

Analysis of Effectiveness and Challenges in Planning and Procurement of Drugs Through E-Purchasing at the Pharmacy Installation of Mimika Regency, Central Papua Province

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ABSTRACT

This study aims to analyze the effectiveness and challenges in planning and procurement of drugs through the e-purchasing system at the Pharmaceutical Installation of Mimika Regency, Papua Province. E-purchasing is an electronic procurement system that is expected to increase efficiency, transparency, and accountability in drug procurement. However, its implementation still faces various obstacles. This study uses a qualitative method with data collection techniques through in-depth interviews, observations, and document review. The informants consisted of nine parties, including health office officials, pharmaceutical installation officers, health center drug managers, distributors, and the public. Data analysis was carried out thematically to identify aspects of effectiveness and challenges faced. The results of the study show that the implementation of e-purchasing has not been running optimally, with challenges such as delivery delays, slow approval processes, limited product choices in the e-catalog, technical system constraints, and lack of human resources at the Mimika Regency Health Office.

INTRODUCTION

Health development is an inseparable part of national development which aims to increase public awareness, willingness, and ability to live a healthy life, so that the highest degree of health can be achieved. Health management covers various aspects, including health efforts, health research and development, health financing, health human resources, pharmaceutical preparations and medical devices, health information management and regulations, and community empowerment. All of these aspects must be managed in an integrated manner to support the success of national health development.

Medicines and health supplies are important components in health development as mentioned in article 314 of Law No. 17 of 2023 concerning health that the central government and local governments are responsible for the availability, equity, and affordability of health supplies needed to carry out health efforts. Responsibility for availability, equity, and affordability is carried out through the management of health supplies which includes planning, provision, and distribution. The management of health supplies for health services is carried out by paying attention to safety, usefulness/efficacy, quality, and price.

Planning for health supply needs by local governments refers to norms, standards, procedures, and criteria set by the central government. The provision of health supplies aims to meet the needs of health services carried out through the procurement of health supplies that are carried out in accordance with the provisions of laws and regulations and the central government and local governments are responsible for ensuring that essential medicines are available equally and affordably by the community (Law of the Republic of Indonesia Number 17, 2023).

Drug planning is a systematic process to determine the type, quantity, and time of procurement of drugs needed by health care facilities. This process is carried out based on data on drug use, disease patterns, treatment standards, and the availability of existing budgets. Drug planning at the district level is the process of determining drug needs for all health service facilities in the district area, which is carried out in a coordinated and integrated manner by the District Pharmacy Installation with the Health Office. This process includes the collection and analysis of drug consumption, disease burden, and budget allocation. The goal is to ensure the availability, adequacy, and accuracy of the type and quantity of drugs in order to support quality and sustainable health services.

Drug procurement is a series of processes that include the selection, ordering, and purchase of drugs based on the results of planning that aims to ensure that the required drugs are available in sufficient quantities, with guaranteed quality, reasonable prices, and in accordance with applicable regulations. Drug procurement can be done through two mechanisms, namely *e-purchasing* through *e-catalogs* and *non-e-catalog procurement*. Electronic procurement or *e-procurement* is the procurement of goods/services that is carried out using information technology and electronic transactions in accordance with the provisions of the law. Meanwhile, the procurement of drugs with *non-e-catalogs* is carried out if the type or specification of the drugs needed

is not available in the *e-catalog*. This process still follows the provisions in the regulations related to the procurement of government goods/services and is carried out through a direct procurement mechanism, direct appointment, or tender, depending on the value and complexity of the procurement. These two methods must be adjusted to the applicable regulations and the need to ensure the availability of drugs in a timely manner and according to standards.

The use of information technology in the procurement of goods/services is aimed at simplifying and accelerating the procurement process of goods/services. Government procurement of goods/services must be through an electronic procurement system or *e-procurement* (Presidential Instruction of the Republic of Indonesia No. 1 of 2015). *E-purchasing* is a procedure for purchasing goods/services through an electronic catalog system organized by the Government Goods/Services Procurement Policy Institute (LKPP). *E-catalog* of drugs is an electronic information system that contains lists, types, technical specifications, and prices of drugs from various drug providers.

