Jurnal Ilmiah Ibnu Sina, 11(2), Oktober 2026, 446-457
p-ISSN: 2502-647X; e-ISSN: 2503-1902

DRUG MANAGEMENT PROFILE AT THE PAMEKASAN MADURA REGENCY HEALTHCARE CENTER, EAST JAVA

Maya Indrawati[1], Abdul Rahem[2]*, Yunita Nita[2]
[1]Program Magister Program Studi Ilmu Famasi, Fakultas Farmasi, Universitas Airlangga
[2] Departemen Farmasi Praktis, Fakultas Farmasi, Universitas Airlangga

*Email: abdulrahem@ff.unair.ac.id

Artikel diterima: 2026-06-19; Disetujui: 2026-07-16
DOI: https://doi.org/10.36387/jiis.v11i2.3052

ABSTRACT

Drug management is one of the important components in pharmaceutical services at health centers that play a role in ensuring the availability, quality, and effective use of drugs. Inaccuracies at each stage of drug management can cause stock vacancies, excess inventory, and a decrease in the quality of health services. This study aims to describe the drug management profile at the Pamekasan Regency Health Center, Madura, East Java. The study used a descriptive observational design with a total sampling technique in 21 health centers. Data collection was carried out in the period June-December 2025 using a structured observation sheet based on the Regulation of the Minister of Health of the Republic of Indonesia Number 74 of 2016 concerning Pharmaceutical Service Standards at Health Centers. The assessment was conducted using a scoring system and was classified into good, adequate, and poor categories. The results showed that six of the eight drug management activities were in the good category, namely procurement (76.2%), receipt (100%), distribution (61.9%), destruction and withdrawal (95.2%), control (52.4%), and recording and reporting (71.4%). Meanwhile, planning activities (66.7%) and storage (52.4%) are in the sufficient category. Drug management at Pamekasan Regency Health Centers largely meets standards, but improvements are needed in planning based on consumption and disease patterns, as well as storage practices, including temperature control, FEFO implementation, and segregation of damaged and expired drugs.

Keywords: Drug Management, Health Centers, Pharmaceutical Services, Drug Planning, Drug Storage, FEFO Implementation

INTRODUCTION

Pharmaceutical services at Primary Healthcare Centers are an integral part of the primary healthcare center and play an important role in ensuring the quality of healthcare services. Pharmaceutical services not only focus on the provision of drugs, but also ensure the availability of the

right type, quantity, and time of drugs to support the implementation of public health efforts and individual health efforts, especially in the promotive and preventive aspects (Kemenkes RI, 2016).

To ensure the availability of safe drugs, an effective and sustainable drug management system is needed. Drug management at the primary healthcare center includes planning, procurement, acceptance, storage, distribution, control, recording and reporting, as well as monitoring and evaluation in accordance with pharmaceutical service standards at the primary healthcare center. Inaccuracies in one of the stages of drug management can cause various problems, such as drug vacancies, excess stock, and an increased risk of damaged and expired drugs which have an impact on service quality and budget efficiency (Anisah *et al* ., 2023).

Several studies show that drug management in health centers still faces various obstacles, but the evaluation carried out is still limited to certain aspects and locations. Research at the Tegal City Health Center reported that drug management has not been running efficiently, which is characterized by inaccuracies in planning and demand for drugs, a high proportion of excess stock, and a low number of drug items in the safe category. However, the study only evaluated part of the stages of drug management, namely planning to procurement (Cholilah *et al* ., 2021).

Similar findings were reported at the Banjarmasin City Terminal Health Center which showed low planning accuracy, limited compatibility of drug items with the National Essential Drug List, and the discovery of non-prescription drugs and expired drugs. The study also did not evaluate all stages of drug management according to the Pharmaceutical Service Standards. (Sariah *et al* ., 2022).

Based on some of these studies, the evaluation of drug management in health centers still tends to focus on some stages of drug management and is carried out in one or several health centers so that the results of the study are more representative of the conditions at the

research site and have not been able to describe the implementation of comprehensive drug management at the district level.

