
Evaluation Of Medicine Management at the UPTD Pharmacy Warehouse Manembo-Nembo Hospital Type C Bitung

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ABSTRACT

This study was conducted to determine how to evaluate drug management in the pharmaceutical warehouse of the UPTD Manembo-Nembo Hospital type C Bitung. This research uses qualitative research methods by conducting in-depth interviews, document review and observation. This research was conducted at the Pharmacy Warehouse of UPTD Manembo-nembo Hospital Type C Bitung which is located at Jalan SH Sarundajang, Manembo-nembo Tengah Village, Matuari District, Bitung City, North Sulawesi from April to June 2023. The informants of this research are those who have the authority to manage drugs in the Pharmacy Warehouse of the UPTD Manembo-nembo Hospital Type C Bitung. Such as the Head of the Pharmacy Installation, Head of the Hospital Pharmacy Warehouse, Hospital Director, Medical Support and Pharmaceutical Technical Personnel. The results of the study found that Drug Planning at the UPTD Manembo-nembo Hospital Type C Bitung has followed the Guidelines for Planning Drug Needs Regulation of the Minister of Health of the Republic of Indonesia Number 72 of 2016 concerning Pharmaceutical Service Standards in Hospitals, Drug storage in the Pharmaceutical Warehouse UPTD Manembonembo Hospital Type C Bitung is in accordance with using 21 drug storage parameters used only 2 parameters that are not yet in accordance, namely that there are several boxes of drugs placed on the floor without using pallets on the floor and some drugs have not been placed on the shelves of the medicine cabinet, and Monitoring and evaluation is well underway.

Keywords: evaluation, drug management, pharmacy, Manembo-Nembo type C hospital

1. INTRODUCTION

Health services in hospitals are pharmaceutical services that are implemented directly by the Hospital Pharmacy Installation which is services directly and is responsible for improving quality to the patient. Pharmaceutical services are also a supporting service and are the main revenue center. This is because more than 90% of health services in hospitals come from pharmaceuticals (medicines, chemicals, radiology materials, consumable medical devices, medical devices and medical gases) and medical gas. materials, medical consumables, medical devices and medical gases) and about 50% of each hospital's income comes from pharmaceutical management. about 50% of each hospital's income comes from pharmaceutical management (Husna, 2021)

Drug management is a fundamental thing that must be considered in the Pharmacy Installation, especially in managing drugs. management drug management is one of the pharmaceutical service activities that starts from selection, planning, procurement, receipt, storage, distribution, destruction and withdrawal, control and administration. (Permenkes RI, 2016)

One of the factors that is very influential in drug supply in hospitals is the control of the amount of drugs to meet the needs. hospital is controlling the amount of medicine to meet the needs. If the drug stock too small, the demand for use is often not fulfilled so that patients or consumers are not satisfied so that the opportunity to opportunity to make a profit can be lost and additional costs are needed to obtain medicinal materials quickly to satisfy patients or consumers. consumers. If the stock is too large, it causes storage costs that are too high the possibility that the drug will become damaged or expire and there is a risk if the price of the material or drug drops (Seto, 2020). risk if the price of materials or drugs drops (Seto, 2016).

2. LITERATUR REVIEW

Hospital

Permenkes 72 of 2016 concerning Pharmaceutical Service Standards in Hospitals defines a hospital as an institution for pharmaceutical services. Hospital defines that a Hospital is a health service institution that organizes individual health services in a health service institution that organizes individual health services in a that provides inpatient, outpatient, and emergency services. Hospitals are health care institutions for the community with characteristics that are influenced by the development of science, health science, technological advances, and the socio-economic life of the community that must still be able to improve services that are of higher quality and affordable by the community in order to realize the highest degree of health by the community in order to realize the highest degree of health (Constitution of the Republic of Indonesia No.44, 2009). RI No.44, 2009)

Hospital Pharmacy Installation

A hospital pharmacy installation is a health care service, which consisting of the art, practice, and profession of selecting, preparing, storing, and compounding drugs and medical devices, doctors, nurses, and other health professionals about their safety, effectiveness and efficiency. Hospital Pharmacy is specialized field of pharmacy which is an integrated part of patient health services in a health facility. health services in a health facility. Hospital pharmacy is a profession profession that strives to continuously maintain and improve the management of treatment and pharmaceutical care of patients to the highest standards in a hospital environment (European Association of Hospital Pharmacists, 20 June 2020). hospital environment (European Association of Hospital Pharmacists, 2022; Indonesian Ministry of Health, 2014).

