



## Analysis of Drug Availability Management at the Regional General Hospital Pharmacy Installation

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### Abstract

Pharmacy managerial activities are inseparable from the principles of drug availability management such as a series of needs planning activities, procurement, storage and distribution of drugs through hospital pharmacy installations. This study aims to analyze and obtain information on availability management at the Pharmacy Installation of the South Tapanuli Regional General Hospital. This type of research is qualitative with a descriptive approach using primary data and secondary data using the interview method. The informants interviewed at the pharmaceutical installation were the head of the pharmaceutical installation unit, the coordinator of pharmacy services, the head of the pharmaceutical warehouse/supplies, the coordinator of quality management and administration. Informants of this study were taken by purposive sampling and data analysis using triangulation and data reduction methods. The results of this study obtained that planning for drug needs uses the consumption method by looking at the need for previous use, but it has not been maximized, procurement has not gone well, drug shortages often occur, drug storage systems use the FIFO (First in First Out) and FEFO (First Expired First Out) systems. First Expired First Out). Storage is not up to standard, the waiting time for drug distribution to patients starting from the patient submitting the prescription to the delivery of the drug takes quite a long time for the drug to be finished. The conclusion is that the implementation of drug availability management has not run optimally according to standard operating procedures for services, so it is necessary to increase human resource knowledge through training related to drug planning..

## Introduction

Availability of medicines that are less than the needs of the community will cause shortages of medicines, resulting in disruption of health service activities in hospital pharmacy installations and a decrease in the level of patient trust in health personnel and facilities, while excess availability of medicines will have an impact on the number of medicines that will expire and result in financial loss. The availability of drugs in pharmaceutical installations must be adjusted to the need for medical services for the community at the hospital. The level of drug availability, both types and quantities of drugs required by treatment services in a certain time period, is measured by calculating the average monthly supply and usage (Amiruddin et al., 2019; Mustika et al., 2022).

Management of drug availability in hospital pharmacy installations is part of health management and services, which is a right for every member of the country which is guaranteed in law and regulated by the provisions of the Regulation of the Minister of Health of the Republic of Indonesia Number 72 of 2016 concerning standards of pharmaceutical services in hospitals in article 6 states that the implementation of pharmaceutical services in hospitals must ensure the availability of safe, quality, useful and affordable pharmaceutical preparations, medical devices and consumables (Ministry of Health, 2016a). Understanding the Pharmaceutical Service Standards in Hospitals regarding the management of various or inappropriate pharmaceutical preparations tends to result in problems which ultimately result in the entry of pharmaceutical preparations that do not meet the requirements into hospitals which threaten patient safety. Likewise, in the implementation of clinical pharmacy services, differences in understanding result in varying service coverage and lack of clarity in the scope of more technical services. Minister of Health Decree number 1457/2003 concerning minimum service standards (SPM) states that one of the indicators for procurement of essential medicines and generic medicines is 100%. Another indicator is that the prevention and eradication of infectious diseases requires the availability and affordability of drugs. To ensure the availability, distribution and affordability of medicines, good medicine management is needed, including the stages of selection, procurement, distribution and use, and supported by management support which includes organizational management, availability of funds for drug procurement and other operations, person in charge, number of human resources and systems. information (Haksama et al., 2020).

The most important aspect of pharmaceutical services is optimizing drug use, this must include planning to ensure the availability, safety and effectiveness of drug use. For this reason, if the problem of pharmaceutical supplies is not managed carefully and responsibly, it can be predicted that hospital income will decrease. Pharmaceutical services are activities that aim to identify, prevent, and resolve drug-related problems. The demands of patients and society to improve the quality of pharmaceutical services require an expansion of the old paradigm which is product-oriented (drug oriented) to a new paradigm which is patient-oriented (patient oriented) with a pharmaceutical service philosophy (Amaranggana, 2017).

Pharmacy installation is a part or facility in a hospital where all pharmaceutical work activities are carried out for the needs of the hospital itself. Pharmaceutical management is basically inseparable from the principles of logistics management. Management of drug availability is based on a cycle where all elements in the cycle must be kept equally strong and all activities must always be aligned, harmonious and balanced (Satrianegara et al., 2018). Management of drug availability in hospitals consists of several stages, namely planning, procurement, receipt, storage, distribution, elimination, and control. Each of these stages is related to one another, so it must be well coordinated in order to function optimally (Hasniah & Mardiana, 2022). Supply of drugs in the hospital is very important. Drugs have a role in the continuity of service in the hospital. Drugs are substances or a combination of materials, including biological products that are used to influence or investigate physiological systems or pathological conditions in the context of establishing a diagnosis, prevention, cure, recovery, health promotion and contraception for humans (Malinggas, 2015). Hospitals need to pay attention to the stages of drug availability management. Optimal drug management will improve the quality of hospital services and will directly affect patient satisfaction. If the hospital is unable to manage drug supplies properly, the hospital will not be able to reach the point of success. This will reduce the quality of hospital service itself and reduce patient satisfaction (Yulyuswarni, 2017). Drug management at the hospital is carried out by the pharmaceutical installation section which is a functional implementing unit that organizes all pharmaceutical service activities at the hospital, both in the form of managerial activities and clinical pharmacy service activities designated for hospital needs (Prisanti et al., 2019). Because of the large contribution of pharmaceutical installations to the smooth running of services, pharmacists, especially those working in

