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Research Article

Control of Dead Stock and Slow-Moving Drugs in the Pharmacy Installation of the Kendari City Regional General Hospital

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ABSTRACT

Background: Dead stock and slow moving is still one of the main problems in drug management in primary health facilities. Based on the results of initial observations, data was obtained from the Kendari City Hospital which showed that there were 7 drug items with a total number of 2,682 pcs that experienced slow moving and dead stock in 2019-2021. The purpose of this study was to analyze dead stock and slow-moving drugs at the Kendari City Hospital pharmacy installation
Methods: This research method is qualitative research using a case study approach, with data analysis using the QSR NVivo 12 application with content analysis techniques. The sample in this study consisted of 6 informants.
Results: The results of the study using NVIVO analysis showed the causes of dead stock and slow moving drugsin the pharmaceutical installation of the Kendari City Hospital, namely the pattern of prescribing, planning and control systems. Meanwhile, the control of dead stock and slow-moving drugs in the pharmaceutical installation at Kendari City Hospital consists of storage, hospital policies, communication, control systems, distribution, drug selection and planning.
Conclusion: In conclusion, the causes of dead stock and slow moving in Kendari City Hospital are due to prescribing patterns, control systems and planning. As for the control of dead stock and slow-moving drugs in the pharmaceutical installation of the Kendari City Hospital, the ones that have been effective are storage, hospital policies, communication, distribution and selection, while what has not been effective is drug planning and control systems.

Keywords: Dead stock, Slow moving, Drugs, Management.

INTRODUCTION

Hospital pharmacy service activities play a role in supporting quality health services. Pharmacy services in health facilities, in this case hospitals, have a vision to provide guarantees for the safe and appropriate use of drugs. Completion of this responsibility as optimally as possible is carried out by the presence of a pharmacist in each line of drug use. The presence of pharmacists plays a role in evaluating, storing, distributing, procuring & administering medicines [1].

The hospital provides efficient and quality healthcare using appropriate inventory management techniques. Effective pharmaceutical installation management requires priority setting in purchasing and distribution of medical materials. The inventory control system, as part of the logistics system, provides several important functions. Inventory control techniques can be an effective material and financial management tool to improve discipline in materials management in hospitals. For this reason, inventory control of medical materials has a big role in hospital management [2].

Inventory management which includes ordering, receiving, storing, dispensing, and reordering products aims to make decisions on inventory in order to minimize the total cost of inventory and optimize quality through the use of limited resources to meet consumer needs efficiently. Approximately one third of the hospital budget is spent on purchasing various materials and equipment, including medicines, and forty percent of the budget is spent on procurement and management of hospital pharmacy installations. This encourages effective and efficient inventory management to make a significant improvement in the management of hospital pharmacy installations [3].

Slow moving and dead stock that occurs causes additional high non-value costs, including warehouse costs, maintenance costs to maintain stock quality, repair costs, and opportunity costs. These high non-value costs can be avoided by using various approaches in forecasting demand more accurately[4] for this reason, inventory control techniques will not only assist in the efficient and optimal use of scarce financial resources but will also assist in avoiding shortages medical materials and eliminate out-of-stock situations[5]. Thus, an inventory system must be developed in a cost-effective manner within the home organization [6].

The results of research conducted by Maulina M (2020) show that the losses incurred from dead stocks were 3.24%, namely IDR 83,7793,366 in 2018 at Langsa General Hospital, North Sumatra[7]. Another research conducted by Permata (2016) at the Ibnu Sina Islamic Hospital Bukittinggi in 2010-2011 showed losses caused by a dead stock of 12.76% amounting to IDR 45,191,156[8]. Khairani et all (2021) also in their research showed the amount of loss from a dead stock of 20%, namely Rp. 14,338,834 in 2015 at one of the puskesmas in the city of Magelang [9].

Based on the results of initial observations, data were obtained from the Kendari City Hospital which showed that there were 7 drug items with a total of 2,682 pcs that experienced slow moving and dead stock in 2019-2021, therefore researchers are interested in conducting research related to dead stock and slow moving control drugs in the pharmaceutical installation of the Kendari City Hospital

METHODS

The type of research used qualitative research with a case study approach. The sample in this study consisted of 6 informants.In this study, sampling was based on informants who had competence and knowledge in accordance with the field under study. Data collection was obtained by conducting in-depth interviews, observation and documentation.The data analysis uses the NVIVO 12 application using content analysis techniques.

