Regulatory Affairs 2020: DRUG MANAGEMENT ANALYSIS IN THE DEPARTMENT OF PHARMACY HOSPITAL NACIONAL GUIDO VALADARES DILI TIMOR LESTE 2017-Santana Martins- Graduate Student Master of Public Health Universidade da Paz, Timor Leste

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*Corresponding Author: Santana Martins ABSTRACT

The Department of Pharmacy is a part of the hospital that is responsible for managing drugs which includes the selection, procurement, distribution and use of drugs. This study aims to analyze the level of efficiency of drug management in the Pharmacy Department of Hospital Nacional Guido Valadares (HNGV) Dili. Timor-Leste. The research uses descriptive designs for retrospective and concurrent data. Retrospective observations include planning and drug use reports, financial reports, drug procurement reports, invoices, stocktaking reports. Concurrent observation includes the average waiting time for patient prescription services. Data is collected quantitatively and qualitatively. Data obtained from all stages of drug management in the Pharmacy Department of the HNGV Dili were analyzed by efficiency indicators using the Ministry of Health indicators (2008) and WHO (1993) when compared with other standards or research results. The results of the study show that the management system that is not yet in accordance with the standards is: the selection stage, the suitability of the drug with DOEN TL (96.19%); stage of procurement, capital / funds available with all the funds needed (86.03%); allocation of funds for drug procurement (4.23%); suitability of planning with the actual use for each drug item (88.12%); procurement of each drug item per year (4.97 times); distribution stage, drug expiration and damage (20.76%); compatibility between physical medicine and stock card (76.90%); level of drug availability (18 months); stage of use, number of items per prescription sheet (4.07 items for outpatient care and 8.23 items for hospitalization); Stage that fits the standard: the distribution stage, the average time used to serve the recipe to the patient's prescription in outpatients is 28.15 minutes, while for concoction recipes at 53.60. It ishoped that the Timor- Leste hospital will improve the effective and efficient management of drugs to ensure health services.

Key Words: Drug management, Efficiency indicators.

INTRODUCTION

The Vision of the Ministry of Health of the Democratic Republic of Timor-Leste is to create a healthy society that is independent and fair. One of the main strategies (Grand Strategy) of the Ministry of Health of the Democratic Republic Timor-Leste is concerning the management of of pharmaceutical preparations by increasing the availability, equity and affordability of drugs and medical devices and ensuring the safety, efficacy, usefulness, and quality of pharmaceutical preparations, medical devices (Lei, 2004; Decreto-Lei, 2005). Decreto-Lei Number: 38 of 2016, Article 13 concerning Hospital Service Standards, states that Hospital pharmaceutical services are an inseparable part of the Hospital health care system which is oriented towards patient services, providing quality drugs, including clinical pharmacy services, which are affordable for all walks of life (Decreto - Lei, 2016). Therefore, if the problem of availability of drugs is not managed carefully it will harm hospitals both medically, socially, economically and reduce public confidence in Hospital services (Prabowo, 2016). Efficient and robust drug management at the Hospital ensures rational selection, planning, procurement, storage, distribution, use and availability of drugs in the right quantities, at reasonable prices, and meeting quality standards throughout the year.

Effective drug management is a collaborative process involving many stakeholders that are needed to provide a health care system with a road map for continuous improvement in the pharmaceutical supply chain including cost containment with specific goals and measures of success Iqbal et al. (2017). Drug management is one of the aspects of Hospital management that is very important in the provision of overall health services, because inefficiency and drug management will hurt the Hospital, both medically, socially and economically. Hospital pharmacy installation is one - one unit in the Hospital in charge and fully responsible for the management of all aspects related to drugs / medical supplies that are circulating and used in the Hospital (Siregar and Amalia, 2003). The drug management cycle includes four basic functions, namely selection (selection), planning and procurement (distribution), distribution (distribution), and use (use) that requires support from the organization (organization), the availability of funding (financing sustainability), information management (information management) and the development of human resources (Human Resources Management) that are in it Quick et al. (2012). Hospital Nacional Guido Valadares Dili (HNGV) functions: Providing medical services, and medical support, providing nursing services and care, conducting referral services, conducting education and training, conducting research and development, conducting general administration and finance. Good human

resource management can support optimal treatment services to patients. Department of Pharmacy Hospital Guido Valadares Dili is one of the supporting services of the Hospital in the field of health has 24 people, including 2 pharmacists and 22 pharmacies technical personnel.