hospitals, are required to realize the expansion of the pharmaceutical service paradigm from product orientation to patient orientation. Where this development is an opportunity as well as a challenge for pharmacy staff to improve their competence so that they can provide comprehensive and simultaneous pharmaceutical services both managerial and clinical pharmacy. Specifically for managerial activities, pharmaceutical staff must have an optimal strategy to enforce by making the most of hospital information systems in the pharmaceutical management function, so it is hoped that with this model there will be energy and time efficiency. Pharmacy managerial activities are inseparable from the principles of drug availability management. Where the logistics is carried out on a cycle where all elements must be equally strong so as to create a harmonized and balanced cycle. Drug availability management is part of the supply chain management that plans, implements and controls the forward flow and reverse flow as well as the storage of products, services/services and related information between the point of origin and the point of consumption to meet consumer needs on an ongoing basis. effective and efficient. According to the Regulation of the Minister of Health of the Republic of Indonesia Number 72 of 2016 concerning Pharmaceutical Service Standards in Hospitals Article 3 paragraph (2) states that the management of pharmaceutical preparations, medical devices and consumable medical materials as intended includes: selection, planning needs, procurement, reception, storage , distribution, destruction and withdrawal, control, and administration. Based on data from the Ministry of Health regarding provinces that carry out drug and vaccine management according to standards, most provinces have met the 60% target, namely 24 provinces (70.59%) but there are still 10 provinces that have not reached the 2016 Strategic Plan target and there are 63.88% of district/city pharmacy installations that have carried out drug and vaccine management according to standards and 36.12% have not complied with standards (Ministry of Health, 2016b).

According to Ajirna Winasari's research (2015), regarding the causes of drug shortages and how to control them at the Bekasi City Hospital in 2015, drug management has not been effective. Because there are still several components that do not meet the standards guided by Minister of Health Regulation No. 58 of 2014 concerning pharmaceutical service standards. These components include input components (human resources, funding, policies, procedures and distributors), process components (planning, procurement, supervision and control). As well as output components (stockout, expired medicine stock taking) (Winasari, 2015). In addition, according to Anindita's research on how to control patent drug supplies at Zahirah Hospital in 2014, there was also a shortage of drugs in this hospital where 164 types of drugs were purchased at outside pharmacies in the first quarter (January-March) 2014. This shows that there were 164 types of drugs that could not be provided in the quantity requested at the time needed, so they had to make purchases at outside pharmacies. There are 6 types of medicines purchased from outside pharmacies every day, this of course can be detrimental to hospitals. Hospitals need to form a Therapeutic Pharmacy Committee (KFT) to adjust the information system, compile a formulary regarding the amount of drug use in a certain time so that it can facilitate the preparation of drug needs and need to establish inventory control methods to avoid drug shortages and purchase orders. The importance of the need for pharmaceutical supplies, especially medicines in pharmaceutical installations to support the achievement of optimal health services, therefore the process of managing pharmaceutical supplies needs to be monitored to find out the strengths and weaknesses in operational implementation so that corrective actions can be taken as soon as possible to carry out the management of drugs that are still considered not optimal. If the hospital is unable to plan and carry out drug supply management properly, the hospital will not be able to achieve the success set. Failure to manage drug availability will reduce the quality of hospital services so that patient satisfaction will also decrease. One of the objectives of drug availability management is for financial purposes where drug availability management can be achieved at a low cost. If

the hospital does not fulfill the proper pharmaceutical supplies, then the hospital budget expenditure cannot be controlled properly (Utari, 2014).

Hospitals are always required to improve the quality of service to meet patient satisfaction in accordance with established professional standards and also in accordance with the code of ethics. Improving the quality of service in question is not solely provided by medical personnel and paramedics but involves all aspects related to services to patients including pharmaceutical services. Drug management in hospitals is an important aspect of hospital management, because the goal is to have the medicines needed available at any time, in sufficient quantities and guaranteed to support quality service. Drug management in hospitals is a series of activities that involve Management functions include planning, procurement, distribution, and storage and use of drugs (Supply, 1997).

Drug planning includes activities to determine the type and quantity of drugs needed for the upcoming procurement period. Planning can be done using consumption methods, epidemiological methods and combination methods. Procurement is a process of obtaining supplies, in this case drugs/pharmaceutical goods to support hospital service activities. Storage is a process of placing pharmaceutical supplies in a place that is considered safe and meets the requirements. Distribution is a process, starting from request to delivery to health workers and patients. The drug distribution system can be implemented with a floor stock system, individual orders, combination systems and single services. The process of using a drug starts from the request for the drug by the doctor to delivery of the drug to the patient. To reveal patterns of drug use. The World Health Organization has determined several indicators of drug use. The effectiveness and efficiency of medical services is reflected in the prescribing methods of medical personnel, both rational and irrational. Irrational prescribing is grouped as follows; (1) wasteful prescribing; (2) overprescribing; (3) wrong prescription; (4) compound prescription; and less responsiveness (Mossialos et al., 2004).

The research above shows that the problem of logistics management, especially medicines, is a complex problem and is interrelated between its functions. Good management is needed to ensure the provision of good and quality health services to the community because poor drug management can result in losses to the hospital. Therefore, it is necessary to analyze in depth the management of drug availability in hospitals, especially in pharmacy installations. In the studies above, the factors that influence the occurrence of stockouts and stagnation are the management of drug availability (logistics) such as planning, storage, and recording and reporting. This of course cannot be separated from the drug supply process, namely from planning to distribution.

