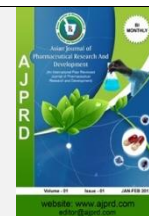


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Research Article

Analysis of Drug Management in Pharmaceutical Warehouse of Pematangsiantar City Health Office

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ABSTRACT

Objective: to analyze the management of drugs in 2018-2019 in the pharmaceutical warehouse of the Pematangsiantar City Health Office.

Method: This research is a descriptive study with concurrent and retrospective data collection. The data obtained were analyzed using indicators and compared with literature standards. This research was conducted in January-March 2020.

Results: The results showed that there were 9 indicators that did not meet the management standards for drug management, namely the accuracy of planning; percentage of planning deviations; frequency of procurement of drug items per year; percentage of essential drug procurement; percentage deviations in the amount of drugs distributed; percentage of expired drug; average time of drug emptiness; Inventory Turn Over Ratio (ITOR); the percentage of on time delivery of the LPLPO and 3 indicators that meet the standards, namely the compatibility of the drug items with the DOEN; percentage of dead drug stock; and compatibility of the number of real goods with stock.

Conclusion: Drug management in the pharmaceutical warehouse of Pematangsiantar City Health Office, including; planning, procurement, distribution, storage, recording and reporting in the Pematangsiantar City Health Office have not fully met the indicator standards.

Keywords: Management, Drugs, Indicators, DOEN

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INTRODUCTION

Drugs are ingredients or alloys including biological products that are used to influence or investigate the physiological system or pathological conditions in order to speed up diagnosis, prevention, healing, recovery, health improvement and contraception for humans¹. Drug management is a series of activities involving aspects of drug planning, procurement, storage and distribution, and rational use of drugs. Effective drug management lies in policies and legal frameworks that build and support public commitments to supply essential medicines and are influenced by economic factors². Effective drug management is needed to ensure the availability of drugs with the right type and amount and meet quality standards in accordance with Minister of Health Regulation No. HK 02.02/Menkes/523/2015 concerning the National Formulary³, as amended by Minister of Health Regulation No. HK

02.02/Menkes/137/2016⁴. Drug management includes: planning, procurement, distribution, storage, recording and reporting stages. They must ensure the continued availability and affordability of medicines effectively.

METHOD

Types of Research

This research is a descriptive study with concurrent and retrospective data collection. Secondary data was obtained from retrospective data collection by examining documents of the previous year, namely 2018 and 2019 in the form of warehouse stock cards, monthly reports, annual reports, order letters, lists of health service drugs and distribution books. The data obtained were analyzed using indicators and compared with literature standards. This research was conducted in January-March 2020.

Research Informant

Research informants include; the head of the pharmaceutical section, the goods procurement officer, the goods inspection and receipt officer and the pharmaceutical warehouse officer

PARAMETER ANALYSIS

Accuracy of Planning

The amount of each planned drug item is divided by the amount of usage a year

Percentage of Planning Deviations

The amount of initial stock and the plan for procurement of each drug item is reduced by the use of each drug item in a year and then divided by the sum of the initial stock and the procurement plan for each drug item.

Suitability of Drug Items Available with DOEN

The amount of DOEN available is divided by the total number of planned drugs

Frequency of Procurement of Each Drug Item One Year

The frequency of procurement of drug items is done annually

Percentage of Essential Drug Procurement

The amount of essential drugs available divided by the number of drugs available at the warehouse

Percentage Deviation from the Amount of Drug Distributed

Percentage of the amount of each drug item requested divided by the amount of each drug item supplied from the warehouse

Percentage of Amount and Value of Expired / Damaged Drugs

The percentage of the number of drug items that expire in one year divided by the number of drug items available in one year

The Average Percentage of Time the Drug is Emptied

Percentage of number of days of drug vacancy in one year

ITOR (Inventory Turn Over Ratio)

The total value of the entire drug that is distributed is divided by the total value of the average inventory for a year. average inventory value is calculated from the total initial stock value with the total remaining inventory value divided by two

Percentage of Drug Stocks Dead

The percentage of the number of drug items that have not been used for one year divided by the number of inventory of drug items for one year.