However, it is undeniable that the availability of drugs still faces various challenges, both in terms of planning and procurement. Some of the problems that often occur as in previous studies (Mulyati et al., 2024) are obstacles in planning methods that only rely on consumption approaches, causing inaccurate drug needs data, increasing the risk of drug expiration. In addition, drug procurement is sometimes delayed due to delivery problems, which cause drug stock vacancies, and in the study (Nibong et al., 2017), the drug shortage is caused by insufficient funding from the government and lack of response from PBF (Pharmaceutical Wholesalers).

Planning and procurement of drugs in Mimika Regency has implemented an application system. However, there are still frequent drug vacancies that have the potential to hinder health services in health facilities. Therefore, this research was conducted at the Mimika Regency Pharmaceutical Installation, because IFK is a pharmaceutical service unit responsible for the management of drugs and health supplies at the district level serving 26 health centers in the Mimika Regency area with the aim of analyzing the constraints and effectiveness of planning and procurement of drugs through *e-purchasing* at the Mimika Regency Pharmaceutical Installation to improve the efficiency and availability of drugs in health care facilities.

Research on the effectiveness and challenges in planning and procurement of *e-purchasing* drugs has been widely conducted in various regions of Indonesia. However, most of the research focused on areas outside of Central Papua, such as East Lampung, Central Java, and West Sumatra, and did not specifically highlight the geographical, social, and infrastructure contexts in Mimika Regency, Central Papua Province. In addition, previous studies have generally highlighted gaps between drug demand planning and procurement realization, administrative process delays, distributors' inability to meet demand, and limited human resources and *e-purchasing* supporting infrastructure (Restina Sapta, et al., 2020).

The research gap that emerged is the absence of a study that in-depth analyzes the effectiveness and challenges of *e-purchasing* implementation in

drug procurement at the Pharmaceutical Installation in Mimika Regency, Central Papua, which has different characteristics of geographical, distribution, and resource challenges from other regions in Indonesia. This research is important to provide a contextual picture and policy recommendations that are more targeted in accordance with the local conditions of Mimika Regency

THEORETICAL REVIEW

Drug procurement is one of the main components in basic health services that must be maintained by the central and regional governments to ensure the availability of quality public medicine (Barjaniwarti, D. Suryaningrat, 2022). Along with the development of technology and policies, the e-purchasing system was introduced as an effort to increase transparency, effectiveness, and efficiency in the drug procurement process in health facilities. This system is regulated in various regulations, such as the Regulation of the Minister of Health No. 63 of 2014 and Presidential Decree No. 18 of 2000, which emphasizes the importance of accountable and efficient drug procurement governance (Muhammad Luqman, 2017).

E-purchasing aims to increase openness, speed up the ordering process, and control state budget expenditure in the procurement of state-owned goods, including medicines. Research shows that the implementation of e-purchasing is able to reduce drug prices, save drug spending by up to 65%, and improve drug ordering time from an average of 33 days to 3 days after the use of e-catalogue. In addition, this system facilitates monitoring and reporting, as well as reduces the potential for corrupt practices in drug procurement (Aisah, Sri Suryawati, Satibi, 2019).

Although it offers various advantages, the implementation of e-purchasing also faces a number of challenges. One of the main obstacles is that there is still a vacancy in the stock of drugs in the e-catalogue, so that drug needs cannot always be met on time. In addition, the drug delivery process is often delayed, even after the e-purchasing system is implemented, with delivery times that can be more than 30 days (Yuliana, E., 2018).

This theoretical review is relevant for research at the Mimika Regency Pharmaceutical Plant, Central Papua, because the challenges found in various regions also have the potential to occur in this region, especially related to the availability of drugs, coordination between parties, and supporting infrastructure for e-purchasing.

METHODOLOGY

This research is a qualitative research with a case study approach. This approach was chosen because the research aims to explore in depth the process of planning and procurement of drugs through *e-purchasing*, as well as the effectiveness and obstacles that occur in the implementation of *e-purchasing* at the Mimika Regency Pharmaceutical Installation.

The informants in this study were selected based on their involvement in the planning and procurement process of 9 people. The Key Informants are the Head of the Regency Pharmaceutical Installation, the Head of the Health Resources Division and the Head of the Pharmaceutical Section of the Health

Office, the Head of the Program Sub-Division. The Main Informants are Procurement Officials, IFK Pharmacy Officers and Puskesmas Drug Managers and Supporting Informants, namely Drug Distributors and the Community.

The data collection procedure is carried out through an in-depth interview. Interviews are conducted unstructured and face-to-face.

