

Analysis of Economic Losses to Patent Medicine that Stagnant in Surabaya, Indonesia

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Keywords: Patent medicine, Stagnant, Losses, Hospital, Cost.

Abstract: Ineffective and inefficient drug management can result in the stagnation of hospital supplies and can bring about negative consequences, one of which is economic losses. Patent medicine is one type of drug used in drug services for general patients at the Islamic Hospital of Surabaya. The stagnation of patent medicine at Pharmacy Unit Islamic Hospital of Surabaya was at 26.42% in October 2016 to March 2017. The objective of this research study is to analyse the amount of economic losses due to the stagnation of patent medicine at the Islamic Hospital of Surabaya. This was a descriptive observational research study and used a cross-sectional design. The study was conducted on 299 patent medicines at Islamic Hospital of Surabaya. The results showed there were some effects of stagnation including increased holding costs, embedded capital, loss of ordering costs, increased risk of damage and expiration, as well as increasing extermination costs. The total economic losses due to patent medicines that stagnated in October 2016 to March 2017 amounting to IDR 41.276.489 (1 USD = IDR 13.513). The conclusion showed that the drug management system is still ineffective and inefficient, so that it can cause losses. The recommendation that can be given is to improve the hospital's management information and drug management system.

1 INTRODUCTION

Problems that appear in the steps of pharmacy supplies management can be caused by ineffective and inefficient drug usage in the hospital. One of problems that can appear in the hospital drug management is the occurrence of stagnation to do with the pharmacy supplies. Stagnation is the condition when the amount of drug stock at the end of month is more than 3 times the average drug consumption in every month (Muzakkin, 2008). The occurrence of drug stagnation in a hospital can cause economic losses in the hospital including purchasing costs, ordering costs, and holding costs on the drug that has stagnated (Muzakkin, 2008).

Hospitals are health care institutions that have organised medical and other professional staff, and inpatient facilities, and deliver 24 hours per day, 7 days per week. They offer a varied range of acute, convalescent and terminal care using diagnostic and curative services (WHO, 2016).

The Islamic Hospital of Surabaya is the private hospital type C with the number of bed amounting to 111 beds. The Islamic Hospital of Surabaya uses 2

types of medicines in their services; patent medicine and generic medicine. Patent medicine is used in general patient care (30%) and 70% of BPJS patients are in for generic medicine in an inpatient capacity as well as outpatient services. The amount of prescriptions written during 2016 at the Islamic Hospital of Surabaya was 59,208 scripts for patent medicine. The patent medicine that stagnated on June – October 2016 was 20.52% with an average of 56 drugs stagnating every month. There was an average of 79 drugs stagnant every month. Most of the patent medicines that stagnate are drugs that are in category C or are slow moving. The average of slow moving drugs that stagnate stands at 50 drugs every month.

Drug supplies that stagnate and stock out will affect the budgeting of the hospital because it can cause consequences and losses for the hospital. Drugs that stagnate and stock out will cause costs to arise from that specific condition (Mellen & Pudjirahardjo, 2013).

The presence of an amount of patent medicine that stagnates indicates that the patent medicines in the Islamic Hospital of Surabaya requires a more

effective and efficient management of the supplies of patent medicines in order to avoid stagnant drugs which may result in losses for the hospital, specially economic losses. Based on the explanation above, there is a need to analyse the economic losses caused by patent medicines that stagnate. The objective of this research study is to analyse the economic losses that are caused by patent medicines that stagnate and provide recommendations to improve drug management in the Islamic Hospital of Surabaya.

2 METHODS

This was an observational descriptive research study that used a cross sectional design. This study was conducted on the 299 patent medicines in the Pharmacy Unit of the Islamic Hospital of Surabaya. This research was conducted by way of the observation of the 299 patent medicines in the pharmacy storage without intervention and by way of interviews with the informants on the condition of the patent medicines in the Pharmacy Unit of the Islamic Hospital of Surabaya. The informant in the interview about the patent medicine condition was the Head of the Pharmacy Unit of the Islamic Hospital of Surabaya. The analysis was done by data collecting the patent medicines stock and calculating using the inventory formula.

3 RESULTS

The results showed that the patent medicines that stagnate are 166 items of drugs out of the whole 299 items of drug amounting to 76.254 drugs from October 2016 to March 2017 at the Islamic Hospital of Surabaya. The losses to be borne by the Islamic Hospital of Surabaya due to patent medicines that stagnate include the holding costs of the patent medicines and the ordering costs of the patent medicines.

1. Holding Costs of Patent Medicines

The holding costs that should be borne by the Islamic Hospital of Surabaya caused by patent medicines that stagnate include embedded capital costs, electricity costs AC, and the running of the pharmacy refrigerator, as well as any expired costs.

Table 1: Holding Cost due to Patent Medicine That Stagnate

No	Holding Cost	Amount of Losses (IDR) (1 USD = IDR 13.513)	
1	Embedded Capital Costs		39.495.525
2	Electricity Costs		821.209
	- Cost of Lamp	26.525	
	- Cost of AC	414.457	
	- Cost of Pharmacy Refrigerator	380.226	
3	Expired Costs.		935.439
	Total		41.252.173

The total holding cost that should be borne by Islamic Hospital of Surabaya on October 2016 to March 2017 due to patent medicines that went stagnant amounts to IDR 41.252.173.