Percentage of Timely Delivery of LPLPO

The number of LPLPO who enter the pharmacy warehouse on time is divided by the entire LPLPO Puskesmas

Percentage of the Match of the Number of Real Items with a Stock Card

The number of drug items in accordance with the stock of taking with the number of drugs in the stock card

RESULTS AND DISCUSSION

Accuracy of Planning

Based on **Figure 1**. In 2018, the cumulative results obtained from the accuracy of drug needs planning in the Pharmacy Warehouse of Pematangsiantar City were only 12%, there were 180 types of 204 drug items that were not in accordance with the standards. In 2019 the accuracy of cumulative needs planning was only 19% while 156 of the 193 drug items did not meet the standard. The default value used is 100-150%⁵.

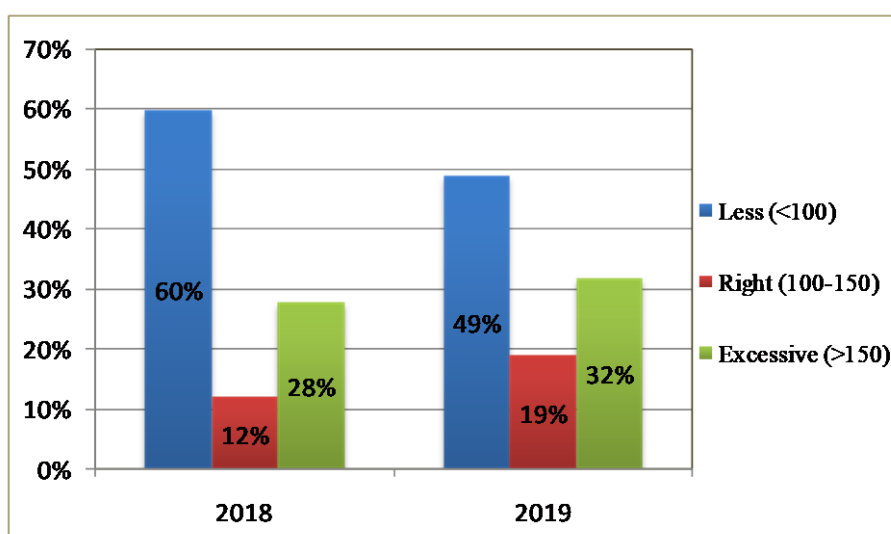


Figure: 1 Graph of the accuracy of planning in 2018 and 2019

Percentage of Planning Deviations

Based on **Figure 2**, it can be seen that the percentage of drug planning irregularities obtained results are not in

accordance with the standard, namely in 2018 the results obtained 3%, in 2019 the results obtained 4%. The default value of the percentage of planning deviations is 20-30%⁶.

