

FACTORS AFFECTING DRUGS STOCK VOID IN KARSA HUSADA BATU HOSPITAL: WHAT AND HOW?

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Abstract: *Data of pharmaceutical quality indicator in Karsa Husada Batu Hospital in January-August 2017 showed non-conformance indicator of drug stock void figure with standard. Based on this, in this present study aim to analyze the factors that influence the occurrence of drug stock void. The research used descriptive method. The results of the study indicate that there are five problems causing the occurrence of drug stock void, the coordination between units not yet running, the implementation of the pharmaceutical HIS that has not been operated, the flow of procurement that has not run optimally, the reporting system of drug stock in the unused user unit and the lack of pharmaceutical personnel in the procurement of drug stock. FGD results indicate the need for plan of action. Short-term programs include daily drug stock reporting and analysis of drug procurement flow. Long-term program in the form of pharmaceutical HIS evaluation, data configuration procedure and report into existing pharmaceutical HIS and conduct socialization/training of pharmaceutical HIS that has been configured.*

Keywords: *pharmaceutical service standard, drug stock void, pharmaceutical Hospital Information System (HIS).*

INTRODUCTION

Hospitals are health service institutions that provide a personal health services and provide inpatient, outpatient and emergency care services. Hospitals can be public hospitals and private hospitals. Hospitals provide health services by meeting location, building, infrastructure, human resources, equipment and pharmaceutical requirements.¹

Constitution Number 44th in 2009 about Hospital mentioning the pharmaceutical requirements should ensure the availability of pharmaceutical preparations and quality, beneficial, safe and affordable medical devices. Management of pharmaceutical preparations, medical devices and medical consumables should be implemented in a multidisciplinary, coordinated manner and use an effective process to ensure quality control and cost control. Management activities of pharmaceutical preparations, medical devices and medical consumables in pharmaceutical installations include selection, requirement planning, procurement, receipt, storage, distribution, destruction and withdrawal, control and administration.

Requirement planning is the activity of determining the number and period of procurement of pharmaceutical preparations, medical devices and medical consumables in accordance with the results of the election activities to ensure the fulfillment of appropriate criteria of the exact type, exact amount, exact time and efficient. Requirement planning is undertaken to avoid drug stock void by using a method that can be accounted for. Requirement planning guidelines take into account the available budget, priority setting, inventory remaining, usage data for past periods, waiting times for reservations and development plans.²

Procurement is a realization of requirement planning. Effective procurement ensures the availability, the right amount and timing at an affordable price and in

accordance with the quality standard. Procurement is a continuous activity consisting of election activities, determining the required amount, adjustment between needs and funds, selection of procurement methods, supplier selection, contract specification determination, procurement process monitoring and payment. Hospitals should have a clear mechanism to prevent drug stock void.²

Karsa Husada Batu Hospital is a type C hospital owned by East Java Provincial Government located in Batu City the number of beds as 133. This hospital is committed to the standard quality of health services by achieving a akreditasi paripurna from the Hospital Accreditation Commission on October 26, 2016. One of the continuous commitments is to improve the quality of pharmaceutical services.³

Pharmaceutical Installation Karsa Husada Batu Hospital is a functional implementing unit that organizes all pharmaceutical service activities at Karsa Husada Batu Hospital and has a big responsibility for pharmaceutical service and pharmaceutical supplies, starting from selection process, availability of medicine to drug give to patient. This service process is done according to standard procedure based on Regulation of Health Minister Number 72th in 2016 about Standard of Pharmaceutical Services at the Hospital. Commitment of pharmaceutical services aims to achieve maximum results in the process of quality improvement and patient safety.³

The process of quality improvement in Pharmaceutical Installation Karsa Husada Batu Hospital is assessed based on indicators that become benchmarks of efforts to improve the quality of service to patients. One such indicator is the number of drug stock void. Based on data of quality indicator performance from January to August 2017, average drug stock void figure is 6.37%. This data suggest there has been a drug stock void in this period, which should have a 0% quality

standard or no drug stock void. Results of evaluation of generic and patent drug requirement planning in April, May and June 2017 conducted by Pharmaceutical Installations showed 103 reports of patent drug stock void and 33 reports of generic drug stock void.⁴

The existence of drug stock void problem in Karsa Husada Batu Hospital happened because of process and procedure of activity of requirement and procurement planning in Pharmaceutical Installation which not running optimally. Based on this, the following will be submitted research in the form of identification and analysis of factors that influence the process of drug stock void in Karsa Husada Batu Hospital.