RESULTS

The results of the NVIVO analysis in the figure below show in detail the proportion of causes for the emergence of dead stock and slow moving drugs in the pharmaceutical installation of the Kendari City Hospital.

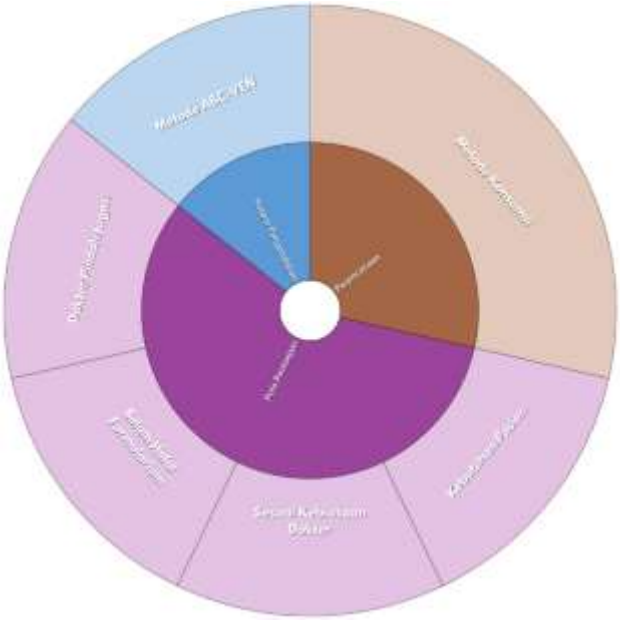

Figure 1. Hierarchy Chart diagram of the factors causing dead stock and slow-moving drugs in the Kendari City Hospital pharmacy installation

Figure 1 shows that the biggest cause of dead stock and slow moving drugs in the Kendari City Hospital pharmacy installation is due to prescribing patterns (57,1%), planning (28,6%), and control system (14,3%).

The results of the NVIVO analysis on the visualization of the causes of the emergence of dead stock and slow moving drugs at the Kendari City Hospital pharmacy installation based on the results of interviews with informants can be seen in the image below:

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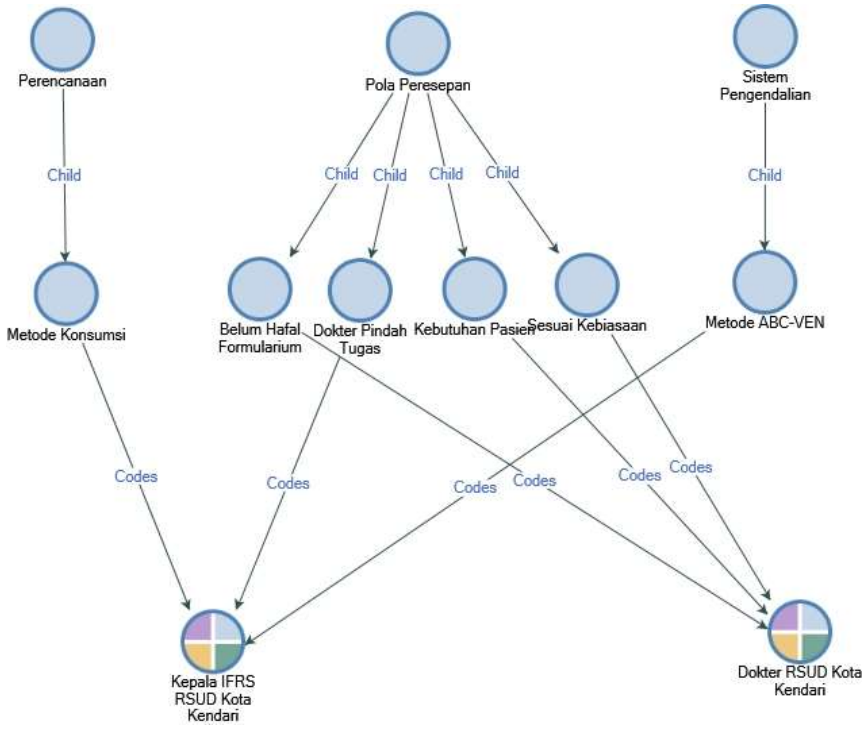

Figure 2. Project Map of the factors causing dead stock and slow moving drugs at the Kendari City Hospital pharmacy installation

The results of the NVIVO analysis in the figure below also show in detail the proportion of dead stock and slow moving drug control in the pharmaceutical installation at the Kendari City Hospital.