Hospital Pharmacy Installation Drug Management

The management of pharmaceutical preparations must be carried out in the Hospital Pharmacy Installation Hospital. The hospital pharmacy installation is responsible for all pharmaceutical goods circulating in the hospital with the aim of providing optimal optimal pharmaceutical services, organizing professional service activities professional service activities based on pharmaceutical procedures and professional ethics, carrying out drug management based on applicable regulations, evaluating and providing quality service, conducting supervision based on conduct supervision based on applicable regulations, conducting research and development in the field of pharmacy and improving methods, as well as facilitating and encouraging the development of treatment standards and hospital formularies (Ministry of Health, 2017). standards and hospital formularies (Ministry of Health of the Republic of Indonesia, 2016b).

Drug management is a continuous cycle starting from selection, procurement, distribution and use. The stages of drug management stages need to be evaluated and measured periodically to determine the level of quality of of drug management in a hospital pharmacy installation. Drug management can be

drug management can be said to be good if it ensures the availability of drugs in sufficient quantities and quality is guaranteed to support quality health services in hospitals hospital (Ardianti et al., 2019; Azizah et al., 2017; Martins et al., 2019; Polii S et al., 2021).

Human Resources

Health workers have an important role in improving the quality of maximum health services to the community. According to Law 28RI No.36 of 2014 qualifications and grouping of health workers, workers in the health sector consist of health workers and health worker assistants. Based on the work performed, the qualifications of human resources The Pharmacy Installation is classified as For pharmaceutical work, consisting of Pharmacists, who have the qualifications of Pharmacist Profession (S-1 + Apt) and Pharmaceutical Technical Personnel, having a minimum qualification of Diploma Three (D-III). While for supporting work, it consists of Computer Operators / Technicians who understand pharmacy. then there are Pharmacy Administration personnel, having a minimum qualification of secondary education in the health sector (SMF). the last one is the Worker / Assistant Executor, having a minimum qualification of secondary education in the field of health (SMF).

Facilities and Infrastructure

The implementation of pharmaceutical services in hospitals must be supported by supported by facilities and equipment that fulfill the provisions and legislation applicable pharmaceutical legislation. The location must be integrated with the hospital service system The location must be integrated with the hospital's service system, separated between facilities for the organization of management, service direct services to patients, compounding, production and quality laboratories equipped with waste handling (Permenkes, 2014).

Drug Planning

According to Irmawati (2014) Planning is a calculation activity, formulation and thinking of an action that will be taken in the future, related to operational activities in management, management, and management. future, which is related to operational activities in management, use of logistics organization and control. Planning is also important for the management of drug joints. The benefits of drug planning are to avoid excessive use of budget, integrated evaluation, having the same perception between budget users and providers, precise estimation of drug needs, and same perception between budget users and providers, estimation of precise drug needs, budget utilization is more optimal and well coordinated between providers budget and drug users (Irmawati, 2014). Selection of drugs in accordance with prioritization is something that should not be ignored in the process of planning drug needs.

Medicine Storage

Storage is an activity of storing and maintaining by placing pharmaceutical supplies received in a place that is considered safe from theft and physical disturbances that can damage the quality of the drug. theft and physical disturbances that can damage the quality of the drug. Aims to maintain the quality of quality is maintained, avoid irresponsible use, maintain availability, facilitate search and supervision (BINFAR, 2008). availability, facilitate search and supervision (BINFAR, 2008). According to Permenkes no 72 of 2016, after the goods are received at the Pharmacy Installation, it is necessary to store them before distribution. Pharmacy Installation, it is necessary to store before distribution. Storage must be able to guarantee quality and safety. Pharmaceutical Supplies, Medical Devices Pharmaceutical Supplies, Medical Devices, and Consumable Medical Materials in accordance with pharmaceutical requirements. The pharmaceutical requirements referred to include the requirements of stability and safety, sanitation, light, humidity, ventilation, and type classification. Pharmaceutical Supplies, Medical Devices, and Consumable Medical Materials.

