

CHAPTER I

INTRODUCTION

This chapter describes the background, problem formulation, research objectives, scopes, and writing systematics that will be discussed in the Final Project.

1.1 Background

The Covid-19 virus pandemic has hit the whole world since 2019 until now. After running for almost two years, the end of this pandemic has yet to be seen, especially in Indonesia. The development of the Covid-19 virus in Indonesia from March 2020 to November 2021 based on the covid19.go.id site can be seen in **Figure 1** below.

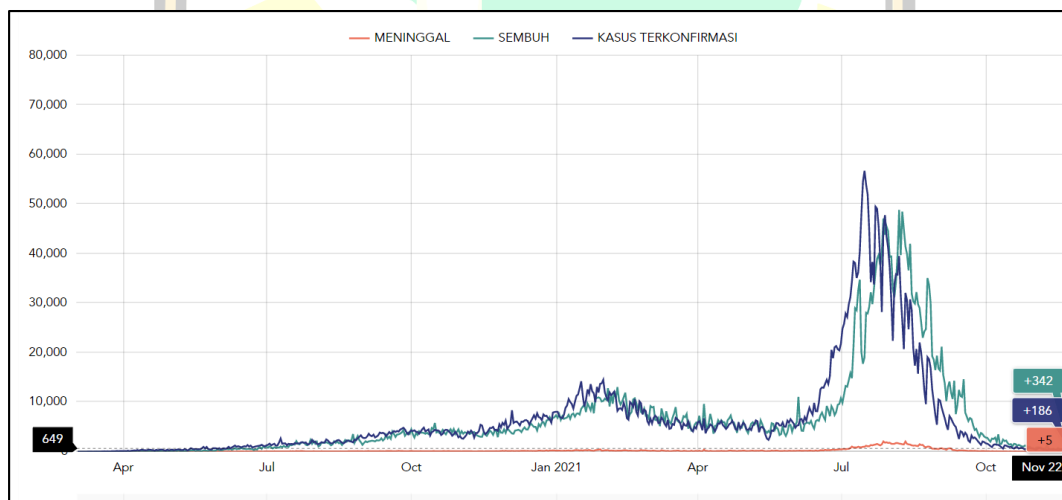


Figure 1. 1 Covid-19 Progress Chart

The fluctuating development of the Covid-19 virus has caused many businesses in various fields to experience a decline in income, for example in the tourism industry because people are encouraged to reduce activities outside the home so that tourist attractions tend to be quiet and rarely visited by the public. However, there are some businesses that have experienced a significant

increase in income, for example in the pharmacy industry, namely pharmacies. A pharmacy is a place that sells medicines. The very high increase in medicines demand during this pandemic makes every pharmacy must have sufficient supplies.

According to Supardi (2019), a pharmacy is a pharmaceutical service facility where pharmacists practice pharmacy. A pharmacy must be managed by pharmacists who already have official certification so that the medicines marketed are under the medicines manufacturing procedures. According to Permenkes 87 of 2013, medicine is a substance or a combination of materials used to influence or investigate physiological systems or pathological conditions in the context of establishing the diagnosis, prevention, healing, recovery, health promotion, and contraception, including biological products.

According to Nasution (2008) Inventory is an idle resource waiting for further processing. Companies can fulfill buyer orders quickly and precisely, and will not cause excess inventory which can result in inefficient use of funds if good inventory planning is made (Darmawan et al., 2015). Inventory control has a goal so that the inventory costs incurred by the company are efficient by purchasing raw materials by following the right production plan so that there is no shortage or excess of raw materials. Lack of raw material inventory will result in the production process being hampered, and excess raw material inventory will result in large storage costs that must be incurred by the company. Both of these things are very ineffective if allowed to last long enough, because it will result in many losses and reduced profits obtained by the company.