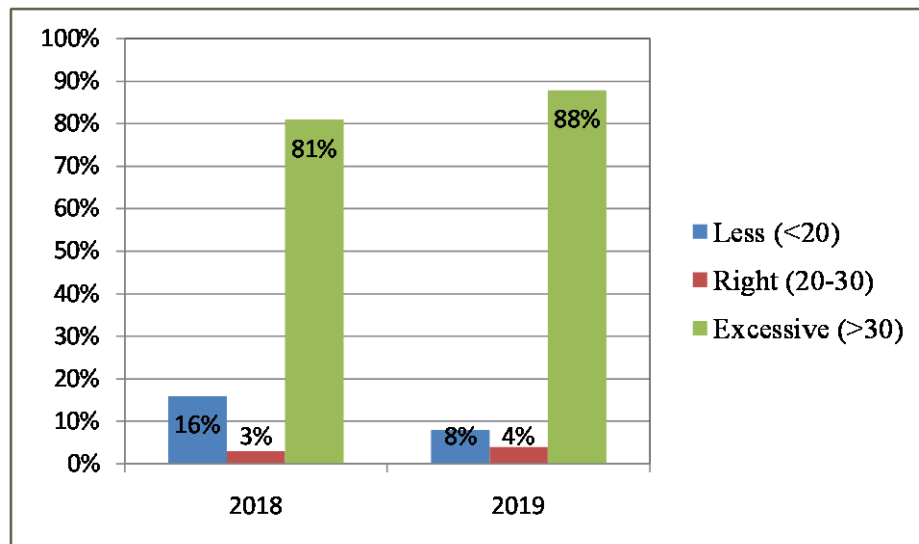


Figure 2. Graph of planning deviations in 2018 and 2019

Suitability of Drug Items Available with DOEN

Based on Figure 3, it can be seen that the results of the percentage of conformity of available drug items with

DOEN in 2018 are 91%, in 2019 the results are obtained 88%. The standard value of the percentage of suitability of drug items available with DOEN is 49%⁵. This shows that the drugs available at the Pharmacy Warehouse of the Pematangsiantar City Health Office have met the standards.

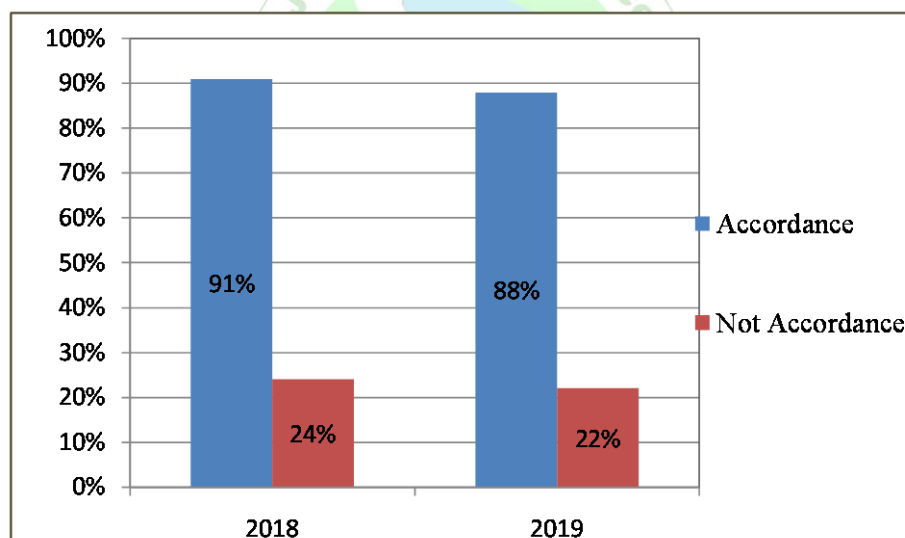


Figure 3. Graph of compatibility of drug items with DOEN in 2018 and 2019

Frequency of Procurement of Each Drug Item One Year

Based on Table 1, it can be seen that in 2018 and 2019 the percentage of frequency of procurement of each drug item

per year is low. This is due to the procurement of drugs in the Pematangsiantar City Health Office, which is done once a year. The rest is the reception of buffer drugs and programs from the Province. The standard value of the percentage of frequency of procurement per drug item per year is $> 24x / yr$ ⁶.

Table 1. Data on the percentage of frequency of procurement for each drug item in 2018 and 2019

No	Information	2018		2019	
		Type of Medicine	Percentage	Type of Medicine	Percentage
1	Low (<12x/th)	204	100%	193	100%
2	Is On (12-24x/th)	0	0%	0	0%
3	High (>24x/th)	0	0%	0	0%
	Total	204	100%	193	100%

Percentage of Essential Drug Procurement

Based on **Figure 4**, it can be seen that the percentage of essential drug procurement in 2018 is 79% and 2019 is 85%. When compared with the standard value, the

percentage of procurement of essential drugs has not met the standard. The standard value of the percentage of essential drug procurement is 100%⁶. This is because there are some drug items that are not essential drugs but are needed by the Puskesmas.

