

OVERVIEW OF DRUG STORAGE AT ANITA FARMA 1 PHARMACY BAUBAU CITY

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A B S T R A C T

Background: Drug storage is an important aspect of pharmaceutical services because it affects the quality, safety, and effectiveness of drugs. A good storage system will support the success of patient therapy while maintaining the quality of pharmacy services. Anita Farma 1 Pharmacy in Baubau City is the location of the research to assess the extent to which the implementation of drug storage standards has been carried out in accordance with the provisions. **Objective:** This study aims to find out the overview of the drug storage system at Anita Farma 1 Pharmacy, including the use of stock cards, the condition of facilities and infrastructure, the application of storage standards, and the storage method used. **Methods:** The type of research is descriptive with a qualitative approach. Data was obtained through direct observation in the field and interviews with pharmaceutical personnel involved in drug management. **Results:** research shows that stock cards are used well and compliant with standards with a 100% compliance rate. The storage method using the FIFO (First In First Out) and FEFO (First Expired First Out) principles has been applied optimally with a 100% achievement. In terms of facilities and infrastructure, pharmacies meet 92.86% of the required indicators. However, the availability of air conditioning (AC) has not been met, potentially affecting the stability of the storage temperature of medicines. **Conclusion** Overall, the drug storage system at Anita Farma 1 Pharmacy is very good and in accordance with the Minister of Health Regulation No. 73 of 2016. This practice has been proven to be able to ensure patient safety, maintain the quality of medicines, and improve the quality of pharmaceutical services.

INTRODUCTION

Pharmacies are pharmaceutical service facilities that play an important role in maintaining public health, because they are at the forefront of the provision of medicines. To ensure the quality of service, pharmacies must follow pharmaceutical service standards, one of which is the standard for the management of pharmaceutical preparations which includes planning to reporting (Ministry of Health of the Republic of Indonesia, 2016). Of these various aspects of management, drug storage is an important part because it directly affects the quality of the drug. (Dalila et al., 2024)

Pharmacy is a retail business that provides and trades pharmaceutical supplies, such as medicines, medicinal materials, and medical equipment. In addition, pharmacies are also a means of carrying out pharmaceutical work as well as distributing drugs and other health supplies to the community. (Siswidiyasari & Wahab, 2023)

Pharmacists are health workers who have the authority and responsibility to carry out pharmaceutical work. This is synchronous using Government Regulation number 51 of 2009 regarding Pharmacy Article 1 reveals that pharmacy includes the manufacture and quality control of pharmaceutical products, security, procurement, storage, distribution of drugs, drug management, and drug services according to doctor's prescriptions. (Kwando, 2014)

In drug stock management, the two methods that are often used are FIFO (First In First Out) and FEFO (First Expired First Out). The FIFO method means that the first entry drug must be used first, regardless of its expiration date. Meanwhile, the FEFO method emphasizes the use of drugs with the closest expiration date, so as to prevent drugs from being damaged or unused. Both methods aim to keep the availability of drugs stable and increase the efficiency and effectiveness of their use. (Amara et al., 2024)

The application of FIFO and FEFO methods in various health facilities still often encounters obstacles. Several studies reveal that errors in the implementation of these methods still occur frequently, causing an increase in the number of expired drugs and a decrease in the effectiveness of

distribution. This condition has the potential to cause budget waste and hinder the smooth running of health services. (Marasabessy et al., 2024)

Pharmaceutical Service Standards means the reference used by pharmaceutical personnel in delivering services. Pharmaceutical services themselves are a form of personal service and responsibility to patients related to the use of pharmaceutical preparations, with the aim of ensuring that optimal therapy will occur to improve the patient's quality of life. (Putra et al., 2021) With the development of science and technology in the field of pharmaceuticals, the orientation of pharmaceutical services began to change from only managing drugs to a more comprehensive service to patients, namely Pharmaceutical Care. This change occurs because the demands of patients and the community are increasingly varied regarding the quality of service. Therefore, the paradigm of pharmaceutical services must also change from the one that was previously oriented to drug products to a new paradigm that is oriented to the needs of patients. (Putri, 2017)