Management of drug availability in hospitals is one of the important aspects in hospitals. Availability of medicines is currently a demand for health services. Management of drug availability in hospitals includes stages, namely planning, procurement, storage, distribution, deletion, evaluation and monitoring which are interrelated to each other, so they must be well coordinated so that each can function optimally. The disconnection between each stage will result in the inefficiency of the existing drug supply system, this will also have a negative impact on hospitals both medically and economically (Hamdani & Indrawati, 2022). One factor that is very influential in the supply of medicines in hospitals is controlling the amount of medicine stock to meet needs. If the stock of medicines is too small, the demand for use is often not met so that patients/consumers are dissatisfied, so the opportunity to make a profit can be lost and additional costs are required to obtain medicinal materials quickly to satisfy patients/consumers. If the stock is too large, it will cause storage costs that are too high, it is possible that the medicine will become damaged/expired and there is a risk if the price of the material/medicine falls. The importance of drug management in pharmaceutical installations in achieving optimal health services in hospitals means that the drug management process needs to be monitored to identify weaknesses and strengths in operational implementation so

that corrective action can be taken immediately for drug management implementation that is still considered not optimal. The South Tapanuli Regional General Hospital is the only hospital belonging to the South Tapanuli Regency Regional Government which is a type C hospital which is a reference for health centers in South Tapanuli Regency. South Tapanuli Regional General Hospital with 5 types of service categories, namely medical services, nursing services, emergency unit services, medical record services and administrative services. The services provided are inpatient, outpatient and emergency services. The South Tapanuli Regional General Hospital has a pharmacy installation with 11 employees consisting of 5 pharmacists and 6 pharmacist assistants, and the number of outpatient visits per day at the pharmacy installation is an average of 45 people and an average of 1,350 people per month. Pharmacy installations provide medicines for inpatients and outpatients as well as emergency patients.

The South Tapanuli Regional General Hospital has a pharmaceutical installation which functions to meet the need for medicines in the hospital. It is known that the methods used in planning are epidemiological and consumption methods. Epidemiology and consumption methods are planning methods that are based on current disease patterns and usage patterns in previous periods. From the results of the interview, it was also discovered that there was a problem with logistics management/drug availability at the South Tapanuli Regional General Hospital's pharmaceutical installation which was not running in accordance with the standard operational procedures of the Pharmacy and Therapeutics Committee, such as drug planning which was still being made by the head of the hospital's pharmacy installation. Apart from that, the problem is that the level of drug availability is not in accordance with the service needs in hospitals. Drug shortages and shortages often occur due to the use of drugs that are greater than the planned amount. Unmet drug needs (drug shortages) cause patients to have to buy them themselves at pharmacies outside the hospital. Likewise, there is a problem of drug shortages, there is also an excess of drugs and there are also a number of drugs that have expired. One of the influencing factors is the change of doctors in hospitals. Often new doctors do not use medications that have been ordered by the hospital. Events or problems like this should not happen.

Based on the results of interviews with staff/employees in the pharmacy department, the management of drug needs carried out by the Pharmacy Installation at the South Tapanuli Regional General Hospital aims to optimize the supply of pharmaceutical supplies (availability of drugs) so that they can be used effectively and efficiently. The planning process itself is carried out based on a review of the previous year's use and the number of medicines according to the type of disease needed. Medicine procurement is prioritized for medicines that are vital (must be available). However, in this case, sometimes drugs in pharmacies experience stockouts so that procurement is carried out again before the previous procurement period is finished. For prescriptions, patients who experience stockouts usually redeem them at the hospital's auxiliary pharmacy or other pharmacies outside the hospital. Slow moving medicines are usually handled by coordinating with medical personnel at the hospital, but if there are still medicines that are stagnant and eventually damaged, they will be returned to the distributor. Data on drug availability at the South Tapanuli Regional General Hospital in 2022 shows that the average number of drugs available for the 10 most common types of diseases is only 48.2 percent of the total planned drug needs. A low percentage of the quantity of medicine from the planned requirement indicates that the medicine cannot be provided in the right quantity at the time needed, causing patients to have to buy the medicine themselves from an outside pharmacy.

Based on this background, this research aims to analyze the management of drug availability in the Pharmacy Installation of the South Tapanuli Regional General Hospital.

## Methods

The type of research used in this research is qualitative research with a descriptive approach. Informants in this research were taken using purposive sampling. Informants who will be involved as data sources in drug logistics management analysis research are selected based on the knowledge they have in accordance with the research topic raised, namely Management Analysis. Availability of medicines at the South Tapanuli Regional General Hospital Pharmacy Installation with a total of 11 employees.

## Results and Discussion

### Drug Availability Management Analysis

#### Drug Planning

Planning for drug needs is an activity in which the amount and time of procurement of drugs is determined based on the results of selection activities to ensure the fulfillment of the criteria for the right type, time, quantity and effectiveness. In order to avoid drug bottlenecks, we plan in a method-friendly way, in which the planning basis for consumption, epidemiology and combination of consumption and epidemiological methods is determined and adjusted according to the available budget. Planning and determining the need for drugs in pharmaceutical warehouses using the consumption method. This method is used because it is easier to implement. In the planning process there is no use of a system or VEN method, ABC analysis, there is no calculation of maximum stock, minimum stock, and lead time. This is supported by the informant's statement as follows:

*"Planning for drug supply requirements that are carried out and processed by the pharmaceutical installation unit at the South Tapanuli Regional Hospital is to pay attention to the method of use or previous drug consumption, the VEN analysis system or method, ABC analysis has not been used in drug planning, maximum stock or minimum stock is not calculated, and delivery time is not taken into account" (ADL, 40 years).*

