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Comparison of Drug Inventory Management in Public and Private Hospitals in Kendari City

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ABSTRACT

Introduction: Drug inventory management is an important aspect in supporting the effectiveness of health services in hospitals, especially in providing quality drug needs. There are differences in the characteristics of drug supply management between public and private hospitals. These differences include aspects of policy, resources, regulation, and procurement flexibility. This attracted researchers to conduct a study aimed at comparing drug supply management systems between public and private hospitals, especially in Kendari City.

Method: The research used a qualitative approach with data triangulation through in-depth interviews, observations, and document studies. Informants consisted of heads of pharmacy installations, pharmacists, and hospital management representatives.

Result: The results of in-depth interviews showed differences in drug procurement management between public and private hospitals. Public hospitals have a more structured system following formal regulations such as e-catalogue, while private hospitals are more flexible. The ABC method has also been applied in all hospitals in mapping drug classifications although the implementation differs in each hospital depending on the size of the budget, the competence of human resources, and the availability of supporting systems and data required. The EOQ method has not been optimally implemented due to limited data and information systems. A common problem faced by hospitals is drug stock-outs, which have an impact on patient satisfaction.

Conclusion: The effectiveness of drug management in hospitals is generally considered to be good. There are differences and similarities in drug management between public and private hospitals. Stock out is a common problem in drug supply management in hospitals.

Introduction

Medication management in hospitals is a vital aspect in supporting effective and efficient healthcare services. Inefficiencies in medication management can have negative impacts, both medically and economically.[1] The primary goal of medication management is to ensure the availability of sufficient quantities of medications, guaranteed quality, and affordable prices to support quality healthcare services.

Public and private hospitals have different characteristics, particularly in terms of drug inventory management systems. These differences encompass policies, resources, regulations, and procurement flexibility. In Kendari City, comparisons between public and private hospitals in the context of drug management have not been extensively studied.

The goal of drug management in hospitals is to ensure that necessary drugs are available whenever needed, in sufficient quantities, with guaranteed quality, and at affordable prices to support quality services. Good drug management ensures the availability of drugs whenever needed, in sufficient quantities, and with guaranteed quality, to support quality services in hospitals. Therefore, drug inventory is a crucial aspect of hospital healthcare. Good drug inventory management will ensure sufficient drug availability, avoid shortages or excess stock, and reduce the risk of expired drugs. Public and private hospitals have differences in drug inventory management systems, which can be influenced by applicable policies, resources, and regulations. In Kendari City, both public and private hospitals play a vital role in public health services. However, the differences in drug inventory management between these two types of hospitals remain understudied. Therefore, it is important to analyze how each hospital manages drug inventory, the factors that influence its management efficiency, and the challenges faced.

Based on an interview conducted on March 25, 2025, with the pharmacy staff of Abunawas Regional Hospital, informant Yusti stated that there were indeed several obstacles that caused the stock of empty drugs and that this was always attempted to prevent a recurrence regarding this matter. One of the things beyond the hospital's control was late deliveries from distributors and constantly changing regulations.[18] This indicates the importance of an in-depth study of the efficiency of the drug inventory management system in both types of hospitals. Drug management in hospitals is an important aspect in supporting effective and efficient health services. In Kendari City, the drug inventory management system in public and private hospitals has different characteristics, but has not been studied in depth. Therefore, this study was conducted to compare drug inventory management at Abunawas Regional Hospital and Kendari City Mental Hospital (state hospitals) as well as Dewi Sartika Hospital, Aliyah Hospital (private hospitals). This is not much different from interviews with Kendari Mental Hospital staff who make orders in accordance with government hospital policy procedures with distributor problems.

Researchers also conducted a preliminary study in the form of interviews with pharmacy staff at Dewi Sartika Hospital. Informants stated that drug shortages often occur due to late deliveries from distributors and several regulatory constraints that cannot be controlled by the hospital, such as drug inventory management which is still based on rough calculations. This reinforces the importance of this study to analyze the efficiency of the drug inventory management system. And on May 15, 2025, researchers conducted an interview at Aliyah Hospital. Information from Apt. Eka Nursitya explained that drug management is based on data in the Hospital's SIM. The ordering flow is through a cover letter to the PBF by differentiating between narcotic and non-narcotic drugs, so it takes longer to manage drugs because they wait for them to run out after which an order is made.