Each stage of drug management is an interrelated system so that weaknesses in one stage can affect the effectiveness of the other stages. These limitations show that there is still a research gap regarding the implementation of comprehensive drug management based on Pharmaceutical Service Standards in all health centers in one administrative area.

Based on these gaps, this study evaluates all eight stages of drug management, namely planning, procurement, receipt, storage, distribution, destruction and withdrawal, control, and recording and reporting based on Pharmaceutical Service Standards in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 74 of 2016.

The research was conducted on all inpatient health centers with plenary accreditation status in Pamekasan Regency using *total sampling techniques*. This approach is expected to provide a more comprehensive picture of the implementation of drug management at the district level as a basis for evaluating and preparing strategies to improve the quality of pharmaceutical services.

RESEARCH METHODS

This study is a descriptive observational research. The population in this study is all health centers in Pamekasan Regency with a total of 21 health centers. The sampling technique used is total sampling, so that the entire population is used as a research sample with a total of 21 health centers. Data collection will be carried out in the June-December 2025 period.

The research instrument in the form of an observation sheet was prepared based on the Regulation of the Minister of Health of the Republic of Indonesia Number 74 of 2016 concerning Pharmaceutical Service Standards in Health Centers. To ensure the suitability of the content of the instrument with the research objectives and indicators being measured, the instrument is consulted with an expert in the field of

pharmaceutical management (expert judgment).

The aspects observed consisted of eight stages of drug management, namely planning (18 items), procurement (11 items), receipt (9 items), storage (17 items), distribution (10 items), destruction and withdrawal (7 items), control (11 items), and recording and reporting (12 items).

Each item is given a score of 1 if it meets the criteria and a score of 0 if it does not meet the criteria. The score of all items in each aspect is summed up so that a total score is obtained for each aspect at each health center. Next, the total score on each aspect is categorized as less, sufficient, and good using the class interval method with the formula:

$$\frac{\text{The highest value} - \text{The lowest value}}{\text{Number of categories}}$$

The highest score is the maximum score that can be obtained in each aspect, the lowest score is 0, while the number of categories consists of three categories, namely lacking, sufficient, and good. The category score range is determined based on the results of the calculation of the class interval on each aspect. After each health center obtains a category in each aspect of drug management, furthermore, the number of health centers in each category is calculated and presented in the form of a percentage.

This research has obtained permission from the Pamekasan Regency Government with letter number 400.7/572/432.302/2025 dated April 30, 2025 and declared ethically feasible by the Research Ethics Committee of the Faculty of Pharmacy, Airlangga University with number 27/LE/2025 on June 18, 2025.

HASIL DAN PEMBAHASAN

Sample characteristics are presented in Table 1**.** All health centers in Pamekasan Regency in this study have the status of plenary accreditation and are inpatient health centers, which shows the fulfillment of governance standards, service quality, and readiness of facilities, resources, and logistics systems, including more complex drug management.

These findings are in line with previous research that states that health centers with high accreditation

and inpatient services have a higher and structured management system, service quality, and service load (Duha *et al* ., 2024; Angeli & Susilawati, 2023; Sukma *et al* ., 2023).

Table 1. Sample Characteristics

Features	Category	n (%)
Accreditation	Basics	0(0)
	Stuttgart	0(0)
	Home	0(0)
	Plenary	21(100)
Type of Service	Hospitalization	21(100)
	Non-Hospitalization	0(0)

Medication Management

Referring to the Minister of Health Regulation Number 74 of 2016 concerning Pharmaceutical Service Standards in Health Centers, that one form of pharmaceutical services that must be carried out is the management of pharmaceutical preparations and consumable medical materials (Kemenkes RI, 2016).

