Vol 9 No 2 June 2024

BULETIN FARMATERA

E-ISSN: 2528-410X

RESEARCH ARTICLE

Analysis of Medicine Procurement Planning using FIFO and FEFO Methods at West Pasaman Regional Hospital

Ayu Sasmita br. Daulay[1], Ermi Girsang[2], Sri Lestari Ramadhani Nasution[3]

[1, 2, 3] Master of Public Health Study Program, Faculty of Public Health, Dentistry and Health Sciences, Prima Indonesia University, Jalan Sampul No. 3, Medan, Indonesia.

Corresponding email: dr.ayudaulay@gmail.com

Abstract: Planning in medicine procurement is carried out because inefficiency can harm the smooth procurement of drugs for pharmaceutical service activities in the provision of overall health services, both medical, social and economic. Therefore, careful planning and medicine procurement management is needed. Stock-outs and stagnation that occur can also be influenced by drug storage methods that do not apply the First Expired First Out (FEFO) and First In First Out (FIFO) principles. This research aims to analyze medicine procurement planning using the FIFO and FEFO methods at the West Pasaman Regional Hospital using a descriptive research design through a qualitative approach. The results of this research conclude that the human resources, budget, facilities and infrastructure as well as procedures included in the input picture for drug procurement planning using the FIFO and FEFO methods at the West Pasaman District Hospital are under need, as are the human resources that have been met, the available budget and the facilities and infrastructure that has been fulfilled. However, several things must be evaluated regarding facilities and infrastructure, namely in the warehouse section, where the West Pasaman Regional Hospital still has a warehouse that is not conducive to procuring medicines.

Keywords: Planning, Procurement, Medicine, Pharmacy, FIFO, FEFO

INTRODUCTION

In health services, medicines are an important part that requires correct, effective and efficient management on an ongoing basis.[1] Drug management is an activity that includes planning, procurement, storage, distribution and use of drugs using existing resources to provide drugs of good quality, distribution, and the type and quantity needed for essential health services. To monitor and evaluate the effectiveness of the results achieved by a medication management system, a medication management plan is required.

Management of pharmaceutical supplies, especially drug procurement, is a series of the most important activities that receive a funding allocation of 40%-50%. Medicines must be managed optimally to ensure accuracy in the quantity and type of pharmaceutical supplies and medical

BULETIN FARMATERA
E-ISSN: 2528-410X

devices. Drug procurement planning aims to have drugs available at any time if needed, both in terms of type, quantity and quality, effectively and efficiently. The planning process for drug procurement must be carried out because inefficiency and smoothness of drug procurement will harm pharmaceutical service activities in the provision of overall health services, both medical, social and economic.[2]

According to WHO, in developing countries drug costs reach 24%-66% of total health costs. Such large drug expenditures must of course be managed effectively and efficiently. If an error occurs at one stage, the consequences will disrupt the entire cycle, causing impacts such as waste, unavailability of drugs, non-distributed drugs, damaged drugs, and so on.[3]

According to Hasratna, et. al. (2016), drug supplies have not been effective and efficient because there are still many empty drugs found, such as evedsin injection and oxytocin. This can be seen from data for January-December 2015 at the Muna Regency Regional General Hospital (RSUD) pharmacy, there were 36 out of 395 (3.95%) types of medicine that were expired or damaged, and there were 10% of 395 (3.95%) types of medicines that are out of stock, requiring patients to buy medicines at the pharmacy.[4] In this case, the role of effectiveness and efficiency in drug supply management is also very much needed because it is a benchmark, where drug supply management is said to be effective and efficient if it produces fast, precise and correct results.

In hospitals and other pharmaceutical installations, to carry out drug inventory management effectively and efficiently, they must have an inventory management method. The success of hospital drug management depends on the competence of hospital management, where the management function is managing drugs by identifying, planning procurement, and distribution so that they can run effectively and efficiently.

Controlling the amount of drug stock to meet needs is one of the factors that greatly influence the supply of drugs in hospitals. If drug stocks are too small, then demand for use is often not met, resulting in dissatisfaction with patients/consumers.[5] Apart from that, the opportunity to make a profit is lost and additional costs are required to obtain medicinal ingredients quickly to satisfy patients/consumers. Conversely, if the stock is too large, it can cause high storage costs, the possibility that the medicine will become damaged/expired, and there is a risk if the price of the material/medicine falls.[6] Errors in drug storage can reduce the level or potency of the drug so that when consumed by the patient it becomes ineffective in therapy.[7] Therefore, careful planning and drug procurement management are needed.