Problems that occur in drug management in the Department of Pharmacy

HNGV Dili based on the author's observations, among others; stock out, found drug items, not on the Timor Leste National Register of Essential Medicines (DOEN), planning and procurement of drug needs have not been carried out effectively and efficiently, expired or damaged drugs have been found, there has been no evaluation of the management and use of drugs in the Hospital. Considering the inefficiency and inefficiency of drug management so that it can have a negative impact on the Hospital and will also add to the economic burden for patients, it is necessary to conduct research on drug management at the Guido Valadares Hospital in Dili to be able to find out the problem so that improvements can be made in order to improve the quality of pharmaceuticalservices.

MATERIALS AND METHODS

This research was conducted at the Guido Valadares National Hospital (HNGV) in Dili Timor-Leste in November -December 2018. The method used in this research is Mixed qualitative descriptive and quantitative methods. Primary qualitative data were obtained by in-depth interviews with key informants (HNGV officials and staff), quantitative data were obtained retrospectively by looking at and tracing the documents of the previous year, 2017 relating to drug management in the Dili HNGV Pharmaceutical Department, including planning and drug use, financial reports, reports on drug procurement, reports on stock-taking, reports on the destruction of damaged and expired drugs. Primary data is data from observations or direct observations at the time of the study and in-depth interviews with officers related to drug management at the Dili Department of Pharmacy, HNGV to confirm the secondary data obtained. Secondary data is data from tracing the documents of the previous year (in 2017) relating to drug management in the Department of Pharmacy, Guido Valadares Hospital, Dili. The instruments/tools used in this study were Drug Stock Cards, Drug Stock Reports, Annual Pharmacy Reports, Prescriptions, Goods Receipt Book, Pharmaceutical Service Permanent Procedures, Indicators of effectiveness and efficiency of drug management in hospitals. This study uses a standard indicator tool for the management of the Ministry of Health of the Republic of Indonesia (2008), WHO standard indicator (1993) and refers to an indicator developed as a complement to the indicator of drug management in hospitals by Pudjaningsih (1996). This study uses the interview guide form as a tool for collecting primary data, questionnaires or taking notes directly in a notebook, then poured in the interview transcript. The variables in this study are variables that are planned to be examined in the form of drug management indicators, namely Selection (Selection) The suitability of available drug items with the Timor-Leste Nacional/DOEN TL List of Essential Medicines, Procurement Percentage of capital / funds available with the overall funds required, Percentage of allocation of drug procurement funds, Percentage of compliance between procurement with reality for each drug item, Frequency of procurement of drug items.

Distribution The percentage of matches between the drug and the card stock, the level of drug availability, the percentage of drug value that is expired and damaged. Usage (Use) Number of items per prescription medication, Percentage of prescription with generic drugs, Waiting time for prescription services.

RESULTS AND DISCUSSION

Selection Stage

The drug selection analysis in this study was carried out by measuring the percentage of theappropriateness of the number of drugs available at the Pharmacy Installation of the HNGV in Dili with the number of drug items included in Timor Leste's National Essential Medicines List (DOEN). Measurement data when taken is taken from the retrospect of drug management data for 2017.The results of the study of the suitability of drug items available at the Department of Pharmacy of HNGV with Timor Leste's DOEN are presented in the table

Match items available at the HNGV Department of Pharmacy with Timor Leste's

Description	Total Value	Standard Value(%)
Number of drug items available at the	420	
HNGV Department of Pharmacy	405	100
Number of drug items in DOEN	96,19	
% Match of drug items available with		
the DOEN Formulated		