RESULTS

Drug Planning Process

Drug Planning at the Pharmaceutical Installation in Mimika Regency was prepared together with the Integrated Drug Planning Team (TPOT Regency) which consisted of those in charge of the Health Office, Puskesmas and Hospitals programs.

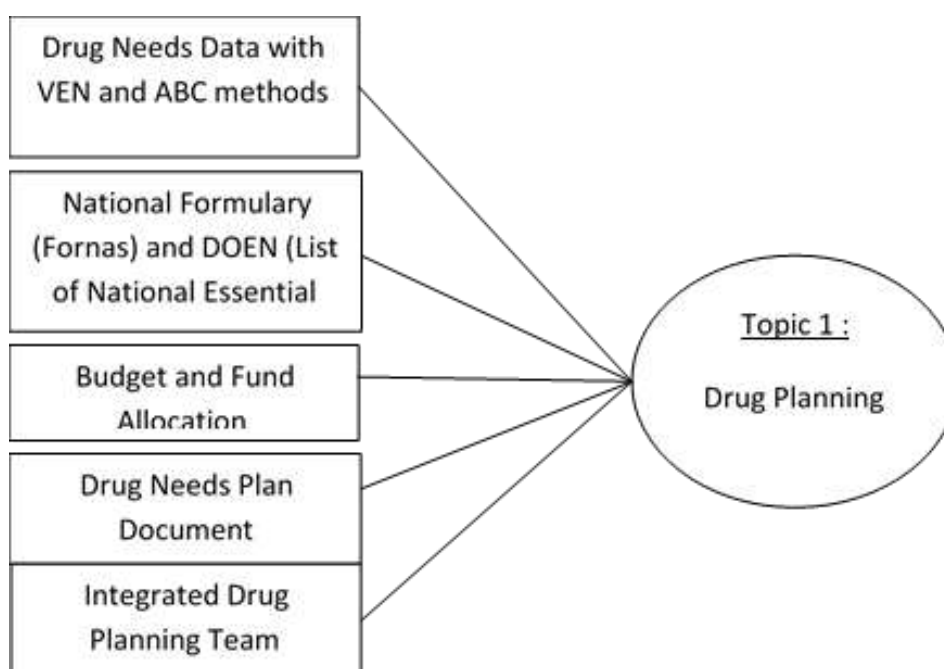


Figure 1. Drug Planning Process

The data collected is not only based on previous drug use, but also takes into account disease epidemiology and patient visit trends, which is an ideal practice in an evidence-based needs approach. This shows that there is an understanding from the officers that planning should not only be based on past data, but must be adaptive to disease dynamics and people's consumption patterns.

Furthermore, the data was analyzed in an integrated manner by the planning team using the VEN (Vital, Essential and Non-Essential) classification method and the ABC (Always Better Control) method. The use of VEN shows that the team has made efforts to rationalize drugs based on medical urgency and service priorities and ABCs based on the use of funds. Medicines are prepared based on the list of drugs available in the National Formulary (FORNAS) and the DOEN List (National Essential Medicines List) and are outlined in the Drug Needs Plan (RKO) document as the basis for submitting a budget.

Drug Procurement Mechanism Through E-purchasing

Drug procurement through e-purchasing is part of an electronic procurement system that aims to facilitate, accelerate, and increase efficiency and transparency in the procurement process.