According to several main factors that cause drug stock shortages are identified, including production problems where disruptions occur in the manufacturing process, including shortages of pharmaceutical raw materials, unmet quality standards, or natural disasters that damage production facilities, strict regulations on drug approval processes that take a long time or regulatory changes that hinder the distribution of certain drugs.[2]

Identified various factors causing drug shortages, with production disruptions being a key factor.[3] Specific causes include manufacturing constraints, such as technical disruptions in production or non-compliance with regulatory

standards, dependence on specific raw material suppliers, particularly from countries like China and India.[4] If supply is disrupted, drug production worldwide is impacted, lack of production capacity, particularly for drugs with low profit margins, resulting in fewer companies being interested in producing them, natural disasters, pandemics, or geopolitical factors that can lead to production or distribution halts[16]. have also identified factors causing drug shortages, including production disruptions, limited raw materials, natural disasters, pandemics, and complex regulations.[5] Researchers chose the ABC method because it helps hospitals group drugs based on their usage value.[6]. The EOQ method was used because it helps determine optimal order quantities to achieve cost efficiency.[7] These two methods have not been widely applied simultaneously in local studies in Kendari City.[8]

The public often views private hospitals as upper-middle-class healthcare facilities, due to the relatively high cost of care in some categories.[9] This is understandable, given that all hospital operational costs are covered by the private sector.[10] Private hospitals are generally known for providing better quality services than government hospitals, and they are typically owned by individuals or private groups, focusing their services on wealthier.[11]

Several studies conducted by the private hospital PMI Bogor Hospital show that drug storage uses the FIFO (First In First Out) and FEFO (First Expired First Out) systems, but there are several things that make the FEFO/FIFO system not function properly in certain situations.[12] Research conducted at the public hospital Pharmacy Installation of Kotamobagu Regional Hospital often results in drug shortages because drug orders made by the installation only follow the number of orders 3 months previously.[13]

Drug inventory is a crucial aspect of healthcare services in hospitals.[14] According to Heizer and Render, inventory is the stock of materials or goods stored for use in production or sale.[15] In the hospital context, drug inventory aims to ensure optimal drug availability to meet patient needs without creating excess or shortages.[16] Drug inventory control is the activity of ensuring the achievement of desired targets in accordance with established strategies and programs, thus preventing excesses, shortages, or drug shortages.[17]

According to the drug inventory management must be carried out efficiently to prevent stockouts (drug shortages) that can hamper health services or overstocks (excess drugs) that cause wasteful costs and the risk of expiration.[18]

Method

The research used a qualitative approach with data triangulation through in-depth interviews, observations, and document studies. [19] Informants consisted of heads of pharmacy installations, pharmacists, and hospital management representatives. Data analysis was carried out using the Miles and Huberman interactive model, including data reduction, data presentation, and conclusion draw.

Result

Drug Inventory Management System

To find out the drug inventory management system, researchers conducted in-depth interviews with 8 informants, and they provided answers as summarized and presented in the Exploration Diagram in Figure 1.

Based on the Drug Inventory Management System Exploration Diagram in Figure 3, it can be visually seen that informants stated that some hospitals have not yet adopted an e-catalog system, still using manual and consumptive methods for managing drug inventory. Informants stated that public hospitals are required to follow the e-catalog system, which requires a formal and lengthy procurement process.

Use of the ABC Method

To find out the use of the ABC method, researchers conducted in-depth interviews with 8 informants, and they provided answers as summarized and presented in the Exploration Diagram Figure 2. Interview Transcript.

Based on the ABC Method Usage Exploration Diagram in Figure 4, it can be visually seen that informants stated that all hospitals have implemented the ABC method for efficiency and budget control. However, the level of ABC method implementation varies. To map which drugs are high value, which are medium value and

which are low value, cost emphasis, availability of human resources & technical capabilities and the size of the hospital budget. This is based on the results of interviews with informants who are heads of pharmaceutical warehouses at public and private hospitals.

Use of the EOQ Method

To find out the use of the EOQ method, researchers conducted in-depth interviews with 8 informants, and they provided answers as summarized and presented in the Exploration Diagram in Figure 3.

Based on the Exploration Diagram of the Use of the EOQ Method in Figure 3, it can be visually seen that informants stated that most hospitals are familiar with and have attempted to implement the EOQ method. However, implementation is not yet fully formalized and standardized, with the estimation of average monthly needs as the basis for procurement, the availability of consumption data, and supporting systems being the main obstacles. The EOQ method is expected to reduce storage costs and the risk of expiration, but many still rely on traditional methods such as FEFO and manual estimates.