Drug planning activities are carried out by planning drug needs for one year. In this case, planning is based on past drug use data. This is supported by the informant's statement as follows:

*"We also make a treatment plan for one year by looking at the previous year's drug stock or drug inventory. We don't implement a plan based on type of disease or epidemiology, only by consumption method." (FFD, 31 years old).*

According to the informant, the team involved in drug planning was the head of the pharmaceutical installation unit, the coordinator of pharmacy services, the head of the pharmaceutical warehouse/supplies, the coordinator of quality management and administration whose role was to participate in determining the type of drug and making the hospital formulary along with the informant's statement:

*"The team involved in drug planning is the head of the pharmaceutical installation unit, the coordinator of pharmacy services, the head of the pharmaceutical warehouse/supply, the coordinator of quality management and administration whose roles are involved in determining the types of drugs and making hospital formularies." (ADH, 30 years).*

Likewise other informants' statements related to the team's involvement in drug planning that the team's involvement in drug management is responsible for determining the types of drugs and compiling hospital formularies, asking for suggestions from users along with informant statements:

*"Suggestions from users of what medicines will be included in the formulary, after getting the list of proposals a hospital formulary was prepared, only once the formulary was changed, now it is being amended for the second time since I served as chairperson" (ADL, 40 years).*

The results of the interviews related to the drug planning process, the pharmaceutical installation unit of the South Tapanuli Regional General Hospital used the consumption method. Drug planning does not match patient needs, both in terms of quantity and type. This happens because cases of disease cannot be predicted so that the patient's needs cannot be met immediately.

### **Drug Procurement**

Procurement is one of the activities to realize the planning and determination of drug needs in the hospital. From the results of interviews conducted by researchers, it was found that the procurement process at the Pharmacy Installation at the East South Tapanuli Regional General Hospital started with submissions from the pharmaceutical warehouse, namely in the pharmaceutical warehouse, checking the remaining stock of goods that were running low, recorded on a defect sheet, then handed it over to the head. pharmacy installation to estimate drug needs by looking at previous drug usage and remaining existing drug stock, before making an Order Letter from the warehouse, check directly with the pharmaceutical warehouse to see whether the remaining stock is in accordance with the data created by the pharmaceutical warehouse after being verification by the head of the new warehouse section, the head of the pharmaceutical installation makes an order letter to the drug distributor and before the order letter is submitted to the drug distributor, it must first go through approval from pharmaceutical support and then the drug order letter can be submitted to the drug distributor. This is as stated by the informant below.

*"The procurement process is that the warehouse staff fills in a defect sheet, namely checking the remaining stock of medicines in the warehouse, based on the remaining stock of medicines, the head of the Pharmacy Installation makes an estimate of the need for medicines for 1 month based on the previous month's needs, then determines the number of orders after that from the administrative staff. "After receiving approval from the warehouse or pharmaceutical supplies department, the head of the installation unit will make an order letter and before it is handed over to the pharmaceutical wholesaler or distribution, it must be initialed or approved first by the head of the medical support sub-sector." (FGN, 40 years old).*

The team involved in the drug procurement process according to the results of the interviews are the head of the pharmaceutical installation unit, the pharmacy service coordinator, the head of the pharmaceutical warehouse/supply, the quality management coordinator, while the frequency of ordering or procuring drugs to distributors is done once a month or in certain circumstances it can be done once a week. . The informant's statement is as follows:

*"The team involved in drug procurement is the head of the pharmaceutical installation unit, the coordinator of pharmaceutical services, the head of the pharmaceutical warehouse/supplies, the coordinator of quality management. Frequency Medicines are procured once a month, but under certain conditions it can be once a week" (FFD, 31 years).*

For the selection of drug suppliers, the South Tapanuli Regional General Hospital did not select drug suppliers or distributors. The drug distributors used are considered to have met the requirements of the applicable provisions, namely the provisions of Presidential Decree No. 18 of 2000 that suppliers must have TDR (Partner Registration Certificate), a license as a PBF (Pharmaceutical Wholesaler) from the Ministry of Health and a permit as an official distributor

from a drug factory. The selection of distributors is only based on the availability of drugs in the distributor. If one distributor does not have stock of drugs, the South Tapanuli Regional General Hospital will look for other distributors. This is supported by the statement of the informant as follows:

*"Technically, the South Tapanuli Regional General Hospital does not conduct selection or selection of distributors only based on the availability of the drug at the distributor, if there is no distributor for the drug needed, we will look for another distributor" (ADL, 40 years).*

The method of purchasing drugs at the Pharmacy Installation of the South Tapanuli Regional General Hospital is procurement carried out by the e-purchasing system and the method of purchasing directly from distributors by providing credit to the hospital for 1 (one) month or the drug payment maturity is one month. This is supported by the statement of the informant as follows:

*"Drug purchases are made using the e-purchasing system and the purchase method is direct to drug distributors, not by tender, so drug purchases are made as needed and drug distributors provide drug payment due dates of 1 (one) month" (FFD, 31 years).*

The frequency of delays in drug payments often occurs where drug payments do not match the agreed time past the due date. Drug payments are made if the ordered drug cannot be served or is pending. Payments are made twice a month where the payment process is carried out after being verified by the warehouse or pharmaceutical supply department and having received approval from the new director, payments are made by the finance department. This is supported by the statement of the informant as follows:

*"Medicine payments are made when the invoice is due and payments are made twice a month. If the salesman has not come to see the director, payment is not made even though the drug invoice is due." (FGN, 40 years)*

The obstacle faced in the procurement of drugs is that there is a vacancy in the medicines needed by distributors so they have to borrow the medicines needed from other hospitals with which there is already a partnership.

