



## Quality of Drug Management during the Covid-19 Pandemic at Outpatient Health Center, Kendari City

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**ABSTRACT:** Covid-19, declared a global pandemic by WHO, has infected 10,242,298 cases in Indonesia. Especially in Southeast Sulawesi, there were 521 cases, with the most in Kendari city. Public health centers are generally the first goal of treatment by the community, so they must be able to manage and utilize their resources effectively and efficiently in breaking the chain of Covid-19 transmission. COVID-19 impacts changes in health services carried out at the Puskesmas, so it is crucial to evaluate the quality of drug management at the puskesmas during the Covid-19 pandemic. This study aims to evaluate the quality of drug management in all outpatient health centers in Kendari City during the COVID-19 pandemic. This research was descriptive and non-experimental with retrospective data collection in all outpatient health centers in Kendari City using the Satibi indicator as a subject with research objects including drug stock cards, LPLPO, RKO, and several other documents. Based on the results, all puskesmas remained active in proposing drugs to FORNAS during the pandemic. However, the percentage value of the suitability of drug items available with FORNAS did not yet meet the standards. The accuracy of planning, the suitability of the number of requests, and the suitability of the number of receipts are not up to standard. Storage according to dosage form, temperature, LASA, and FEFO were following standards, the accuracy of distribution, empty stock items, insufficient stock, safe stock, and the excess stock did not meet standards, and there were still expired or damaged drugs. The suitability of the physical amount of the drug meets the standard, but there are outpatient health centers that do not evaluate drug management periodically during 2020.

**KEYWORDS:** Covid-19, Drug management, Public Health, Puskesmas, Pandemic.

### I. INTRODUCTION

COVID-19 was declared a global pandemic by WHO after infecting the world to reach more than 121,000 cases. There are 10,242,298 confirmed cases in 461 districts in 34 provinces in Indonesia from March 6, 2020, to January 28, 2021. Southeast Sulawesi has 521 confirmed positive cases, 340 cases recovered, and 171 treatments (Irnaningsih et al., 2021). Kendari City is one of the cities with the most COVID-19 confirmations in Southeast Sulawesi (Kholidha Syarifin, Asfiah Udu and Rahmawati, 2020).

The Puskesmas is vital in dealing with and fighting the COVID-19 outbreak because it is the primary care center closest to the community (Derisma *et al.*, 2020). Puskesmas must manage and utilize its resources effectively and efficiently to break the chain of transmission at the individual, family, and community levels. One factor that ensures good health services is the logistics management of drugs and medical devices. Poor drug management can lead to problems in drug supply, namely stagnant (excess drug supply) and stockout (shortage or emptiness of drug supply). Stagnant drug supplies risk increasing the number of expired and damaged drugs if their storage does not meet standards (Muslim & Laksono, 2021).

The drug management cycle includes four stages: selection, procurement, distribution, and use. Each stage in the drug management cycle is interrelated, so it must be appropriately managed (Satibi *et al.*, 2020). Especially during the COVID-19 pandemic, which impacts changes in health services carried out at the Puskesmas (Pangoempia, Grace and Adisti, 2021). As Pangoempia (2021) wrote, there were changes in the flow of services at the Ranotana Weru Health Center and Telling Atas Health Center during the COVID-19 pandemic, precisely from when they arrived until the Puskesmas medical team handled them.

In addition to examination and treatment facilities, the Puskesmas can also carry out rapid test checks and swab collection (Kemenkes RI, 2020), thus requiring medical devices and medicines related to COVID-19, especially in Outpatient Health Centers where patients can be diagnosed as positive for COVID-19. Based on this, the management of pharmaceutical supplies at the Puskesmas is crucial, especially in the COVID-19 era. This study aims to determine the quality of drug management during the COVID-19 pandemic in all outpatient health centers in Kendari City.



**II. METHOD**

The study was conducted in service rooms and drug management in all Outpatient Health Centers in Kendari City from August – November 2021. This study was descriptive, where data were taken retrospectively, field observations, and document review.