Table 2. Category Quality of Drug Management Activities

Drug Management Activities	Category Quality	n (%)
Planning	Good	7 (33,3)
	Enough	14 (66,7)
Procurement	Good	16 (76,2)
	Enough	5 (23,8)
Reception	Good	21 (100)
Storage	Good	10 (47,6)
	Enough	11 (52,4)
Distribution	Good	13 (61,9)
	Enough	8 (38,1)
Destruction & Withdrawal	Good	20 (95,2)
	Enough	1 (4,8)
Control	Good	11 (52,4)
	Enough	10 (47,6)
Recording & Reporting	Good	15 (71,4)
	Enough	6 (28,6)

The results of the quality category of drug management activities in Table 2 show that of the eight drug management activities in 21 Pamekasan Regency Health Centers, planning and storage activities are still in the sufficient category, which indicates that the implementation of these two aspects is not optimal compared to other activities.

Planning

The timing of drug planning, based on the data in Table 3, shows that all respondents (100%) carried out drug planning at the beginning of the year. These findings show that administratively the planning process has followed the mechanism set in drug management at the health center. Annual planning is carried out as a basis for the preparation of drug needs to ensure the availability of drugs during the service period (Permatasari *et al* ., 2020).

All health centers use a consumption pattern approach in the planning process. However, the results of observations on the usage report and drug request sheet document show that the use of the data has not been carried out optimally. In practice, drug needs planning is not always based on consumption pattern data, but still relies on previous planning estimates and habits. For example, at one of the health centers, the need for Simvastatin 10mg in 2024 is planned to be 900 tablets, but the actual use reaches 1,400 tablets, so there will be a stock shortage at the end of the year.

On the other hand, in other health centers, the initial stock of Simvastatin 10mg was 1,000 tablets with an additional demand of 2,000 tablets, but the use of only 2,300 tablets left 700 tablets and caused an overstock. The findings show that the drug planning process at the health center is not fully based on consumption data and disease patterns, so the determination of drug needs still does not reflect the actual conditions of use.

Table 3. Drug planning time data

No.	Planning Time	n (%)
1.	Early years	21 (100)
2.	Three Months	0(0)
Total		21 (100)
No.	**Basics of drug planning quantification**	**n (%)**
1.	Disease patterns	0 (0)
2.	Konsumsi	21 (100)
Total		21 (100)
No.	**The existence of SPO for drug planning in health centers**	**n (%)**
1.	Ada	21 (100)
2.	None	0(0)
Total		21 (100)

Every management activity of Pharmaceutical Preparations and Medical Consumables must be carried out in accordance with the standard operating procedures set by the Head of the Health Center. The standard operating procedures is placed in a place that is easy to see (Kemenkes, 2020).

The existence of standard operating procedures for drug planning in all health centers shows that there are standardization efforts in the implementation of drug management. However, the existence of standard operating procedures does not fully guarantee that the planning process has been carried out optimally if its implementation has not been accompanied by the use of accurate data and periodic evaluation.

The obligation to implement standard operating procedures in pharmaceutical service facilities is also regulated in Government Regulation Number 51 of 2009 concerning Pharmaceutical Works. In the regulation, it is stated that pharmacists are required to stipulate standard operating procedures in writing in the implementation of pharmaceutical work and to update periodically in accordance with scientific developments, pharmaceutical technology, and the provisions of applicable laws and regulations.

Storage

To maintain the quality of the drug during the storage process, it is necessary to implement appropriate storage standards so that the quality of the drug is guaranteed according to the set requirements. Based on the Minister of Health Regulation Number 74 of 2016, the storage of drugs must be avoided from physical and chemical damage and the quality is still guaranteed by paying attention to the form and preparation, storage temperature, light, humidity, and whether or not it is easy to explode/burn.

In addition, the storage of narcotics and psychotropic drugs must follow the provisions of laws and regulations, and the storage space is not used for the storage of other goods that cause contamination (Kemenkes RI, 2016).