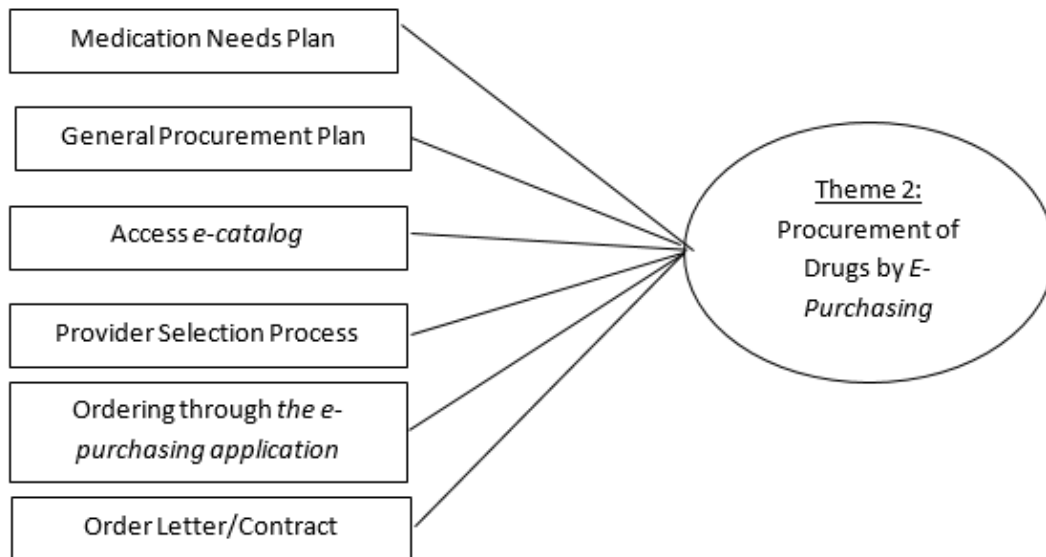


Figure 2. Drug Procurement Mechanism Through E-purchasing

The flow of the e-purchasing mechanism is concise, starting from the approval of the RKO (Drug Needs Plan) document, followed by the selection of suppliers through the e-catalog, the creation of an Order Letter (SP) as the basis for the contract, and then entering the delivery stage. The use of e-purchasing and e-catalog systems has improved the efficiency of the ordering process and transparency, with a procurement system that provides direct notifications to suppliers. In addition, there is coordination between the Pharmaceutical Installation and procurement officials in the preparation of documents and monitoring the delivery of goods, which reflects the existence of cross-unit cooperation in supporting the smooth procurement of medicines electronically.

Obstacles in the Implementation of E-Purchasing Drug Procurement

The implementation of e-purchasing that is the most often felt obstacle in the implementation of e-purchasing is related to access to the internet network and e-catalog system. According to the informant, the e-catalog system is often not accessible smoothly, especially when the internet connection in the Mimika Regency area is unstable. This condition greatly hinders the process of selecting drugs, preparing orders, and finalizing procurement documents that should be completed in a short time. These technical obstacles often occur unpredictably, and are one of the main causes of delays in drug procurement. When the internet connection and the stability of the central server are problematic, the entire procurement process is forced to be postponed or repeated, which risks causing a shortage of medicines in health care facilities.

In the implementation of e-purchasing drug procurement, there is a limited availability of drugs in the e-catalog. Many of the medicines needed by health care facilities in Mimika Regency are not available in the national e-catalog system, making the ordering process through the e-purchasing mechanism difficult. In addition, the informant also mentioned that disruptions to the e-catalog server often occur.

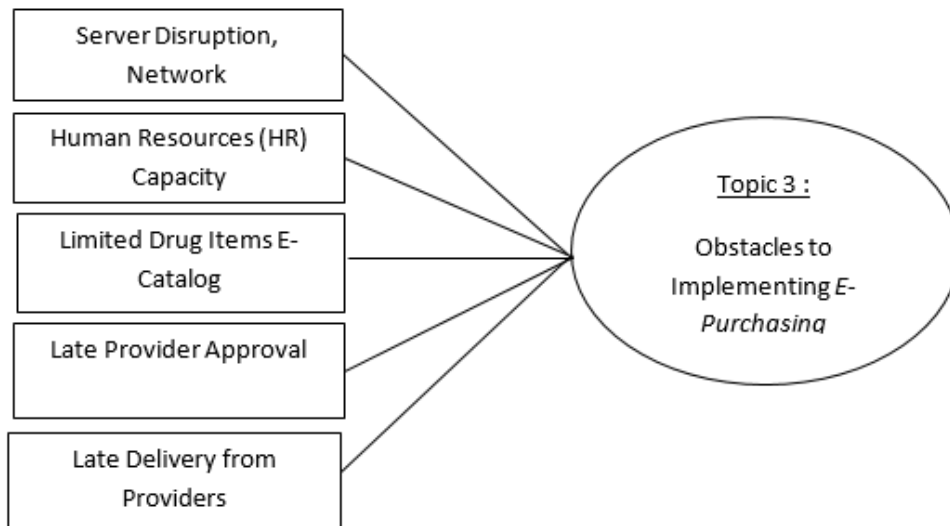


Figure 3. Obstacles in the Implementation of E-Purchasing Drug Procurement

In addition, some providers who have been listed in the e-catalogue are also slow in the delivery of medicines, even though the ordering process has been approved. This condition causes delays in the distribution of drugs to health facilities, which has an impact on potential stock shortages and a decrease in the quality of services to the community.