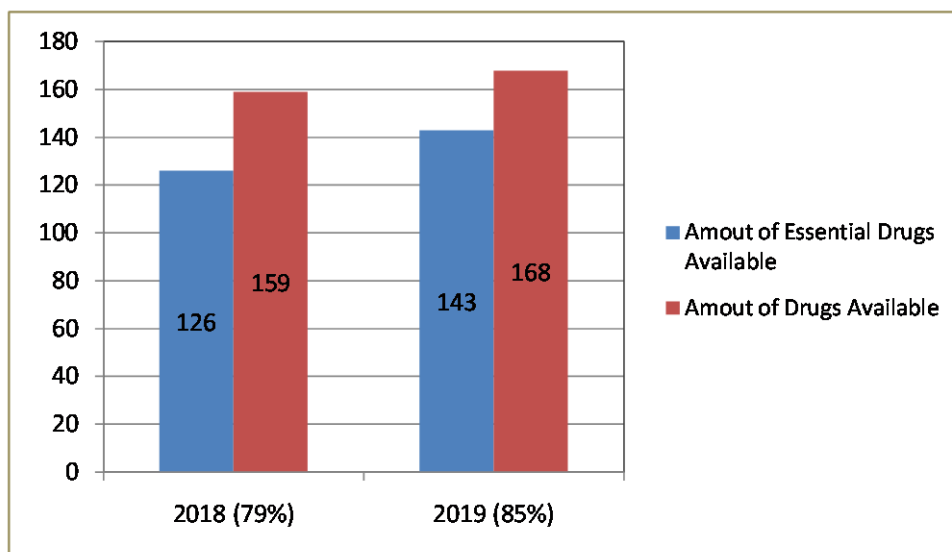


Figure: 4 Graph of essential drug procurement

Percentage Deviation from the Amount of Drug Distributed

Based on **Figure 5**, it can be seen that the deviation in the number of drugs distributed in 2018 was 145% and in 2019

it was 141%. This value is very far from the standard value of 0%⁵. This is because not all drug items requested by the Puskesmas are available or empty and the amount is limited.

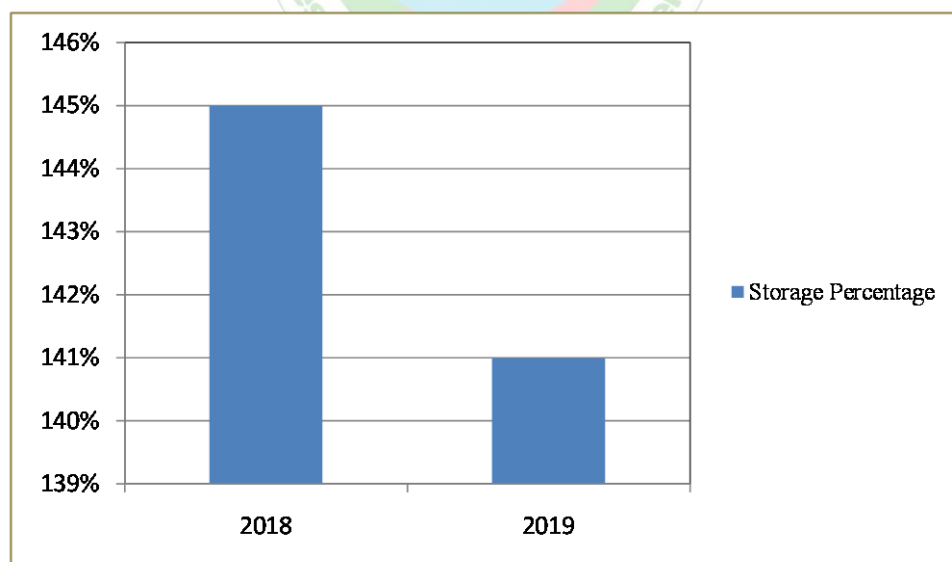


Figure: 5 Graph of percentage deviations in the amount of drug distributed

Percentage of Amount and Value of Expired/Damaged Drugs

Based on **Figure 6**, it can be seen that in 2018 there were 7 drug items expired/damaged from a total of 204 drug items available. In 2019 there were 25 expired/damaged drug