Figure 3 Hierarchy Chart diagram for controlling dead stock and slow moving drugs at the Kendari City Hospital pharmacy installation

Figure 3 shows that the control of dead stock and slow moving drugs in the pharmacy installation at Kendari City Hospital is highest in the storage category (30.5%) and the lowest is in selection and planning (3.3%).

The results of the NVIVO analysis on the visualization of dead stock and slow moving drug control at the Kendari City Hospital pharmacy installation based on the results of interviews with informants can be seen in the image below:

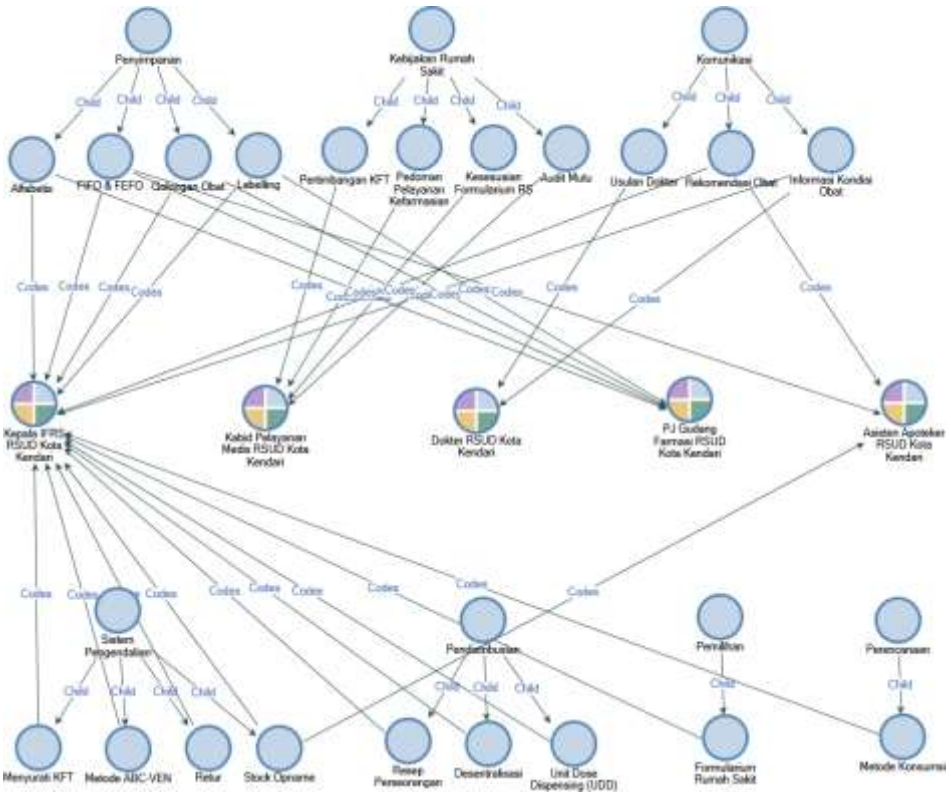

Figure 4 Project Map for Controlling Dead Stock and Slow-Moving Drugs at the Kendari City Hospital Pharmacy Installation

DISCUSSION

Causes of Dead Stock and Slow Moving in the Kendari City Hospital Pharmacy Installation

1. Prescription Pattern

The prescribing pattern determines whether or not dead stock or slow moving drugs occur, because if the prescribing pattern always refers to the hospital formulary, the number of dead stock and slow moving drugs will decrease.

The results of interviews with informants stated that several prescribing pattern factors did not refer to the formulary due to several reasons, including not having memorized the hospital formulary, according to patient needs, according to doctor's habits and the presence of doctors who changed assignments. Here's an excerpt of the interview:

"*...Firstly, it means that the existing formulary may not be in accordance with the habits or familiarity used by doctors, secondly, it may mean that the doctor does not memorize the formulary. ...the next thing could be that the medicine we want to prescribe is not in the formulary even though the patient also needs that drug*" (J, 41 years).