Storage means an important part of the process of managing pharmaceutical supplies, storage is carried out after the supplies are received from the Pharmaceutical Grand Trader. Storage is not just about putting things in one place, but it also involves placing medications on shelves or cupboards. Storage of pharmaceutical supplies must be able to ensure quality, prevent theft, and protect drugs from other physical disorders. The purpose of storage is not only to maintain the quality of pharmaceutical supplies, but also to facilitate the search for service times, ensure availability, prevent irresponsible actions, and help the supervision process of pharmaceutical energy (Ministry of Health, 2019). Drug storage is regulated by various laws and regulations. from the Regulation of the Minister of Health number 9 of 2017 concerning Pharmacies, there are several requirements for storage spaces, such as cabinets and shelves for storing medicines, air conditioners, temperature control devices, refrigerators, and specific cabinets for narcotics and psychotropics (Permenkes, 2017). In more specific rules, it is explained how to design a storage room, such as the gap between the highest item and the ceiling, a ceiling that is not perforated and does not leak, a room free from pests such as animals and insects, and free from waterlogging. Medicines are stored in their original containers of factory origin, arranged according to the alphabetical name, category of therapy, and form of the drug. Storage must also be able to maintain the quality and stability of the drug. Cleanliness and decency in the storage room must always be met, including the presence of power generation equipment in the event of a power cut. For the management of medication intake and admission, it must be recorded on the stock card and use the FEFO and FIFO systems. Storage of drugs that need to be watched out for, for example, high alert and LASA are also regulated in it (Ministry of Health, 2019). This aspect of storage is not the same between pharmacies. There are several aspects whose provision is adjusted to the needs of each Pharmacy. (Kustriyani et al., 2023)

The main purpose of drug storage is to maintain the quality of drugs from damage due to improper storage and to facilitate the search and supervision of drugs. Research conducted by showed that errors in drug administration were caused by improper drug storage procedures, especially for LASA (Look Alike/Sound Alike) drugs, namely drugs whose shape/appearance and pronunciation/name are similar. (Ranti et al., 2021)

Errors in medication storage can pose various risks, such as incorrect medication intake that has the potential to cause poisoning in patients. In addition to endangering health, this can also cause losses for pharmacies. (Rajawali et al., 2024)

According to the Regulation of the Minister of Health number 9 of 2017, pharmacies can be said to have a good storage system if they are equipped with adequate facilities, such as medicine cabinets and shelves, air conditioners (air conditioners), temperature control devices, refrigerators, and special cabinets for narcotics and psychotropics. Population in this context includes not only people, but also objects and other natural objects. In addition, the population is also not just a number that has one door and two keys are not the same. The existence of these facilities aims to maintain the stability and quality of drugs. (Annisa & Saputra, 2024)

Based on the Regulation of the Minister of Health No. 9 of 2017, the storage of drugs in pharmacies is said to be good if it is supported by adequate facilities, such as shelves or storage cabinets, air conditioners (air conditioners), temperature control devices, refrigerators, and special cabinets for narcotics and psychotropics that have one door with 2 inaligned keys. The existence of this facility plays an important role in maintaining the quality and stability of drugs. However, there are still many pharmacies in Indonesia that face limitations in meeting these standards, especially pharmacies in areas with limited infrastructure and budgets. One of the obstacles that is often

encountered is the lack of specific cabinets for storing narcotics. Therefore, it is hoped that the assessment of the extent to which pharmacies can implement synchronous storage provisions of regulations and strategies carried out to overcome these obstacles, so that the quality of pharmaceutical services is maintained and risks to patients can be minimized. (Marasabessy et al., 2024)

Drug storage is an effort to ensure that drugs are maintained in accordance with applicable rules. In the Minister of Health of the Republic of Indonesia No. 73 of 2016, it is explained that all pharmaceutical supplies, both drugs and medical devices, must be stored in the correct way. Especially for drugs that have almost the same name or appearance (LASA), they should not be placed close together, but need to be given special labels and additional settings so that mistakes do not occur during ingestion. (Dwidara et al., 2023)