Source : Secondary data of Analyzing

The results showed that the percentage of the suitability of items available at the HNGV Department of Pharmacy with the National Essential Medicines List (DOEN) was 96.19%. According to the World Health Organization (WHO) that the standard of compatibility of drugs available in hospitals with DOEN is 100% (WHO, 1993). The results of this study indicate the percentage of conformity of drug items available with DOEN at GuidoValadares National Hospital is not in accordance with the standards. The Table also shows that $\leq 5\%$ or 15 drug items that are not present in the NLEM so that it can be stated that there is still a low level of compliance with drug use based on NLEM in the Dili HNGV. Percentage of the suitability of drug items available in the List of drug items in the HNGV Department of Pharmacy that is not in accordance with Timor Leste's DOEN.

Planning and Procurement Stage

The results of the management analysis research at the 2017 Department of Pharmacy, HNGVDili in the following planning and procurement: Percentage of capital/funds available with all funds needed to procure drugs. This indicator is to measure the capital/funds available with the capital/funds needed by the Department of Pharmacy, asking to find out the capital/funds needed by the pharmacy/department of pharmacy in accordance with the number of funds available for drug supply for patients.

The source of funding for drug procurement at the HNGVDili Department of Pharmacy comes from the *Orsamento Geral Estado*, which has been budgeted by the government through the Timor Leste fiscal system. Data obtained retrospectively by looking at the financial department documents in 2017. The percentage of funds available and those needed is presented in table.

Percentage of capital / available funds with the total funds needed for 2017

Description	Total Fund (\$)	Standard Value(%)
Amount of funds needed	2,178,350,00	100
Available funds	1,874,247,48	
% Of available funds	86,03	

Source: secondary data from the Dili HNGV financial section

The results showed the percentage of funding provided by the government to the Department of Pharmacy HNGV for the procurement of drugs in 2017 was 86.03% insufficient funds needed for procurement of drugs in the Department of Pharmacy HNGV Dili according to Pudjaningsih (1996) that the availability of funds can be stated according to standards / efficient for the analysis of drug management in hospitals is if it reaches 100% so the results of this study can be said that the provision of capital/funds for the procurement of drugs for HNGV Dili in 2017 is not according to standards / inefficient.

Percentage of funds allocated for drug procurement

The indicator for allocation of drug procurement funds aims to find out how far the funds provided by the hospital to the Department of Pharmacy for the supply or procurement of drugs for patients in Dili's HNGV compared to the overall hospital budget. Data is taken retrospectively in 2017. The percentage of drug procurement fund allocation can be seen in the table

Percentage of funds allocated for drug procurement

Description	Total Fund (\$)	Standard Value(%)
Drug allocation funds	2,178,350,00	30-40
Hospital Budget	9,226,587,00	
% Allocation of funds for	4,23	
drug procurement		

Source: secondary data from HNGV financial section

The results showed the percentage of drug procurement fund allocation compared to the total hospital budget of 4.23%. This value indicates that the percentage of budget allocation for the procurement of drugs in 2017 is not in accordance with the standards set by WHO, which ranges from 30-40%.

Percentage of planning appropriateness with an actual use for each drug item

Indicators of planning appropriateness with an actual use for each drug item aim to find out how much accuracy the selection of drugs in procurement. Data were taken retrospectively in 2017. The percentage of planning suitability with the reality of use for each drug item can be seen in table.

Percentage of planning appropriateness with an actual use for each drug item

Description	Value	Standar Value (%)
Number of drug items observed	420	100
The number of appropriate drug items	323	
% physical compatibility with card stock	76,90	
Source: secondary data that has been process	sed	

Source: secondary data that has been processed

The results showed the percentage of the suitability of planning with the reality of using items of drugs in the Dili Department of Pharmacy HNGV was 88, 12%. This value shows the incompatibility of planning with procurement and the reality of use which according to Pudjaningsih (1996) is 100% to be able to state the effectiveness and efficient planning of drug needs in a hospital. These results indicate the

inefficient accuracy of drug planning in the Department of Pharmacy, HNGV Dili in 2017.

