Available *online*at : http://josi.ft.unand.ac.id/

Jurnal Optimasi Sistem Industri

| ISSN (Print) 2088-4842 |ISSN (Online) 2442-8795|

Research Article

Evaluation and Development of Annual Drug Provides Planning at the Riau Islands Province Pharmaceutical Installation

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ARTICLE INFORMATION

Received: October 10, 19
Revised: October 26, 19
Available online: October 31, 19

KEYWORDS

Drug provides planning, improvement strategy

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A B S T R A C T

The high value of expired drugs in the Pharmaceutical Installation of the Riau Islands Province is one of the problems that is faced in the planning process of the Provincial Buffer Stock drug provides. The study was conducted with a qualitative approach and evaluation to understand and find the answers to the problems. The results from identification of problems that were carried out through Focus Group Discussion (FGD) are the data, human resources, and supporting factors that have a significant influence in preparing the plans for drug provides. The four main scales of priority of improvement strategies that were obtained in the preparation of drug planning are (1) Technical guidance and monitoring of evaluation of human resources at the health service center are carried out periodically by the Provincial Pharmacy Installation; (2) Availability of guidelines about the types of drugs that can be provided; (3) Provision of Standard Operational Procedure (SOP) and guidelines for the preparation of written drug providers; (4) The Pharmacy Installation Managers must be pharmaceutical professionals and not be burdened with other work. In an effort to improve data validation in the preparation of the drug provides the plan in the Pharmaceutical Installation of Riau Islands Province, the SILO application (Drug Logistics Information System) is recommended.

INTRODUCTION

The main objective of provincial, regency/city drug management is the availability of good quality medicines, evenly distributed, the types and quantities meet the needs of the basic health service of the community. The management scope of the Buffer Stock drug in the Pharmacy Installation of Riau Islands Province includes the process of planning, procurement, storage, distribution of recording and reporting, as well as supervision and evaluation. The drug planning process in the Provincial Pharmacy Installation of the Riau Islands was carried out by the Integrated Drug Planning Team (TPOT). The coverage of the Provincial Buffer Stock drug distribution includes 7 (seven) district/city pharmacy installations in the Riau Islands Province, health service facilities that are within their authority, as well as supports in the emergency disaster situation [1].

From the results of the preliminary survey that was carried out, the total value of damaged drugs and expired in 2014 to 2018 in the Pharmaceutical Installation of the Riau Islands Province was Rp. 2,434,420,156.00. This the largest compare with the drug procurement funds from the APBD budget in 2017 of Rp. 877,537,233.00. With details of the procurement of clinical medicine in the amount of Rp. 199,388,011.00, buffer stock medicine of Rp. 337,314,670.00, health program medicines and BMHP of Rp. 340,834,552.00.

The results of Inggrid's study mentioned that one of the factors causing drug vacancies in district pharmaceutical installations is the process of planning the procurement of drug provides is still simple due to limited human resources, facilities, and infrastructure, making it challenging to analyze drug provides that are accurate, effective and efficient. The results of other studies from Yohanes show that factors affecting public drug management include: uneven packaging and maintenance funds, staff education not yet complying with regulations, governance has not yet been implemented, and some drug management facilities are incomplete [2,3].

The problem faced by TPOT in analyzing and recalculating the needs of regency/city medicine is the number of proposed types of drugs and health supplies in the recapitulation of regency/city, problems faced by regencies/ cities in drug procurement in 2016 especially Lingga and Natuna Regencies related to procurement drugs in the e-catalog so that many basic drug items are not met.

DOI: 10.25077/josi.v18.n2.p97-106.2019

Considering the importance of data on planned drug provides from all health service facilities, district/city pharmacy installation for the accuracy of district/city level drug planning which will be continued with the procurement process by the district/city health office in the province, it is necessary to evaluate the planning of drug provides and compile the improvement so it can be an alternative problem-solving in the preparation of annual drug planning in the future.

METHOD

This research is a descriptive study with a qualitative approach evaluation method to seek understanding and answers to the problems studied about a phenomenon or event by directly and indirectly involved in the setting under study, contextual and comprehensive through exploring the experiences of people who are related to the problem. This approach is very appropriate to explore experiences about events, processes, or structures in life.