RESEARCH METHODS

This research is done by descriptive method. This study describes the variables that exist by conducting case studies on drug stock void in Pharmaceutical Installation Karsa Husada Batu Hospital. Research conducted on 1 September to 31 October 2017 in the framework of Internship Program Hospital on academic year 2017/2018 Postgraduate Program in Hospital Management Faculty of Medicine University of Brawijaya.

Technique of collecting data through primary and secondary data. Primary data obtained from the in-depth interview with Hospital Director, Head of Medical Services Section, Head of UKM Litbang Section, Head of Sub Division of Administration, Head of Pharmaceutical Installation, Warehouse/Inventory Division, Program and Budgeting Coordinator, Hospital Information System Coordinator, Administrative and Financial Coordinator, National Health Insurance Program Division, Procurement Unit, Recipient and Examining Committee, Patient Quality and Safety Committee, Head of Outpatient Installation, Head of Inpatient Installation, Head of Emergency Installation and Head of Operation Room Installation.

Secondary data were obtained through document review in the form of hospital annual report, hospital minimum service standard, business strategy plan, literature study, regulation, guidance, etc. and doing field observation. The process of identifying problems and determining alternative solutions related to drug stock void issues is done by brainstorming, fishbone analysis, focus group discussions, matrix of priority problem determination USG (Urgency, Seriousness, Growth), and literature study.

RESULTS AND DISCUSSION

Pharmaceutical service is a supporting service and serves as a revenue center. This happens because more than 90% of hospital health services use pharmaceutical supplies in the form of medicines, chemicals, radiological materials, consumables, medical devices and medical gases. About 50% of all hospital income comes from the management of pharmaceutical supplies. An important aspect of pharmaceutical services is the process of optimizing drug use, particularly in the scope of planning to ensure the availability, safety and effectiveness of drug use. Pharmaceutical supply issues must be carefully managed and full of responsibility to make a good impact on hospital revenue.⁵

Drug planning and procurement is an important first step in determining the success of the next stage of activities. The planning phase aims to adjust the procurement needs to the available funds. Drug planning greatly affects the availability of medication in hospitals as it aims to establish the type and quantity of drugs according to the pattern of illness and the need for health services in hospitals. Good planning will potentially prevent the occurrence of void or excess drug.^{6,7}

Drug stock void has some definition. According to Waluyo⁸, the drug stock void is the presence of the final drug residue that is less than the average monthly usage for one month. According to Setyowati *et al*⁹, drug

stock void is a condition when the demand of drugs, the stock of drug is empty.

An procedural error in drug procurement may result in a shortage of drug stock. the drug stock void can lead to unoptimal service and affect hospital profits. One of the causes of unoptimal drug requirement planning and procurement is the absence of history and data integration and not yet applied forecasting methods to predict future needs. Based on this, the hospital needs a management information system (Hospital Information System) with forecasting method in the next period in order to predict the need for drug use and plan the procurement of drugs more quickly and accurately.¹⁰

Various studies indicate the existence of procedures for requirement planning and procurement of drugs that are not optimal. Research conducted by Mellen¹¹ at Haji Hospital Surabaya shows that drug planning in Pharmaceutical Installation still can not be implemented effectively. The inventory report shows the availability of drug stocks by 54% and incurring considerable cost. This is because the purchase planning of the drug is not calculated accurately and the number of human resources (HR) in drug inventory is not sufficient. Research conducted by Winasari¹² in Bekasi City Hospital shows the existence of patent drug stock void in the first

quarter of 2015. This is due to the insufficient funding available in the process of purchasing drugs, the void of drug stocks distributors, the inaccuracy of officers in ordering drugs, the delay of officers in ordering drugs and the delay of officers in the delivery of drugs.