Table 4. Drug storage data

No.	Temperature-adjusted storage	n (%)
1.	Conform	7 (33,3)
2.	Inappropriate	14(66,7)
Quantity		21 (100)
No.	**FEFO-compliant storage**	**n (%)**
1.	Conform	7 (33,3)
2.	Inappropriate	14(66,7)
Quantity		21 (100)
No.	**Impaired drug storage**	**n (%)**
1.	Separated	6 (28,6)
2.	Not separated	15(71,4)
Quantity		21 (100)

Based on the data in Table 4, only 33.3% of health centers have met storage standards according to the First Expired First Out (FEFO) principle, while 66.7% of health centers have not met these provisions. Discrepancies were also found in the drug storage system that had not been separated based on the type of preparation, the application of the First In First Out (FIFO) and FEFO

principles that were not optimal, and the still found drugs in storage rooms that were not equipped with identity labels. In addition, some health centers still store drugs of the same type in different locations, potentially complicating the inventory control process.

Conditions in the field during the data collection process show that the high workload of pharmaceutical personnel and the limited number of human resources in the pharmaceutical installation of the health center cause officers to prioritize pharmaceutical services to patients over drug stock rearrangement activities. In addition, the volume of drugs received from the Regency Pharmacy Installation is relatively large and does not always correspond to the amount proposed by the health center, so it requires a more complex rearrangement process.

If these conditions are not balanced with the availability of human resources and adequate storage monitoring, the application of FIFO and FEFO principles and drug labeling cannot be carried out optimally according to the Pharmaceutical Service Standards at Puskesmas (Fauziyah & Firdaus, 2024).

The application of FIFO and FEFO that is not optimal can increase the risk of drug buildup with a shorter shelf life so that it has the potential to increase the number of expired drugs and reduce the efficiency of drug inventory management. In addition, incomplete drug labeling can complicate the process of identifying and retrieving drugs, increasing the risk of errors in storing and distributing drugs. (Tuda *et al*., 2020)

Drug storage conditions require that each drug be labeled with the drug name, expiration date, and other important information to ensure traceability and safety of drug use (Kemenkes RI, 2016).

The results of this study are in line with research conducted at the Sungai Pua Health Center, Agam Regency which states that the implementation of a good storage system plays an important role in maintaining the quality of drugs and facilitating the process of taking drugs so that they can minimize the

risk of errors by officers (Elwan *et al* ., 2024).

The results of the study also showed that 66.7% of health centers have not stored drugs according to the required temperature based on Pharmaceutical Service Standards at primary healthcare center.

Conditions in the field show that there are limitations in storage supporting facilities, such as the lack of adequate temperature monitoring equipment so that temperature monitoring of storage rooms cannot be carried out regularly. In addition, limited storage space and the high workload of pharmaceutical personnel cause temperature monitoring activities to not be a priority over direct service to patients.

Storage of drugs that are not in accordance with the required temperature can affect the physical and chemical stability of the drug so that it has the potential to reduce the quality, safety, and effectiveness of the drug during the storage period. Therefore, temperature control is one of the important aspects in maintaining the quality of drugs until they are used by patients (Tuda *et al*., 2020;Kurnilia *et al*., 2024).

These findings are in line with research conducted at the Oesao Health Center which states that storage temperature control is an important factor in maintaining the stability and quality of drugs during storage (Luruk *et al* ., 2025).

In addition, this study shows that 71.4% of health centers have not separated damaged drugs or drugs that do not meet the requirements from the stock of drugs that are still suitable for use.

Conditions in the field show that some health centers do not have a special quarantine area for the storage of damaged or expired medicines. This condition causes drugs that no longer meet the quality requirements to be stored with other drug stocks until the destruction process is carried out, increasing the risk of swapping suitable drugs for drugs that no longer meet the quality requirements.

The inseparation of damaged drugs from the stock of drugs that are still suitable for use also has the potential to increase the risk of errors in the process of storing, distributing,

and delivering drugs to patients and can reduce the quality of pharmaceutical services if identification and separation are not carried out immediately (Hananto *et al*., 2024).

The results of this study are in line with research conducted at the Polinggona Health Center, Kolala Regency, reporting that the separation of damaged and expired drugs is an important part of the drug storage system to ensure the safety and quality of drugs available in health care facilities (Sufiati *et al*., 2025).