items from a total of 193 drug items available. This shows the percentage of expired/damaged drugs is not in accordance with the standard value of $\leq 2\%$ in a year⁵. This shows that drug control approaching expiration is still lacking due to lack of human resources in pharmaceutical warehouses.

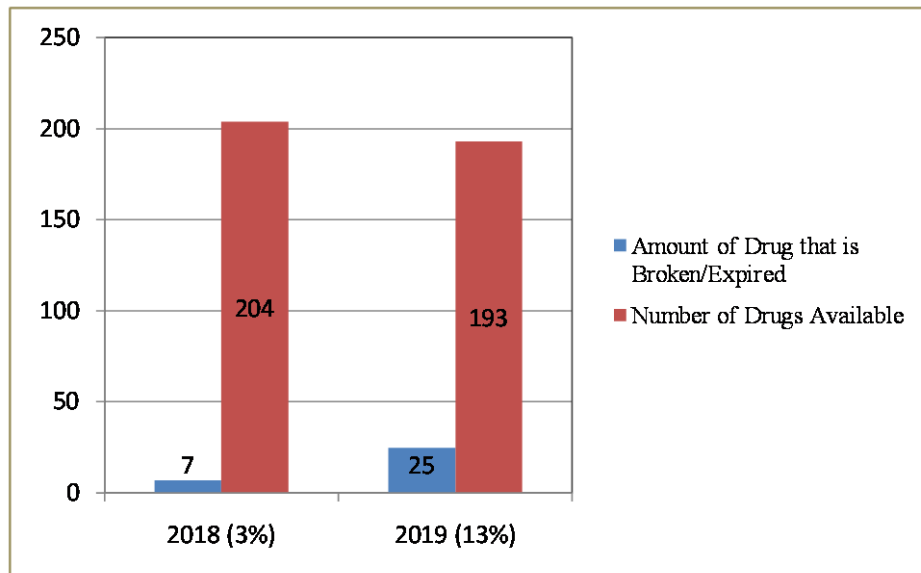


Figure: 6 Graph of the number of drug items expired/damaged

The Average Percentage of Time the Drug is Emptied

Based on **Figure 7**, it can be seen that the percentage of drug vacancy in 2018 is 26% and in 2019 it is 27%. The standard time value of a drug vacancy is 10 days⁶.