"*...The doctor's prescription, like this simfix simzen, the doctor is no longer there, the doctor who entered it has moved so no one is running it...*" (YAP, 37 years old).

The number of incidents of slow moving drugs that eventually become expired is the main cause due to a change in doctors who have different patterns of prescribing drugs [10].

It is the obligation for every medical staff to adjust to the applicable system according to the needs of the institution, mastery of the formulary system that has been developed by the pharmacy and therapy committee is a must for medical staff by accepting the policies and procedures made by the pharmacy and therapy committee [1].

2. Planning

A good planning method will ensure a balance between the amount of drug stock and demand, neither shortage nor excess. Excess drug stock will cause financial losses due to drug expiration and stock shortages will cause pharmaceutical services to be hampered due to drug vacancies.

The results of interviews with informants stated that the drug planning carried out only referred to previous consumption data. Here's an excerpt of the interview:

"*...If we were to plan it based on the consumption method, then the previous use of the medicine was the basis...*" ***(YAP, 37 years old).***

"*...Yes, it's easier (using the consumption method)*" (YAP, 37 years old).

Using the consumption method in planning has the advantage that it is easy to do because it does not require morbidity data and treatment standards, then the calculations used are also simpler, but the drawback is that it cannot be used as a basis for assessing drug use and cannot be relied upon when changes in disease patterns occur [11].

3. Control System

The control system is a concept whose role is to control so that the amount of inventory of pharmaceutical supplies is never empty for a predetermined period based on calculations and does not experience overstock which can result in slow moving or dead stock.

The results of interviews with informants stated that the control system used used the ABC-VEN method and had not used the basic inventory control models such as EOI (Economic Order Interval) and EOQ (Economic Order Quantity).. Here's an excerpt of the interview:

"*Oh I just heard that (EOQ and EOI), ABC-VEN ji.*" (YAP, 37 years old).

EOQ is one of the inventory control techniques to determine the most economical order quantity by taking into account the ordering and storage cost factors [12].

Implementing the ABC-VEN system is good, and it would be even better to combine it with the EOQ and EOI methods or systems, so that we will know when and how many drug items we will order with minimal storage costs.

Control of Dead Stock and Slow Moving in the Kendari City Hospital Pharmacy Installation

1. Storage

Storage in drug management plays an important role in ensuring the flow of drug circulation, because wrong storage will have fatal consequences, namely causing the drug expiration time to be faster because it is unstable in the storage area or can cause the drug to experience slow moving and dead stock if the storage is wrong so that the medicine is not looks even though the amount of stock is still a lot.

The results of interviews with informants stated that the Pharmacy Installation at the Kendari City Hospital had implemented alphabetical drug

storage, according to drug class, using the FEFO & FIFO method, then labeling was also carried out as a drug marker that was approaching expiration.Here's an excerpt of the interview:

"*The storage is alphabetical or alphabetical, then according to dosage form, drug class then FEFO & FIFO*" (M, 38 years).

"*The storage is based on drug class, there is bmhp, there is alphabetical storage, FEFO, FIFO, then there are special drugs, narcotics, high alert, B3, oot precursors are different, liquids are different again*" (YAP, 37 years).

The results of interviews with informants stated that drug storage was carried out by the Kendari City Hospital pharmacy installation, which was based on the type of preparation, alphabetically, according to drug class and used the FEFO (First Expired First Out) and FIFO (First in First Out) systems.

Storage carried out by the pharmaceutical installation at the Kendari City Hospital is in accordance with the rules of the Republic of Indonesia Ministry of Health number 72 of 2016, where storage is carried out according to the therapeutic group, type of preparation and dosage form and is arranged alphabetically with the First Expired First Out and First in First Out storage pattern [13].

Incorrect or inefficient storage makes expired drugs undetectable and can cause losses to hospitals, pharmacies and large pharmaceutical companies. Therefore, in choosing a storage system, it must be selected and adapted to the existing conditions so that drug services can be carried out in an efficient and effective manner [14].

Storage with this method will guarantee the flow of drug circulation because drug storage will be stable and easily accessible by pharmacists in pharmaceutical services, and the use of labels or stickers as markers for drugs that are approaching their expiration date will ensure that drugs that are closest to their expiration date will come first. removed from drug stock.

2. Hospital Policy

Hospital policy has a very important role, where all continuity of coordination of pharmaceutical services and medical services will depend on and continuously on policies issued by the hospital.