The Effectiveness of the E-Purchasing Procurement System

The effectiveness of the e-purchasing drug procurement system is considered quite effective in increasing the transparency, efficiency, and accountability of the drug procurement process, compared to the previous manual or direct appointment method, e-purchasing provides clarity of workflow, ease of tracking, and better supervision of the price and process of purchasing drugs.

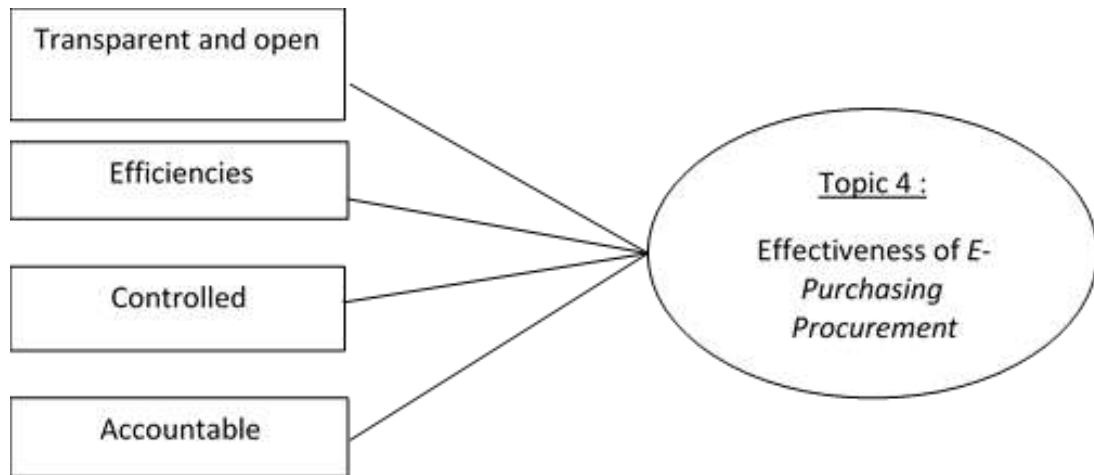


Figure 4. The Effectiveness of the E-Purchasing Procurement System

The e-purchasing system at the Mimika Regency Pharmaceutical Installation has been running well and has a positive impact, especially in terms of transparency and clarity in the drug procurement and purchasing process, compared to the previous manual method, e-purchasing is safer because it minimizes the chance of irregularities or abuse of authority. However, the effectiveness of this system still depends on the availability of drug items in the e-catalog, as well as the approval time and speed of delivery from the provider, which if slow will have a direct impact on delays in the distribution of drugs to health facilities. Especially in terms of the budget for drug procurement at the Mimika Regency Pharmaceutical Installation to meet the needs of health facilities is very sufficient.

Strategies to Increase the Efficiency and Effectiveness of E-Purchasing Drug Planning and Procurement

To increase the efficiency and effectiveness of planning and procurement of drugs through e-purchasing at the Mimika Regency Pharmaceutical Installation, an integrated strategy is needed that includes strengthening technological infrastructure and a stable internet network, improving the competence of human resources through periodic technical training related to procurement, and planning for drug needs that are more accurate and integrated with logistics information systems. Optimization of coordination with providers, avoiding delivery delays. This strategy needs to be supported by periodic monitoring and evaluation of all stages of the e-purchasing process, so that obstacles that arise can be identified early and handled appropriately to maintain the smooth and accountable procurement of medicines.