The study was conducted through in-depth interviews and Focus Group Discussion (FGD) at the Riau Islands Provincial Health Office from October 2017 to June 2018. The data was collected through field observations, document review, interviews, and focus group discussions with a qualitative approach. Some supporting documents were also collected from pharmaceutical installations such as guidelines of drug management and health supplies, reports of the drugs used at the regency/city and provincial levels, and the regulations that are related to the logistics management information cycle. In-depth interviews and FGDs were conducted on 11 respondents consisting of policymakers, TPOT of the Riau Islands Provincial Health Office and the users, namely the Head of the Pharmacy Installation of Tanjungpinang City which are aimed to identify the problems that are faced, determine the priority of improvements and proposals of development that can be done. Guidelines for in-depth interviews and FGD were validated, adapted, and modified from Adiatmoko's research [4].

FGD topics are the results of in-depth interviews consisting of: Inputs (Basic Data used in annual RKO planning, validity of data that is used as well as data management information systems), processes (reference/standard of selection of types and number of drugs to be planned, match between the availability of drugs with the needs in the primary health care, the planning process, and evaluation planning) and output (identification of problems encountered, improvement strategies in the annual drug provides planning process).

Research Procedures

The steps of the research carried out are as follows:

Stage 1. Conduct In-depth Interviews

In this stage, in-depth interviews were conducted by collecting the data relating to the annual drug that provides the planning process of the Riau Islands Province Pharmacy Installation. Data gathered such as a list of policies established by the Ministry of Health, recapitulation of the number of drug procurement budget for the past 5 years, Basic Data used in the annual RKO planning, planning process, request/procurement, data on the type and amount of drugs to be planned for 2017, 2018, data on the number of expired drugs in the Riau Islands Province Pharmacy Installation, and others. The informant is the Policy Stakeholder of the Riau Islands Province Health Office, namely the Head of Health Resources in the Riau Islands Province Health Office.

Stage 2

At this stage after in-depth interviews with resource persons in stage 1, followed by in-depth interviews with pharmaceutical program managers at the Health Office which includes the Provincial TPOT Team, relevant stakeholders namely the Head of Directorate General of Pharmaceuticals and Medical Devices Section of the Riau Islands Provincial Health Office, and the users, namely the Head of Directorate General of Pharmaceuticals and Medical Devices Section Tanjungpinang City and Head of Tanjungpinang Pharmacy Installation with the aim of reducing bias in the results of the Phase I interview.

Stage 3

The next stage was processing and analysis of data from in-depth interviews with all informants. Analysis is divided into data analysis before going to the field has been carried out, namely a preliminary study and secondary data both in the form of documentation Basic data used in the preparation of the annual RKO of the Riau Province Pharmacy Installation is the usage patterns, disease patterns and the needs of related programs in determining research focus. Analysis while in the field aims to anticipate whether the focus or topic of research will continue or will be improved due to various considerations that are essential, very meaningful, and an urgent phenomenon to find a solution. Analysis of in-depth interviews is done by taking notes and asking descriptive questions to investigate various information as a whole by selecting a statement of relations in the form expressed.

Stage 4. Implementation of FGD

This stage is carried out to prepare material for conducting an FGD. The FGD was held on the results of the previous interview, and obtained an agreement as well as prioritizing solutions to identified problems, based on the Hanlon method.

Informant

This research involved informants by giving specific codes to facilitate the process of presenting the research data. The code of informants in this study can be seen in Table 1. Information consists of eight core informants with code respondents (R) and three informants as triangulation (T). Informants were taken from the Riau Kepulauan Provincial Health Office and the Tanjungpinang City Health Office. The selection of informants with this composition is intended to explore the facts and the problems in the preparation of drug planning from a different perspective. The Head of the Riau Kepulauan Province's Health Resources Division is responsible for the entire process, as well as being responsible for the availability of medicines. This is because the Provincial Pharmacy Installation is not yet a Regional Technical Implementation Unit (UPTD), so that drug management is still under the responsibility of the Head of the Pharmaceutical Medical Devices Section of the Riau Kepulauan Provincial Health Office.

 DOI: 10.25077/josi.v18.n2.p97-106.2019

In the research conducted, the technique of selecting and retrieving data from the sources/informants was carried out in the following manner:

a. Purposive sampling
   This technique is based on specific goals or considerations first. The determination of informants is based on the intentions that have been determined previously.

b. Snowball sampling
   In this technique, the source of information or informants develops from small to more substantial, until finally, the goals to be achieved are known. Stages, researchers took one person, then asked others about the understanding of the case that was informed by the first person. The third stage continues until the researcher is confident about the data and information needed.