Frequency of procurement of each drug item

The indicator of the frequency of procurement of each drug item aims to find out the number of times the drugs are ordered each year. According to Quick et al (1997) comparing the frequency of procurement of each drug, the item can use the Economic Order Quantity (EOQ) method, which is a method for determining the most economical or efficient quantity of inventory orders at each purchase. Data retrieved retrospectively in 2017, shown in the table.

Frequency	of	procurement	of	each	drug	item
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Description	Value	Standar Value		
The average frequency of procurement facts (times)	4,97	Low <12 x / year Medium 12-24 x / year Height> 24 x / year		
Source: secondary data that has been processed				

The results showed that in 2017 the average frequency of drug procurement at the Dili Department of Pharmacy HNGV was 4.97 times a year. It is seen that the frequency of procurement of each drug item for the 2017 period is low, i.e. a quota of (<12) times per year.

Distribution Stage (Distribution)

Distribution is an activity of distributing pharmaceutical supplies in hospitals for individual services in the therapeutic process for inpatients and outpatients as well as to support medical services. Drug distribution includes several stages including reception, inspection, control, and storage. The form of drug distribution in the Dili Department of Pharmacy HNGV is still centralized where the storage and distribution of all drugs or pharmaceutical goods are concentrated in one place in the Department of Pharmacy. The storage method is done alphabetically, the type/form of the preparation and temperature/stability, while to maintain the quality of the drug is done with the FIFO system (first in first out) where the goods that come first are received must be used first, and the FEFO system (first expired first out) where goods that have an earlier / shorter expiry date must be used first. Stocktaking is done at the end of each month, quarter and end of the year to find out the remaining stock end of the month and end of the year, then used as a basis for planning the needs of the next month or year. The drug distribution system for outpatients uses individual prescribing while for outpatients it uses a combination of individual prescription drug distribution systems and supplies in the room. The observations made with the indicators at the distribution stage are as follows:

Percentage of compatibility between physical medicine and card stock

Indicators of compatibility between the physical drug with a stock card are intended to determine the accuracy of the warehouse officer. From observations, each drug item is equipped with a stock card contains the date, quantity of goods entered, the quantity of goods left, remaining stock and information. The data was taken at the time of the research in December 2018. The data taken is primary data obtained concurrently and direct observation in the Department of Pharmacy, HNGV Dili, can be seen in the table.

Percentage of compatibility between physical medicine and card stock

Description	Value	Standar Value (%)		
Number of drug items observed	420			
The number of appropriate drug items	323			
% physical compatibility with card stock	76,90	100		
Source: Primary data that has been processed				

Source: Primary data that has been processed

The table above shows that the match between drugs and drug stock cards for each drug item is 76, 90%, not in accordance with the 100% standard (WHO, 1993).

Depth of drug availability

Measurement of indicators of drug availability levels in the Department of Pharmacy is intended to be able to find out how much the level of adequacy of drugs needed by the Department of Pharmacy HNGV for a period of one year in each month. Data were collected retrospectively from 2017 data searches. The observations can be seen in the table

Depth of drug availability

Description	Value	Standar Value
Number of drug items observed	420	
Number of drug items (<12 months)	0	
Number of drug items (12-18 months)	292	12 – 18 bulan
Number of drug items (> 18 months)	128	
Average level of drug availability (Month)	18	

Source: Primary data that has been processed

The table above shows that the average level of drug availability at the Dili HNGV Department of Pharmacy is 18 months and according to the Indonesian Ministry of Health (2008) that the standard value of drug availability is 12-18 months so that it can be said to be efficient. Percentage of drugs expired and broken. The percentage indicator of expired and broken drugs aims to find out how much hospital losses are caused by expired and damaged drugs. Data were taken retrospectively from reports of expired and broken drugs in 2017.

