



Inventory Analysis Using The ABC, VEN and EOQ Methods For Procurement Budget Efficiency Medicine at Tritya Eye Clinic Surabaya

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Abstract. Efficient drug inventory management is a critical factor in ensuring medicine availability and optimizing procurement budgets in healthcare facilities. This study aims to analyze drug inventory at Tritya Eye Clinic Surabaya using the ABC (Always, Better, Control), VEN (Vital, Essential, Non-Essential), and EOQ (Economic Order Quantity) methods to improve procurement budget efficiency. A quantitative descriptive approach with a case study method was employed. Data were collected from drug usage records, stock opname reports, and procurement documents from in 2024. The findings reveal that the combined ABC-VEN method effectively identifies priority drug groups based on consumption value and clinical importance, while the EOQ method determines optimal ordering quantities to minimize total inventory costs. The integrated application of these

methods successfully reduces overstock and stockout incidents and enhances procurement budget efficiency. This study recommends inventory management based on historical usage data and strategic classification to achieve more accurate and cost-effective drug procurement planning.

Keywords: Inventory Management, ABC, VEN, EOQ, Budget Efficiency, Eye Clinic.

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1. BACKGROUND

Based on Minister of Health Regulation no. 72 of 2016 concerning Pharmaceutical Service Standards in Hospitals, Hospital Pharmacy Installations are intended as part of the organizational structure of the functional implementing work unit which is responsible and has full authority to manage or regulate all pharmaceutical work activities. Pharmaceutical services which were originally only oriented towards managing drugs as commodities or drug oriented have changed to comprehensive patient-based services or patient oriented with reference to the philosophy of pharmaceutical care [1]. In carrying out this function, drug management is a very crucial factor in ensuring the effectiveness and safety of treatment for patients.

Challenges in drug management in specialist eye clinics include regulatory aspects, patient safety and operational efficiency. The biggest challenge in drug management is ensuring the availability of drugs on time and as needed. Research shows that many clinics still experience the problem of drug shortages and excess stock, which can cause drugs to expire. For example, at the Muntilan II Community Health Center, the level of drug availability is often excessive, resulting in a high risk of expiration [2].



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Efficient drug inventory management is an important element in supporting the success of health services in medical facilities. In this context, inventory analysis methods such as Economic Order Quantity (EOQ), and ABC-VEN can be useful tools for optimizing drug inventory management. The EOQ (Economic Order Quantity), ABC, and VEN methods, when used in managing inventory, can increase efficiency in various ways. EOQ helps determine the optimal order quantity to minimize inventory costs [3]. The ABC method categorizes inventory based on its value, while VEN classifies items based on their criticality [3]. The application of the EOQ (Economic Order Quantity), ABC, and VEN (Vital, Essential, Non-essential) methods in clinical management offers various advantages, especially in the efficiency of controlling drug supplies [4]. By implementing these methods, clinics can achieve more effective and efficient medication management, reduce costs, and ensure the availability of needed medications.

Based on the results of the initial interview with the Head of the Tritya Surabaya Eye Clinic Pharmacy Unit, the drug planning carried out still uses the consumption method by using consumption data in the previous month and by checking the drug shelves to see which drugs have or will run out. In addition, if there are orders for special drugs such as intravitreal injection drugs, drugs that management has decided do not have a buffer and fast moving drugs whose use has increased this month, they are included as additional drug requests. Apart from that, the medicines ordered are also based on instinct/feelings and sometimes remain in accordance with the quantities usually ordered. Of course, this can result in medicines being out of stock or even result in overstocks resulting in an increase in the cost of procuring medicines. With drug stock outs, this can lead to purchasing drugs from outside suppliers, such as having to buy at pharmacies or other clinics, which has the potential for the price of the drugs being sold to be more expensive and increase procurement costs. The more stock is stored, the greater the warehouse space required, so that the storage space cannot accommodate and the storage pattern is ineffective. If the product requires special treatment (for example a certain temperature), storage costs can increase significantly [5]. This can be caused by inaccurate planning where the estimation of drug needs is not based on previous usage data. not considering seasonal disease trends or outpatient patterns, lack of coordination between pharmacy units and service units or doctors regarding changes in therapy patterns, purchasing in large quantities due to discounts or also patterns of price increases at the end of the year [6].