*"The usual problem is that there is a shortage of drugs because the distributors have empty stock, and also due to delays in ordering drugs and pending drugs so as to avoid patients buying out drugs, especially BPJS patients from pharmaceutical installations, borrowing drugs from hospitals that already have cooperation with hospitals. sick." (FFD, 31 years old).*

Based on the results of research conducted by researchers using interviews and observations, it can be concluded that the drug procurement process at the pharmacy warehouse at the South Tapanuli Regional General Hospital is not up to standard because there are still frequent drug shortages so you have to borrow drugs from hospitals that already have collaboration with the Hospital. South Tapanuli Regional General Hospital.

### **Drug Storage**

Storage is an activity of safeguarding the medicines received so that they are not lost, protected from physical and chemical damage, and the quality is guaranteed. Based on the results of interviews it is known that drug storage is carried out based on dosage forms such as tablets, syrup, ointment, or other types, alphabetical, drug stability, namely storage at a certain temperature, patent drugs and generic drugs are separated, this drug is stored using the FIFO (First In First Out) system. ) which means that drugs that have just arrived are placed at the back while old drugs are placed at the front and FEFO (First Expired First Out) means that drugs near their expiration date are placed at the front and the old expiration date is placed at

the back of the shelf. This is as stated by the informant below. "Drug storage is carried out by separating patent drugs and generic drugs, dosage forms, alphabetically, drug stability, namely storage at room temperature and refrigerator and FIFO (First In First Out) and FEFO (First Expired First Out) ways. Regarding the condition of the drug storage warehouse that is still lacking, the drugs in the boxes are placed in the aisles of the warehouse and some are stored in a room mixed with expired goods, the air conditioner is also often broken. " (FGN, 40 Years).

Based on the results of interviews and observations, it can be concluded that the storage process in the pharmacy warehouse at the South Tapanuli Regional General Hospital was carried out by pharmacy warehouse officers in accordance with applicable standards. However, there are several obstacles or problems found in the storage process, including the pharmaceutical warehouse with too many partitions or small rooms so that the storage of goods is not effective and the accumulation of boxes containing drugs is placed in the aisles of the room and there are drugs. -Medications stored in the room are mixed with expired drugs. This is due to inadequate warehouse conditions. Another obstacle is that the air conditioner is often damaged, which can affect the stability of the drug. At the Pharmacy Installation of the South Tapanuli Regional General Hospital, there were no expired drugs and rare drugs such as isosorbide dinitrate. This is reinforced by the statement of the informant as follows:

*"Regarding expired drugs in the pharmacy warehouse, while I was working at the hospital, no expired drugs were found, but rare drugs are now available, such as the drug isosorbide dinitrate (ADH, 30 years).*

### **Drug Distribution**

The results of the interviews revealed that drug distribution was carried out by the Pharmacy Installation at the South Tapanuli Regional General Hospital using a decentralized system from pharmacy warehouses to outpatient pharmacies, inpatient pharmacies, and distribution of consumables to inpatient rooms.

Drug distribution is carried out if there is a request from units for outpatient and inpatient pharmacy, it is carried out every day to request drugs to the warehouse. Before making a request, checking the stock of drugs that are running low to be amprahed to the warehouse. Distribution of drugs to outpatients was done by individual prescribing, while inpatients used the One Daily Dispensing (ODD) method. This was as stated by the informant below.

*"The distribution of drugs, medical equipment and consumables is carried out from the pharmacy warehouse to outpatient pharmacy installations, inpatient pharmacy installations, and emergency departments. Drug distribution in outpatient care is by individual prescribing, while for inpatient distribution it is by ODD (One Daily Dispensing) method (ADL, 40 years old)*

In the process of distributing drugs to patients based on the results of a direct survey at the outpatient pharmacy, the average time spent serving patients starts from the patient submitting the prescription to receiving the drug. Availability of drugs at the South Tapanuli Regional General Hospital there are still many drug shortages where doctors' prescriptions cannot be fulfilled properly due to patients and doctors often complaining. This is supported by the statement of the informant as follows:

*"For the supply of medicines, there are often shortages of medicines, which are often generic medicines, so many patients come to me complaining that medicines that are routinely used are often not available, so the patient immediately buys the medicine outside or the medicine is copied from the prescription (RWL, 37 years).*

## Medication Planning

Planning and determining needs is the first step in the drug management process. In Permenkes No. 58 of 2014 needs planning is an activity to determine the quantity and period of drug procurement in accordance with the results of selection activities to ensure that the criteria for the right type, right time, right quantity and efficiency are met. Planning is carried out to avoid drug shortages by using accountable methods and predetermined planning bases, including consumption, epidemiology and a combination of consumption and epidemiology methods and adjusted to the available budget.

According to the Director General of Pharmaceutical Development and Medical Devices of the Ministry of Health (2010) stated that the purpose of drug requirement planning is to obtain: the right type and amount as needed, avoid drug shortages, increase rational drug use, and increase the efficiency of drug use. Based on the results of research at the pharmacy warehouse at the South Tapanuli Regional General Hospital, drug planning at the pharmacy warehouse at the South Tapanuli Regional General Hospital was made in a year's period. Planning for drug needs in pharmaceutical warehouses is carried out based on the average amount of drug consumption or the number of uses in the previous period. This method is used because it is easier to implement. At the planning stage the medicines that will be made in the planning are medicines that refer to the National Essential Medicines List (DOEN), hospital formularies and the Medicines Price Ceiling List (DPHO) for Askes medicines. The drug planning process at the South Tapanuli Regional General Hospital that has been carried out so far has not been in accordance with the basic principles of drug management, because even though a Pharmacy and Therapeutic Committee (KFT) and hospital formulary have not been formed, the planning is based on requests/suggestions from users (doctors) with using the consumption method but not yet using a system or VEN method, ABC analysis, there is no calculation of maximum stock, minimum stock, and lead time so that it often causes drug vacancies and drug availability cannot be fulfilled properly.