The drug stock void also occurs in Karsa Husada Batu Hospital. On September 7, 2017, the Focus Group Discussions (FGDs) were held to identify the causes of drug stock void in Karsa Husada Batu Hospital. The FGD was attended by heads of hospitals and related units that is Hospital Director, Head of Medical Services Section, Head of UKM Litbang Section, Head of Sub Division of Administration, Head of Pharmaceutical Installation, Warehouse/Inventory Division, Program and Budgeting Coordinator, Hospital Information System Coordinator, Administrative and Financial Coordinator, National Health Insurance Program Division, Procurement Unit, Recipient and Examining Committee, Patient Quality and Safety Committee, Head of Outpatient Installation, Head of Inpatient Installation, Head of Emergency Installation and Head of Operation Room Installation. FGD results are poured in the form of a fishbone diagram by analyzing aspects of the problem based on factors Man, Matherial, Method, Machine, Money and Environtment.

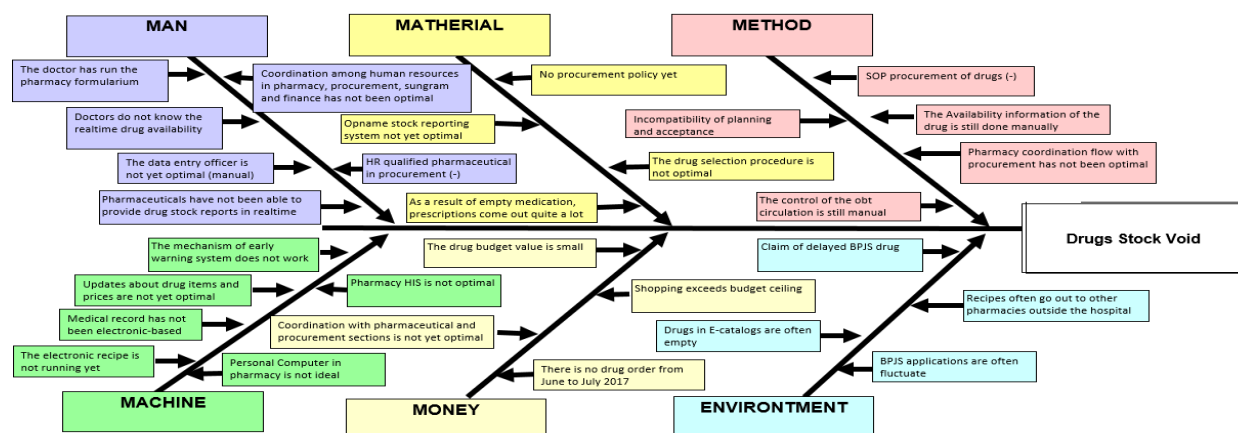


Figure 1. Fishbone Diagram of Factors Affecting Drug Stock Void

In the man factor, the cause of drug stock void is the coordination of each related unit such as pharmacy, procurement unit, committee inspector and recipient of goods, the preparation of programs and finances are not running optimally. The Pharmaceutical Installation (warehouse) has made the planning mechanism in accordance with the applicable provisions and has made predictions of needs, but the procurement unit, recipient and examining committee of drugs and finance unit has not taken follow-up steps if the drug is empty and not in accordance with the planning. In the procurement unit there is also no personnel with qualified pharmaceutical (pharmacist). Based on Regulation of Health Minister Number 72th in 2016 about Standard of Pharmaceutical Services at the Hospital, in order that there is certainty about pharmaceutical preparations in accordance with the required quality and specifications, if the procurement process carried out by the part outside the pharmaceutical installation should involve pharmaceutical personnel. Doctors at Karsa Husada Batu Hospital have run a formulary and routinely revise the formulary. Doctors often have difficulty in prescribing drugs when they are empty in pharmaceuticals. Doctors can not know in real time the position of drug stock (daily drug stock). This happens because the Pharmaceutical Installation can not provide real time information about the stock of drugs at any given time. The Pharmaceutical Installation keeps providing drug availability info, but it's done manually and reporting mechanism every month. Another factor is about data entry performed by the Pharmacy Installation to perform the process of planning and updating of drug data and the price is still not optimal. This is caused by the process of data entry is still manual (based on Microsoft Excel application).

In the material factors, drug procurement procedures are still not based on a standard policy. This has resulted in an inefficient

impact of the service flow on drug procurement procedures. The selection procedure has been run by the Pharmaceutical Installation, but it has not gone well. The Pharmaceutical Installation is making efforts to optimize the drug selection procedure, such as updating the hospital formulary, coordinating with Pharmaceutical Therapy Committee and socializing the uniformity in prescribing. The Pharmaceutical Installation routinely conducts technical reporting of drug stock, but its recapitulation can only be done at the end of the current month (not daily stock). The planning process is done at the beginning of the following month. This led to a review of the condition of drug stocks to be not optimal. Drug stock void have an impact on patient care. If the drug is not replaceable, then the patient will buy drugs in other pharmacies outside the hospital.