Table 1. Informant's Characteristics

Informant Code	Gender	Age	Degree	Main Field (TP)	Experience in the field	Side Job
R1	W	39	Bachelor degree of nurse	Supervisor of TB	9 years	-
R2	M	32	Bachelor degree of nurse	Surveillance Staff	10 years	Vaccine Management
R3	W	30	Bachelor degree of public health	Eradication of disease staff	10 years	HIV/AIDS drugs management
R4	W	38	School of nursing	Family health staff	9 years	Family health drugs management
R5	M	46	Magister of public health	Head division of health resources	8 years	-
R6	M	42	Pharmacist	Head section of pharmacy of food and beverage	9 years	-
R7	W	38	Bachelor degree of nurse	pharmacy of food and beverage staff	13 years	Buffer Stock Management
R8	W	36	Medical Doctor	Primary health service staff	8 years	Governor's Health Clinic
T1	M	42	Pharmacist	Head section of *Farmalkes*	23 years	Supervisor of pharmacy of food and beverage
T2	W	34	Diploma of pharmacy	*Farmalkes* staff	8 years	Buffer Stock Management
T3	W	32	pharmacist	Head of IF TPI	6 years	-

RESULTS AND DISCUSSION

Drug planning is one of a series of drug management activities besides procurement, storage, distribution, recording, and monitoring records. Drug management in the Riau Islands Province is carried out by the Provincial Pharmacy Installation which is structurally under the auspices of the Health Service Sector headed by the Head of Farmalkes Section in the Riau Islands Provincial Health Office and has not become a Technical Implementation Unit for the Pharmacy Installation of the Riau Islands Province.

The preparation of a plan for drug provides (RKO) at the Riau Islands Province level was carried out by the TPOT determined by the Head of the Riau Islands Province Health Office. TPOT was directly chaired by the Head of the Riau Islands Provincial Health Office, the Head of Health Services as a secretary and a team member consisting of the Head of Farmalkes Section, Head of Section of the relevant health programs and staff involved in implementing the planning of the Drug Stock Buffer provides. TPOT is obliged to calculate and prepare RKO from all available and available drug procurement funding sources, including among others from the State Budget (APBN), and the Riau Islands Province Regional Revenue and Expenditure Budget (APBD).

Drug planning is a series of drug management activities in addition to procurement, storage, distribution, recording of reporting, and supervision. Drug planning activities are carried out in order to determine the type and number of drugs in accordance with the pattern of disease and the needs of primary health service units, including health programs such as Maternal and Child health programs, Tuberculosis, HIV, Malaria and others by the central, provincial, and district governments/city to guarantee the availability of medicines in all health service units. Implementation of Drug Provides Planning has been carried out by the Riau Islands Provincial Health Office with the Consumption method. The Provincial Pharmacy Installation requests a plan for the need for medicines from all district/city Health Offices at the end of the year accompanied by a year-long recapitulation of drug use and the remaining year-end stock. All reports were recapitulated by the provincial pharmacy installation as a material for discussion for TPOT in the preparation of the following year's RKO. In general, the calculation of drug provides uses a consumption pattern using the formula:

$$\sum R = (\overline{A} \times 18) - S \quad (1)$$

Multiplier 18 is used because the availability of drugs is built for an estimated 18-month use in anticipation of the possibility of increased visits and waiting times, disasters, or outbreaks. According to WHO, drug availability is the second highest expenditure after staffing funding. Even the government can spend money on medicines around 40-60% of the entire public sector budget. There are two essential components that determine the quality of drug use to achieve sustainable health care. First, establish implementation standards that explain the Standard Operating Procedure, and second, determine the position and the right human resources who are responsible for the tasks and functions that are received and implement each step of the process [5,6].

Problems Found

In finding problems in qualitative research, it is easy to change and can be changed, if reality and the field conditions demand it. In simple terms, it can be said that there are three possibilities that will occur, that is the problem that was formulated beforehand, then continued with research in the field as it is. The second possibility is the problems that have been formulated are revised

according to the needs of the area. Third, the problems that have been formulated are totally overhauled, changed by other problems because there are different more urgent needs after observing the conditions of the field more intensively [7,8].
The problem in qualitative research is divided into two, namely: (1) Phenomenological Problems where the gap between expectations and reality of ideal conditions with facts, theory, and practice. (2) The problem of Grounded Theory is qualitative research that was not designed from the start. This research produces theories with the facts in the field, and then finds the problems obtained during the research.