Besides that, the limited funds for spending on drug procurement greatly affect the availability of drugs in pharmaceutical installations, which of course has an impact on empty drug supplies so that patients do not get the drugs prescribed by doctors when patients are treated at the hospital. This result is in line with the results of Wari & Mudayana (2022) which states that the method used at the Nur Hidayah Hospital Pharmacy Warehouse, Bantul is to use the consumption method which is the basis for planning through report data on the amount of usage. From the results of this study it is also known that planning for drug needs is based on the average number of drug needs in the previous period, apart from that, the slow moving and fast moving of each drug are seen (Wari & Mudayana, 2022). Apart from that, according to the Director General of Pharmaceutical Development and Medical Devices (2010) it is stated that to anticipate the soaring demand and use of drugs, safety stock must be included in planning needs. Planning for drug needs in the pharmacy warehouse at the South Tapanuli Regional General Hospital is also accompanied by safety stock.

The safety stock carried out by the pharmaceutical warehouse is 20% of the existing inventory. This is done to anticipate soaring demand for necessities. This is in line with the results of research conducted by Capritasari & Kurniawati (2021) at the Hospital which stated that pharmaceutical warehouses must add a safety stock of 10% to 20% every time they plan and procure drugs, this is done to anticipate surges in demand for drug supplies. , it is necessary to calculate safety stock (Capritasari & Kurniawati, 2021). The decision regarding when to submit a reorder rests on two factors, namely the first consideration of the level of direct reordering based on normal use, and secondly, safety stock based on the degree of uncertainty and level of service provided. requested (Mauluddin et al., 2022).

The problem faced in drug planning in the pharmaceutical warehouse is that planning only uses the consumption method by looking at previous drug use and does not pay attention to disease patterns, therefore there are drugs that are often out of stock and there are also drugs that are over stocked. In the Ministry of Health (2008) it was stated that planning must look at consumption and disease patterns, because using these two methods can calculate the number of visits and types of diseases served in previous years (Rikomah, 2017). Apart from that, pharmaceutical installations do not take into account the waiting time for medicines from the time they are ordered until the medicine arrives from the distributor. It is very necessary to take into account the waiting time because the distance between the medicine distributor and the South Tapanuli Regional General Hospital is far. Another reason that drug planning is not yet optimal is because it is not yet supported by human resources. From the results of interviews with the head of the Pharmacy Installation at the South Tapanuli Regional General Hospital, there is still a lack of work experience so that the planning carried out is not optimal. Lack of knowledge about drug planning using the ABC-VEN analysis method, determining lead time, this is because training has never been conducted for employees of the Pharmacy Installation at the South Tapanuli Regional General Hospital regarding drug planning.

### **Drug Procurement**

Procurement is an activity to realize needs that have been planned and approved through purchasing drugs from distributors. The aim of procurement is to obtain pharmaceutical supplies at a reasonable price, with good quality, delivery of goods is guaranteed and on time, the process runs smoothly and does not require excessive energy and time (R. Ministry of Health, 2008a). At the South Tapanuli Regional General Hospital, the team involved in the procurement section is the head of the pharmaceutical installation unit, pharmaceutical service coordinator, head of pharmaceutical warehouse/supplies, quality management coordinator. As a result of several informants' presentations and document observations, procurement was carried out using an e-purchasing system and purchases directly from distributors. The e-purchasing system for drugs included in the e-catalog list is carried out to make it easier for officers to make purchases, because the goods or drugs to be purchased in the e-catalog already contain a list, type and specifications including the price of the drug. Awal's research (2020) states the same thing, namely e-purchasing procurement is carried out directly to the goods provider, procurement like this makes it easier for officers to order goods from the goods provider. The process of procuring supplies through e-purchasing is considered quite effective because the procurement process is carried out online and directly to providers who have been registered with the Goods/Services Management Policy Institute (LKPP) without any competition. Research by Risa, et al (2020) also states that the benefits of procurement through e-purchasing are that it makes efficiency in terms of costs relatively small, and requires less time, effort, and costs. However, this procurement system is sometimes not as expected, because sometimes problems often occur with the types, quantities of drugs that are not available and prices for drugs that are not in accordance with the plan. The frequency of drug procurement activities is carried out once a month and can even be ordered once a week depending on the movement of the drug. This is in accordance with the statements of all informants who stated that the procurement of drug supplies was carried out to meet the need once a month, but it did not rule out that medicine could also be procured every week, given the high demand (Risa et al., 2020).

The drug procurement process at the South Tapanuli Regional General Hospital uses the direct purchase method, to match the trend of needs at the hospital. This is in accordance with the Regulation of the President of the Republic of Indonesia. number 95 of 2007 concerning the seventh Amendment to Presidential Decree Number 80 regarding the implementation of Government Procurement of Goods/Services, it is stated that in order to speed up the procurement and distribution of materials and generic drugs it is deemed necessary to

immediately determine a provider of goods/services through direct appointment (direct buyer). Purchasing drugs with the direct purchase method can be carried out because drugs can be categorized as work for special circumstances and are also specific goods that are only carried out by one manufacturer of goods/services providers, patent holders, and based on official rates set by the government. And for the price of generic drugs, it has been determined based on the Decree of the Minister of Health of the Republic of Indonesia Number 320/MenKes/SK/III/2008 dated 26-3-2008 concerning Generic Drug Prices.