CONCLUSION

Drug management in 21 Pamekasan Regency Health Centers has generally been carried out in accordance with pharmaceutical service standards. Of the eight drug management activities evaluated, six activities were in the good category, namely procurement (76.2%), receipt (100%), distribution (61.9%), destruction and withdrawal (95.2%), control (52.4%), and repcording and reporting (71.4%). Meanwhile, planning activities (66.7%) and storage (52.4%) are still in the sufficient category. These findings show that improvements need to be focused on optimizing data-based drug needs planning and improving compliance with storage standards to support the availability and quality of drugs in health centers.

ACKNOWLEDGMENTS

We would like to express our gratitude to the Pamekasan Regency Government and all the primary healthcare center in Pamekasan Regency for the permits, support, and cooperation provided so that this research can be carried out properly.

REFERENCES

Alshibli, F., Alqarni, K., & Balfaqih, H. (2024). Analyzing the causes and impact of essential medicines and supplies shortages in the supply chain of the Ministry of health in Saudi Arabia: A quantitative survey study. *Informatics in Medicine Unlocked*, *45*(December 2023), 101457. https://doi.org/10.1016/j.imu.2024.101457

Anisah, N., Yunita, S. L., & Ratna Hidayati, I. (2023). Analisis Pengelolaan Obat di Puskesmas X Provinsi Kalimantan Selatan. *Journal Syifa Sciences and Clinical Research*, *5*(1), 1–2. https://doi.org/10.37311/jsscr.v5i1.17046

Azitriana, Nurlina, & Riska. (2024). Profil Pengelolaan Obat Di Puskesmas Makale Kecamatan Makale Kabupaten Tana Toraja Sulawesi Selatan. In *Profil Pengelolaan Obat ... Journal of Pharmacopolium* (Vol. 7, Issue 3).

Devi, S., Wijaya, A. A., Hasibuan, I. D., Dina, P., & Andina, A. (2024). Analisis Efektivitas Penggunaan Anggaran Pendapatan Dan Belanja Daerah Terhadap Kualitas Pelayanan Kesehatan Di Puskesmas Simalingkar. *Jurnal Pengabdian Kepada Masyarakat*, *4*.

Fauziyah, A. H., & Firdaus, M. N. A. (2024). Analisis Kesesuaian Penyimpanan Obat di Puskesmas Wonosobo dan Siring Betik Kabupaten Tanggamus. *JURNAL RISET RUMPUN ILMU KESEHATAN*, *3*(2), 01–15. https://doi.org/10.55606/jurrikes.v3i2.4413

Fitrilia, I. P., Sundari, R. T., Andayani, N., & Sarnianto, P. (2025). Analysis of Essential Drugs Management in the Work Area of the Cirebon City Health Department in 2022. *Jurnal Ilmiah Farmako Bahari*, *16*. www.journal.uniga.ac.id

Hananto, L. A., Boedirahardja, P., & Wijayanti, T. (2024). Analisis Mutu Pelayanan Pengelolaan Obat di Puskesmas X dan Puskesmas Y Kabupaten Sukoharjo Tahun 2022. *Journal of Islamic Pharmacy*, *9*(1), 6–9. https://doi.org/10.18860/jip.v9i1.25845

Handayani, M., Rachman, I., Akbar, A. A., Mappanyukki Andi Atssam, & Wahyudin. (2024). Analisis Sistem Pencatatan Kartu Stok Obat di Puskesmas Batua Kota Makassar. *Jurnal Riset Ilmu Kesehatan Umum Dan Farmasi (JRIKUF)*, *2*(4), 106–116. https://doi.org/10.57213/jrikuf.v2i4.464

Hidayat, A. S., Lestari, P., Hasibuan, N., Nazuha, S., Suprianto, Y. N., & Purba, S. H. (2025). *Pengaruh Sistem Informasi Kesehatan terhadap Peningkatan Kualitas Pelayanan Medis di Puskesmas (Literature Review)*.

Idris, V., & Ahmad, I. (2024). Peran Apoteker Dalam Meningkatkan Pelayanan Kesehatan Di Puskesmas. *J Riseta Soshum*, *2024*(1), 5–13. www.jrs.b-creta.com

Irawati, Jumaidi, & Paulina, S. (2025). *Efektivitas Penggunaan E-Katalog Dalam Pengadaan Barang Pada Dinas Kesehatan Kabupaten Hulu Sungai Utara*.