The formulation of questions or statements in the formulation of a problem or focus of research is a qualitative study will largely determine the research approach used to answer it. Some of the defining features are the necessity of the researcher to come down directly in data collection, get to know the subject under study by interviewing it, observing events that occur, reviewing existing documents, and recording them in research notes.

The main thing that must be considered in pharmaceutical services in pharmaceutical installations is to fix problems related to the components that make up the logistics system, such as facility structure, transportation, inventory, communication and handling, and storage. And other problems, to support the smooth availability of pharmaceutical preparations. The contribution of pharmaceutical installations in the smooth running of services is very significant for the stable management of drugs, so the supply of pharmaceutical goods requires a careful and full management of management activities so that the administrative function plays a significant role in managing the pharmaceutical installation itself. Table 2 shows the identification of problems and constraints in the drug planning process of the Riau Kepulauan Provincial Pharmacy Installation.

The forming of the Hanlon-Based improvement Strategy Priority Scale

Data collection in a study sometimes encountered obstacles when researchers need data with special characteristics, for example, about perceptions, opinions, beliefs, and attitudes towards a product, service, concept, or idea. Likewise, for research with specific objectives, such as assessment of needs or evaluation of a program [9].

For this reason, we need a data collection technique in which participants are free to discuss with each other without any fear or worry about the opinions they will issue. One of the suitable data collection techniques, in this case, is the technique of FGD [10].

The annual RKO preparation of the Riau Islands Province Pharmacy Installation should be used as an "early warning system" for the implementation of health programs. Remaining stock at the end of each year calculated in the preparation of the annual RKO will be an indication of the running or failure of the health program in terms of promotion and prevention. Therefore, an improvement strategy in the preparation of RKO needs to be done so that RKO is expected to be able to describe the implementation of health programs in general.

Table 2. Identification of Problems and Constraints in the Drug Planning Process of the Riau Kepulauan Provincial Pharmacy Installation

No.	Aspect	Problems
1.	Data	**Selection Process** a. There are still drugs that are not following DOEN and National guidelines b. Selection of drugs based on consumption method c. Data used in drug planning d. Source of data in the preparation of plans for drug provides e. The validity of data used in development of drug planning **Planning Needs** a. Expired drug value is high b. Steps in preparing drug planning c. Remaining inventory is often ignored in planning d. Calculations have not used the ABC VEN category separation e. TPOT has not been functioning optimally f. Patterns of disease prevalence and drug demand are constantly changing g. Data reporting that is large and inefficient **Procurement of Drugs** a. Allocation of funds can change from what has been proposed to the government b. the promptness in the process of coming drugs with the procurement of drugs in e-catalog cannot be guaranteed c. The existence of drugs that are not met by distributors related to distribution costs is higher than the value of drug spending
2.	Human resour-ces	a. Lack of pharmaceutical staff b. Training on planning processes is minimal c. There is a burden of double duty on the Pharmacy Installation management staff because it has not been UPTD, so work in the Farmalkes Section is still being worked. d. Trained human resources have been transferred. e. Lack of coordination between Pharmacy Installation and program administrators for planning drug provides.
3.	Support-ing Factors	a. The information system in the Riau Islands Province Pharmacy Installation is still manual for all drugs reporting. b. The lack of supporting facilities such as drug management applications that can help the planning process of drug provides.

DOI: 10.25077/josi.v18.n2.p97-106.2019

Prioritizing is an important part of the problem-solving process for two reasons. First, because of the limited resources available and therefore it is not possible to solve all problems. Second, because there is a relationship between one problems with another problem. From the results of the identification of the problem and the description above it can be summarized that some improvement strategies in the preparation of the annual RKO of the Riau Islands Province Pharmacy Installation to be more precise are:

a. Technical guidance and monitoring of human resource evaluation at the district/city health office is carried out from the Riau Islands Province Pharmacy Installation and is carried out periodically.
b. Simplification of reports from pustu and polindes through information systems that are integrated with computerized systems to the provinces.
c. Supervision and review of reports made by health program managers are coordinated with Pharmacy Installation and TPOT.
d. The Pharmacy Installation Manager must be a pharmaceutical person and not be burdened with duplicate other work.
e. Improving the understanding of drug warehouse managers about drug planning, capabilities, and expertise in the use of supporting technology through training.
f. The availability of clear guidebooks and rules on the types of drugs that can be proposed such as, National Forum and JKN guidelines to the Puskesmas.
g. Guideline/policy socialization (DOEN and Fornas), training on drug planning processes and utilization of health program drugs to officers in health service facilities or users to the pustu and polindes.
h. Provision of SOPs and guidelines for the preparation of written RKO
i. Increasing cooperation between pharmaceutical personnel and all related elements
j. Increased funding for the provision of medicines at the Provincial level
k. Provision of computer facilities with information systems for drug management in the Riau Islands Province Pharmacy Installation
l. Increasing the participation of related parties both program drug management, drug management in Pharmacy Installation, Regency/City Health Service to the Provincial Health Service.

Table 3 shows that the value of BPR is equal to the value of TPR; this is because the assessment of component D for all strategies is worth 1. It was never before that all of the FGD participants had a similar discussion as a factor that influences the outcome of homogeneous component D assessment of all strategies. It was concluded the order of priority scale improvement strategies for the annual RKO preparation of the Pharmaceutical Installation in the Riau Islands Province. The intended sequence is presented in Table 4.

Analysis

Analysis of data obtained from the matrix of the results of in-depth interviews and FGD implementation shows the existence of problems in the preparation of the RKO in the Pharmaceutical Installation of the Riau Islands Province. The problems identified were divided into three groups, namely: Data, Human Resources, and Supporting Factors.

Data

The validity of the data used in the preparation of the RKO in the Riau Islands Province's Pharmacy Installation is a major problem and generally a complaint about almost all informants. The information needed by an organization must meet the requirements of completeness, updating, reliability, well-directed, stored neatly and easily obtained if needed to support the decision-making process [11-13]. In general, the drug supply chain in health care is dominated by manual activities and policy provisions on various product data in separate information systems. As a result, health organizations related to patient safety face a number of challenges in product traceability, logistical efficiency, and quality of patient care. For this reason, centralized data management is needed, which enables the availability of consistent data.[14] The health care system in Thailand shows that each health care supply chain has its baseline data, so multiple information and report formats are used. This raises the following problems:

a. Separate information and data
   Drug information stored in text form that is difficult to quote, and information is organized from different sources. Multiple users and IT systems do not support the synchronization of information from each database.
b. Unavailability of standard data
   With different information formats, IT systems are unable to process data exchange in the form of standards for interoperability. This causes intact information sharing to be impossible.

Gebicki, states that the health care supply chain consists of three forms, namely, suppliers, hospitals, and patients. Pedroso and Nakano state that there are five stakeholders, namely suppliers, factories, distributors, hospitals, and patients. Rosseti and Liu state that the health care supply chain consists of 4 layers, namely suppliers, logistics intermediaries, health care providers, and patients. Shah states that the health care supply chain consists of one or more of the following sections, namely suppliers, factories, wholesalers and distributors, retailers, or hospitals. While Burns concludes that the health care supply chain consists of 5 main actors, namely, health care producers, health care product intermediaries, health care providers, health care fiscal intermediaries, and buyers [14-18].

The proposed improvement in the annual drug provides planning (RKO) system in the Pharmacy Province of Riau Islands Province, which can be considered is the development of a design with the Drug Logistics Information System (SILO). Logistic management applications that are accessible become a very effective choice in drug management. The items inputted include all the processes of drugs receiving and BMHP, the expenditure process, stock taking. The output results can be in the form of reporting and allocation of drug distribution that can be monitored regularly. Grouping of goods becomes very complicated when the primary data obtained varies so that data can be obtained that is in accordance with the real item.

SILO uses a Barcode tool in the case of identification of received items or to be issued. Each item has one barcode that can be

printed with sticker paper No. 121. Barcodes displayed in the attachment. Where the drug stock/BMHP originating from the APBN and APBD is separated, this application also contains a Proof of Exit Goods (SBBK) and Handover Minutes (BAST) that can be printed in accordance with the late format, so that the goods distribution process is easier, and the accuracy of items and expenditure values can be directly recorded in the system. The technical format for coding goods is disaggregated based on the source of funds, source of products, year of receipt, stock code, month and year expired, and batch number.

For convenience and accuracy when inputting each transaction in the information system, an item coding system is proposed that can show the identity of the item in a standard format. Table 5 shows proposed SILO application menu, while Table 6 shows item code in SILO application.