The results of interviews with informants stated that the Kendari City Hospital Pharmacy Installation had implemented several policies, namely quality audits, therapeutic pharmacy committees, guidelines for pharmaceutical installation services and the existence of a hospital formulary. Here's an excerpt of the interview:

"*...Our current hospital policy is related to guidelines for pharmaceutical services, which have been determined by the leadership, including starting from the procurement of orders to the usual process of extermination...*" (MA, 43 years).

"*...Then in the pharmacy committee, it's eee compliance in the use of formulary drugs...*" (MA, 43 years).

"*... there is an audit of the quality of doctors' compliance with formulary drugs. So there is an audit of the quality of the results of using the formulary...*" (MA, 43 years).

The role of the KFT is to optimize the rational use of drugs by evaluating drug use in clinics, developing drug management policies, and managing the formulary system [1].

Non-compliance with the formulary will lead to drug shortages or blanks, on the other hand there will be excessive drug stocks. Besides that, a larger investment is needed to complete the types of drugs that are more than standard [15].

A quality audit conducted by a hospital is good news for the supply of pharmaceutical supplies, because with a quality audit, the suitability of writing a doctor's prescription according to the formulary will always be supervised, so it is hoped that the number of conformity prescriptions referring to the hospital formulary can approach or reach 100 %.

3. Communication

Communication or coordination is equally important in controlling dead stock and slow moving drugs in hospital pharmacy installations. Because with communication we can exchange information regarding drug suggestions by medical staff or recommendations for substitute drugs when there is a drug shortage.

The results of interviews with informants stated that the Kendari City Hospital Pharmacy Installation also communicated with doctors, whether it was information on drug stock conditions, recommendations for substitution drugs and reciprocity where doctors also proposed drugs to be used. Here's an excerpt of the interview:

"*...Usually just inform the doctor. We usually have users who ask for medicine so we inform the doctor, this doc has never come out again or when he is approaching 6 months ED...*" (YAP, 37 years old).

"*...It's normal for the pharmacy to inform you of the medicines, oh, there's still a lot of medicine, it's about to expire. That is, if there is still medicine piled up, we will use the noodles as long as it is indicated anyway*" (J, 41 years).

Coordination between prescribing doctors and pharmacies regarding changes in prescribing patterns must be maximized to increase the accuracy of planning pharmaceutical needs [16].

The causes of expired drugs are communication between pharmaceutical installation staff and medical staff that is not going well, human resources that have not maximized their performance, negligence in recording drug stocks, outreach, drugs that are not used by medical staff, and the absence of a clear division of responsibilities related to planning. and procurement of drugs [17].

4. Control System

Control is needed to control drug supplies in hospital pharmacy installations, because if there is no control system in it, there will be a very high risk of experiencing drug shortages or vice versa drug stock will be excessive which will later experience slow moving and dead stock.

The results of interviews with informants stated that the Pharmacy Installation at the Kendari City Hospital also carried out pharmaceutical inventory control by means of conducting periodic stock taking, using the ABC-VEN method, writing to the Pharmacy and Therapeutic Committee and returning drugs to distributors that were approaching their expiration date.. Here's an excerpt of the interview:

"*We carry out stock taking at the end of each month once" (J, 28 years).*

"...It's like a medicine that wants to expire quickly, 3 months before that something can be returned, we can return it to the distributor..." (YAP, 37 years old).

"*...six months earlier, a letter was written to the medical committee, they were given a list, later they would inform the doctors that this was what they wanted ED so it could be run first...*" (YAP, 37 years old).

The results of observations made include a stock card for each drug item, which will help control the availability of the number of drug stocks every day, and in the drug stock card, the entry and exit of each drug item are recorded along with the date which will facilitate adjustment of the amount of drug on the shelf and in stock. .

The analysis system used in inventory control at the Kendari City Hospital pharmacy installation uses the ABC-VEN analysis system, with this analysis all drug items to be ordered will be grouped based on the level of patient need and grouped based on the highest price. Medicines that are non-essential but have the highest price will be excluded from the items to be ordered to reduce the burden on hospital drug costs.

To determine the value of drug use according to the level of clinical need, a combination system of the ABC method and the VEN method is used. Medicines from the AN group need to be removed or limited in order to reduce inventory levels and make hospital spending more efficient [13].