The availability of appropriate and adequate medicines is one of the key factors in supporting smooth operations and quality of service at the clinic. Efficient drug inventory management is crucial to ensure the availability of needed drugs, avoid stockouts that can disrupt services, and prevent the accumulation of drugs that can cause waste and losses due to damage or expiration.

Therefore, a comprehensive and systematic analysis of the management of drug supplies at the Tritya Eye Clinic is needed. This analysis aims to identify problems and opportunities in inventory management, as well as formulate recommendations for improvements that can increase drug procurement budget efficiency. By implementing these methods, it is hoped that the Tritya Eye Clinic can increase the efficiency of the drug procurement budget, optimize budget use, and improve the quality of service to patients.

2. LITERATURE REVIEW

2.1 Operational Management

Operational management is a form of optimal comprehensive management of labor, goods (raw materials, equipment and machines), or various other production factors so that they can become products and services that can be traded generally [7].

2.2 Inventory Management

Inventory Management is one of the important assets in a company because it has quite large value and has an influence on the size of operating costs, planning and controlling inventory is an important activity that receives special attention from company management [8].

2.3 Procurement Management

Medicine procurement includes the process of purchasing medicines from suppliers or distributors to meet the needs of pharmacies or other health service units [9]. Goods

and services procurement management is an activity to obtain goods and services by a Ministry/Institution/Regional Work Unit/Institution whose process starts from needs planning to completion of all activities to obtain goods and services [10].

2.3.1. Procurement Method using the Always, Better, Control Method

Always, Better, Control (ABC) classification analysis is a very useful method for selecting, providing, distributing management and promoting rational drug use. ABC classification analysis divides existing inventory into three classifications on an annual volume basis. ABC analysis is an inventory analysis based on the Pareto principle [6]. ABC analysis is a method of classifying goods based on value ranking from highest to lowest value, and is divided into 3 large groups called groups A, B and C.

The ABC method classifies inventory based on the following three categories [11]:

- 2.3.1. Class A (always), are goods whose investment value is around 75-80% of the total investment value or are at the top of the list which dominates total annual expenditure
- 2.3.2. Class B (better), are items with an investment value of around 10-15% of the total value or investment items that have a fairly high annual contest
- 2.3.3. Group C (control), are goods that have an investment value of around 5-10% of the total investment value.

How to calculate using the ABC Method according to the Indonesian Ministry of Health : ABC Analysis of Use

The steps taken are as follows:

1. Collect a list of types of drugs in one period.
2. Make a list of uses for each type of drug.
3. The number of uses of each type of drug is sorted based on the highest number of uses to the smallest number of uses.
4. Calculating the Usage Value of Each Item
5. $\text{Usage Value} = \text{Price per Unit} \times \text{Total Demand (Volume)}$
6. Calculating the Cumulative Percentage of Use Value
7. $(\text{Cumulative Usage Value} / \text{Total Usage Value}) \times 100\%$
8. Calculating the Cumulative Percentage of Number of Items
9. $(\text{Cumulative Number of Items} / \text{Total Items}) \times 100\%$
10. Grouping drugs into 3 groups based on percentage, namely; up to 70% are in group A, 71-90% are in group B, more than 90% are in group C.

2.3.2. Procurement Method using the Vital, Essential, Non-Essential (VEN) Analysis Method

VEN analysis is an analysis used to determine drug purchasing priorities and determine safe stock levels and drug sales prices. [12]. VEN analysis (Vital, Essential, Non-Essential) is a system for determining the selection, procurement and use of pharmaceutical supplies [4]. The VEN method (Vital, Essential, Non-Essential) is used to classify drugs considering the criticality of the drug [13]. Steps in Measuring Drug Needs Using the VEN Method [13]:

1. Data Collection Gather comprehensive data on all medications available in the pharmacy, including the name, stock quantity, and historical usage data.
2. Drug Classification Based on the VEN Categories [6]:
 - a. Vital (V) These are life-saving medications that must be available at all times. They are crucial for treating life-threatening conditions, preventing physical disabilities, or are classified as potentially life-saving drugs. These medicines typically require regular administration, and abrupt discontinuation can cause severe withdrawal effects. In the context of eye care facilities, this includes drugs essential for preserving vision and preventing blindness in acute cases. A stock-out of these medications is unacceptable. Examples: Adrenaline, anticonvulsants, injectable antidiabetics, cardiac drugs, glaucoma medications.
 - b. Essential (E) These are effective medications widely used to manage pain and treat common diseases, though they are not absolutely vital. They are fundamental to primary healthcare services and are listed in the Indonesian National Essential Medicines List (DOEN) and the WHO Model List of Essential Medicines (EML 2023). Their absence can be tolerated for less than 48 hours. Critical value criteria: Causally acting medications targeting the root causes of prevalent diseases.