The results of this study indicate that procurement and planning are often inappropriate and the discrepancy is caused by unavailability at the distributor level or empty factories and limited funds. In the procurement process there are 3 important elements that must be considered: selected procurement, if not careful can lead to high costs, the preparation and requirements of work contracts are very important to ensure that the quality of procurement implementation is guaranteed (for example expiration requirements, analysis certificates / quality standards, order orders so that the goods can be according to type, time and place. If further analyzed, the procurement of drugs is not optimal due to poor planning, which affects the level of availability of drugs. Availability of drugs in pharmaceutical installations will change according to the trend of needs, for example only at the doctor's request for certain types that are not listed either in the formulary or changes in the pattern of the disease. The incompatibility of the available drugs with the needs will lead to sub-optimal services, namely patients do not get drugs when they are needed so that the goals of treatment are not achieved.

To overcome the problem of unavailability of these drugs, it is not uncommon for hospitals to procure by borrowing the drugs needed from other hospitals that have collaborated, this is due to high and urgent demand, while the supplies needed in the warehouse experience a vacancy, this is supported by drug stock data. Another problem that was found during the research based on interviews that affected the procurement of drugs at the South Tapanuli Regional General Hospital was the frequent delay in paying for drugs even though the drug invoice was due. Orders for medicines from distributors are pending due to slow payment of medicines. This is due to the slow administrative process for submitting payments for drug invoices that are due from the pharmaceutical installation to the finance department. In the drug procurement process, another obstacle that often occurs when purchasing drugs is distributors who are often late in distributing drugs to hospitals and drugs ordered are not available or empty at the distributor, so the pharmacy warehouse places orders with other distributors. The South Tapanuli Regional General Hospital has not taken into account the waiting time for ordering medicines from the time the order is ordered until the medicine arrives. Waiting time is very necessary because the distributor is far from the hospital. Based on the results and discussion above, the procurement process is in accordance with existing standards, but the availability of drugs has not been fulfilled according to the needs in the hospital, this is because it is influenced by poor planning, payment for drugs that are not on time and the availability of a drug budget that is lacking.

### **Drug Storage**

Storage is an activity of storing and maintaining and placing pharmaceutical supplies received in a place that is considered safe from theft and physical disturbance that can damage the quality of drugs. The purpose of storage is to maintain the quality of pharmaceutical preparations, avoid irresponsible use, maintain availability, and facilitate search and control. Based on research results through a survey, it is known that the implementation of drug storage activities in the pharmacy warehouse at the South Tapanuli Regional General Hospital uses the FIFO (First In First Out) and FEFO (First Expired First Out) systems. This means that in preparation, medicines that have just arrived are placed at the back and medicines that are old are placed at the front and medicines that are close to their expiration date are placed at the front while medicines with long expiration dates are placed at the back. The results of this study are also

supported by the results of Mulyani's research (2019) which states that drug storage and preparation at the UPT (Technical Implementation Unit) of the Banjarmasin City Pharmacy Installation uses the FIFO (First In First Out) and FEFO (First Expired First Out) methods and is based on alphabetically, this method is used to make it easier for officers to take medicines and maintain the quality of medicines at the Pharmacy Installation of PKU Muhammadiyah Yogyakarta Unit I Hospital (Mulyani, 2019). According to Mulalinda (2020), arranging medicines on shelves/storage cabinets can make it easier for warehouse staff to find goods when needed and can make storage more efficient (Mulalinda et al., 2020).

In storage activities, goods that have been received and have been checked by pharmaceutical warehouse staff are stored in the pharmaceutical warehouse. The preparation of medicines is carried out on shelves and medicine storage cabinets in the pharmacy warehouse at the South Tapanuli Regional General Hospital, separated according to alphabet, dosage form, patent medicines and generic medicines, stability of medicines at certain temperatures or medicines that require special storage conditions such as vaccines. placed in a refrigerator/fridge with controlled temperature, separating explosive/flammable materials and separating high alert drugs such as LASA (Look alike, sound alike), concentrated electrolytes, sedation drugs, insulin, parenteral nutrition, chemotherapy drugs and radiocontrast agents respectively -Each group is given a color sticker with the words high alert. Likewise, drugs that are close to their expiry date are given a code or label and the expiry date is written. According to the Director General of Pharmaceutical Development, the storage process must use the FIFO (First In First Out) and FEFO (First Expired First Out) systems, alphabetically, based on preparation and given a code or name to make it easier to take medicines (R. I. Ministry of Health, 2016a). Storage is accompanied by an information system that always guarantees the availability of pharmaceutical supplies according to needs and is an activity for regulating pharmaceutical supplies according to the specified requirements (Kepmenkes RI No. 1197/MENKES/SK/X/2004), namely differentiated according to 1). Dosage form and type ; 2). According to the temperature; 3) Easily non-explosive/flammable; 4) Resistant / not to light. When compared with theory, this is in accordance with the guidelines of the Director General of Pharmaceutical Development and Medical Devices. Insufficient warehouse space certainly greatly hinders officers in carrying out drug storage duties in pharmaceutical warehouses. From the results of this research, it is also known that the pharmacy warehouse at the South Tapanuli Regional General Hospital is not only used to store medicine, but is also used to store medical equipment. A pharmaceutical warehouse is the beginning of storing pharmaceutical supplies that come from suppliers. These pharmaceutical supplies are then distributed to inpatient, outpatient and hospital service units that need them.