5. Distribution

Distribution also has a role in controlling dead stock and slow moving drugs, when drug distribution is carried out with a good system it will avoid running out of drug stock and preventing slow moving or dead stock.

The results of interviews with informants stated that at the Kendari City Hospital Pharmacy Installation, the distribution of pharmaceutical supplies was carried out using the UDD (Unit Dispensing Dose) method for inpatient care, individual prescriptions for outpatient care with a centralized system unit.. Here's an excerpt of the interview:

"*The distribution of prescriptions for inpatient care, in inpatient care using UDD (Unit Daily Dose) we use individual prescriptions for outpatient care and for decentralized units*" (YAP, 37 years old).

The drug distribution system carried out by the Kendari City Hospital pharmacy installation is in accordance with the RI Ministry of Health number 72 of 2016, where according to the RI Ministry of Health (2016) the Unit Dose Dispensing (UDD) distribution system is highly recommended for inpatients considering that with this system the error rate of drug administration can be minimized to less than 5%[14].

Decentralized drug distribution has been proven to achieve safety and effectiveness of drug use for patients as well as increased drug control and accountability [1].

6. Selection

The selection of drugs should be based on the hospital formulary that has been made or compiled by the KFT, the aim is to improve the quality of drug services in an efficient manner and to be able to control the supply of drugs that are already available, so that slow moving and dead stock do not occur.

The results of interviews with informants stated that in the Pharmacy Installation of the Kendari City Hospital the selection of drugs referred to the Hospital Formulary. Here's an excerpt of the interview:

"*...we chose based on the hospital formulary...*" (YAP, 37 years).

Prescribing outside the hospital formulary by doctors can cause delays in planning and procuring drugs because they are outside of what is needed by the hospital, as a result there can be a vacancy of the required drugs or excessive stocks, causing drug expiration [18].

The requirement for drug selection with the suitability of the hospital formulary is at least 80%, and in Kendari City General Hospital the selection of drugs in accordance with the hospital formulary has reached >80% [19].

7. Planning

Drug planning is carried out to meet the need for drug supplies in hospital pharmacy installations. Good planning will result in the availability of sufficient stock to be used until the specified time, and not overstock, causing dead stock and slow moving of drugs.

The results of interviews with informants stated that in the Kendari City Hospital Pharmacy Installation in planning to use the consumption method in controlling its supply. Here's an excerpt of the interview:

"*...If we plan it based on the method of consumption, then the previous drug use is the basis*" (YAP, 37 years).

The consumption method has conditions, namely that it is mandatory to ensure that drug consumption in the previous period was rational, because the consumption method only refers to consumption data for the previous period and there is no consideration of disease distribution patterns or epidemiology. So if drug consumption in the previous period was irrational, it is recommended to use other methods [1].

The drawbacks of the consumption method are that it cannot be used as a basis for assessing drug use, it cannot be relied upon if there is a change in disease patterns because this method only refers to previous drug use [20].

CONCLUSIONS

Based on research results carried out, it can be concluded that the causes of dead stock and slow-moving drugs in the pharmaceutical installation of the Kendari City Hospital are:

1. Because the prescription pattern has changed and does not refer to the hospital formulary
2. Because drug planning only uses the consumption method
3. Because the drug control system does not yet use the EOQ and EOI systems

Based on research results carried out, it can be concluded that control of dead stock and slow-moving drugs in the pharmaceutical installation of the Kendari City Hospital, namely:

1. Drug storage at the Kendari City Hospital in controlling dead stock and slow moving drugs has been effective
2. The hospital policy at the Kendari City General Hospital in Kendari City in controlling dead stock and slow moving drugs has been effective
3. Communication between doctors and Kendari pharmacy staff in controlling dead stock and slow moving drugs has been effective
4. The drug control system at the Kendari City Hospital in Kendari City Hospital in controlling dead stock and slow moving drugs has not been effective
5. The drug distribution system at the Kendari City Hospital in Kendari City Hospital in controlling dead stock and slow moving drugs has been effective
6. Drug selection at the Kendari City Hospital Kendari in controlling dead stock and slow moving drugs has been effective
7. Drug planning at the Kendari City Hospital in Kendari City Hospital in controlling dead stock and slow moving drugs has not been effective

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