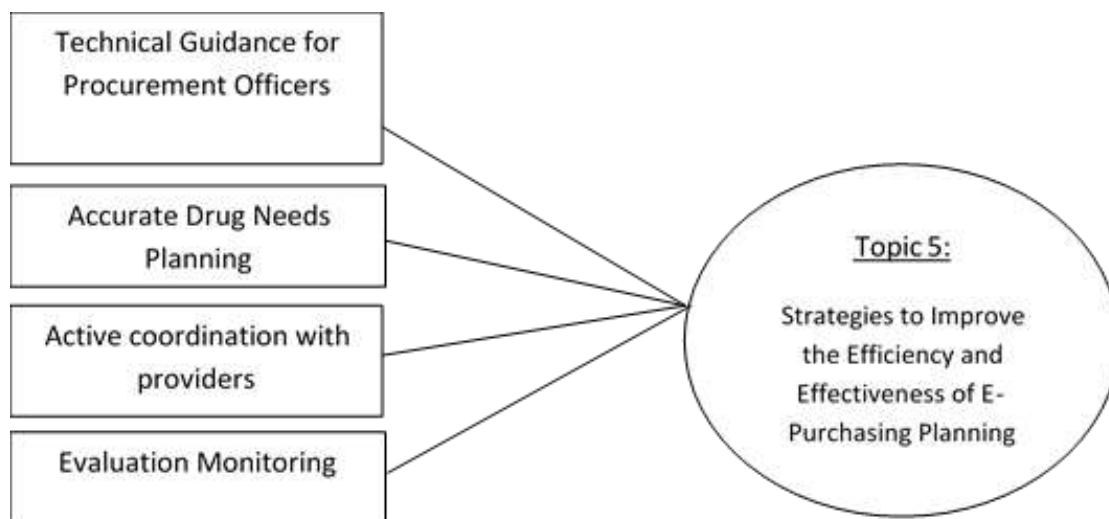


Figure 5. Strategies to Increase the Efficiency and Effectiveness of E-Purchasing Drug Planning and Procurement

The importance of training or technical guidance on drug planning through electronic systems and e-purchasing drug procurement to pharmacists. The technical obstacles that occur are caused by the limited understanding and ability of officers to operate the system. Accurate planning and the need for active coordination with providers, especially after the procurement process is uploaded into the system. The goal is to ensure that providers can promptly approve and process procurement requests, so that drug shipments are not delayed.

DISCUSSION

Drug Planning Process

Drug planning at the Mimika Regency Pharmaceutical Installation begins with the collection of data on drug needs from health service facilities, namely health centers and hospitals. Each health facility prepares a plan based on the previous year's drug use data, the number of patient visits, and the trend of developing diseases. The informant mentioned that this approach is evidence-based, where the need for drugs is not determined subjectively, but based on real data from the services that have been carried out. After data from all health care facilities is collected, the integrated drug planning team at the district level will verify and discuss it together. In this stage, a thorough analysis of drug needs is carried out, including compatibility with epidemiological data and health service priorities.

As a step to classify the type of drug to be planned, the VEN (Vital, Essential, and Non-Essential) method is used. Vital medicines are very important and concern patient safety, essential medicines are the main medicines in basic health services, while non-essential medicines are complementary. This method is used to assist local governments in setting procurement priorities, especially in the midst of budget limitations and the ABC (Always Better Control) method is a method of grouping drugs based on funding needs, group A is a drug group where the total value of the procurement plan shows the absorption of funds

around 70% of the total drug fund. Group B is a drug group where the total value of the procurement plan shows a fund absorption of around 20%. Group C is a drug group where the total value of the procurement plan shows a fund absorption of around 10%.

The finalized drug needs plan (RKO) is then uploaded into the E-Monev (Electronic Monitoring and Evaluation of Drug Catalog) system, and becomes the basis for the e-purchasing process. This system is a form of digital transformation in drug planning and procurement. With this system, the process becomes more transparent, monitored, and in accordance with the procurement mechanism through the e-catalog. Although the planning has been systematically prepared, some challenges are still found in the field. The informant mentioned that sudden changes in disease patterns, unpredictable prescriptions, and requests for drugs from the central task force (satgas) were often not covered in the initial planning. This causes sudden needs that do not match the ceiling and can interfere with the smooth distribution of drugs. Overall, drug planning at the Mimika Regency Pharmaceutical Installation has been running with a systematic and data-driven approach. Collaboration between health facilities and district planning teams, the use of VEN and ABC methods, and the use of digital systems show that the process is in accordance with national standards.

Drug Procurement Mechanism Through E-purchasing

Procurement of drugs through e-purchasing at the Mimika Regency Pharmaceutical Installation is part of the implementation of an electronic goods and services procurement system based on the provisions of the LKPP e-catalog. This mechanism begins with the preparation of a Drug Needs Plan (RKO) by the Pharmaceutical Installation, which is compiled based on consumption data, disease patterns, and available drug stocks. This RKO is the basis for determining the amount and type of drugs to be ordered electronically.