- c. Non-Essential (N) These include drugs used for self-limiting conditions, medications not listed in the DOEN or WHO EML, and those with questionable benefits compared to alternatives. They serve a supporting role in treatment to enhance patient comfort or address minor complaints. A stock-out of these drugs can be tolerated for more than 48 hours. Critical value criteria: Supportive medications that improve treatment outcomes or patient comfort but are not essential for survival or basic care.

2.3.3. *ABC - VEN Combination Method*

The ABC - VEN combination method combines the outcomes of the ABC and VEN analyses through a cross-tabulation process. This allows each pharmaceutical item to be categorized into one of nine possible combined groups: AV, AE, AN, BV, BE, BN, CV, CE, or CN.

Table 4.1 Matrix of ABC-VEN Combination

| ABC Category | VEN Category | Combination Code | Management Priority | Procurement Timeframe |
|--------------|--------------|------------------|---------------------|-------------------------------------|
| A | V | AV | Very High Priority | 1–2 weeks (minimum 2 weeks stock) |
| A | E | AE | Very High Priority | 1–2 weeks (minimum 2 weeks stock) |
| A | N | AN | High Priority | 1 month (minimum 1 month stock) |
| B | V | BV | High Priority | 1 month (minimum 1 month stock) |
| B | E | BE | Medium Priority | 2–3 months (minimum 3 months stock) |
| B | N | BN | Low Priority | 3–4 months (minimum 4 months stock) |
| C | V | CV | High Priority | 1 month (minimum 1 month stock) |
| C | E | CE | Medium Priority | 2–3 months (minimum 3 months stock) |
| C | N | CN | Very Low Priority | 4–6 months (minimum 6 months stock) |

2.3.4. *Procurement Method using the Economic Order Quantity (EOQ) Method*

In this study, the Economic Order Quantity (EOQ) method is defined as a calculation technique used to determine the optimal quantity of drug orders, based on the analysis of the ABC-VEN classification. Its primary aim is to ensure that the total procurement budget remains efficient at Tritya Eye Clinic.

Steps to Estimate Drug Requirements Using the EOQ Method:

- a. Once the drugs have been classified using the ABC-VEN combination method, procurement priorities are then determined based on this classification.
- b. After determining priorities, data is collected, including drug demand (quantity needed), ordering cost per order, storage cost per unit per period, unit price of the drug, and lead time.
- c. The EOQ is then calculated using the following formula [6]:

$$EOQ = \sqrt{(2DS / H)}$$

Where:

EOQ = Economic Order Quantity, or the optimal number of units per order

D = Demand in units for the inventory item

S = Ordering cost per order

H = Holding cost per unit, typically 20% of the inventory value or unit price [14].

- d. The result of the EOQ calculation represents the optimal number of units to be ordered for each drug. This ordering process is aligned with the priority categories produced from the ABC-VEN classification method.

2.3.5. *Budget Efficiency Analysis of Procurement*

In general, the formula for budget efficiency in procurement is:

$$\text{Efficiency} = (\text{Actual Budget Realization} / \text{Planned Budget Allocation}) \times 100\%$$

Where:

- Actual Budget Realization includes the expenditure on medicines using the ABC, VEN, and EOQ methods.
- Planned Budget Allocation is the total budget planned for 2024 as determined by the management of Klinik Mata Tritya.

The criteria for efficiency ratio analysis can be categorized according to the Decree of the Minister of Home Affairs Number 690.900-327 of 1996 as follows [15]:

Table 4.2 Efficiency Ratio Analysis Criteria

| Efficiency Percentage | Efficiency Criteria |
|-----------------------|---------------------|
| > 100% | Inefficient |
| 90% – 100% | Less Efficient |
| 80% – 90% | Fairly Efficient |
| 60% – 80% | Efficient |
| < 60% | Highly Efficient |

Source: [15]

3. **RESEARCH METHODOLOGY**

In this research, the research design consists of research approach and research type. The research approach used in this study is a descriptive quantitative approach. This approach was chosen because it aims to measure and analyze numerical data using the ABC, VEN and EOQ methods related to drug procurement and inventory efficiency at the Tritya Eye Clinic.