The research subjects are drug proposal, item suitability with FORNAS (National Formulary), drug planning accuracy, the drug demand suitability, suitability for the number of receipts, storage according to dosage form, storage according to temperature, drug storage LASA (Look Alike Sound Alike), storage pay attention FEFO (First Expired First Out), Accuracy of drug distribution, Level of drug availability (units of the month), Out of stock items (< 1 month), Non-prescribed drugs (>3 months), the Percentage value of expired or damaged items, suitability of physical quantities of drugs, Periodic evaluation of drug management.

The object of this research includes primary data obtained from observation of drug stock cards. In contrast, secondary data (retrospective) was obtained from documents, annual RKO (Drug Needs Plan), LPLPO (Usage Report and Drug Request Sheet), and drug reports damaged/expired. The instruments used were observation sheets and interview guides. The results obtained from this guide were in the form of documentation (Sugiyono, 2013). The data obtained was calculated using Satibi's formula (2020) and then compared with the standard values of the literature (Chaira, Zaini and Augia, 2016).

**III. RESULT AND DISCUSSION**

Drug proposals data from Puskesmas to the FORNAS can be seen in **table 1**. Based on the study's results, all outpatient Puskesmas in Kendari City have proposed drugs to the National Formulary and have complied with the established standards.

**Table 1.** Implementation of drug proposals to the FORNAS at the outpatient health center in the Kendari City

No.	Puskesmas	Drug Proposal
1	Puskesmas Wua-Wua	Yes
2	Puskesmas Benu-Benua	Yes
3	Puskesmas Mekar	Yes
4	Puskesmas Jati Raya	Yes
5	Puskesmas Mokoau	Yes
6	Puskesmas Labibia	Yes

Data on the accuracy of planning and conformity of items with the National Formulary are shown in **table 2**, where the accuracy of planning in outpatient health centers has not met the established standards (100%). The percentage of the suitability of drug items available at outpatient Puskesmas in Kendari City in 2020 with the National Formulary also has not reached the standard, which is only around 60%-67% which indicates that the National Formulary does not thoroughly guide outpatient health centers in Kendari City in terms of planning drug needs.

**Table 2.** The suitability of the item with the national formulary and the accuracy of drug planning at the Kendari City outpatient health center

No.	Puskesmas	Suitability FORNAS	with Accuracy of Planning
1	Puskesmas Wua-Wua	67,32%	176,15%
2	Puskesmas Benu-Benua	63,38%	185,48%
3	Puskesmas Mekar	61,59%	123,00%
4	Puskesmas Jati Raya	60,99%	312,00%
5	Puskesmas Mokoau	60,99%	310,68%
6	Puskesmas Labibia	63,39%	118,81%



The percentage of the suitability of demand and acceptance is presented in **table 3**. Based on the study results, it was found that the suitability of the number of drug requests at outpatient health centers in the city of Kendari was different, and none of them met the established standards, namely 100-120% (Satibi *et al.*, 2020). Likewise, the percentage of compliance with the number of receipts in all outpatient Puskesmas still does not meet the set standard of 100% (Satibi *et al.*, 2020).

**Table 3.** The drugs demand suitability and drugs receipts at the Kendari City outpatient Public Health Center

No.	Puskesmas	Drug Demand Suitability	Drug Receipt Suitability
1	Puskesmas Wua-Wua	59,31%	141,87%
2	Puskesmas Benu-Benua	28,20%	138,78%
3	Puskesmas Mekar	56,02%	91,350%
4	Puskesmas Jati Raya	315,63%	82,810%
5	Puskesmas Mokoau	87,14%	127,27%
6	Puskesmas Labibia	32,84%	131,48%

The percentage level of suitability of drug storage at the outpatient health center in Kendari City can be seen in **table 4**, where the results of the study indicate that both storage according to dosage form, temperature, LASA (Look Alike Sound Alike), and FEFO (First Expired First Out) in all outpatient health centers in Kendari City have been appropriate with a set standard of 100% (Satibi *et al.*, 2020).