Stock-outs and stagnation that occur can also be influenced by drug storage methods that do not apply the First Expired First Out (FEFO) and First In First Out (FIFO) principles. This principle means that pharmaceutical supplies that arrive early must be used immediately because generally pharmaceutical supplies that arrive earlier are also produced earlier and expire sooner. Applying this principle will make it easier for officers to regulate the circulation of incoming and outgoing medicines so that stockouts and stagnation do not occur in the storage warehouse.

According to Minister of Health Regulation No. 72 of 2016 concerning Pharmaceutical Service Standards in

BULETIN FARMATERA
E-ISSN: 2528-410X

Hospitals, the appropriate method for storing medicines is that the medicines are arranged alphabetically and use the FIFO and FEFO systems. Apart from that, the arrangement is carried out based on therapeutic class, form, type of preparation and also separation of LASA drugs or drugs with similar names and appearances. Management of pharmaceutical supplies, medical devices and consumable medical materials as referred to in this Minister of Health Regulation includes: selection, needs planning, procurement, receipt, storage, distribution, destruction and withdrawal, control and administration.

Many previous researchers have used the FIFO and FEFO methods, where the results reveal that the use of these methods is very effective and important to apply in medicine warehouses, such as research conducted by Anandani et al., 2022. Planning for storing medicines is an activity in selecting types. , quantity and price in the context of procuring drugs to get the type and quantity that suits needs and budget, as well as avoiding drug shortages.[8]

Good planning of drug needs in hospitals will encourage good planning of drug needs, thereby optimizing drug availability. Efficient drug use can be achieved through good planning, procurement and control of drugs. If management is inefficient it will harm hospitals and patients medically and economically. Several studies have found that there are still many hospitals that do not carry out good drug planning and control processes, thus causing problems such as empty drugs, excess stock, and the discovery of damaged drugs and expired drugs at the service site.[9]

Based on the results of a pre-survey conducted by the author at the West Pasaman Regional Hospital, the drug storage method carried out by the pharmacy section of the West Pasaman Regional Hospital is based on the First Expired First Out (FEFO) and First In First Out (FIFO) methods. However, in its implementation, there are still several common obstacles faced, such as drug storage not being arranged alphabetically due to limited space or shelf availability. Apart from that, the placement of drugs is based on the type of preparation, but due to storage limitations, these drugs are often mixed with oral and injectable drugs. Drug storage is also not based on therapeutic class and efficacy. Bad medicines and good medicines are put separately. Narcotic drugs are placed in a separate cupboard and locked. The SOP for drug storage at the West Pasaman Regional Hospital already exists, but it is still not running optimally because certain parts have not been implemented.

Procurement and processing of drugs in pharmaceuticals requires a method so that it can run effectively and efficiently. If it is not managed well, it will have an impact on several aspects involved. The results of research conducted by previous researchers reveal that the use of FIFO and FEFO methods is very important and effective in drug warehouses in pharmaceuticals to create drug management efficiency.

Based on this background, the author is interested in analyzing drug procurement planning using the FIFO and FEFO methods at West Pasaman Regional Hospital. This aims to determine the planning for drug procurement using the FIFO and FEFO methods at West Pasaman Regional Hospital.

METHOD

This research uses a descriptive research design with a qualitative approach.

BULETIN FARMATERA
E-ISSN: 2528-410X

Qualitative research methodology aims to analyze and describe phenomena or research objects through social activities, attitudes and perceptions of people individually or in groups.[10] The author uses a qualitative approach aimed at obtaining more in-depth information about the analysis of drug procurement planning using the FIFO and FEFO methods at the West Pasaman Regional Hospital. Data collection methods use observation, interview and documentation techniques. Observations are carried out by observing the requirements for drug warehouses, drug storage systems, and drug stock recording systems. Interviews were conducted with pharmacists and pharmaceutical technical personnel. Documentation is carried out through recording drug stock cards, archives and drug availability reports. The data analysis technique in this research uses Computer Assisted Qualitative Data Analysis Software (CAQDSAS), namely NVivo version 11.0 software.

RESULT

According to the World Health Organization (WHO), a hospital is an institution that is an integral part of health organizations and social organizations whose function is to provide complete health services, both curative and preventive for outpatients and inpatients through medical and nursing service activities. The Big Indonesian Dictionary (KBBI) states that a hospital is a building where sick people are cared for or a building where they provide and provide health services covering various health problems.

Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 47 of 2021 concerning the Implementation of the Hospital Sector, a Hospital is a health service institution that provides comprehensive individual health services providing inpatient, outpatient and emergency services. According to Herlinawati et. al. (2021), a hospital is a health service institution that provides comprehensive individual health services that provide outpatient, inpatient and emergency services.[11]

The definition of a drug according to the World Health Organization (WHO), is a preparation that can affect physical activity and psychological activity. Meanwhile, according to the National Drug Policy (KONAS), drugs can be defined as substances that influence the body's systems to determine a diagnosis, prevent, cure, recover from disease, and improve the health condition of the body or contraceptives.

Medicines are substances or materials used for public health problems, including to cure diseases and prevent complications or disability due to a disease. Medicines are also substances or materials that can cause harm to people who use them unwisely. In general, drugs are divided into two, namely patent drugs and generic drugs.[12]

Drug management planning is a process of determining the type and amount of drugs needed according to disease patterns and service needs.[13] According to the Directorate General of Pharmaceutical Services and Medical Devices, Ministry of Health of the Republic of Indonesia, planning for the procurement of public medicines and health supplies is one of the determining functions in the process of procuring public medicines and health supplies which aims to determine the type and quantity of medicines according to disease patterns and needs. basic health

E-ISSN: 2528-410X

services including established health programs.

Medicine procurement is an activity of procuring medicines needed for health services in hospitals using four indicators, namely: percentage of fund allocation, frequency of procurement of each medicine item, frequency of invoice errors, and frequency of delays in payment by the hospital within the specified time.[14]

The FEFO (First Expired First Out) method is a method for removing consumable goods, either from the warehouse or issued to customers with an expiry date that is closer than the expiry date that is still far from that date. Or it can be shortened, goods that expire first are also issued first. This is different from the FIFO (First In First Out) method which does not look at the expiration date. For the FEFO method calculation, that is by calculating the difference between today's date and the expiry date of each item, then the results of the calculation are sorted from smallest to largest to get the order of items that have the closest expiry date to the farthest date.[15]

West Pasaman Regional General Hospital (RSUD) is a class C hospital established based on Regional Regulation Number 6 of 2005 on April 1 2005 in the form of a Regional Technical Institute (LTD), where initially it was a Jambak Community Health Center located in Luhak Nan Duo District with 30 beds (TT). On October 5 2006, West Pasaman Regional Hospital obtained a trial permit to operate a class D hospital from the West Sumatra Provincial Health Service. The determination of the West Pasaman Regional Hospital as a Class C Hospital was issued by the Indonesian Ministry of Health with Decree Number: 1070/Menkes/SK/XI/2008 dated 18 November 2008 and the determination of the Hospital Code Number: 1312024 on 16 December 2009. On 14 October 2009. In 2011, the West Pasaman Regional Hospital was accredited for 5 full services and continued with the 2012 version of the accreditation assessment with an initial pass accreditation score on December 5 2017.

In August 2015, the West Pasaman Regional Hospital was inaugurated as a PPK BLUD with a Decree from the Regent of West Pasaman and the implementation of the PPK BLUD began in January 2016. The service coverage area of the West Pasaman Regional Hospital includes West Pasaman Regency and the Southern part of Mandailing Natal Regency.

The focus of this research consists of three parts in drug procurement planning, namely: input, process and output. These three sections use interview techniques as a data collection tool sourced from six informants who are in charge of managing medicines at the West Pasaman Regional Hospital. The indicators used in analyzing the three parts in the focus of this research can be seen in Table 1.

The informants in this research are primary data sources who are directly involved in drug management at the West Pasaman Regional Hospital. The categories of informants used were: Head of pharmacy/pharmacy installation, pharmacist officer, pharmacy warehouse coordinator officer, and pharmacy installation coordinator officer (see Table 2).

As a general illustration, the informants in this study were all female, had a pharmacist education and a Diploma 3 in Pharmacy, the lowest age was 24 years the highest was 47 years, and the minimum length of work was 1 year and the maximum was 19 years (see Table 3).