Once the RKO is compiled and approved, the process continues with the selection of providers through a national e-catalog. Procurement officials at the Health Office or Pharmaceutical Installation will access the e-purchasing application to select the appropriate provider based on specifications, prices, and product availability. This e-catalog system provides a list of drugs from verified providers, so that the selection process can be carried out more efficiently and transparently without going through a tender mechanism.

The next stage is the preparation and creation of a contract through a Letter of Order (SP) submitted to the provider or distributor. After the provider approves the Order Letter, the contract is signed. This contract document contains an agreement on the type and quantity of the drug, the unit price, the delivery time, and the responsibilities of the provider. This process requires coordination between the Pharmaceutical Installation, procurement officials, and providers so that there are no delays.

After the contract is agreed, the provider will carry out the drug delivery process according to the agreed schedule. When the drug arrives at the Pharmaceutical Installation, a physical and administrative examination is carried out by the relevant officers. This inspection includes the suitability of the amount, physical condition, and completeness of documents such as invoices and handover

minutes. If a discrepancy is found, clarification and follow-up will be carried out with the provider.

Although the e-purchasing system provides convenience and transparency, its implementation still faces several obstacles such as limited availability of drugs in the e-catalog, technical problems in the server or e-purchasing system, and unstable internet networks. In addition, the approval process from providers and slow drug delivery is also a challenge. Therefore, there is a need to strengthen human resource capacity, and better supervision so that the e-purchasing mechanism can run optimally in Mimika Regency.

Obstacles in the Implementation of E-Purchasing Drug Procurement

The obstacle that occurs is the slow approval process in the e-purchasing system. Although this system aims to speed up the procurement process, in practice approval of the needs plan, and other administrative processes still take a long time. This is often due to the limited number of personnel or human resources handling the process, the lack of optimal coordination with suppliers and distributors, which leads to delays in providing approvals. As a result, the process of ordering drugs to providers becomes delayed, thus extending the waiting time for meeting drug needs.

In addition, delays in input drug need data into the e-purchasing system are also one of the main obstacles that occur. In this system, the accuracy and timeliness of entering data greatly determine the smooth running of the next process. One of the obstacles is also the limited types of drugs available in the e-catalog. Although this system is designed to provide ease in choosing goods according to needs, the reality is that there are still many drugs that are not available in the national e-catalog list. This discrepancy makes procurement managers have to make procurement alternatives outside of *e-purchasing* or non-e-catalogs, which are certainly longer and more complex in terms of regulations.

The big obstacles that contribute to slowing down the drug fulfillment process are the dependence on a stable internet connection, as well as the slow process of delivering drugs from providers. On the other hand, even though the purchase transaction has been approved and managed in the system, the delivery process by the provider often experiences delays. Some providers are experiencing difficulties in distribution, either due to logistical constraints, limited stock, or internal problems. The accumulation of all these obstacles causes untimely delivery of medicines, which can ultimately affect the quality of health services to the community in Mimika Regency.

The Effectiveness of the E-Purchasing Procurement System

The e-purchasing drug procurement system at the Mimika Regency Pharmaceutical Installation is considered quite effective in increasing the transparency and efficiency of the procurement process. With the e-catalog managed by LKPP, it is possible to choose a verified provider at a predetermined price, the procurement process becomes more open, because all transactions are recorded digitally and can be audited easily. The effectiveness of this system can also be seen from the acceleration of the procurement process, which previously

took a long time because it was through a tender mechanism. Through e-purchasing, supplier selection and contract creation in a short time, as long as the system runs smoothly. This helps the Pharmaceutical Installation to immediately meet the drug needs according to the plan, especially in emergency conditions or when the stock of drugs is low.

However, the effectiveness of the e-purchasing system still faces some technical obstacles. Some informants mentioned that the limitations of the type and brand of drugs in the e-catalog are an obstacle in meeting needs optimally. In addition, server and unstable internet network disruptions in the Mimika region also often slow down the ordering process and communication with providers. Effectiveness is also affected by the speed of response from the provider. Some providers who are slow in giving approval or late in delivering goods are factors that reduce the smooth supply chain of medicines. Even though contracts have been approved digitally, monitoring the fulfillment of commitments by providers is still a challenge that needs serious attention. Overall, the e-purchasing system has brought positive changes in the governance of drug procurement at the Mimika Regency Pharmaceutical Installation. Although it is not fully optimal, the implementation of this system has shown effectiveness in terms of time efficiency, transparency, and accountability.