Maintaining the availability of drugs properly is an important part of pharmaceutical services so that patients' therapeutic needs can be met immediately. Errors in drug storage, such as not according to temperature, improper arrangement, or other obstacles, can reduce the quality of service and affect patient satisfaction. This condition can also affect the relationship between pharmacies and patients and reduce the level of trust in the services provided. The results of Anjani et al.'s (2022) research show that errors in drug storage have a significant effect on the quality of pharmacy services and patient satisfaction. Therefore, it is necessary to evaluate the drug storage system in pharmacies to find and correct errors that may be detrimental. (Pangestu & Agustini, 2025)

Drug storage is the activity of maintaining and placing received drugs in a safe place during the shelf life. The proper storage process plays an important role in maintaining the quality and quality of medicine. (Son, 2021)

METHOD

This type of research uses a qualitative approach method that is descriptive with the aim of knowing clearly and more deeply the discourse of the picture. Storage of medicines at Anita Farma 1 pharmacy in Baubau City. This research was conducted in the month July – August 2025.

The research was conducted at the Anita Farma 1 Pharmacy, Baubau City, Southeast Sulawesi on Jl. DR. Wahidin No. 78. Kel. Tarafu. This research uses research instruments in the form of interviews and observations.

Operational Definition

Table 1 Operational Definition

Variable	Operational Definition	How to Measure	Measuring Instruments	Measurement Results
Storage	Storage	Interview	Guidelines	Information
	Medicine is a storage and maintenance activity. Using the method of placing the received pharmaceutical supply in areas that are considered safe from poisoning and physical disturbances that can hinder the quality of the drug	Observation	Interview	About Drug Storage Suitability

Research Instruments

As in qualitative research, the researcher itself is the main tool or instrument in research. When conducting an in-depth interview, the researcher uses interview guidelines that contain a list of questions that have been prepared.

Data Collection Methods

In-depth interviews are one way to collect data to obtain more complete news. This method is done using questions and answers exclusively to the person who is the source of the issue. Observation is a data collection technique using an exclusive way of observing situations or conditions related to research.

Technical Data Analysis

Data analysis uses comparing drug storage indicators using actual conditions, data obtained and presented in the form of a table, and analyzed descriptively. Scores are calculated according to the following criteria:

$$Persentase = \frac{Skor\ Perolehan}{Skor\ Maksimal} \times 100$$

Where : Score 1 for the answer yes
Score 0 for no answer

The percentage value is used to determine the suitability criteria of the method of storing drugs in pharmacies, i.e. whether the method falls into the category of excellent, good, adequate, bad, or very poor. Data from the checklist is scored and displayed in the form of a table. This data is then analyzed descriptively, and the percentage of good drug storage is divided into five criteria, as shown in the table.

Table 2. Research Value Criteria

Score	Criterion
80% - 100%	Excellent
70% - 79%	Good
60% - 60%	Enough
50% - 59%	Less
0% - 49%	Very less

RESULTS AND DISCUSSION

Standard Stock Card

Table 3. Standard Stock Card

Yes	Research Indicators	Answer		Information
		Yes	Not	
1.	Expense Receipt Date	√		Sync
2.	Document number	√		Sync
3.	Origin of the drug	√		Sync
4.	No batch	√		Sync
5.	Expiry Date	√		Sync
6.	Total acceptance	√		Sync
7.	Total withdrawal	√		Sync
8.	Stock Residue	√		Sync
9.	Signature	√		Sync
Total		9	0	
Answer				
Number of Questions		Yes	Not	Information
9		9	0	Good
$\% = \frac{9}{9} \times 100\%$				

Primary :D Source (2025).

Based on the results of observations and observation checklists at stock card pharmacies using the Vimedical application, the drug stock card is in the very good category with a percentage of 100%.