This research uses the analytical descriptive method, according to [16] adding that the analytical descriptive method functions to describe or provide an overview of the object under study through data or samples that have been collected as they are, then the results are processed and analyzed to draw conclusions. This study aims to evaluate and analyze drug supply control at the Tritya Eye Clinic. The data collected will be analyzed to understand the efficiency of drug procurement using the ABC, VEN and EOQ methods.

The population in this study was all types of medicines available at the Tritya Eye Clinic, Surabaya. The research sample was the types of drugs available at the Tritya Eye Clinic in Surabaya in the 2024 period with a total of 127 types of drugs.

4. **RESULTS AND DISCUSSION**

4.1 *Research Data*

Tritya Eye Clinic Surabaya, which was founded on February 4 2009 by dr. Armanto Sidohutomo, Sp.M, is one of the pioneers of the main eye specialist clinic in Surabaya. Tritya Eye Clinic is not only a pioneer of eye specialist services in Surabaya, but is also committed to ensuring the availability of medicines that are safe, high quality and according to patient therapy needs. As technology develops and patient needs increase, the drug procurement system at Tritya Eye Clinic continues to be refined, including through the use of digital technology for stock management, monitoring expiration, and fast and precise drug distribution. Apart from that, our pharmacy also plays a role in educating patients regarding the correct, safe and rational use of medicines.

Tritya Eye Clinic Surabaya procurement consumption data in 2024. The main findings are:

1. Total initial stock of medicines in 2024: 13,249 pcs
2. Total drug procurement during 2024: 91,611 pcs
3. Total drug use during 2024: 92,919 pcs
4. Total remaining stock at the end of 2024: 11,941 pcs

- 5. Realization cost of drug procurement: around Rp. 1,772,931,746,-
- 6. drug storage costs for one year: around Rp. 784,715,-
- 7. cost of ordering medicine for one year: Rp. 1,651,000,-
- 8. Total realization of drug procurement: IDR 1,774,700,989

From the calculation of the realization of procurement efficiency using the consumption method, it shows that it can save 19.7%. The consumption method is said to show efficiency, meaning that drug procurement planning is based on actual consumption/usage data in the previous period, so that drug needs can be predicted more accurately and the risk of stock shortages or excesses can be minimized.

4.2. *Analysis of the Always, Better, Control (ABC) method*

Table: Drug Classification Based on ABC Category

| Category | Number of Drugs | Percentage (%) | Description |
|----------|-----------------|----------------|--|
| A | 25 | 19.74% | High consumption value drugs. Require strict monitoring and control as they contribute significantly to total procurement value. |
| B | 27 | 21.28% | Medium consumption value drugs. Require periodic monitoring. |
| C | 75 | 58.98% | Low consumption value drugs. Large in quantity but contribute the least to total value. Can be managed with simpler controls. |

Source: secondary data

- A. Category A is only 19.74% of total drugs, but usually accounts for around 70–80% of the procurement value. This shows the importance of focusing on procurement efficiency and monitoring for this category.
- B. Category C covers the majority of items (58.98%), but contributes the least to the total value. Category C management must be simpler so as not to burden operations.
- C. The category proportions are in accordance with the Pareto 80/20 principle, where a small number of items (categories A and B) contribute most of the use value.

4.3. *Vital, Essential, Non Essential (VEN) method analysis*

Table Classification Results Using the VEN Method (Vital, Essential, Non-Essential)

| Category | Number of Medicines | Percentage (%) |
|-------------------|---------------------|----------------|
| Vital (V) | 9 | 7% |
| Essential (E) | 40 | 31% |
| Non-Essential (N) | 78 | 61% |
| Total | 127 | 100% |

Source: Secondary Data

Based on Table 5.2, the classification of medicines using the VEN method (Vital, Essential, Non-Essential) shows that from a total of 127 medicine items, there are:

- 9 items (7%) classified as Vital (V), which are critical medicines needed for emergencies or life-saving situations.
- 40 items (31%) fall under the Essential (E) category, referring to medicines required for basic healthcare services and commonly used for treating prevalent diseases.
- 78 items (61%) are categorized as Non-Essential (N), meaning they are less urgent or can be substituted with alternative drugs.