Drug Monitoring and Evaluation

Monitoring drug utilization can be used to see the quality of health services. With this monitoring, it can be detected the possibility of over prescribing, under prescribing, multiple prescribing or incorrect prescribing. Regular monitoring and evaluation of drug use can support drug planning in accordance with the needs to achieve rational drug use. (Director General of Pharmaceutical Development, 2010) According to the Indonesian Ministry of Health in 2010, the implementation of monitoring and evaluation can be carried out periodically and in stages. The success of monitoring and evaluation evaluation is determined by the supervisor and the tools used.

3. RESEARCH METHOD

This research uses qualitative research methods by conducting in-depth interviews, document review and observation. With the aim of obtain in-depth information about the planning of drug needs, drug storage and the process of monitoring and evaluating drug management in the Warehouse Pharmacy UPTD Manembo-nembo Hospital Type C Bitung Year 2023.

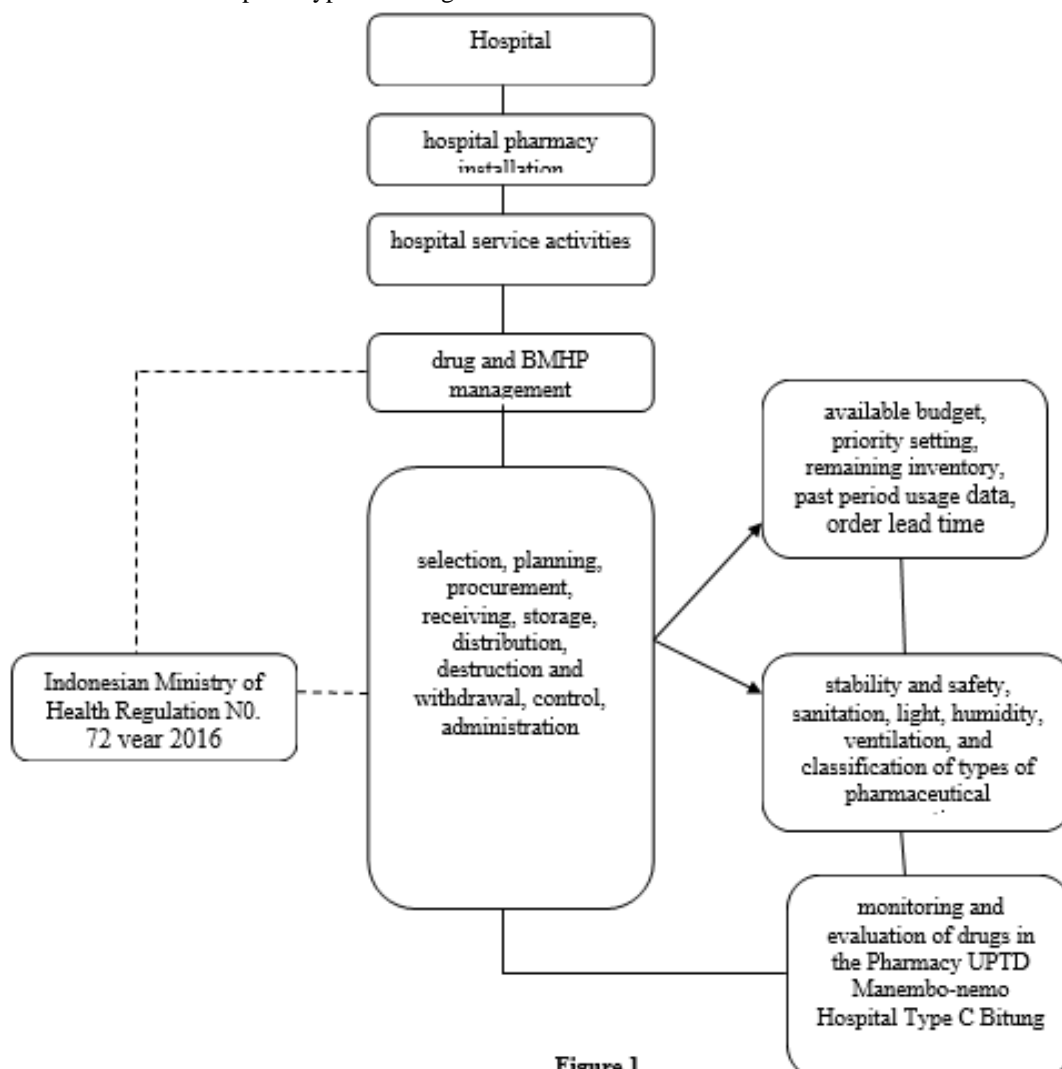


Figure 1
Theoretical Framework

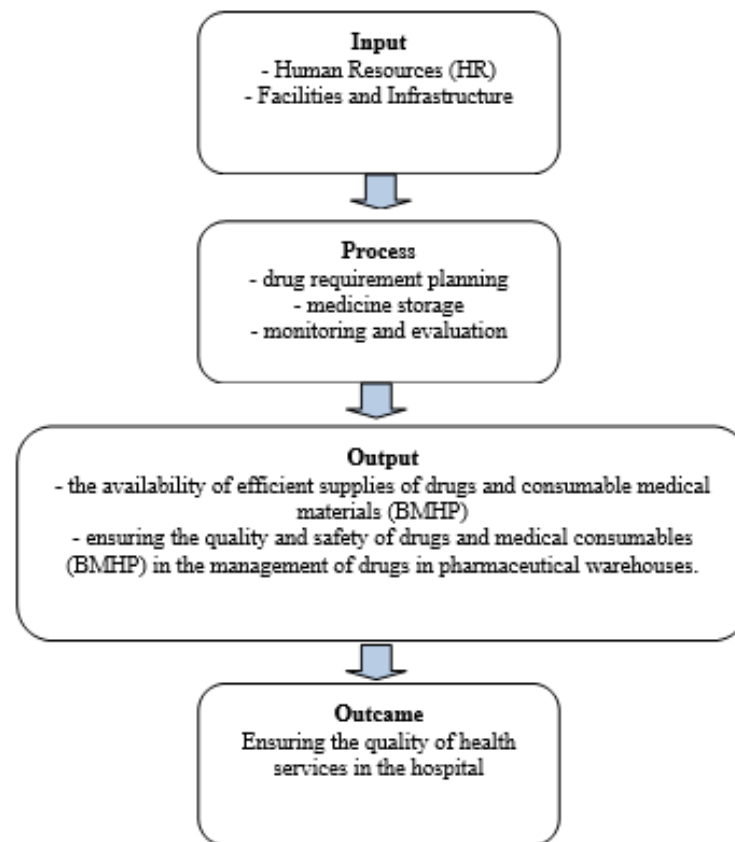


Figure 2
Conceptual Framework

4. RESULTS AND DISCUSSION

1. Drug Planning

The planning process is carried out to avoid drug vacancies by using methods that can be accounted for and predetermined planning basics. Drug planning must consider the available budget, prioritization, remaining inventory, past usage data, waiting time for ordering. In the drug planning process, researchers asked several questions to key informants and supporting informants. The following are interviews that researchers asked each informant about the process of planning drug needs:

a. Available budget.

1) Question: Is drug planning adjusted to the available budget?

Based on the results of the interview above regarding the suitability of drug planning and the available budget at the UPTD Manembo-nembo Hospital Type C Bitung, the researcher got the answer that the drug planning made for 1 year was adjusted to the existing budget, and was also regulated by the provincial health office.

2) Question: Is there a specific budget for drug planning in the pharmacy warehouse?

Based on the results of the interview above, related to the budget for planning drug supplies at UPTD Manembo-nembo Hospital Type C Bitung, namely there is a budget for drugs so that drug planning is adjusted to the existing budget, and those who arrange for orders from the provincial health office. From the hospital only provides a request for drugs and the rest of the health department organizes it based on how much the drug budget is.

b. Prioritization.

