

Evaluation of Drug Storage System in Boyolali Regency Pharmacies According to The Regulation of The Minister of Health of The Republic of Indonesia No 73 of 2016

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ABSTRACT

Drug storage is an important factor in maintaining drug quality so that the quality of drugs remains in accordance with the storage parameters according to Ministry of Health Regulation No. 73 of 2016. This study aims to examine the percentage of compliance with the drug storage system in pharmacies in Boyolali Regency, as regulated in Minister of Health Regulation No. 73 of 2016. The research method used was descriptive observational with data collection using a checklist, observation of pharmacies in Boyolali Regency, and interviews with the pharmacists in charge. Drug storage based on Minister of Health Regulation No. 73 of 2016 shows that storage parameters in 56 pharmacies in 18 subdistricts indicate drug storage system parameters based on dosage form, drug stability temperature, storage equipped with shelves or pallets, air conditioning and refrigerators, therapeutic or pharmacological class, and alphabetical order, showing a compliance rate of 100%. Storage based on the original packaging from the manufacturer showed a compliance rate of 94.42%. Storage areas should not be used to store other items, with a compliance rate of 98.21%, and storage of narcotic and psychotropic drugs showed a compliance rate of 92.86%. The storage systems at 56 pharmacies have met the standards set by the Indonesian Ministry of Health Regulation No. 73 of 2016

Keywords: *Evaluation, Drug storage, Pharmacy*

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INTRODUCTION

A pharmacy is a facility where pharmacists are used to work in carrying out pharmaceutical tasks with requirements regulated by law. Pharmaceutical work includes quality control, procurement at the pharmacy facility, storage of pharmaceutical preparations, distribution of pharmaceutical preparations, management of pharmaceutical preparations, dispensing prescriptions from doctors/other medical experts, and providing information on medicines as well as developing natural medicinal ingredients, finished medicinal ingredients, or traditional medicines. In managing drugs, attention must be paid to the storage system to ensure the quality and safety of a drug and to prevent physical or chemical damage. Each drug has different storage characteristics, so the storage location

must be considered to ensure that the quality of the drug is maintained until it reaches the patient (Rukayati A, 2022).

Irrational and inaccurate medication can lead to ineffective medication management (Aciningrum, 2019). Medication that has undergone physical or chemical damage, insufficient attention to temperature stability, and irresponsible use can lead to a high risk of errors in dispensing and distributing medication (Amalia, W. (2022). Medicines are natural products that can affect the body's systems in order to diagnose diseases, prevent illness, promote recovery, improve health (Permenkes, R. I. 2016).

Based on research conducted in community health center warehouses and hospitals, there are still storage systems that do not meet agreed standards, such as the use of stock cards that are still lacking in pharmaceutical installations (Puslitbang, 2016). In the storage of medicines in the Tamansari health center warehouse, there are still discrepancies in the storage keys for injections that require a storage temperature of 2-8°C, because the keys are not only held by warehouse staff, this can lead to misuse by irresponsible staff (Nafila Z, 2023). Research at Indra Pharmacy shows that 45.08% of pharmacies have errors in storage, such as the absence of narcotics cabinets and temperature recording (Handayani and Hartono, 2023). The results of the literature parameters obtained show that many pharmacies do not implement proper and correct storage in accordance with the established regulations (Astreawati et al 2010).

METHOD

This study is a non-experimental study presented in a descriptive observational manner because it emphasizes the description and presentation of the processes that take place and whether or not they are in accordance with the established guidelines. Data collection was carried out using *a checklist* to determine the completeness of facilities and infrastructure in the pharmacy storage system.

The population in this study consisted of 128 pharmacies located in 18 subdistricts with random sampling according to the existing population, resulting in 56 pharmacies calculated using the Solvin formula with a 10% margin of error.

FINDING AND DISCUSSION

RESEARCH RESULT

Based on the survey results conducted in 56 pharmacies in Boyolali District, the following results were obtained:

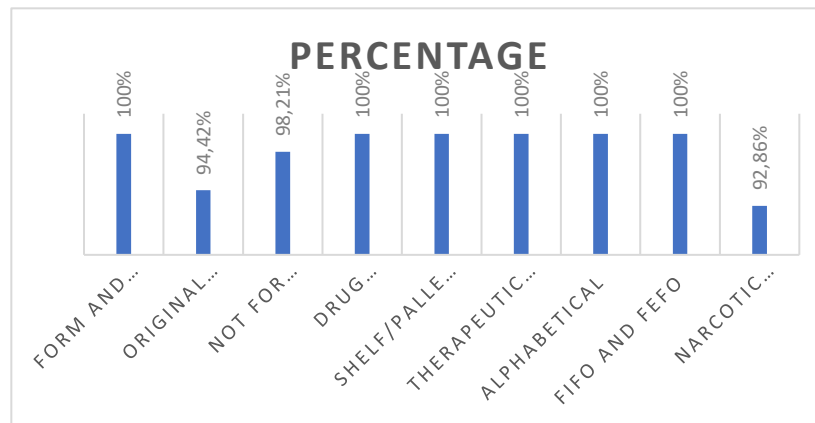


Figure 1. Graph showing the percentage of compliance with Ministry of Health Regulation No. 73 of 2016

The results of research data on several pharmacies were obtained 100% based on the form and type of drug preparation, so that the system used met the requirements. This indicates that the 56 pharmacies implemented a system that separated solid preparations, creams, and gels according to their type, such as syrup shelves, tablet shelves, and ointment shelves, which were placed separately. Storage in the graph for original containers according to the manufacturer shows a compliance percentage of 94.42%.

