconciliation between manual records and the SIKA system, establish a written code of ethics to reduce the risk of conflict of interest in distributor selection, develop standard operating procedures (SOPs) to institutionalize the First Expired First Out (FEFO) method in storage activities, and assign personnel specifically responsible for monitoring CCTV in the drug storage area. By implementing these actions, ABC Pharmacy can improve operational consistency, reduce the incidence of expired inventory, and mitigate the risk of procedural violations.

The main contribution of this research is its practical insight into how the COSO 2013 internal control framework can be applied to small-scale pharmaceutical operations, particularly focusing on two critical components: risk assessment and control activities. This study provides a structured approach for identifying internal control deficiencies through business process mapping, supported by interview data and document analysis. The findings offer specific, implementable recommendations that align with national pharmaceutical regulations and contribute directly to improving transparency, accountability, and operational effectiveness in pharmacy inventory management.

This study has several limitations that should be addressed in future research. First, the research was conducted in a single pharmacy (ABC Pharmacy), which limits the generalizability of the findings to other entities within the pharmaceutical sector or broader healthcare facilities. Second, due to time constraints and limited data availability, the study focused solely on evaluating drug inventory management processes at ABC Pharmacy. Third, the study did not include a formal risk measurement or quantification, as the required data were not available within the organization. Future studies are encouraged to involve multiple pharmacies or institutions and incorporate quantitative risk assessments to provide a more comprehensive and scalable evaluation of internal controls.

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