**Table 4.** The suitability of drug storage at the Kendari City Outpatient Health Center

No.	Puskesmas	Drug Storage			
		According dosage form	According Temperature	LASA	According FEFO
1	Puskesmas Wua-Wua	100%	100%	100%	100%
2	Puskesmas Benu-Benua	100%	100%	100%	100%
3	Puskesmas Mekar	100%	100%	100%	100%
4	Puskesmas Jati Raya	100%	100%	100%	100%
5	Puskesmas Mokoau	100%	100%	100%	100%
6	Puskesmas Labibia	100%	100%	100%	100%

The accuracy of distribution in all outpatient health centers in the city of Kendari is presented in **table 5**, where all health centers have not met the standard of 100%. While the data on the level of drug availability and the percentage of expired drugs in outpatient health centers in Kendari City can be seen in **table 6**, where the value of each indicator is different in each health center, but none of them has met the standard, namely 0% (Satibi *et al.*, 2020) on the empty stock indicator, low stock, excess stock, and damaged/expired items, and 100% on the safe stock indicator.

**Table 5.** The accuracy of drug distribution at the Kendari City Outpatient Health Center

No.	Puskesmas	Drug distribution's accuracy
1	Puskesmas Wua-Wua	68,30%
2	Puskesmas Benu-Benua	21,40%
3	Puskesmas Mekar	23,49%
4	Puskesmas Jati Raya	18,93%
5	Puskesmas Mokoau	20,78%
6	Puskesmas Labibia	19,97%



**Table 6.** The level of drug availability and the percentage of expired drugs at the Kendari City outpatient health center

No.	Puskesmas	Empty Stock	Low Stock	Excess Stock	Safe Stock	Expired and damaged drugs
1	Puskesmas Wua-Wua	9,150%	40,53%	5,23%	45,10%	19,61%
2	Puskesmas Benu-Benua	28,17%	0,00%	4,23%	67,61%	10,56%
3	Puskesmas Mekar	42,07%	1,83%	3,66%	52,43%	11,59%
4	Puskesmas Jati Raya	34,48%	2,76%	3,45%	59,31%	15,17%
5	Puskesmas Mokoau	31,21%	1,42%	0,71%	65,96%	7,09%
6	Puskesmas Labibia	29,41%	0,00%	5,23%	65,36%	Data tidak tersedia

The suitability of physical quantities of drugs and evaluation of drug management periodically in outpatient health centers in Kendari city is presented in **table 7**. The suitability of physical quantities of drugs in all outpatient health centers in Kendari City has reached 100% according to the established standards. However, it can also be seen that only two of the six outpatient health centers in Kendari City conducted periodic drug management evaluations in 2020.

**Table 7.** The suitability of the physical amount of the drug and the periodic evaluation of drug management at the outpatient health center in Kendari City

No.	Puskesmas	Physical Amount's suitability	Periodic evaluation
1	Puskesmas Wua-Wua	100%	No
2	Puskesmas Benu-Benua	100%	No
3	Puskesmas Mekar	100%	Yes
4	Puskesmas Jati Raya	100%	No
5	Puskesmas Mokoau	100%	Yes
6	Puskesmas Labibia	100%	No

The Wua-Wua, Benu-Benua, Mekar, Jati Raya, Mokoau, and Labibia health centers are outpatient health centers in the city of Kendari, Southeast Sulawesi. Puskesmas is a health service facility closest to the community, so the quality of its services must be evaluated regularly to ensure that patients get quality services at affordable prices.

The indicators used in this study have been widely used, one of which is in the Harahap study, which evaluated the achievement of drug management at the Langsa Hospital's Pharmacy Installation in 2018, where the Covid-19 pandemic had not yet occurred (Mauliana et al., 2020). Based on the results, drug management at the Langsa Regional General Hospital Pharmacy Installation has not been fully effective and efficient per the standards set, so with the Covid-19 pandemic, which has an impact on health aspects, the quality of service at the Puskesmas needs to be evaluated periodically.