Table 3. Priority Scale Forming Results of Strategy for Improvement of RKO in Riau Islands Pharmaceutical Installation Based on Hanlon Method

Solution	**Scoring Component**			**(BPR) Basic Priority Rating) (A+B) C/3**	**D Component**	**TPR (Total Priority Rating)**	**Priority**
	A	B	C				
1	6	8	8	37.33	1	37.33	I
2	5	2	2	4.66	1	4.66	IX
3	4	7	6	8.33	1	8.33	VIII
4	11	11	8	22.00	1	22.00	IV
5	10	4	3	14.00	1	14.00	V
6	9	9	5	30.00	1	30.00	II
7	8	3	2	11.00	1	11.00	VI
8	7	10	4	22.66	1	22.66	III
9	3	5	2	10.00	1	10.00	VII
10	2	1	1	1.00	1	1.00	X
11	1	0	0	0.00	1	0.00	XI
12	0	6	0	0.00	1	0.00	XII

Table 4. A Sequence of Priority Scale Strategies for Improvement of Annual RKO Preparation of Pharmaceutical Installation in Riau Islands Province

Sequence of Priority	**Strategies for Improvement**	**TPR Value**
1	Technical guidance and monitoring of the evaluation of human resources at the District / City Health Service are carried out regularly from the Riau Islands Provincial Pharmacy Installation (strategy 1).	37.33
2	The availability of clear guidebooks and rules about the types of drugs that can be provided, such as DOEN, Fornas, and JKN guidelines to Puskesmas (strategy 6).	30.00
3	Provision of SOPs and guidelines for written RKO preparation (strategy 8).	22.66
4	Pharmacy Installation Managers must be pharmacy staff and not burdened with multiple other jobs (strategy 4).	22.00
5	Increase the knowledge of the drug warehouse manager about drug planning, ability, and expertise in the use of supporting technology through training (strategy 5).	14.00
6	Socialize the guidelines/policies (DOEN and Fornas), trainings on the drug planning process, and the utilization of health program drugs to officers in health care facilities or users to basic health care facilities (strategy 7).	11.00
7	Increase the collaboration between pharmacy staff and all related elements (strategy 9).	10.00
8	Supervision and review of reports made by managers of health programs are coordinated with Pharmacy Installation and TPOT (strategy 3).	8.33
9	Simplification of reports from basic health facilities through information systems that are integrated with computerized systems up to the Province (Strategy 2).	4.66
10	Increased funds for drug supply at the provincial level (strategy 10)	1.00
11	Provision of computer facilities with an information system for drug management in the Riau Islands Provincial Pharmacy Installation (strategy 11)	0.00
12	Increase the participation of related parties, such as program drug administrators, drug managers in Pharmacy Installation, District / City Health Service Office, and Provincial Health Service (strategy 12).	0.00

DOI: 10.25077/josi.v18.n2.p97-106.2019

Table 5. Proposed SILO Application Display Menu

Input			Output		
Home	**Reception**	**Spending**	**Opname Stock**	**Reporting**	**Distribution Allocation**
1. Public Health Office Structure	1.Fiscal year	1.Fiscal year	1. Monthly	- Total drug availability	1. Tanjungpinang City
2. SOP - Reception - Storage - Distribution - Opname Stock - ABC/VEN	2. Budget Source - APBN - APBD - Others 3. Drug reception - Tablet	2.Budget source 3.drug release 4.Distribution - Letter of request for drugs - Attachment to drug request - Order of distribution for goods	2. Yearly - APBN - APBD - others 3. Drugs stock 4. Receipt list	- Report on drugs expenditure - Reports of expired and damaged drugs	2. Batam City 3. Bintan Districts 4. Tanjung Balai Karimun Districts 5. Lingga Districts 6. Natuna Districts 7. Anambas Islands Districts
3. Manual Book SILO	-Syrup/Suspension	- SPPB attachment	5. Spending list		8. RSUD
4. DOEN Drug List	-Injection	- BAST (handover event news)			9. Social Services
5. Guidelines of Disease Prevention	-Narcotics -Psychotropic -BMHP -ointment/cream -Suppository -Vaccine	- Exit goods proof letter (SBBK)		\	10. Kepri Governor Health Clinic 11. KLB 12. others

Table 6. Item code in the SILO application

A	B	C	D	E	F	G	H
X	X	XX	XX	XXXX	XX	XXXX	XXXXXXXX

An explanation of each of these codes is presented in Table 7. Code A group is the source of funds (APBD, APBN, and other sources), group B is the source of goods (Routine BufferStock, and Stock Program Buffer), group C is the year of receipt of goods (example: 15 for items received in 2015), group D is the group of items (example: tablet = 01, etc.).