Condition of Facilities and Infrastructure

Table 4. Condition of Facilities and Infrastructure

Yes	Research Indicators	Answer		Information
		Yes	Not	
1.	Relative area at least 3x4 m	√		Sync
2.	Dry room is not humid	√		Sync
3.	There are windows with air flow and not humid	√		Sync
4.	Not humid/hot	√		Sync
5.	Need relative light	√		Sync
6.	The floor is made of tehel/cement which does not allow dust and dirt to accumulate	√		Sync
7.	Slippery designed walls	√		Sync
8.	Avoid creating sharp corners of the floor and walls	√		Sync
9.	The warehouse is used specifically for the storage of medicines	√		Sync
10.	has a double-locked door	√		Sync
11.	There are specific cabinets for narcotics and psychotropics that are always locked	√		Sync
12.	Refrigerator available for special medication storage	√		Sync
13.	There is air conditioning		√	Out of sync
14.	There is a room temperature and humidity meter	√		Sync
Total		13	1	
Answer				
Number of Questions		Yes	Not	Information
14		13	1	Good
$\% = \frac{13}{14} \times 100\%$				

Primary :D Source (2025).

Based on the results of observations and observation checklists at pharmacies, facilities and infrastructure are in the very good category with a percentage of 92.86%.

Drug Storage Standards

Table 5.Drug Storage Standards

Yes	Research Indicators	Answer		Information
		Yes	Not	
1.	Stability and security	√		Sync
2.	Sanitation	√		Sync
3.	Light	√		Sync
4.	Moisture	√		Sync
5.	Ventilation	√		Sync
Total		5	0	
Answer				
Number of Questions		Yes	Not	Information
5		5	0	Good
$\% = \frac{5}{5} \times 100\%$				

Primary :D Source (2025).

Based on the results of observations and observation checklists at pharmacies, standard drug storage is in the very good category with a percentage of 100%.

Standard Drug Storage Method Requirements

Table 6. Drug Storage Method Standards

Yes	Research Indicators	Answer		Information
		Yes	Not	
1.	Form of preparation as well as type of preparation	√		Sync
2.	Pharmaceuticals and consumables	√		Sync
3.	FIFO Method	√		Sync
4.	FEFO Method	√		Sync

5.	alphabetically correct	√		Sync
6.	Storage is not placed close to each other and must be given a sign	√		Sync
Total		6	0	
Answer				
Number of Questions		Yes	Not	Information
6		6	0	Good
$\% = \frac{6}{6} \times 100\%$				

Primary :D Source (2025).

Based on the results of observations and observation checklists at standard pharmacies, the requirements for the drug storage method are in the very good category with a percentage of 100%.

DISCUSSION

One of the factors that determine the quality of drugs is a suitable and good storage system. This study aims to find out the drug storage system and find out the description of drug storage at the Anita Farma 1 Pharmacy, Baubau City.

Based on the results of the study in Table 4.1, all standard indicators of drug stock cards at Anita Farma 1 Pharmacy in Baubau City have been fulfilled well. Of the nine indicators assessed, namely the date of receipt, document number, drug source, batch number, expiration date, number of receipts, amount of expenses, remaining stock, and paraphernalia, all showed 100% achievement according to standards.

The recording of the date of receipt and document number shows the existence of an administrative order that makes it easier to track the history of drug movement. Information about the source of the drug and the batch number is important to make it easier to trace if problems are found in the quality of the drug. In addition, recording the expiration date serves to prevent the use of drugs that are no longer appropriate. Data on the number of receipts, expenses, and remaining stock that is consistently recorded helps maintain inventory accuracy, so that the risk of vacancies and drug build-up can be minimized. Meanwhile, the inclusion of paragraphs as proof of authorization strengthens accountability in the recording process.

The results of the recapitulation show that all indicators (100%) have been fulfilled well. This indicates that the method of recording stock cards applied in pharmacies, including the use of applications, has been running very well. The Medical Team Application is an information technology-based system that functions to support the management of pharmaceutical services, especially in recording, reporting, and supervising drug distribution in health care facilities. The consistency of the application of all these indicators supports more effective and efficient drug management, according to standards, and ensures the availability of safe, quality, and accountable drugs.

Based on the results of the observations that have been made, some show in table 4.2 that the condition of facilities and infrastructure in this pharmacy has generally been met. Of the total 14 indicators observed, 13 indicators were declared compliant, and only 1 indicator has not been met. Thus, the conformity rate reached 92.86%, which is included in the good category.