- 3) Question: What is the process of planning drug requirements in the pharmacy installation?

Based on the interview above, the drug planning process at UPTD Manembo-nembo Hospital Type C Bitung is based on a list of drugs made by the warehouse then checked or analyzed again by the head of the installation forwarded to the hospital director for approval and reported to the provincial health office.

c. remaining inventory.

- 4) Question: When is drug requirement determination planning done?

Based on the results of the interview above, the determination of drug planning at UPTD Manembo-nembo Hospital Type C Bitung is carried out every year, namely the Drug Needs Plan (RKO) and there is also every month by paying attention to the use of fast moving or slow moving drugs through stock-taking at the end of each month.

- 5) Question: Does drug planning consider remaining inventory?

Based on the results of the interview above regarding drug planning considering the remaining inventory at the UPTD Manembo-nembo Hospital Type C Bitung, the researcher gets the answer that at the end of each month a stock-taking is carried out. The purpose is to find out how much medicine is left in stock, and from there it can be determined how much medicine must be ordered or planned.

d. Past period usage data.

- 6) Question: Is planning based on past usage (Consumption Method)?

Based on the results of the interview above, the method used in drug planning at UPTD Manembo-nembo Hospital Type C Bitung is the consumption method with drug usage data for the previous period only.

e. Order lead time

- 7) Question: Is drug planning adjusted to the lead time for ordering drugs?

Based on the results of the interview above regarding the waiting time for ordering drugs at the UPTD Manembo-nembo Hospital Type C Bitung, the researcher gets the answer that there are drugs that come quickly, some are long because the drug planning is checked again at the provincial health office and also depends on the stock of the distributor. .

- 8) Question: Are there any obstacles in the process of planning drug needs? If so, what is the solution?

Based on the results of the interview above, the obstacle in drug planning at UPTD Manembo-nembo Hospital Type C Bitung is that drug orders are made by the provincial health office so that there are drugs included in the drug request list when sent by distributors sometimes not in accordance.

2. Drug Storage

In the drug storage process, researchers also asked several questions to key informants and supporting informants. The following are the interviews that researchers asked each informant regarding the drug storage process:

- 9) Question: What is the storage process carried out by the pharmaceutical warehouse staff?

Based on the results of the interview above, drug storage in the pharmaceutical warehouse on the UPTD Manembo-nembo Type C Bitung Hospital is based on dosage forms, dosage types, and is also sorted alphabetically. And in the preparation also uses FIFO and FEFO, those involved in storage are pharmaceutical warehouse officers.

- 10) Question: Who is involved in the drug storage process?

Based on the results of the interview above, those involved in drug storage at the UPTD Menembo-nembo Hospital Type C Bitung are all warehouse staff. The head of the warehouse and assisted by 2 people, consisting of 1 woman who helps record the entry and exit of drugs and 1 man who helps organize drugs, medical equipment and bmhp.

3. Drug Monitoring and Evaluation Process

In the monitoring and evaluation process in the drug receipt process, researchers asked several questions to key informants and supporting informants. The following are the interviews that researchers asked each informant.

- 11) Question: Are there records available for drug receipt and what is the flow of receiving drugs from suppliers?

Based on the results of the interview above, it can be concluded that the receipt of drugs from the pharmaceutical warehouse of the UPTD Manembo-nembo Hospital Type C Bitung has a drug entry and exit logbook. And the flow of receiving every drug that comes from the distributor to the warehouse will be seen or checked invoice, order letter (SP), physical preparation, quantity, batch number, and expiration date. This avoids discrepancies in the drugs that arrive.

- 12) Question: Is there a special officer who receives the medicine?

Based on the results of the interview above at UPTD Manembo- nembo Hospital Type C Bitung, it is concluded that there are drug reception officers, namely pharmaceutical warehouse officers including the head of the warehouse.