The method factor is related to material factor. The method factor refers to the pharmaceutical service flow causing the emergence of drug stock void. There is no Standart Operating Procedure (SOP) on the mechanism of procurement of pharmaceutical preparations (drugs). According to Regulation of Health Minister Number 72th in 2016 about Standard of Pharmaceutical Services at the Hospital, the procurement of drugs is a continuous activity starting from selection, determining the required amount, adjustment between needs and funds, selection of procurement methods, supplier selection, contract specification determination, procurement process monitoring and payment. The whole activity must be done with a standard SOP in order to be a guide in the implementation. The absence of SOP has an impact on the emergence of other causal factors that are not optimal coordination flow, control of drug circulation is still manual, information availability of the drug is still manual and not real time is known and the occurrence of mismatch between planning and acceptance.

The machine factor is a factor associated with supporting systems. FGD results indicate that the Hospital Information System (HIS), especially in the Pharmaceutical Installation is not operating properly. It is characterized by not ideally personal computer specifications in pharmaceutical installations, manual item updates and drug prices, inadequate drug stock circulatory control mechanisms and the absence of early warning system drug stock mechanisms. Activities in pharmacy installations such as administrative and reporting processes are still done manually using Microsoft Excel-based applications. Regulation of Health Minister Number 72th in 2016 about Standard of Pharmaceutical Services at the Hospital mentioned that equipment in pharmacy installations must be supported by Hospital Information System (HIS). Computerized system is implemented and functioned optimally for pharmaceutical duty management (drug) and clinical pharmacy service. The Hospital Information System (HIS) in the pharmaceutical must be integrated with the Hospital Information System (HIS) to improve the efficiency of the managerial and service functions of the patient.

The money (finance) factor is the final part of the requirement planning and procurement process. FGD results indicate the process of coordination between the financial section with the pharmaceutical and procurement unit has not gone well. FGD results also state that the budget for drug procurement is relatively small, while demand for drugs continues to grow as the number of patients increases. This results in drug spending exceeding the budget ceiling that has been set.

Environmental factors are factors related to conditions outside the hospital system. FGD results indicate that there are claims of drug National Health Insurance Program patients are still inhibited. This is due to National Health Insurance Program

application factors that often change and there is a problem in internal operator of National Health Insurance Program. There is also a condition that the stock of drugs in the E-catalog is often empty. The stock of drugs in the E-catalog is often empty. This has an impact on the inhibition of the E-catalog of appropriate drug procurement processes. As a result of drug stock void also affect the more frequent patients to buy drugs outside the hospital.

FGD results conclude that there are five causes that have an impact on the emergence of this problem, that are implementation of The Hospital Information System in Pharmaceutical Installation that has not been operated, coordination between units in process of requirement planning and procurement of drug stock not yet running, the flow of pharmacy supply procurement that has not run optimally, the reporting of drug stock void in the unit has not been well systemized and the lack of involvement of pharmaceutical personnel in the procurement of drug stock.

The fifth problem is then determined the priority of the problem by using matrix grading USG (Urgency, Seriousness, Growth). Urgency is related to the urgency of the time needed to solve the problem. More urgent the problem to solve, the higher the urgency of the problem. Seriousness is related to the impact of the problem on the organization. The higher the impact of the problem, the more serious the problem. Growth is concerned with the growth of the problem. The faster the problem develops, the higher the growth. A rapidly growing problem, will be a priority to be resolved.¹³

Determining the priority of problem with USG method is done on 2 October until October 19, 2017. The scoring process uses an in-depth interview method (indepth interview) that is done personally on each party related to drug stock void issue. The results of scoring the determination of the problem are as follows :

Table 1. Priority Determination of Drug Stock Void Issue

No	Problems	Urgency	Seriousness	Growth	Total	Ratings
1.	Coordination between units in process of requirement planning and procurement of drug stock not yet running.	4	4	4	12	II
2.	Implementation of The Hospital Information System in Pharmaceutical Installation that has not been operated.	5	5	4	14	I
3.	The flow of pharmacy supply procurement that has not run optimally.	4	4	4	12	II
4.	The reporting of drug stock void in the unit has not been well systemized.	4	4	4	12	II
5.	The lack of involvement of pharmaceutical personnel in the procurement of drug stock.	3	4	3	10	III