The initial evaluation was the selection stage, namely, selecting several drugs rationally to produce better supply/procurement, more rational use of drugs, and lower prices. The indicator used at the drug selection stage is whether or not drug proposals are made to Fornas/Forkab/Forpus, with the standard indicator "Yes" (Menteri Kesehatan RI, 2016).

The Drug Proposal Team at the Puskesmas consists of the Doctor and the Responsible Pharmacist or Coordinator of the Drug Warehouse. Although the Covid-19 pandemic has affected many things, especially in the health sector, drug proposal activities are still being carried out.

The Puskesmas can propose or submit drugs that will be used in the use of drugs at the Puskesmas to the Ministry of Health through the District or City Health Office. Drugs proposed in the Fornas must have gone through acceptable scientific, medical, and statistical studies. It can be done by conducting a systematic review by the Puskesmas and the local Health Office (Satibi et al., 2020).



Planning indicators were evaluated to determine the effectiveness and efficiency of drug planning against the use of drugs where this stage will affect the availability of drugs (Aisah and Suryawati, 2020). Drug planning at the Puskesmas is carried out by making a Drug Needs Plan (RKO) based on the Usage Report and Drug Report (LPLPO) (Satibi *et al.*, 2020).

This indicator can be calculated by looking at the number of pharmaceutical preparations planned in the RKO data and the number of pharmaceutical preparations used for 12 months in LPLPO.

The value of planning accuracy that does not meet these standards is estimated to be due to changes in the pattern of the Covid-19 pandemic disease that affects drug use (Satibi *et al.*, 2020). Values that do not meet standards can affect the level of drug control, such as the occurrence of drugs that continue to spoil or expire during storage (Satibi *et al.*, 2020).

The percentage value of the suitability of the drug item against the FORNAS has not reached the standard due to the presence of drugs with the required trademark but not included in the FORNAS. These drugs are not mandatory at the Puskesmas, but in practice, they are often ordered so that pharmacists include them in the list of drug needs.

Drugs that are not following FORNAS also occur at the Cempaka Putih health center, with the proportion of items conforming to FORNAS by 50% due to supporting drugs at the Puskesmas and requests from doctors at the Cempaka Putih health center to provide drugs outside FORNAS because drugs are considered quite important and needed at the Puskesmas (Saputera dkk., 2021)

The suitability of the number of requests was evaluated to see the match between the number of drugs requested and the number of drug plans at the Puskesmas. This indicator is obtained by adding up the items of drug demand in twelve months on the LPLPO and the number of items of drug planning for one year in the RKO data.

Procedurally, all Puskesmas are pretty good at requesting drugs, using the LPLPO formats approved by the Puskesmas leadership. The RKO is filled out at the beginning of the year and contains drug planning for the following year. However, changes in disease patterns during the Covid-19 pandemic affect the number and types of drugs issued, so the Puskesmas must place additional orders if there are defective drugs, and thus, lead to some items being well above and others being way below what was previously planned.

The percentage of receipts that have not reached the standard is because the Puskesmas do not make independent purchases but receive drugs from the City Health Office. The Health Office cannot always provide drug needs according to LPLPO's request because of the limited availability of drugs with the number of existing health centers (Najoan *et al.*, 2019). In addition, during the Covid-19 Pandemic, many medicines were empty, so the District Health Office could not provide the amount of medicine as requested.

The accuracy of distribution in all outpatient health centers in Kendari city has not met the standard, possibly because the health center drug managers ignore the optimal stock in distributing medicines. Drug managers only add 20% of the total usage to buffer stock. Drug distribution that is not based on optimal stock causes excess and shortage of drugs in health service sub-units (Chaira *et al.*, 2016). The drug distribution system in several Puskesmas uses a centralized method in which all drug dispensing is only carried out by the Puskesmas Pharmacy to all patient care places at the Puskesmas without any branches from other treatment places.