DISCUSSION

1. Drug Requirement Planning

Planning is an activity carried out in order to compile a list of pharmaceutical supply needs related to a guideline on the basis of a systematic concept of activities with a logical sequence in achieving predetermined goals or objectives. The planning process consists of estimating needs, setting goals and determining strategies, responsibilities and sources needed to achieve goals. Planning is carried out optimally so that pharmaceutical preparations and health supplies can be used effectively and efficiently (Rusli, 2016). **b. The Effect of Sustainability Report Disclosure (SRDI) on Firm Value (Tobins'Q)**

The results showed that the pharmaceutical installation of the UPTD Manembo-nembo Type C Bitung Hospital planned drugs and consumables by considering planning guidelines, namely the available budget, priority setting, remaining inventory, past usage data (consumption method) and waiting time. The results state that the hospital's Pharmacy Installation has followed the Guidelines for Planning Drug Needs Permenkes Number 72 of 2016 concerning Pharmaceutical Service Standards in Hospitals.

In the results of the interview, it was also found that the drugs included in the drug needs planning list that had been made by the pharmacy when checked with the drug list did not match the number of drugs written and there were also drugs requested but not available. This causes drug vacancies that occur at the UPTD Menembo-nembo Hospital Type C Bitung.

a) Available budget

The budget available for drug planning at the UPTD Manembo-nembo Hospital Type C Bitung is a budget sourced from the North Sulawesi provincial government, namely the Regional Revenue and Expenditure Budget (APBD). Based on the results of interviews with several informants, it was stated that the available drug budget was adjusted to the planning of drugs that would be used at home. It is attempted that the existing budget arrangement meets the drug needs so that it is not less or more than planned. Drugs that have been included in the drug planning list and approved by the hospital director are forwarded to the provincial health office to be procured according to the APBD budget that has been determined from the government. to fulfill the drug supply at the Pharmacy Installation of the UPTD Manembo-nembo Hospital Type C Bitung.

b) Determination of priorities

Determination of drug priorities at UPTD Manembo-nembo Hospital is based on the drug planning list that has been made analyzed again using the ABC-VEN analysis so that it can be adjusted to the existing budget. From this analysis, we get which drugs should be prioritized in drug planning. From the results of the interview, it was stated that the drug planning list was divided into fast moving and slow moving drugs. Fast moving drugs in planning drug needs must be provided with more quantities because of the frequent

use of drugs such as examples of drugs in the emergency room must always be available, while for slow moving drugs in planning not too much because drugs are rarely used but still must be provided as well. The journal of tropical biopharmaceutic research explains that the ABC analysis method can assist management in determining control in accordance with the classification of each item and can determine the items / drugs that must be prioritized and can also group each drug item that has a high, medium and low value of use and investment in order to facilitate the process of preparing drug planning and procurement and can minimize vacancies or excess amounts of drugs (Rarung, 2020).

c) Remaining Inventory

The remaining drug supply is the last remaining stock available in the pharmaceutical warehouse. To find out the remaining stock of drug supplies at UPTD Manembo-nembo Hospital Type C Bitung, the pharmaceutical installation conducts stock-taking. By carrying out stock-taking activities at the end of each month, it will be known how much the final stock of drugs is at the end of each month, this must be done because it affects the drug entry and exit report. How many drugs entered in the month, how many expenses and how much remaining stock. From the remaining inventory stock, it will be calculated how many drugs will be included in the next drug planning.

d) Past period usage data (consumption method)

Usage data in the past period or based on the consumption method is a method also used in the drug planning process at the UPTD Manembo-nembo Hospital Type C Bitung. According to research by Irmawati (2014), it is said that the calculation method in the drug consumption method to obtain drug requirement data results that are close to accuracy is by calculating the average use of drugs, buffer stock, lead time and the amount of remaining drugs available. And what is done is difficult in accordance with existing calculations. Apply priority setting to avoid drug vacancies by using the consumption method based on data in the previous period.