Strategies to Increase the Efficiency and Effectiveness of E-Purchasing Drug Planning and Procurement

The effectiveness and efficiency of e-purchasing drug procurement at the Mimika Regency Pharmaceutical Installation is highly dependent on the readiness of human resources. Training or technical guidance to pharmacists is an urgent need, considering the complexity of the e-purchasing system requires a good understanding of the procedures and applications used. With proper training, pharmacists can minimize errors in the input process and can overcome technical obstacles more independently and quickly.

In addition, accurate and timely planning of drug needs is one of the key factors in the smooth procurement process. Planning based on real usage data, demand trends, and service projections will help determine the volume and type of medication that is really needed. Precision in planning will avoid potential shortages and excess drug stocks, which ultimately support the continuity of health services.

Intensive coordination with providers is also a key highlight in efforts to speed up the drug approval and delivery process. Some informants suggested that communication with providers should be carried out from the beginning of the procurement process, especially after the procurement documents are uploaded to the e-purchasing system. This step is expected to encourage providers to respond faster, approve orders on time, and avoid distribution delays. Acceleration in the budget validation and verification process is also very important. The slow administrative process will have a direct impact on the postponement of the procurement schedule, so that the delivery of drugs is also delayed. Therefore, there needs to be synergy between related parts, especially between planning, finance, and procurement so that the administrative flow runs more efficiently.

The strategy that is considered important is to convey the procurement plan to procurement officials from the beginning of the year and quickly access the e-catalog in drug spending. This step allows the provider to have time to prepare for the availability of the medication that will be needed. That way, the fulfillment process can be carried out faster, reduce the risk of stock vacancies, and maintain service stability. Overall, the effectiveness of e-purchasing relies heavily on collaboration between competent human resources, reliable systems, and responsive providers.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research, it can be concluded as follows:

1. Drug Planning Process

Drug planning at the Mimika Regency Pharmaceutical Installation has been carried out with a systematic and data-based approach. The collaboration between health care facilities and district drug planning teams, using a combination analysis of VEN (*Vital, Essential, and Non-Essential*) and ABC (*Always Better Control*) methods to optimize drug procurement, availability of essential drugs, and improve the efficiency of fund use and digital system utilization, showed that the process was in accordance with government regulations and national standards.

2. Drug Procurement Mechanism Through *E-Purchasing*

Procurement of drugs through *e-purchasing* at the Mimika Regency Pharmaceutical Installation has been running in accordance with the provisions of the Government Goods/Services Procurement Policy Institute (LKPP) and *the e-catalog*, but the process is not fully efficient because the selection of providers through e-catalogs is often constrained by limited product choices or limited drug stock.

3. Obstacles in the Implementation of *E-Purchasing Procurement*

The main obstacles in the implementation of *e-purchasing* include the slow approval process in *the e-purchasing* system. Limited drug stock in the e-catalog, technical problems on the *e-catalog* platform, delays in the delivery of drugs from providers, and lack of procurement officials at the Mimika Regency Health Office.

4. The Effectiveness of the E-Purchasing Drug Procurement System

The *e-purchasing drug procurement system* at the Mimika Regency Pharmaceutical Installation is considered quite effective in increasing the transparency and efficiency of the procurement process. With the existence of *an e-catalog*, it is possible to choose a verified provider with a predetermined price, the procurement process becomes more open, because all transactions are recorded digitally and can be audited easily.

5. Strategies to Increase the Efficiency and Effectiveness of E-Purchasing Drug Planning and Procurement

Important strategies are accurate and timely planning of drug needs, training or technical guidance to procurement officials, intensive coordination with providers in an effort to speed up the drug approval and delivery process.

As a recommendation :

1. The Health Office needs to establish active and intensive communication with e-catalog providers to speed up response to orders and minimize delivery delays. training or technical guidance of human resources.
2. Speed up the procurement process and provide buffer stock for essential medicines that are often delayed.

FURTHER STUDY

Future research could explore the comparative effectiveness of e-purchasing systems in other regency-level pharmacy installations across Central Papua Province to identify broader patterns, best practices, and localized challenges. Additionally, further studies may focus on the integration of digital procurement systems with inventory management and budget planning to enhance drug supply chain efficiency in remote or under-resourced areas.

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