Evaluation of drugs' stock management needs to be carried out so that there is no excess or vacancy of drugs at the Puskesmas. Inventory control determines and ensures the availability of the right supplies in the correct quantity and time (Albaidhlawy & Musliyana, 2020). Besides, the availability of drugs is closely related to the quality of health services and patient and health worker satisfaction (Astuti *et al.*, 2020). The purpose of this indicator is to see the level of drug availability in units of months for each drug at the Puskesmas. The method used to assess this indicator is to calculate the total drug stock in 2020, then divide it by the average drug use in 2020, whose data can be seen from LPLPO Sheet.

The existence of empty stock items in outpatient Puskesmas in Kendari City was caused by drugs that are not requested or are no longer used by the Puskesmas but are still attached in the LPLPO format from the Kendari City Health Office. Some drugs are often prescribed but not given by the health office following the amount listed in the LPLPO, resulting in drug vacancies.

Drug shortages can harm the Puskesmas because many prescriptions are not served, so patients have to buy drugs outside the Puskesmas. If it occurs continuously, it can reduce the number of patient visits and income at the Puskesmas (Amiruddin and Septarani A, 2019). Drug shortages can be prevented by routinely checking drug stock, expired dates, and holding buffer stock at the Regency Pharmacy Installation or doing independent shopping using National Health Insurance funds (Asnawi *et al.*, 2019).

The existence of excess drug stock is caused by the City Pharmacy Installation providing drugs that are not as requested but depend on the existing stock. In addition, other factors cause drug overload, namely changes in disease patterns, especially during



the Covid-19 pandemic, which then causes a shift in drug use. Excess drug stock can turn into dead stock significantly if drug prescriptions are reduced, and there is a change in disease patterns that are not fixed every year (Kasmawati, Sabarudin and Jamil, 2019).

There are still damaged and expired items in all outpatient health centers in Kendari city, with the highest percentage value of 19.61%. The existence of expired drugs reflects inaccuracy in planning, poor distribution system, and lack of quality observation in drug storage (Satibi, 2014; Dyahariesti & Yuswantina, 2017).

Other factors that cause drug damage are physical changes such as changes in the shape of the drug, color changes or foreign particles found, drug storage room conditions that do not follow the standards and poor drug management systems (Khairani, Latifah and Nila Septianingrum, 2021). In addition, changes in disease patterns during the Covid 19 pandemic also caused many drugs were not used, resulting in expired drugs.

The suitability of the physical amount of medicine in all non-inpatient health centers in Kendari City has met the standard, which indicates that pharmaceutical officers are always careful in terms of dispensing drugs during the Covid-19 pandemic and because they routinely carry out stock opname (Sabarudin *et al.*, 2020). Overall, the drug management system at the Puskesmas can be influenced by inaccurate drug planning, miscalculation of drug needs, lack of communication, waiting time for drug arrival, and short drug expiration periods (Sulistyowati, Restyana and Yuniar, 2020).

Last, only two of the six outpatient health centers in Kendari City conducted periodic drug management evaluations in 2020. The restrictions on working hours and several policies issued during the pandemic also influenced why the responsible pharmacist did not conduct periodic drug management evaluations in 2020.

#### IV. CONCLUSION

Based on the results of the study, it can be concluded that the quality of drug management during the COVID-19 pandemic in all outpatient health centers in Kendari City has not fully met the standards that have been set due to the policy of adjusting working hours for employees, imposing restrictions on community activities, implementing Work from Home, social distancing and other policies in order to prevent the spread of Covid-19.

All outpatient health centers in Kendari City remain active in making drug proposals to FORNAS. The percentage of conformity of drug items available with FORNAS, planning accuracy, demand compliance, and acceptance compliance have not met the standards during 2020. Storage according to dosage form, temperature, LASA and FEFO has met the standards in all Puskesmas. Accuracy of distribution, empty stock items, insufficient stock, safe stock, the excess stock in all outpatient health centers does not meet standards, and still, there are expired or damaged drugs. The suitability of the physical amount of the drug is excellent, but only two of the six outpatient health centers in Kendari city conduct periodic drug management evaluations during 2020.

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