e) Order lead time

Waiting time for drug orders is one of the important factors that must be considered. At UPTD Manembo-nembo Hospital Type C Bitung, the waiting time for ordering drugs cannot be predicted when and how long it will take because based on the results of the interview, it was stated that the drugs that had been made a planning list and approved by the director had to be forwarded to the provincial health office. Because of this, the pharmaceutical warehouse makes a list of drugs by adding a 10% buffer for each drug item in order to get a safety stock of drugs unless patient demand increases, the drug will experience a stockout. According to Rahman (2019), things that can affect the length of waiting time for drug services in outpatient pharmacies include Man (the number and length of work of pharmaceutical Human Resources (HR), HR competence, HR commitment, types of patients, commitment of doctors and patients themselves), Method (the flow of the drug service process, the process lag from prescription entry to delivery of prescription drugs comes together), Material & Machine (lack of infrastructure, insufficient number of reception and screening counters, prescriptions that arrive at the same time, the availability of drugs is not smooth, the type of prescription, SOP and drug formulary and hospital SIM), Environment (lack of spaciousness of the pharmacy room and too many counters that confuse patients, not yet differentiated queue counters for BPJS and general patients).

2. Drug Storage

Drug Storage at UPTD Manembo-nembo Hospital Type C Bitung based on the results of interviews stated that the storage of drugs, medical equipment and consumable medical materials (bmhp) is stored in the pharmaceutical warehouse. The process of storing drugs in the warehouse begins with receiving incoming drugs along with supporting documents, then checking the drugs (type, quantity, and expiration date) and then storing the drugs in place. Drug orders that have been checked or checked are stored, archived in a file as evidence of incoming drug administration. It is also recorded in the drug entry and exit book in the

pharmacy warehouse. Because it is needed when later for the monthly report of drugs from the pharmaceutical warehouse to the head of the pharmaceutical installation.

The results of the interview also stated that the drug storage system in the pharmaceutical warehouse of Manembo-nembo Type C Bitung Hospital uses the FIFO and FEFO methods, the classification of drugs is based on the type and type of preparation and the classification of drugs is also alphabetical and has not implemented classification based on therapeutic class / drug efficacy.\

Drug storage at the UPTD Manembo-nembo Hospital Type C Bitung is good, reinforced by the results of researcher observations that found 2 observation parameters that were not in accordance with the 21 existing parameters. It was found that several boxes of drugs were arranged and placed on the floor without a pallet under the box and drugs were not placed on the medicine rack. Room temperature cards and refrigerator temperatures are available and filled in every day, drug stock cards and physical drugs are the same, fire extinguishers are available (apar) and the environment around the warehouse is clean, comfortable.

3. Monitoring and Evaluation

The process of monitoring and evaluating drugs is to ensure that the drugs available are safe for patients, effective and also rational. If monitoring activities are carried out properly, management activities, especially planning, can be carried out appropriately. Currently, planning activities are seen from the consumption of drug use every month by looking at the ranking of the highest drug use to the ranking of the least drug use. In the process of monitoring the receipt of drugs carried out in the pharmacy UPTD Menembo-nembo Hospital Type C Bitung is to always check the condition of the drugs that arrive starting from the order letter, invoice, dosage amount, batch number, and expiration date. In order to prevent discrepancies in the drugs that arrive whether they are in accordance or not with the order. After the goods are received, the pharmacy officer records them in the incoming drug receipt record book. In Satibi's research (2019), which states that if the recording and request for drugs is wrong, then the acceptance is also not appropriate, because when the acceptance is smaller than the actual need, there will be a shortage that affects pharmaceutical services, while if the acceptance is excessive, there will be excess drugs which can lead to expired drugs. The occurrence of damaged or expired drugs reflects inaccurate planning, poor distribution systems, lack of quality observation in drug storage.

5. CONCLUSION

Based on the data analysis and discussion that has been carried out in the previous chapter, the results of this study can be concluded as follows:

1. Drug Planning at UPTD Manembo-nembo Hospital Type C Bitung has followed the Guidelines for Planning Drug Needs Regulation of the Minister of Health of the Republic of Indonesia Number 72 of 2016 concerning Pharmaceutical Service Standards in Hospitals. However, the ordering of drugs is carried out by the provincial health office so that there are drugs included in the drug needs planning list made by the hospital when delivered by the drug distributor and checked the number does not match and some are not oda drugs. This is what causes drug vacancies that occur at the UPTD Menembo-nembo Hospital Type C Bitung.
2. Drug storage in the Pharmacy Warehouse of the UPTD Manembo-nembo Hospital Type C Bitung is in accordance with using 21 drug storage parameters used, only 2 parameters are not yet appropriate, namely that there are several boxes of drugs placed on the floor without using pallets on the floor and some drugs have not been placed on the shelves of the medicine cabinet.
3. Monitoring and evaluation at UPTD Manembo-nembo Hospital Type C is already going well.