Scoring results indicate, one of the factors that became the cause of the problem of the emergence of drug stock void and selected to be completed is not yet optimal the implementation process of Hospital Information System (HIS) in Pharmaceutical Installation. HIS in the Pharmaceutical Installation Karsa Husada Batu Hospital pioneered since 2014 and involves the services of third parties who act as system providers (vendors). Hospital Information System in Pharmaceutical Installation are finished products and developed in the form of system modules comprising of sales module (patient service) and drug warehouse module. In the pharmaceutical warehouse module has been arranged various things about the plan needs, purchases, sales, inventory mutations, inventory reports, managerial reports, analysis reports and monitoring drug stock. The use of this system module can not be operationalized because there are still many features that are not yet user friendly. System users in pharmaceutical installations are still experiencing barriers in the use of pharmaceutical HIS. This is due to the features of the drug storage system

module is relatively difficult and not in accordance with the wishes of users in terms of data coverage and reports. Currently users in pharmacy installations use applications in Microsoft Excel to support their daily activity.

Based on the choice of the cause of the problem, then the Plan of Action (POA) is prepared as a form of solution for drug stock void settlement. The solution is an analysis of the optimization of the role and function of the Hospital Information System (HIS) used in the Pharmaceutical Installation. This optimization is expected to improve performance in Pharmaceutical Installation, especially in anticipating the occurrence of drug stock void.

The preparation of POA is done by using Focus Group Discussion (FGD) method and brainstorming. FGD and brainstorming was conducted on October 24, 2017 and involved the leader or management of hospitals, pharmaceutical installation and Hospital Information System (HIS) units. FGD results indicate a series of programs that will improve the performance of Pharmaceutical Installation in addressing the occurrence of

drug stock void. The program is divided into short-term programs and long-term programs. Short-term programs include the management of an immediate solution, requiring no relatively large budgetary costs and requiring short periods of time. These program are a study to change monthly drug reporting into daily (meet daily stock targets) by optimizing pharmacy information system based on Microsoft Excel and analysis of drug and procurement needs planning flow. Long-term programs include management solutions that can not be done immediately, require a relatively large budget and require a long time. These program are evaluation of the Hospital Information System in Pharmaceutical Installations, data configuration and report commonly used in pharmaceutical installations into existing pharmaceutical HIS and conduct socialization/training on customized pharmaceutical HIS configuration to users. After the programs are implemented, the next will be monitoring and evaluation with the output of the number of drug stock void occurrences in accordance with predetermined standards.

The POA is presented to the management of Karsa Husada Batu Hospital on October 26, 2017. These solution programs are expected to solve the problem of drug stock void. Short-term programs are a priority to be implemented so that drug stock void issues can be resolved soon. Long-term program in the form of information system improvements is done in an effort to make the system used to be user friendly, easy to use and provide information about stock of drugs in realtime.

CONCLUSION

This study identifies that there are five main points causing the occurrence of drug stock void in Pharmaceutical Installation of Karsa Husada Batu Hospital. Those five factors are the implementation of The Hospital Information System in

Pharmaceutical Installation that has not been operated, coordination between units in process of requirement planning and procurement of drug stock not yet running, the flow of pharmacy supply procurement that has not run optimally, the reporting of drug stock void in the unit has not been well systemized and the lack of involvement of pharmaceutical personnel in the procurement of drug stock. One of the factors that influence the occurrence of drug stock void and selected to be the focus of treatment is the optimization of the pharmaceutical HIS in Pharmacy Installation.

In this research process has been done preparation of Plan of Action related to optimization of pharmaceutical HIS. The POA consists of short-term and long-term programs that are expected to solve the problem of drug stock void. Short-term programs include daily drug stock reporting and analysis of drug procurement flow. Long-term program in the form of pharmaceutical HIS evaluation, data configuration procedure and report into existing pharmaceutical HIS and conduct socialization/training of pharmaceutical HIS that has been configured. Further research is needed as a form of monitoring and evaluation with output in the form of drug stock in accordance with predetermined standards. Further research is also needed to evaluate the implementation of the hospital information system in Karsa Husada Batu Hospital.

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