Junaedi, C., Dewi, H., & Mujianto. (2024). Analisis Pengelolaan Obat di UPTD Puskesmas Singandaru Kota Serang Banten. *Jurnal Medika Nusantara*, *2*(2), 133–143. https://doi.org/10.59680/medika.v2i2.1128

Kemenkes, R. (2019). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 43 Tahun 2019 Tentang Pusat Kesehatan Masyarakat*. www.peraturan.go.id

Kemenkes RI. (2016). *Peraturan Menteri Kesehatan Republik Indonesia No 74 Tahun 2016 Tentang Standar Pelayanan Kefarmasian Di Puskesmas*.

Luruk, E., Dodo, D., Gustam, T. Y. P., & G, F. (2025). Analisis Sistem Penyimpanan Obat Berdasarkan Standar Pelayanan Kefarmasian Puskesmas di Puskesmas Oesao. *SEHATMAS: Jurnal Ilmiah Kesehatan Masyarakat*, *4*(2), 332–341. https://doi.org/10.55123/sehatmas.v4i2.4371

Melatiginoga. (2025). Gambaran Perencanaan dan Pengadaan Obat Di Puskesmas Komangan. *Jurnal Graha Medika Pharmacy*, *1*.

Nieva, R. F., & Robles, Y. R. (2019). Assessment of medicines supply chain management of select primary care facilities in the Philippines. *Pharmaceutical Sciences Asia*, *46*(4), 231–237.

https://doi.org/10.29090/psa.2019.04.018.0007

Ningsih, I. A., & Aumeilia, W. (2023). Korelasi Perencanaan Obat Dengan Pemenuhan Ketersediaan Obat di Puskesmas Kepulauan Riau. *Jurnal Archipelago*, *XX*.

Pratiwi, D., & Adetian, V. (2024). Evaluasi Pengelolaan Obat pada Tahap Perencanaan, Pengadaan, Penyimpanan dan Pendistribusian di Puskesmas X Kampar, Riau. *Jurnal Farmasi & Sains Indonesia*, *7*(2), 212–217. https://doi.org/10.52216/jfsi.vol7no2p212-217

Rahem, A. (2017). Profil Pengelolaan dan Ketersediaan Obat Anti Diabetes Oral di Puskesmas. *Jurnal Farmasi Dan Ilmu Kefarmasian Indonesia*, *4*(2), 75.

Sariah, Fernanda, Y., Annisa, R., & Wathan, N. (2022). Evaluasi Pengelolaan Obat di Puskesmas Terminal Kota Banjarmasin Tahun 2021. *BORNEO JOURNAL OF PHARMASCIENTECH*, *02*.

Seprina, Z., Fitria, E., & Realita, N. (2024). Analisis Manajemen Pengelolaan Obat Di Puskesmas Langgam Kabupaten Pelalawan Zurni Seprina, Eliza Fitria, Nelfa Realita. *Jurnal Ensiklopediaku*, *6*. http://jurnal.ensiklopediaku.org

Sufiati, Jayadipraha, E. A., & Yuliastri, W. O. (2025). Analisis Pengelolaan Obat Sistem Satu Pintu Pada UPTD Puskesmas Polinggona Kabupaten Kolaka Tahun 2022. *Jurnal Pharmacia Mandala Waluya*, *5*, 349–360. https://doi.org/10.54883/jpmw.v4i5.262

Tualeka, U., Satibi, & Fudholi, A. (2021). Analisis Ketersediaan Obat di Puskesmas Kabupaten Maluku Tengah. *Jurnal Farmaseutik*, *17*, 303–311.

Tuda, I., Tampa'i, R., Maarisit, W., & Sambou, C. (2020). Evaluasi Penyimpanan Obat Di Instalasi Farmasi UPTD Puskesmas Tuminting. *Jurnal Biofarmasetikal Tropis*, *2020*(2), 77–83.