Suggestion

1. Suggestions for Hospitals
 - a. Because the UPTD Manembo-nembo Hospital Type C Bitung is under the Provincial Health Office, it is hoped that both parties can improve coordination and communication regarding the planning of

drug needs that have been made so that they can match the amount of drugs ordered to the pharmaceutical distributor so that all drugs can be available and none are empty.

- b. It is necessary to review the facilities provided for drug storage in the pharmaceutical warehouse of the UPTD Manembo- nembo Hospital Type C Bitung in order to ensure the quality of the drugs stored in the pharmaceutical warehouse.

2. Suggestions for Further Research

Further research related to drug management on drug selection, drug procurement and drug distribution at the Pharmacy Installation UPTD Manembo-nembo Bitung Hospital in order to improve the quality of health services at the hospital.

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REFERENCES

- Departemen Kesehatan RI, 2007, Permenkes RI No.1197/Menkes/SK/X/2004, Standar Pelayanan Farmasi di Rumah Sakit, Jakarta.
- Departemen Kesehatan RI, 2016, Profil Kesehatan Indonesia 2015, Jakarta. Departemen Kesehatan RI, 2018, Pedoman Penyelenggaraan Pelayanan di Rumah Sakit, Jakarta.
- Direktorat Jenderal Bina Kefarmasian dan Alat Kesehatan, 2010, 'Materi Pelatihan Manajemen Kefarmasian di Puskesmas'. Kementerian Kesehatan RI Bekerjasama dengan Japan Internasional Cooperation Agency (JICA). Jakarta.
- Husna, H., Y. Devis Dan A. Wahyudi, 2021, Analisis Penyebab Obat Kadaluarasa Di Instalasi Farmasi Rumah Sakit Ibu Dan Anak Eria Bunda. Pekanbaru. Stikes Hang Tua. Public Health Media.
- Kementerian Kesehatan RI, 2010, Pedoman Pengelolaan Perbekalan Farmasi di Rumah Sakit. Direktorat Jendral Bina Kefarmasian Bekerjasama dengan Japan Internasional Cooperation Agency, Jakarta.
- Kurniawati. I dan Maziyyah. N. 2017. 'Evaluasi Penyimpanan Sediaan di Gudang Farmasi Puskesmas Sribhowono Kabupaten Lampung Timur', Naskah Publikasi Karya Tulis Ilmiah. Yogyakarta.
- Peraturan Menteri Kesehatan RI No.58, 2014, Standar Pelayanan Kefarmasian di Rumah Sakit, Jakarta.
- Peraturan Menteri Kesehatan RI No.72, 2016, Standar Pelayanan Kefarmasian di Rumah Sakit, Jakarta.
- Undang-undang RI No.36, 2014, Tenaga Kesehatan. Jakarta Undang-undang RI No.44, 2009, Rumah Sakit, Jakarta.
- Salim, Zainal. 2015, 'Pengelolaan Sediaan Obat Pada Logistik Farmasi'. Jawa Timur: Paramita.
- Satibi. 2015. Manajemen Obat di Rumah Sakit. Gadjah Mada University Press. Yogyakarta
- Seto, Soerjono, Yunita, dkk. 2016. 'Manajemen Farmasi 2 (Edisi 4) : Lingkup Apotek, Farmasi Rumah Sakit, Industri Farmasi, Pedagang Besar Farmasi'. Surabaya : Airlangga University Press.
- Stair, R. R. 2010, 'Principles of Information System (9th edition)'. America: Course Technology.
- Sugiyono. 2017, 'Metode Penelitian Kuantitatif, Kualitatif, dan R&D'. Bandung : Alfabeta, CV
- Yuefeng. L, Keqin. R, Xiaowei. R. 2012. 'Use of and Factors Associated with Self- Treatment in China'. BMC Public Health. Vol.12, no.1.