This distribution indicates that the majority of the procurement is dominated by Non-Essential medicines, which may affect budget efficiency if not properly managed.

Therefore, this classification result can be used as a reference to reevaluate drug procurement priorities, focusing more on Vital and Essential categories to meet the clinical and healthcare service needs at Tritya Eye Clinic Surabaya.

4.4. ABC – VEN Combination Method analysis

The ABC-VEN combination method combines two approaches: ABC: groups drugs based on consumption value or cost (A: very important, B: important, C: less important). VEN: groups drugs based on the level of medical importance (V: vital, E: essential, N: non-essential). The combination of these two classifications produces a code (eg: AV, AE, CN) which is then mapped to stock management priorities. :

Table Classification Result of ABC-VEN Combination Method

| Priority Level | ABC-VEN Combination Code | Number of Medicines | Description | Medicine Examples |
|--------------------|--------------------------|---------------------|---|--|
| Very High Priority | AV, AE | 7 items | These medicines are highly critical and must always be available. Stockouts can be fatal. Procurement is done intensively (every 1–2 weeks). | Lacoma, Latanoprost, Lamofer, LFX, Timolol Maleate FL, Tobroson FL, Tobroson MD |
| High Priority | AN, BV, CV | 24 items | These are important medicines but slightly less urgent than the very high priority ones. Monthly procurement with tight monitoring is required. | Catarlent FL, Cenfresh MD, Glaopen, Glaoplus, Hialid, Hyalub MD, Isotic Latim, Lacoma, Paracetamol, Timol 0.25% MD, Timol MD, Simbrinza |
| Medium Priority | BE, CE | 36 items | Medicines with moderate/low consumption but still essential. Procurement can be done every 2–3 months. | Floxa, Glauseta, Lameson 16mg, Lameson 8mg, Neo Levo, Optiflox, Tobroson EO, etc. |
| Low Priority | BN | 17 items | Medicines with medium consumption and non-essential. Stock management can be done every 3–4 months. | Augentonic 15ml, Berry Vision Tab (Purple), Cenfresh FL, Eyefresh Plus, Flamar, Hyaloph, Karyuni, Occulenta Ved, Ophamol, Polidemisin, Polygran EO, etc. |
| Very Low Priority | CN | 43 items | Medicines with low consumption and urgency. Procurement can be done every 4–6 months, offering opportunities for budget and storage efficiency. | Arkavit C, Asthenof, Berry Vision Disp Tab (Pink), Cebralin, Cendo Tropin 0.5%, Choline 100, Diquas, Ermoxif, Nutrieye, Promag, Retivit Plus, etc. |

Source: Secondary Data

4.5. Analysis of the Economic Order Quantity (EOQ) method

EOQ formula (Fatimah, Gani, and Siregar 2022):

$$EOQ : \sqrt{\frac{2 \times D \times S}{H}}$$

H

Where:

- EOQ = Optimum number of units per order
- D = Value of drug use in one year
- S = ordering costs IDR 20,000 in one year
- H = Carrying cost per unit. 20% of inventory value or

product price.

Table Analysis Results of the Economic Order Quantity (EOQ) method

| Rentang EOQ (unit) | Jumlah Obat | Karakteristik Umum | Contoh Obat (EOQ) | EOQ Range (units) | Number of Drugs | General Characteristics | Example (EOQ) | Drugs |
|--------------------|-------------|---------------------------------------|--|-------------------|-----------------|---|---|-------|
| < 10 | 10 | Harga tinggi, pemakaian sangat rendah | NAVITAE (1.8), GENTAMYCIN EO (2.1) | EO < 10 | 10 | High price, very low usage | NAVITAE (1.8), GENTAMYCIN EO (2.1) | |
| 10 – < 50 | 31 | Obat slow moving, harga sedang-tinggi | LAMOFER (35.8), MOLCIN (10.6) | 10 – < 50 | 31 | Slow-moving drugs, medium to high price | LAMOFER (35.8), MOLCIN (10.6) | |
| 50 – < 200 | 53 | Obat pemakaian sedang, harga menengah | VITROLENTA FL (88.4), SYSTANE ULTRA (54.4) | 50 – < 200 | 53 | Medium usage, moderate price | VITROLENTA FL (88.4), SYSTANE ULTRA (54.4) | |
| 200 – < 500 | 20 | Fast moving, harga rendah | LYTEERS FL (278.3), AMOXICILLIN TAB (434.7) | 200 – < 500 | 20 | Fast-moving, low price | LYTEERS FL (278.3), AMOXICILLIN TAB (434.7) | |
| ≥ 500 | 13 | Generik, fast moving, sangat rendah | VITAMIN B KOMPLEKS (2599.4), PARACETAMOL (636.1) | ≥ 500 | 13 | Generic, fast-moving, very low price | VITAMIN B COMPLEX (2599.4), PARACETAMOL (636.1) | |