Requirements for a warehouse for storing pharmaceutical supplies: 1) Accessibility, meaning that the storage space must be easy and quick to access. 2) Size, storage space must be sufficient to accommodate existing items. In the storage process, there are obstacles that influence the process, namely inadequate warehouse conditions. The location and layout of the room is not good, consisting of lots of partitions or small spaces so that the space used for storing medicines is not effective, where the medicine warehouse used is a former surgery room. Insufficient warehouse space certainly greatly hinders warehouse staff in carrying out drug storage duties in the warehouse. Warehouse staff are unable to move freely when preparing the medicines they have just received. The lack of space in pharmaceutical warehouses also means that warehouse staff are forced to pile up medicines and medical equipment in the hallways and several unexpired medicines are put together in one storage room with expired medicines. According to the Indonesian Ministry of Health (2007) states that to obtain convenience in storing, arranging, searching and monitoring medicines, it is necessary to arrange the warehouse layout properly. The Ministry of Health also stated that the arrangement of pharmaceutical warehouses must be divided into production rooms, office rooms, document archive rooms and storage rooms. This serves to simplify activities in the pharmaceutical

warehouse (R. I. Ministry of Health, 2016b). Medicine storage is in accordance with existing standards, but in the pharmacy installation at the South Tapanuli Regional General Hospital, expired medicines are still found. This is caused by the doctor's lack of commitment in prescribing medication, the user asks for the medication to be prepared but the medication prescription is lacking or the medication is rarely available, resulting in the medication expiring. And there is also a lack of information to doctors about the list of medicines that are nearing their expiration date and medicines that are classified as slow moving. Another reason for the high number of expired drugs is because drug procurement in pharmaceutical installations does not keep up with the development of new drugs or does not follow existing trends, whereas doctors after every seminar or symposium receive information about new drugs so that doctors no longer want to prescribe old drugs. In the drug management guidelines created by the Director General of Pharmaceutical Development and Medical Devices (2016), it is regulated how to properly and correctly store drugs. The aim is to maintain drug quality and avoid losses due to drug storage errors. Drug storage has been carried out properly but has not been able to fulfill all the requirements set due to limited human resources, facilities and infrastructure (RI I Depkes, 2016b). drug storage activities in the pharmacy warehouse of the South Tapanuli Regional General Hospital.

### **Distribution**

According to the Director General of Pharmaceutical Development and Medical Devices (2016) states that the distribution system is carried out by two methods, namely a centralized and decentralized distribution system. Centralization is carried out by central IFRS to all inpatient units in the hospital as a whole. This means that in a hospital there may only be one IFRS without an IFRS depot/satellite in several service units. Meanwhile, the decentralized system is carried out by several IFRS depots/satellites in a hospital. Basically, this decentralized distribution system is the same as the complete drug distribution system in the room, it's just that this decentralized distribution system is managed entirely by the same pharmacists with management and control by a central IFRS. The drug distribution process at the South Tapanuli Regional General Hospital is carried out using a decentralized system, namely drug distribution from pharmacy warehouses to outpatient pharmacies, inpatient pharmacies and inpatient rooms for consumables. Requests for each unit of medicine are all directed to the pharmaceutical warehouse. The distribution of medicines to hospital units is centralized in the warehouse, the aim is to facilitate data collection and control of the drugs issued. request to the pharmacy warehouse accompanied by evidence in the form of a drug request letter (Sumarni & Andriani, 2022).

In the process of drug distribution, it is affected by the number of drug requests, if the number of drugs available in the warehouse allows, then the distribution can be carried out to that unit, but if the number of drugs requested does not allow distribution according to request, then the drug provided by the party there are only a few warehouses and distribution cannot even be carried out because the requested drugs are empty (Monibala et al., 2019). This is because the staff at the outpatient pharmacy are lacking and it is not uncommon for patients to complain because of slow service and prefer to redeem drugs at other hospitals because they don't want to wait long. Apart from that, regarding the availability of drugs, there is often a shortage of drugs, but for BPJS patients, efforts are made not to provide a direct copy of the prescription. The pharmacist tries to contact the doctor who wrote the prescription to replace a similar drug or replace another drug with the same drug content and composition, but if the doctor did not agree with the officer contacting the pharmacy warehouse to find the drug out or lending the drug to another hospital, and was informed to the patient to wait a little longer because the drug was empty and just looked for another hospital if the patient did not want to wait he had to be given just a copy of the prescription to be redeemed go out. For general patients, only a copy of the prescription is usually given immediately if the drug prescribed is not available at the

pharmacy. Percentage of drug prescriptions with generic names (Primadiamanti et al., 2021). Measuring the percentage of drug prescriptions with generic names is intended to determine the tendency of doctors to prescribe drugs with generic names, which means it is written as the active substance of the preparation so that there is an understanding between doctors and pharmacists (Yasli et al., 2021). So the use of generic drugs at the South Tapanuli Regional General Hospital has not met the existing standards. This is due to the lack of availability of generic drugs at the South Tapanuli Regional General Hospital because they often experience drug shortages and also doctors tend to use patent drugs compared to generic drugs.

## Conclusion

The conclusion was obtained that the implementation of drug availability management had not run optimally according to standard operating procedures for services, so it was necessary to increase human resource knowledge through training related to drug planning.

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