BULETIN FARMATERA
E-ISSN: 2528-410X

DISCUSSION

This research was carried out by analyzing three stages in drug management at West Pasaman Regional Hospital, namely the input stage, process stage and output stage. In these three stages, four things support each other in drug management efforts, namely: Human Resources, Budget, Facilities and Infrastructure, and Procedures. From these four subfields, an overview of drug management planning using the FIFO and FEFO methods at West Pasaman Regional Hospital was obtained through interviews with six respondents according to their respective competencies.

From the results of interviews with six informants which were processed using the NVivo 11.0 program, 120 references were obtained with the size of each category, namely: input of 66 references, process of 36 references, and output of 18 references.

Table 1 Analysis of six informan

Name	Files	References
INPUT	0	0
Budgeting	6	12
Facilities and Infrast	6	18
Human Resources	6	24
Procedure	6	12
OUTPUT	0	0
Medicine Safety an	6	18
PROCESS	6	36

From the results of the analysis of six informants, a relationship pattern was obtained between informants' answers 1-6 in drug procurement at the West Pasaman District Hospital resulting from the NVivo 11.0 program:

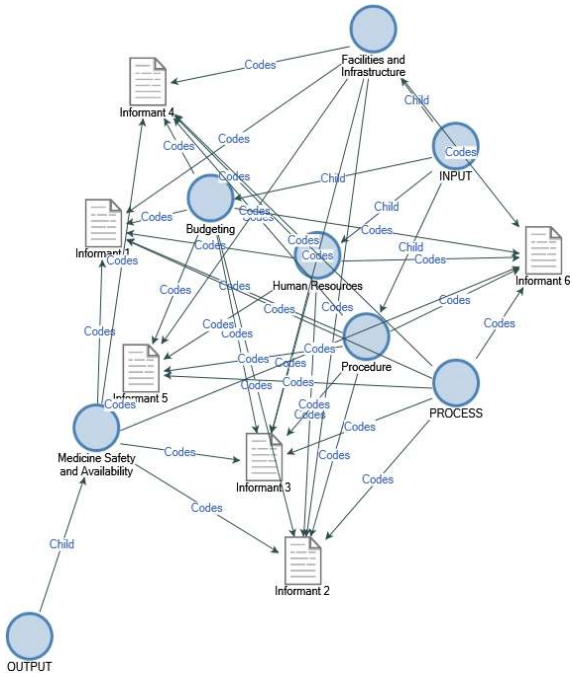

Figure 1. The flows process of planning for drug procurement using the FIFO and FEFO methods

The results of research from the Input category (HR, budget, facilities and infrastructure and procedures) for drug procurement planning using the FIFO and FEFO methods at the West Pasaman Regional Hospital show that the process of planning for drug procurement using the FIFO and FEFO methods carried out at the West Pasaman Regional Hospital involves the entire hospital management. The successful implementation of drug procurement using the FIFO and FEFO methods at the West Pasaman District Hospital has been carried out by fulfilling the quantity and quality of officers according to their respective abilities and also

BULETIN FARMATERA
E-ISSN: 2528-410X

providing training which is carried out once a year.

It can be concluded that human resources in the process of planning and implementing drug procurement using the FIFO and FEFO methods at the West Pasaman Regional Hospital are under need. Likewise, the budget for planning and implementing drug procurement using the FIFO and FEFO methods at the West Pasaman District Hospital was obtained without any problems.

Facilities and infrastructure in the process of planning and implementing drug procurement activities are in good condition. However, there are still some improvements that need to be made, namely in the medicine storage warehouse, where currently the medicine storage warehouse is still less than ideal and the West Pasaman Regional Hospital has made efforts or plans to repair and rejuvenate the medicine warehouse.

The research results from the category of drug procurement planning process using the FIFO and FEFO methods at the West Pasaman District Hospital, show that in the initial stages, the process was carried out by establishing a team which was carried out with inter-departmental coordination together with the hospital management. In the process of implementing drug procurement planning using the FIFO and FEFO methods, there are main priorities to be achieved, namely maintaining drug availability and drug quality, where there is an improvement plan that will be carried out by the West Pasaman Regional Hospital, namely improving and completing facilities and infrastructure for the procurement planning implementation process drug.

In the Output category, drug procurement planning shows that the availability and safety of drugs stored in the West Pasaman Regional Hospital's pharmaceutical installation is as expected. This is reinforced by the results of observations made where the availability of human resources has reached 100%, facilities and infrastructure are 90.9% and it is still necessary to improve the warehouse where medicine is stored because the current warehouse conditions are still not ideal.