Source: Secondary Data

The classification of drugs based on their Economic Order Quantity (EOQ) provides insights into their consumption patterns and cost characteristics. The analysis is as follows:

- EOQ < 10 units**
 There are 10 drugs in this category. These drugs are characterized by very low usage and high unit prices. Their low EOQ reflects the limited demand and the need to avoid overstocking expensive items. Examples include NAVITAE (1.8) and GENTAMYCIN EO (2.1).
- EOQ 10 – < 50 units**
 A total of 31 drugs fall under this range. These are generally slow-moving drugs with medium to high prices. They are not used frequently but are still required in stock for specific or occasional treatments. Examples include LAMOFER (35.8) and MOLCIN (10.6).
- EOQ 50 – < 200 units**
 This group contains 53 drugs, the largest segment in the classification. These drugs have moderate usage frequency and medium-level costs, making them suitable for regular but not excessive procurement. Examples are VITROLENTA FL (88.4) and SYSTANE ULTRA (54.4).
- EOQ 200 – < 500 units**
 A total of 20 drugs fall into this category. They are fast-moving and low in price, which justifies a higher EOQ to ensure continuous availability and cost efficiency. Examples include LYTEERS FL (278.3) and AMOXICILLIN TAB (434.7).
- EOQ ≥ 500 units**
 This group includes 13 drugs, mostly generic medications that are fast-moving and very inexpensive. Due to their high demand and low cost, a very high EOQ is justified to minimize the frequency of ordering and maintain stock levels. Examples include VITAMIN B COMPLEX (2599.4) and PARACETAMOL (636.1).

EOQ analysis helps determine the appropriate ordering strategy for different types of drugs.

Low EOQ is typical for expensive, rarely used items, while high EOQ applies to commonly used, low-cost drugs. This classification supports efficient procurement planning and inventory control in healthcare settings.

4.6. Analysis of the combination of methods, ABC, VEN, and EOQ in procurement budget efficiency

Tritya Eye Clinic Surabaya for the 2024 period, an effective management pattern was identified through the integration of these three methods. As in the table of Drug Procurement Data Analysis Results. This table highlights several examples of medicines representing priority categories, use value, frequency of procurement, and associated costs:

Table Analysis of the combination of methods, ABC, VEN, and EOQ

| Drug Name | Priority Category | Annual Usage Value (IDR) | Procurement Frequency (times/year) | Minimum Stock Duration | Ordering Cost per Year (IDR) | Storage Cost per (IDR) | Cost Year |
|------------------|-------------------|--------------------------|------------------------------------|------------------------|----------------------------------|------------------------|-----------|
| LACOMA | Very High | Tens hundreds millions | to Up to 26 (every 1–2 weeks) | Tight weeks) | (1–2 13,000/order × 26 = 338,000 | ~>10,000 | |
| LAMOFER | Very High | Tens hundreds millions | to Up to 26 | Tight | 338,000 | ~>10,000 | |
| LATANOPROST | Very High | High | Frequent | Tight | ~13,000 × many | High | |
| LFX | Very High | High | Frequent | Tight | ~13,000 × many | High | |
| ARKAVIT C | Very Low | Low | 2–3 times/year | 4–6 months | 13,000 × 2 or 3 = ~39,000 | ~131.8 | |
| ASTHENOF | Low | Low | 2–3 times/year | 4–6 months | ~39,000 | Low | |
| BERRY VISION TAB | Low | Low | 2–3 times/year | 4–6 months | ~39,000 | Low | |

So it can be concluded that this research shows that the Tritya Eye Clinic produces efficiency in drug procurement, with the cost of storing drugs for one year. IDR 839,830,- and the ordering fee is IDR 1,651,000,-. The total realization of drug procurement using the combination method was IDR 1,198,275,168,-. lower than the budget plan set by management, namely Rp. 2,212,549,509,-. So the percentage of efficiency with the combination of the ABC-VEN and EOQ methods is.