Percentage of drugs expired and broken

Description	Value of drugs expired (\$)	Standar Value (%)
Expired Medication Value	85,565,5	
End of Year Stock Value Value	412,134,70	0
% Damaged drug value expired	20,76	

Source: Secondary data that has been processed

The Table shows that the percentage of expired and damaged drug values of 20.76% indicates a significant loss because according to Pudjaningsih (1996) that the standard percentage for expressing the efficiency of hospital losses due to damaged or expired drugs should be 0%. These results indicate that better monitoring and control of drug storage and distribution is needed by the Dili HNGV Pharmacy Department.

Stage of Use

The use phase is a part which includes the prescribing phase, prescribing, dispensing and evaluating the use of the drug, starting from the stage of preparing/dispensing the drug, giving the label/etiquette and the delivery of the drug accompanied by providing drug information to the patient. The aim is to protect sufferers so that there are no diseases related to the drugs given such as allergic reactions, detecting the dangers of therapy given simultaneously, preventing the occurrence of drug toxicity and increasing patient compliance through clinical pharmacy functions. There are several indicators of drug use measured in this study as follows:

The number of drug items per prescription sheet

The indicator of the number of drug items per prescription sheet aims to measure how much drug use is given to patients per prescription sheet. The data is taken retrospectively in 2017.

The number of drug items per prescription sheet

Description	Outpatient	Inpatient	Standar Value
Total recipe sheets for 2017	21.873	17,775	1.8 - 2.2 items
Total drug items written on a	127,038	177,750	Medication/
prescription			prescription sheet
Average drug items on each	5,8	10	
prescription sheet (kinds of			
drug items)			

Source: Secondary data that has been processed

The table shows that the average number of drug items per prescription sheet written by doctors at the Dili HNGV for outpatient services was 5.8 drug items and inpatient items were 10 drug items. The average number above shows that the results of research on this indicator are not in accordance with the standards set by the World Health Organization, namely, ranging from 1.3-2.2 items per prescription drug (WHO, 1993).

The average time spent serving the recipe to the patient's hands

The average indicator of prescription service time aims to see the level of speed of pharmaceutical services provided. The data taken is primary data obtained concurrently in the outpatient section of observations and direct observations at the Department of Pharmacy, HNGV Dili. Data can be seen in the table below:

The average time spent serving the recipe to the patient's hands

Patient	Hours of service	Number of recipe sheets served		Average len prescriptio	gth of time on service
		Non- Concoction concoction		Non- concoction	Concoction
RJ	08.00- 12.00	292,16	21,71	28,15	53,60

Source: Primary data

The table shows that the average time of prescription service used from the prescription to the delivery of the drug to outpatients from 08:00 to 14:00 WTL. The average service time for non-concoction prescriptions in outpatients is 28.15 minutes, while for prescription concoctions at 53, 60 minutes it can be stated that it has reached the standard that is for waiting time for non-concoction prescription drugs (\leq 30 minutes) and time wait for prescription concoctions (\leq 60 minutes) (MOH,

2008). These results indicate that prescription services for outpatients are efficient.

Conclusion

Based on the results of research conducted at the Department of Pharmacy, HNGV Dili about the analysis of drug management, the following conclusions can be drawn:

Selection, drug suitability with DOEN TL (96.19%) is not standard or inefficient; Procurement (planning and procurement), capital/funds available with the total funds needed (86.03%) are not standard or inefficient; drug procurement fund allocation (4.23%) is not standard or

inefficient; suitability of planning with the reality of use for each drug item (88.12%) is not standard or inefficient; procurement of each drug item per year (4.97 times) is not standard or inefficient; Distribution, level of drug availability (18 months) according to standard or efficient; expired and damaged drugs (20.76%) are not standard or inefficient; physical compatibility with card stock (76.90%) is not standard or inefficient; Usage, the number of items per prescription sheet (5.8 items for outpatient care and 10 items for inpatient treatment) is not standard or inefficient; the time taken to serve the recipe up to the hands of non concoction prescription patients in outpatients is 28, 15 minutes, while for prescription concoctions on is 53, 60 according to standard or efficient.

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Santana Martins Graduate Student Master of Public Health Universidade da Paz, Timor Leste Email id: <u>santanamartins66@gmail.com</u>

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