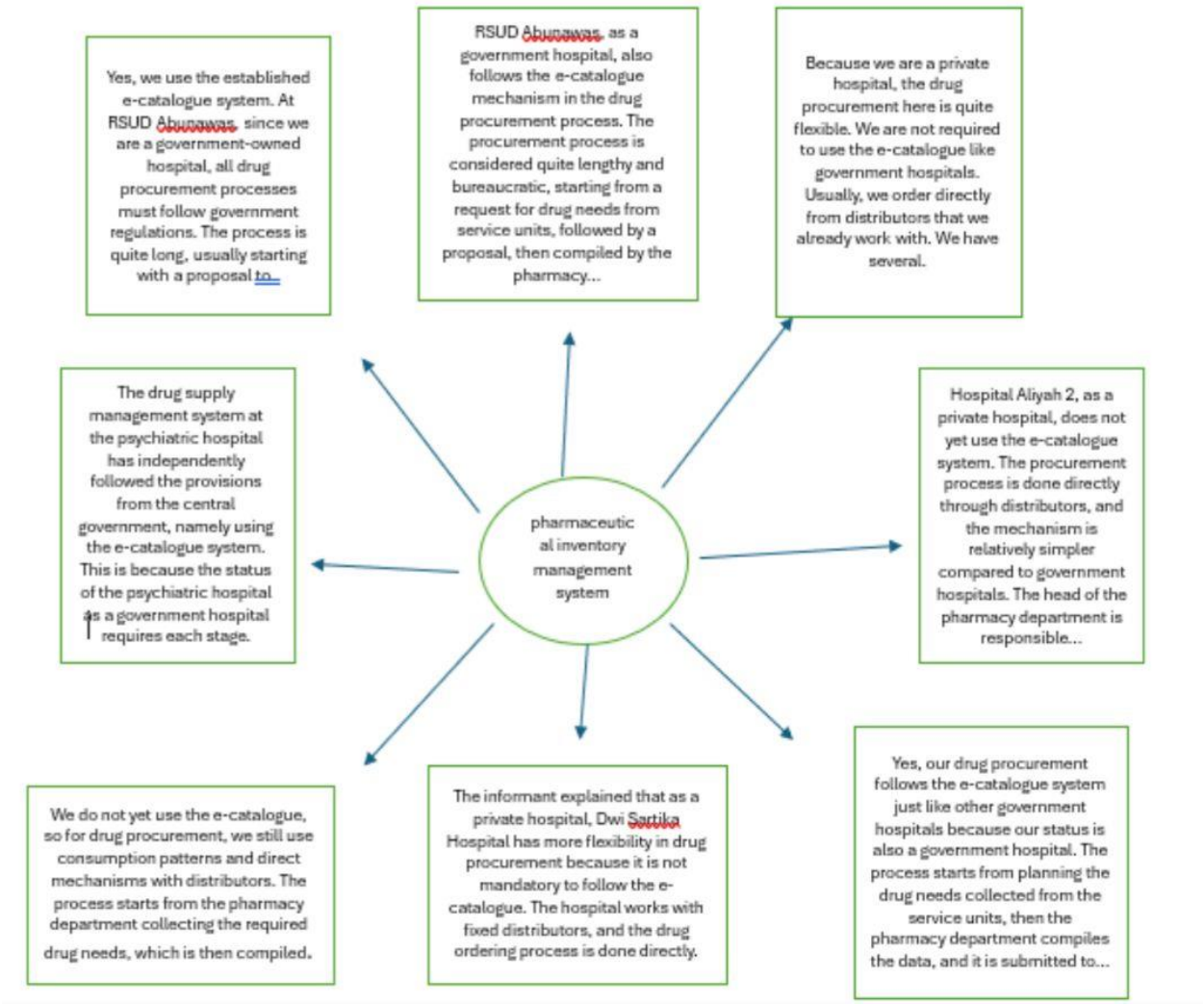

Figure 1. Exploration Diagram of the Drug Inventory Management System

Figure 2. Exploration Diagram of the Use of the ABC Method

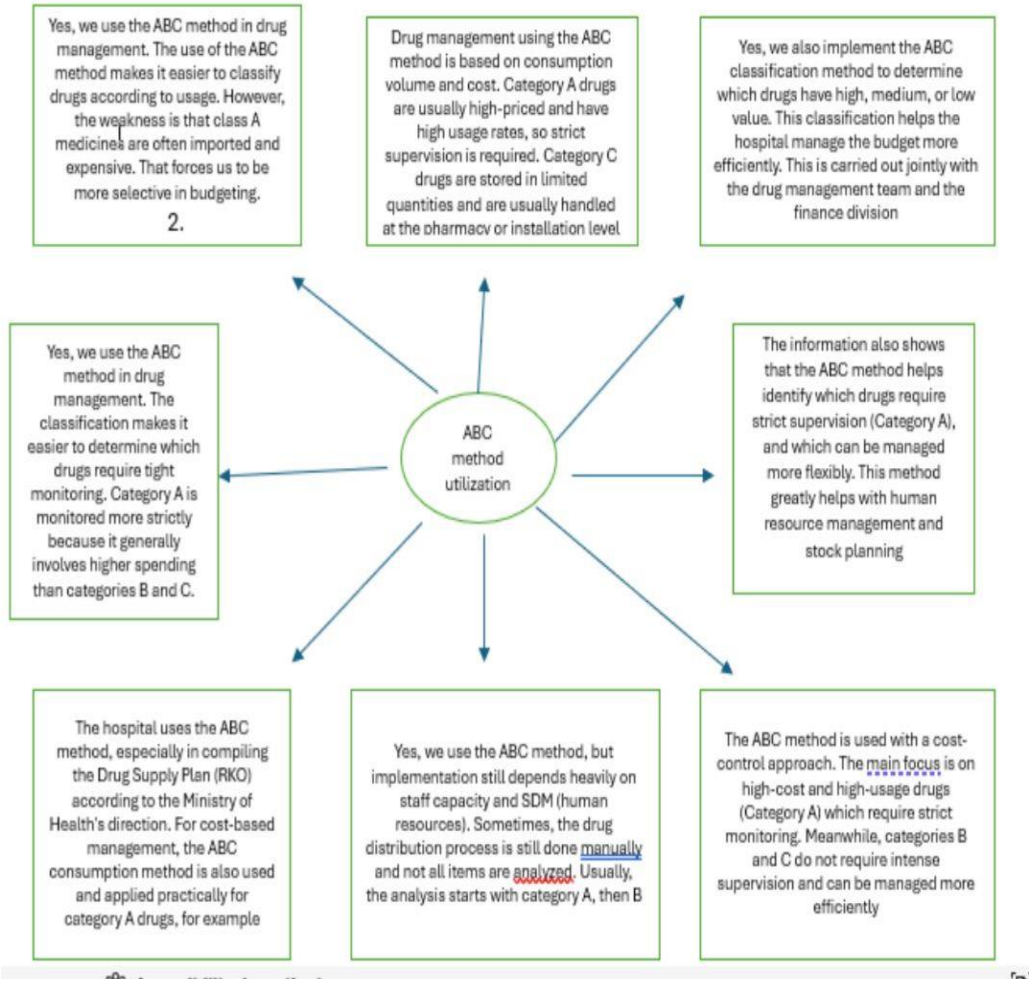

Figure 3. Exploration Diagram of the Use of the EOQ Method

Discussion

Drug Inventory Management System

There are significant differences in drug inventory management systems in public and private hospitals.[20] Government hospitals have generally implemented e-catalogue-based procurement systems as a form of compliance with government regulations. However, the procurement process in public hospitals is more formal and time-consuming. Meanwhile, private hospitals show greater flexibility in drug procurement, allowing them to purchase directly from distributors without complicated procedures. These differences are generally related to the policies implemented in each hospital. Government hospitals are certainly subject to stricter supervision from both internal and external supervisors such as BPKP and BPK, so that the implementation of a policy must be in accordance with applicable regulations. Some hospitals, especially private ones, are also still implementing a drug inventory management system manually and not fully digitalised, resulting in a lack of efficiency and accuracy in its management.

Use of the ABC Method

All hospitals have implemented the ABC method. This method is used to classify drugs based on consumption value and budget value, namely groups A (high value), B (medium value), and C (low value). The aim is to improve efficiency in budget management and inventory control.

The level of ABC implementation varies between hospitals, depending on the size of the budget, the competence of human resources, and the availability of supporting systems and necessary data. Hospitals with limited budgets tend to find it difficult to undertake a comprehensive implementation.

Use of the EOQ Method

The Economic Order Quantity (EOQ) method is well known and has been applied in many cases, but it is still in its early stages and has not been implemented optimally. This is because some hospitals do not have adequate systems to support EOQ calculations, such as accurate monthly consumption data or an integrated logistics information system.

The main obstacles in implementing the EOQ method include limited historical data on drug utilization, lack of training for relevant human resources, and the dominance of conventional methods such as FEFO (First Expired First Out) and manual estimation.

Conclusion

This study concluded that there are differences in drug inventory management between public and private hospitals. Public hospitals tend to be more systematic and adhere to formal regulations such as e-catalogs, while private hospitals are more flexible in procurement.

While the ABC method has been widely applied for drug classification, the EOQ method has yet to be optimally implemented due to limitations in information systems and supporting data. Drug shortages remain a major issue affecting service effectiveness and patient satisfaction.

Mitigation efforts are carried out through alternative recipes, reserve stocks, and coordination with distributors.

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