2. Ordering Cost of Patent Medicines

The ordering cost of patent medicines that have gone stagnant has been calculated by the administration, with the costs including ordering paper costs and stamp costs, and phone charges. In relation to the patent medicines that stagnate, out of the 199 items, there are 94 items that were ordered amounting to 92.736 drugs in total. The administration cost that was required to do the ordering of the 92.736 drugs amounted to IDR 21.683. The ordering of medicines at the Islamic Hospital of Surabaya is done in two ways: 80% of patent medicines are ordered through routine distributors and 20% are ordered by phone, so the phone charges that were used were only calculated from 20% of the patent medicines that were stagnant. The phone charges amounted to IDR 2.631. The total of the ordering costs that should be borne by the Islamic Hospital of Surabaya on October 2016 – March 2017 due to patent medicines that stagnated amounts to IDR 24.315.

The total of the losses that was caused by patent medicines that stagnated has been calculated by adding up the holding cost with the ordering cost.

Table 2: Total Losses Due To Patent Medicines That Stagnate

No	Losses Caused by Patent Medicines that Stagnant	Amount of Losses (IDR) (1 USD = IDR 13.513)
1	Holding Cost	41.252.173
2	Ordering Cost	24.315
	Total	41.276.489

4 DISCUSSIONS

The presence of drug supplies that stagnate in the hospital has caused losses for the hospital that relates to purchasing costs, ordering costs and holding cost (Hadidah, 2016). Drug supplies that stagnate can also cause costs for the hospital due to patent medicines that have been damaged in storage. Other than that, drugs can also expire because of being kept too long in storage. Drug supplies that stagnate and have become damaged and expired also cause the cost of drug elimination in the hospital.

The management system is said to be ineffective if the drugs often have stock out and stagnate. The more often and the longer a service unit has stock out and stagnation, the more ineffective its management (Quick, 1997). Excessive investment in the pharmacy will increase the holding cost which may also increase the opportunity cost (Rangkuti, 2004). The holding cost increases because the drugs that should be sold are still in pharmacy storage. The holding cost of the patent medicines that stagnate is obtained from the embedded capital cost of the drugs that should be sold, and the electricity cost that should be incurred.

Pharmacy supplies which have been in storage too long will increase the risk of the drug being damaged and expiring. Patent medicines that stagnated and were in the storage of the Pharmacy Unit of the Islamic Hospital of Surabaya on October 2016 to March 2017 also had expired. The slow moving drugs amounted to 3 items and caused losses because of the drugs not being sold and needing to be eliminated. The losses caused by the patent medicines that stagnate may occur due to the holding cost. Drugs that stagnate also come with an ordering cost (Mellen & Pudjirahardjo, 2016). Patent medicines that stagnated caused losses to do with the ordering costs amounting to IDR 24.315 which was obtained from the administration costs and phone charges. If too many drugs are ordered and less are used, it will cause the drugs to stagnate (Kumalasari, 2016).

Based on the interview with the Head of the Pharmacy Unit of the Islamic Hospital of Surabaya, they know that drug planning is done manually and visually by calculating the amount of drug supplies and not seeing the pattern of drug consumption that cause an occurrence of stagnation by the actions of the officers of the pharmacy unit. The pattern of drug consumption according to the differences in disease trend can cause the occurrence of drug stagnation because the drugs used will be different

every month, and the drug that is required does not always match with the drugs that had been planned before (Ratnasari, 2017). Based on the interview, it has known that there is no specific method used in the controlling of the drugs supplies at the Pharmacy Unit in the Islamic Hospital of Surabaya. Other than that, the Hospital Management Information System (HMIS) at the Islamic Hospital of Surabaya cannot show the data of the drugs thoroughly and they cannot be processed directly in order to see the pattern of drug consumption. Slow access to HMIS in the collection of data will prevent the officers from processing the data to do with the drug supplies and the data of the drugs being used.

Based on the problems that are known to cause the occurrence of drug stagnation, it has been indicated that drug management has not been effective and efficient. Below are the given recommendations for improving drug management:

1. Improving the Hospital Management Information System (HMIS). Improving the HMIS can be done with coordination between the Pharmacy Unit and the HMIS Unit to design the content of the HMIS that will enable the officers to access the data of the drug supplies easily and automatically. The whole data can then be accessed quickly and accurately at any time required. Other than that, it is possible to design an analysis to display drug use trends. The advantage of improving HMIS is the easy access to the data of the drug supplies completely and thoroughly which will facilitate the officers in the analysis of the drug used. The disadvantages are that the process of the re-design difficult and expensive.
2. Make reporting the drugs used adjusted to the trend of the disease, so then it can be known that the drug priority is different in every month to adjust from the precious trend of the disease. The analysis of the trend of the disease and the drugs used is also done with coordination between the pharmacy and the doctor.
3. Improving drug planning by considering the drugs used or drug consumption that is adjusted with the trend of the diseases at the Islamic Hospital of Surabaya. In accordance with the previous research on the Islamic Hospital of Surabaya, one of the planning methods that can be done is by using the Minimum - Maximum Stock Level (MMSL) method. The MMSL method is a method for scheduled purchasing with an interval ordering setting. In this method, each item of drug in the maximum-minimum stock level is determined to be sufficient and not

excessive. The ordering is done when the drugs have reached the prescribed minimum level for ordering until the drug reaches the maximum label again.

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5 CONCLUSIONS

The occurrence of patent medicines that stagnate indicates that drug management has not been done effectively and efficiently. The consequences that can occur at the Islamic Hospital of Surabaya includes increasing the drug holding cost, embedded capital on the drug that has stagnated, losses on the ordering costs, increasing the risk of the drug being damaged, the risk of the drug becoming expired and increasing the drug examinations. The losses that should be borne by the Islamic Hospital of Surabaya amount to IDR 41.276.489. The recommendation that can be given to avoid the occurrence of drug stagnation is improving the Hospital Management Information System (HMIS), to make reporting the drugs used according to the trend of diseases easier, and improving the drug planning system with specific methods.

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