Medicine storage should not be used to store other items. The graph shows a percentage of 98.21% that the medicine storage system must pay attention to storage quality so that the medicine is not contaminated by other items, which can cause the quality of the medicine to deteriorate. In medicine storage, the thing that must be considered is the temperature stability of the medicine. The temperature stability of each medication varies, such as *cold chain* medication storage, which must be kept at a temperature range of 2-8°C. To prevent drugs from deteriorating and degrading, their quality must be maintained by protecting them from external factors such as direct sunlight, excessively high room temperatures, and high humidity, which can damage pharmaceutical preparations (Ranti et al, 2021).

The drug storage system must have shelves or pallets to store pharmaceutical preparations so that they are neatly arranged, clean, and free from termites to minimize drug damage and facilitate drug retrieval (Mulalinda R. D, 2020). The pharmaceutical storage room must have air- s that ensure the temperature of the drugs is maintained. In drug storage, especially for *cold chain* drugs, pharmacies must have refrigerators to maintain the quality and temperature stability of cold chain drugs.

A study conducted in a pharmacy in Boyolali district showed a percentage of 100% in the storage system based on therapeutic or pharmacological classes. In a study conducted (Qiyam N, 2016) on pharmaceutical warehouses, there were still obstacles in the form of an insufficient number of cabinets or shelves, which had an impact on ineffective drug storage.

In drug storage at pharmacies, the alphabetical arrangement system is used with the FIFO and FEFO drug dispensing systems, showing a 100% compliance rate. The process of arranging pharmaceutical preparations is based on the A-Z order of pharmaceutical preparations by combining the FIFO, where items that arrive first are dispensed first, and FEFO, where items that are nearing their expiration date are dispensed first so that the pharmacy does not suffer losses from products that have expired, in order to facilitate the dispensing of drugs and minimize errors in dispensing. Storage of medicines and medical supplies aims to maintain drug quality and facilitate searching and control. Pharmacy facilities must have special storage for narcotics and psychotropic drugs, with a percentage of pharmacies in Boyolali Regency at 92.86%.

DISCUSSION

This indicates that the drug storage system based on the original containers from the manufacturer does not yet show compliance, where the drug storage system based on the original containers from the manufacturer must include the name, batch number, and expiration date of the drug to ensure that the drug is not damaged and contaminated by other items. The process of arranging medications is carried out alphabetically, starting with the letter A in the top left corner and then proceeding downward in sequence. The purpose of arranging them alphabetically is to facilitate medication retrieval and minimize errors in dispensing pharmaceutical preparations (Amalia, W. 2022). The storage system must have shelves for storing medicines and be arranged neatly according to the specific regulations of each pharmacy to facilitate retrieval and minimize error rates (Anandani, G. I., Fauziah, R., & Rusmana, W. E. 2022). The process of storing medication in a pharmacy is an important factor in maintaining drug quality, so proper and standardized storage processes will ensure that the medication can be administered to patients (Susilawati, E. S. E., Pasha, E. Y. M., & Fatimah, D. S. 2022). A good pharmaceutical supply management system process must be supported by adequate information system facilities so that the drug management cycle runs smoothly (Pinasang, A., Citraningtyas, G., Jayanto, I., & Nugraha, M. K. 2023).

There are specific requirements for cabinets used to store narcotics and psychotropic drugs, namely that the cabinet material must be strong so that it cannot be easily moved, and it must have two doors with two different keys that are held by the pharmacist in charge or an authorized pharmacist. The cabinet must be placed in a special location that is not easily visible to outsiders and must be placed in a corner of the warehouse. The study conducted in pharmacies in Boyolali Regency still shows that some pharmacies do not comply with the established regulations, such as pharmacies that do not have a storage place for narcotics and psychotropic drugs and the cabinet keys should be kept by the responsible pharmacist and the keys should not be attached to the medicine cabinet (Menkes, R. I. 2015).

CONCLUSION

A study conducted in 56 pharmacies in 18 subdistricts in Boyolali Regency showed that the drug storage system was quite good based on the type of preparation, alphabetical

order, and drug stability temperature showing a percentage of 100%, and based on the original packaging from the manufacturer, with a percentage of 94.42%. For drug storage, not using the storage area for items other than drugs showed a percentage of 98.21%.

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