Table 7. Description of Item Code in SILO Application

Code	Number of Digits	Meaning of Code	Choice / Example
A	1	Finance source	D = APBD N = APBN L = others
B	1	Goods source	R = *Buffer Stock* Routine P = *Buffer Stock* Program
C	2	Year of acceptance	Example = 15 (year 2015)
D	2	Goods group	Example = tablet (01), syrup (02), narcotics (03)
E	4	Goods identity	Example = 0009 Amoxicillin Tablets 500 mg (PT. Kimia Farma)
F	2	*Expired* month	Example = 08
G	4	*Expired* year	Example = 2020
H	6 to 8	Goods batch number	Example = AIE2099B

Examples of label items with identities and Barcodes can be seen in Figure 1, which means: Amoxicillin tablets 500 mg PT. Kimia Farma held from 2015, APBD funds for routine Buffers Stock, tablet item group (01) Batch Number AIE2099B, Expired in August 2020.

Group E is the identity of the item (example: 0009 for 500 mg tablets Amoxicillin PT. Kimia Farma), group F is the month of Expired (example: 08 for drugs expired in August), group G is the expired year (example: 2020 for drugs expired in 2020), and group H is the item Batch number (example: AIE2099B).

Figure 1. Example of Goods Label in SILO Application

In the SILO application, ABC VEN is available which can describe groups of goods based on vital, essential and non-essential categories as well as groups A, B and C. From the results of research conducted, a description of total drug expenditure and BMHP in the Riau Islands Province Pharmaceutical Installation in 2018 Rp. 2,679,554,978.00. Expenditure up to April 2019 is Rp. 493,364,698.00.

Total drug expenditure is Rp. 3,172,919,676.00. The total procurement received from the APBN, and APBD allocations from 2018 to April 2019 is Rp. 3,524,104,541.00, and from stock hospitalization until April 2019, the amount of drug availability and BMHP contained in Pharmacy Installation is only 166 items. From the ABC VEN analysis conducted from 2017 data, 2018 to April 2019 can be seen in Table 8.

Table 8. The drug budget amount uses the ABC VEN Method from drug transfer 2017, 2018 to April 2019 (Rupiah)

Classifi-cation	E	N	V
A	1,052,946,895	111,106,925	295,471,400
B	155,554,056	8,473,918	132,648,314
C	233,036,875	19,549,872	54,281,164
BMHP			
Total	**1,441,537,826**	**139,130,715**	**482,400,877**

The plan for drug provides is calculated by summing the average usage each month, buffer stock, lead time then multiplied by three and then deducting it by the remaining stock, looking at the drug expiration time and classifying drugs based on ABC VEN categories.

Table 9. Number of Drug Procurement in 2019

No.	The accuracy of the proposed item	Number of drugs/goods
1.	The number of proposed items that need to be held	142 items
2.	The amount does not need to be held	33 items
Total RKO proposal		175 items

Buffer Stock and lead time safety stock or buffer stock used in the Pharmaceutical Installation of Riau Islands Province by 30%. Buffer stock values are taken based on estimated drug use.

Table 10. Classification of the number of drug items and BMHP ABC VEN Method

Classification	V	E	N	BMHP
A	14	36	7	12
B	9	28	2	21
C	18	110	16	64
Total	41	174	25	97

Based on the ABC classification of the BMHP group, there are 12 items, including group A with a value of Rp. 2,489,443,360.00 (80%), group B consists of 21 items with a value of Rp. 458,405,802.00 (14%) and group C of Rp. 154,404,085,00 with a total of 64 items from a total of 97 BMHP items and with a total budget of Rp. 3,524,104,541.00.

Human Resources

The lack of advocacy by the health office to the regional government is one of the influencing factors because with correct advocacy it will provide a good understanding of the important role of pharmaceutical work on the quality of community services so that the local government will allocate sufficient budget to support pharmacy work programs such as training activities for drug managers and their networks. From extracting facts through in-depth interviews, information was obtained that in proposing and using drugs, users had not fully relied on existing references. In fact, users generally do not know in detail about references such as DOEN and Fornas. The lack of outreach from the Provincial, District/Municipal Health Service is the cause of this, besides also because the communication between medical personnel and pharmacists or drug managers is not well established.