Drug procurement procedures have reached 100%, planning 100%, and storage 100%. Storage arrangements are still at 90% because there are several indicators whose answers adjust the questions from the indicators, such as small medicines not being placed in hidden places, there is no accumulation of goods or cardboard in the medicine warehouse and the height of the pile of goods does not reach 2.5 meters. and for control of drug procurement planning based on observation results indicators have reached 100% (see table 4 in attachments).

CONCLUSION

Human resources, budget, facilities and infrastructure as well as procedures that fall into the input category for drug procurement planning using the FIFO and FEFO methods at the West Pasaman District Hospital are under need, as are human resources that have been met, the available budget for planning drug procurement using the FIFO and FEFO at West Pasaman Regional Hospital and the facilities and infrastructure that have been fulfilled. However, several things need to be evaluated regarding facilities and infrastructure, namely parts of the warehouse that are still not conducive to storing medicines using the FIFO and FEFO methods.

Likewise, the planning process for drug procurement has been running

E-ISSN: 2528-410X

following the provisions, which can be seen from the results of observations which show that the percentage of each item in the planning process has reached 100%. The results of drug procurement planning using the FIFO and FEFO methods at West Pasaman District Hospital can ensure that drug availability in pharmaceutical installations is effective and efficient.

To improve services in drug management, it is recommended that the West Pasaman Regional Hospital make improvements to the drug storage warehouse which is still less than ideal and also carry out regular training and education for officers.

ACKNOWLEDGMENTS

The author would like to thank the supervisors who have guided this research process, namely Prof. Dr. Ermi Girsang, M.Kes., and Dr. dr. Sri Lestari Ramadhani Nasution, M.K.M, M. Biomed. The author also would like to thank all the lecturers and professors at the Master of Public Health Study Program, Prima Indonesia University, who have provided scientific dedication while the author was studying at the Master of Public Health level. Hopefully, the results of this research can be useful in the pharmaceutical sector, Prima Indonesia University, West Pasaman Regional Hospital, and for the development of science.

E-ISSN: 2528-410X

ATTACHMENT

Table 1: Research focus

No	Research focus	Indicator	Measuring instrument
1	Input for drug procurement planning	1. Human Resources 2. Budget 3. Infrastructure 4. Procedure	Deep interview
2	Drug procurement planning process	1. Establish a drug procurement planning team 2. Determine the objectives of drug procurement planning 3. Setting priorities 4. Describes local conditions with resource availability 5. Identify weaknesses in drug procurement planning 6. Make a repair plan	Deep interview
3	Drug procurement planning output	Availability of effective and efficient drugs	Deep interview

Table 2:Informant

No	Informant	Method	Person
1	Head of pharmacy/pharmacy installation	Interview	1
2	Pharmacist	Interview	2
3	Pharmacy warehouse coordinator officer	Interview	2
4	Pharmacy installation coordinator officer	Interview	1
	Total		**6**

Table 3: General information of the informant

No Informant	Informant Status	Age	Gender	Length of work	Education
1	Head of Pharmacy Installation	47 Years	Woman	19 Years	Pharmacist
2	Pharmacist Officer 1	28 Years	Woman	3 Years	Pharmacist
3	Pharmacist Officer 2	24 Years	Woman	1 Years	Pharmacist
4	Pharmacy Warehouse Coordination Section Officer	33 Years	Woman	9 Years	D III Pharmacy
5	Pharmacy Warehouse Coordination Section Staff	28 Years	Woman	3 Years	Pharmacist
6	Framation Installation Coordination Section Officer	42 Years	Woman	6 Years	Pharmacist

E-ISSN: 2528-410X

Table 4: Observation Results

No	Information	Percentage (%)
1	Availability of human resources	100
2	Facilities and infrastructure	90,9
3	Procedure	100
4	Planning	100
5	Storage	100
6	Storage Settings	90
7	Control	100

E-ISSN: 2528-410X

REFERENCES

1. Nur L., Evaluasi Sistem Informasi Kesehatan dengan Metode End User Computing Satisfaction di Puskesmas Kunir Lumajang, (Jember: Politeknik Negeri Jember, 2021). Available from: https://sipora.polije.ac.id/id/eprint/5143

2. Eka O., Nurul F., Husnul W., Evaluasi Pengelolaan Obat Di Instalasi Farmasi Rumah Sakit Tingkat IV Samarinda, Prosiding Seminar Nasional Kesehatan, Sekolah Tinggi Ilmu Kesehatan Samarinda (STIKSAM). Available from: https://www.jurnal.stiksam.ac.id/index.php/prosiding/article/view/586/250