Indicators that have been met include adequate room space, cleanliness, good ventilation, adequate lighting, availability of desks and storage cabinets, as well as security facilities such as lockable doors. Other supporting facilities, such as coolers for special medicines, separate storage warehouses, and temperature and humidity measuring devices are also available according to standards. The arrangement of the room that avoids sharp corners and the grouping of drugs by category shows that there is concern for occupational safety and the safety of drug storage. However, there is still one indicator that has not been met, namely the availability of air conditioning in the storage room. The absence of air conditioning has the potential to affect the stability of room temperature so that it can have an impact on the quality of medicines, especially those that require certain storage conditions. This is in line with the Indonesian Minister of Health Regulation Number 73 of 2016 concerning Pharmaceutical Service Standards in Pharmacies which emphasizes the importance of paying attention to temperature, humidity, light, and safety in maintaining the quality of pharmaceutical preparations. Overall, the facilities and infrastructure in this pharmacy can be categorized as good because most of the indicators are in accordance with standards. Even though air conditioning is not yet available, the quality of the drug is maintained and pharmaceutical services run optimally. The drug storage room at Anita Farma Pharmacy is 5 x 5 meters, with display

cabinets arranged along the walls, thus providing enough movement space for officers and creating an effective and efficient workflow.

Based on the results of observations, the drug storage standards at the Anita Farma 1 Pharmacy in Baubau City have been implemented very well, as evidenced by the fulfillment of all indicators in Table 4.3. From these results, it is known that the stability and safety aspects of the drug are in accordance with the requirements, so that the quality and efficacy are maintained until the expiration period. The cleanliness of the storage space is also well maintained so that it is free from contamination that can affect the quality of the drug. The lighting of the room is arranged so that it does not directly affect the drug, but it is still sufficient to support the arrangement and collection of the drug. In addition, the humidity of the room is well controlled so that it can prevent physical and chemical changes in the drug. The ventilation system also functions optimally, allowing good air circulation to maintain temperature and humidity stability. In terms of responsibility, all pharmacy officers and employees who work at Anita Farma Pharmacy play an active role in maintaining the cleanliness and neatness of the drug storage layout. This is in accordance with the mandate of Permenkes No. 73 of 2016 which states that the implementation of pharmaceutical services is carried out by pharmaceutical personnel with the principle of prudence and prioritizing patient safety.

For medicines that require special storage, such as those that must be stored in the refrigerator, Anita Farma Pharmacy is equipped with a refrigerator thermometer as a temperature monitoring tool. Temperature checks and recordings are routinely carried out twice a day, namely in the morning at 08.00 and in the afternoon at 18.00. This step aims to ensure that drugs that require low temperatures remain stable and their quality is maintained. This provision is also in accordance with the Minister of Health Regulation No. 73 of 2016 which requires drugs to be stored according to the requirements listed on the packaging.

The drug storage room at the Anita Farma Pharmacy is 5 x 5 meters. Display cabinets are placed along the walls, thus providing sufficient movement space for the officers. This arrangement supports the creation of more effective and efficient workflows in services.

The system of compiling drug stocks at Anita Farma Pharmacy is carried out by placing drugs on shelves, storefronts, and cabinets according to the shape of the preparation and arranged alphabetically. Liquid preparations, such as syrups, are separated from solid preparations such as tablets and capsules. Hard drugs are placed in special glass storefronts separate from over-the-counter and limited over-the-counter drugs. In addition, there is also a separate storefront to store stock of spare drugs. This arrangement pattern shows that drug management is carried out regularly according to each category, while applying the principle of First Expired First Out (FEFO) as stipulated in Permenkes No. 73 of 2016.

CONCLUSION

Based on the results of observations on the way drugs are stored in pharmacies, it can be concluded that in general the storage of drugs has gone quite well. The drugs are arranged according to their form and type of use. Most pharmacies have also implemented storage systems that pay attention to expiration dates, using the principles of First In First Out (FIFO) and First Expired First Out (FEFO).

It is hoped that in the next research, the research can be carried out with a wider scope, both in the number of pharmacies studied and the storage indicators observed, so as to provide a more complete picture of the drug storage system in pharmaceutical service facilities.

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