Supporting Factors Improvement

Budgeting is the process of detailing needs at a specific standard scale in the form of currencies and quantities. In logistics, management budgeting is a chain and is very closely related to the planning that will be made. In observations that have been made, certainty regarding the amount of budget provided each year for the procurement of drugs and disposable medical materials (BMHP) cannot be predicted. Accumulation of existing data to plan annual drug provide needs to use a computerized management information system, and data update must be maintained to see the transfer and availability of drugs regularly, and hardware requirements, software that supports all drug logistics management needs and people who responsible for the program. Besides supporting facilities and infrastructure such as Wi-Fi, and high access so that monitoring of availability can be carried out by the relevant stakeholders anywhere, and can be integrated into the regency/city.

Management of drug availability is organized in the five basic functions of the drug management cycle, namely, selection, calculation, purchase, distribution, and use. Amid the cycle there is a core management support system, namely organization, finance, information management, human resources, and quality assurance management. The success of the drug management cycle depends on the ability to be trusted and the consistency of procurement, as well as the quality standards of medicines at a level that can be achieved by health facilities at all levels of the health care system [5].

The further management of the drug circulation process, by having public health goals for sustainable development is a significant problem. Each country has national drug rules as a major part of public health rules so that it can ensure competent, safe, qualified, and priced drugs that can be achieved by the government and society. In developing countries, imported drugs are expensive and increase the average allocation of drugs and increase costs [2].

DOI: 10.25077/josi.v18.n2.p97-106.2019

CONCLUSIONS

Drug provides planning in Pharmacy Installations Riau Islands Province currently uses consumption methods. From the results of the identification of the problems carried out through in-depth interviews and FGD, the problems faced in planning the drug provides of the Provincial Stock Buffer include data, human resources, and supporting factors in anticipating the needs of medication. Four main priority scales of improvement strategies obtained in the preparation of the plan are: (1) Technical guidance and monitoring of evaluation of human resources at the district/city health office carried out from the Riau Islands Provincial Pharmaceutical Installation and carried out periodically; (2) Availability of clear guidebooks and rules on the types of drugs can be proposed such as DOEN, National Fornas and JKN guidelines to Puskesmas; (3) Provision of SOPs and guidelines for written RKO preparation; (4) Pharmacy Installation Managers must be pharmaceutical and not burdened with multiple other jobs. The value of TPR (Total Priority Rating) is 37.33; 30.00; 22.66 and 22.00. Development of drug planning is possible to produce annual drug provides planning at the level of Pharmacy Installation in Riau Islands Province, namely the proposed SILO Application (Drug Logistics Information System) as an effort to improve planning for annual drug provides. With a good information system, it is expected that the availability of drugs can be better, and the number of expired drugs can be reduced.

SUGGESTIONS

1. The Department of Health needs to advocate to the Regional Government of the Riau Islands to the regency/city level to meet the needs of pharmacy staff and facilitate all the improvements made by the Riau Islands Provincial Pharmaceutical Installation.
2. The Riau Islands Province Pharmacy Installation can support efforts to improve the preparation of drug provides by providing SOP and written RKO preparation guidelines, conducting training and monitoring and evaluation up to the basic health services, coordinating with district/city health offices to provide written advice and information, and increasing collaboration between pharmacy and all-related staff, suggesting district/city health office to implement DOEN, Fornas and use of medicines, training and workshops to improve management skills and skills.
3. In an effort to improve data validation in the preparation of the drug provides plan in the Pharmaceutical Installation of Riau Islands Province, SILO application (Drug Logistics Information System) is recommended. Furthermore, in the selection of prioritized types of drugs, it is necessary based on ABC VEN analysis for drug items and BMHP which will be planned to be held so that the availability of drugs can be controlled and the number and items of goods purchased according to priority needs.

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NOMENCLATURE

APBN	= Budget of National Revenue and Financing
APBD	= Budget of Regional Revenue and Financing
RKO	= Drugs Provides Planning
SILO	= System of Information and Logistics of Drugs
BMHP	= Used Medical Materials
TPOT	= Integrated Drug Planning Team
DOEN	= National Essential Drugs List
FORNAS	= National Formularium
R	= Amount of RKO
A	= Average drugs usage in a year
S	= Remaining stock

 DOI: 10.25077/josi.v18.n2.p97-106.2019