3. Yudi S., Pengggunaan Metode FIFO Dan FEFO Dalam Mengukur Efisisensi Dan Efektifitas Persediaan Obat Paten 2020-2021, Jurnal Ilmiah Ekonomi Islam, Vol. 8 No. 2, 2022. Available from: https://jurnal.stie-aas.ac.id/index.php/jei/article/download/6041/2437

4. Hasratna, La D., Wa Ode Siti N., Gambaran Pengelolaan Persediaan Obat di Instalasi Farmasi Rumah Sakit Umum Daerah Kabupaten Muna Tahun 2016, Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat, Fakultas Kesehatan Masyarakat Universitas Halu Oleo, Vol. 1 No. 3 (2016). Available from: https://media.neliti.com/media/publications/184123-ID-gambaran-pengelolaan-persediaan-obat-di.pdf

5. Yuki M. I., Ede S. D., Amal C. S., Analisis Pengelolaan Obat di Instalasi Farmasi RSUA Tahun 2020, Jurnal Kesehatan Masyarakat, Vol. 11 No. 1: June 2021. Available from: https://doi.org/10.56338/pjkm.v11i1.1512

6. Muhammad M., Resa A., Tika W., Aulisa A.S., Pengetahuan Apoteker tentang Obat-Obat Look-alike Sound-alike dan Pengelolaannya di Apotek Kota Yogyakarta, Jurnal Farmasi Klinik Indonesia, Vol. 8 No. 2 (2019). Available from: https://doi.org/10.15416/ijcp.2019.8.2.107

7. Rafel D. M., Gayatri C., Olvie S. D., Gambaran Penyimpanan Obat di Gudang Obat Instalasi Farmasi Rumah Sakit Umum Daerah Lapangan Sawang Sitaro, Jurnal PHARMACON, Vol. 9 No. 4 (November 2020). Available from: https://doi.org/10.35799/pha.9.2020.31363

8. Isatul H., Gambaran Perencanaan dan Pengadaan Obat di Apotek Mulia Sehat Kabupaten Tegal, (Tegal: Politeknik Harapan Bersama, 2021). Available from: http://eprints.poltektegal.ac.id/25/

9. Apolonia A.G.A., Aaltje E.M., Fatimawali, Evaluasi Manajemen Pelayanan Kefarmasian Berdasarkan Peraturan Menteri Kesehatan Republik Indonesia Nomor 72 Tahun 2016 di Hospital Nacional Guido Valadares Dili, Jurnal Kesehatan Health Care, Vol. 11 No. 1 (2022). Available from: https://doi.org/10.36763/healthcare.v11i1.228

E-ISSN: 2528-410X

10. Sugiyono, Metode Penelitian Kuantitatif, Kualitatif, R&D, (Bandung: Alfabeta, 2019).

11. Herlinawati, Lilis B., Devi R., Tingkat Kepuasan Masyarakat Terhadap Pendaftaran Online pada Aplikasi Mobile JKN, Jurnal Kesehatan Health Care, Vol. 10 No. 1 (2021). Available from: https://doi.org/10.36763/healthcare.v10i1.114

12. Diana F. D. Y., Marini, Profil Peresepan Obat Generik Di Apotek X Kabupaten Indramayu Periode Januari-Maret Tahun 2019, Jurnal Farmasi Muhammadiyah Kuningan (JFARMAKU), Vol. 4 No. 1 (2019). Available from: https://files.stikes-muhammadiyahku.ac.id/index.php/jurnalfarmaku/article/download/69/28/75

13. Widya N.K., Analisis Pengelolaan Obat Di Puskesmas Kassi-Kassi Sebelum Dan Selama Pandemi Covid-19, (Makassar: Unhas, 2021).

14. Tindak A., Evaluasi Perencanaan Dan Pengadaan Obat Di Puskesmas Kagok Semarang, (Semarang: Universitas Ngudi Waloyo, 2022).

15. Muhammad F., Perancangan Sistem Informasi Persediaan Barang Menggunakan Metode Fefo Studi Kasus : PT. Nutrifood Indonesia Bandar Lampung, Techno Preneurship Jurnal Ilmiah, Vol. 5 No. (1), 2018. Available from: https://jurnal.piksiinputserang.ac.id/index.php/technopreneurship/article/view/32/21