The application of a combination of the ABC-VEN and EOQ methods has been proven to help budget efficiency. With a nominal realization of the procurement budget of IDR 1,198,275,168, and has a budget efficiency value of 54.15% in one year and the efficiency ratio analysis criteria can be categorized as Very Efficient.

- Efficiency comparison = %Combination Method - %Consumption Method
- Efficiency comparison = 54.15% - 19.7% = 34.45 %

If the budget using the Consumption method shows a budget realization of IDR 1,774,700,989,- and has a budget efficiency value of 19.7% within one year. Where the application of a combination of the ABC-VEN and EOQ methods is proven to help budget efficiency by 34.45% compared to the consumption method.

5. CONCLUSION AND RECOMMENDATION

5.3 Conclusion

Based on the findings and discussions presented earlier, the key conclusions of this study can be summarized as follows:

1. ABC Analysis of Drug Inventory
The application of the ABC method revealed that approximately 19.74% of the total drug items (Category A) accounted for around 70–80% of total usage value. This highlights the importance of prioritizing control and monitoring efforts on Category A drugs due to their significant impact on clinic expenditures and operational efficiency.

2. Drug Classification Using the VEN Method
The VEN analysis showed that 61.4% of the drugs were classified as Non-Essential (N), indicating potential inefficiencies in both budget allocation and storage management. Procurement efforts should be redirected toward Vital (V) and Essential (E) categories to ensure the availability of critical medications required for clinical services.
3. Prioritization through ABC–VEN Matrix Combination
Integrating the ABC and VEN methods enabled a multi-level prioritization scheme, categorizing drugs into five priority levels ranging from very high to very low. It was found that only seven drug items fell under the very high priority group (AV and AE), yet they are crucial for treatment. In contrast, the very low priority group (CN) consisted of 43 drug items that were less essential and could be managed with more flexibility. This classification framework supports a more targeted and efficient inventory management approach.
4. Order Optimization Using the EOQ Model
Implementation of the Economic Order Quantity (EOQ) method allowed for optimal order quantity calculations, considering usage patterns, unit prices, and holding costs. The analysis demonstrated that EOQ contributes to reducing total procurement costs while optimizing inventory turnover and warehouse efficiency.
5. Procurement Efficiency through ABC–VEN–EOQ Integration
The integration of ABC, VEN, and EOQ methods resulted in a procurement cost of Rp1,198,275,168, which is significantly lower than the original planned budget of Rp2,212,549,509. This reflects an efficiency rate of 54.15%, categorized as highly efficient. Furthermore, the combined method proved to be 34.45% more cost-effective than the consumption-based method previously adopted by the clinic, demonstrating its potential to optimize drug procurement planning and achieve substantial budget savings.

5.4 Recommendations

Based on the findings and discussions of this study, as well as the conclusions drawn, the author proposes the following recommendations:

1. For the Institution (Tritya Eye Clinic):
It is recommended that Tritya Eye Clinic begin implementing a combined approach using the ABC, VEN, and EOQ methods on a regular basis for planning drug procurement. This integrated approach can improve budget efficiency and ensure the availability of essential medicines.
Routine evaluations of the current drug inventory should be carried out, with a particular focus on reducing the proportion of non-essential medicines, which tend to dominate the stock, and replacing them with drugs that align better with national standards.
Developing a digital-based drug management information system that incorporates inventory analysis methods like ABC-VEN-EOQ would support faster and more accurate decision-making processes.
2. For Future Research:
This study has several limitations. The analysis was based solely on drug procurement and usage data from the year 2024, without considering seasonal demand fluctuations or long-term disease trends.
Furthermore, the research was limited to a single healthcare facility—Tritya Eye Clinic in Surabaya—which means that the findings should not be generalized to other clinics or hospitals without caution.
Future research could expand to include multiple healthcare facilities and adopt a comparative approach in order to gain broader and more comprehensive insights.

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