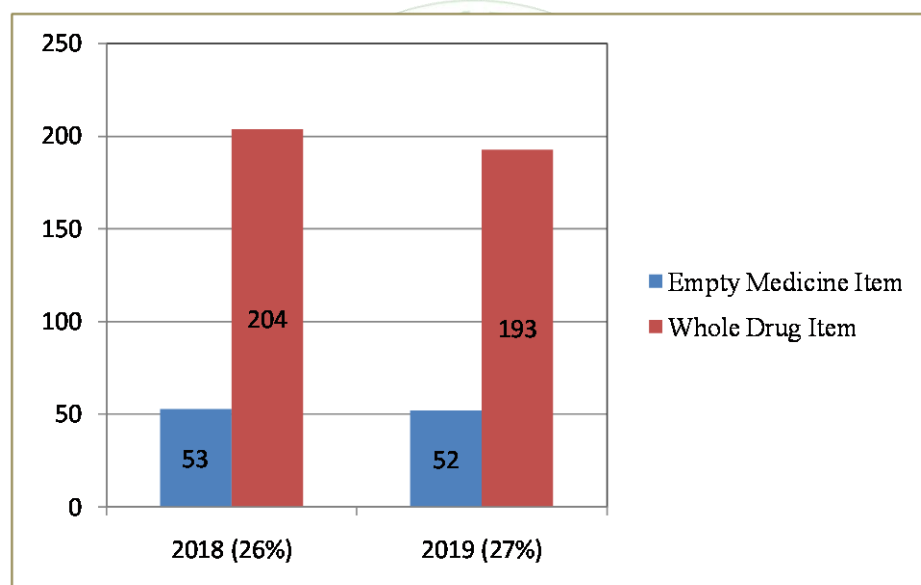


Figure: 7 Graph of percentage of time of drug vacancy

ITOR (Inventory Turn Over Ratio)

Based on the research results obtained in 2018 namely 0.51 times and in 2019 the results obtained 0.53 times. When compared with the ITOR standard value of 8-12 times / year⁶, it is not in accordance with the standard value. This is due to the fact that the distribution of medicines that are distributed has not been efficient and there is a dropping from an excessive number of provinces and is rarely used by the Puskesmas.

Percentage of Drug Stocks Dead

From observations at the pharmaceutical warehouse, each drug item is always sought to be distributed to the Puskesmas to reduce the occurrence of expiration. This value is in accordance with the standard which is 0%⁶.

Percentage of Timely Delivery of LPLPO

Based on **Figure 8**, it can be seen that not all Puskesmas deliver their LPLPO on time to the Pharmaceutical Warehouse of the Pematangsiantar City Health Office. This shows that the percentage of on time delivery of LPLPO is not in accordance with the standard, which is 100%⁵.

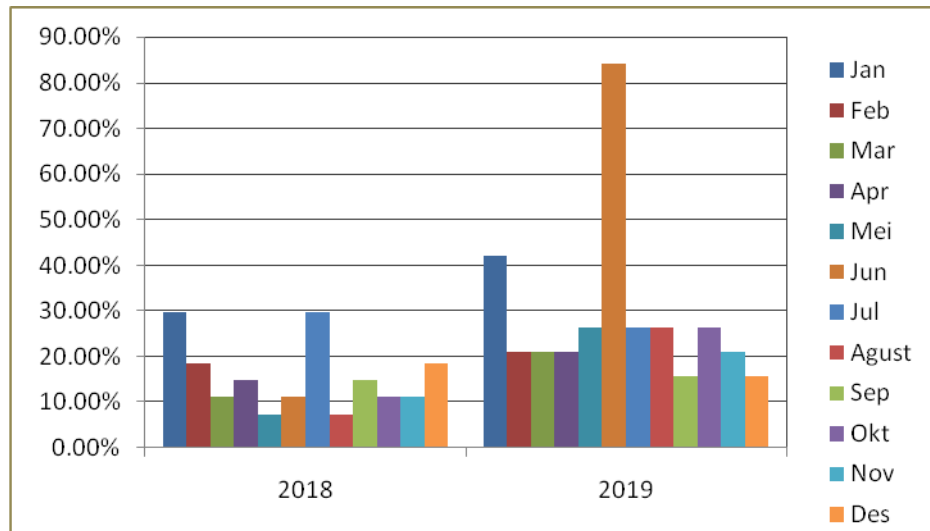


Figure: 8 Graph of the timeliness of sending LPLPO

Percentage of the Match of the Number of Real Items with a Stock Card

Based on the results of data collection in 2018-2019, a match between card stock and goods is obtained, which is 100%, this value is in accordance with the specified standard that is 100%⁶. This shows that the administration in the pharmaceutical warehouse has been carried out optimally and the accuracy of officers in controlling drugs in and out is good.

CONCLUSION

Drug management in the pharmaceutical warehouse of Pematangsiantar City Health Office, including; planning, procurement, distribution, storage, recording and reporting in the Pematangsiantar City Health Office have not fully met the indicator standards.

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