Apotek XX is one of the pharmacies located on Jalan Pasar Raya Barat Kp. Jao, West Padang District, Padang City, West Sumatra. This pharmacy was established in 1956, but changed ownership in 1983. Based on interviews conducted with pharmacist staff, Apotek XX has not implemented certain policies regarding medicines supply control at the pharmacy. Medicines orders are made every day, but the medicines may come in 3 or 4 days. Some of the types of medicines that were sold the most during the January to December 2021 period were Acne Feldin,

Albothyl Concentraf, Alken Instant Hand Spray, Alkohol 70% 100 ml, Alkohol 70% 200 ml, Ancen Hand Sanitizer, Antasida Doen Syr, Asepsot Reg, Astrina G, Azimorec. The following is data on purchases, sales, and inventories of these medicines in 2021 which can be seen in **Table 1.1** below.

Table 1. 1 Medicines Inventory Data

No	Medicines	Description	Period											
			1	2	3	4	5	6	7	8	9	10	11	12
1	Acne Feldin	Incoming Medicines	15	3	2	3	3	3	4	3	3	5	4	3
		Demand	1	3	1	3	2	2	1	3	2	2	1	2
		Stock	14	14	15	15	16	17	20	20	21	24	27	28
2	Albothyl Concentraf	Incoming Medicines	15	1	3	1	0	3	2	1	2	2	6	2
		Demand	1	2	2	1	1	0	4	7	3	5	8	5
		Stock	14	13	14	14	13	16	14	8	7	4	2	0
3	Alken Instant Hand Spray	Incoming Medicines	20	8	11	10	7	5	2	5	3	2	1	1
		Demand	7	6	9	7	4	2	7	6	3	8	10	5
		Stock	13	15	17	20	23	26	21	20	20	14	5	1
4	Alkohol 70% 100ml	Incoming Medicines	30	9	11	2	6	4	7	5	4	6	7	5
		Demand	5	6	9	4	2	4	3	1	6	9	3	0
		Stock	25	28	30	28	32	32	36	40	38	35	39	44
5	Alkohol 70% 200ml	Incoming Medicines	30	6	3	3	12	10	5	7	8	10	13	6
		Demand	5	5	4	9	9	7	2	5	7	11	9	4
		Stock	25	26	25	19	22	25	28	30	31	30	34	36
6	Ancen Hand Sanitizer	Incoming Medicines	20	2	16	3	5	4	5	7	4	3	5	7
		Demand	7	3	9	12	3	5	2	6	3	9	6	2
		Stock	13	12	19	10	12	11	14	15	16	10	9	14
7	Antasida Doen Syr	Incoming Medicines	15	2	1	4	5	8	8	4	2	7	5	5
		Demand	2	4	8	2	1	3	5	7	2	9	1	7
		Stock	13	11	4	6	10	15	18	15	15	13	17	15
8	Asepsot Reg	Incoming Medicines	15	5	4	4	5	1	4	5	2	8	2	4
		Demand	3	2	5	5	1	4	2	1	11	0	3	2
		Stock	12	15	14	13	17	14	16	20	11	19	18	20
9	Astrina G	Incoming Medicines	10	20	21	25	15	18	22	25	16	30	35	25
		Demand	9	12	16	21	13	10	18	27	39	35	32	16
		Stock	1	9	14	18	20	28	32	30	7	2	5	14
10	Azimorec	Incoming Medicines	15	2	6	4	3	4	6	4	8	6	2	7
		Demand	3	5	1	7	4	2	5	7	9	2	5	2
		Stock	12	9	14	11	10	12	13	10	9	13	10	15

Based on **Table 1.1**, it can be seen that there is an excess of medicines supply and a shortage of medicines supply at the Apotek XX. For example, in the Albothyl Concentraf medicine in December, it is stated that the medicine supply is

0 which means there is a shortage of supplies. Overstock medicine supply occurred in Acne Feldin medicines in April where the Pharmacy had an excess supply of 15 medicines, but the following month the Pharmacy continued to order Acne Feldin for 3 medicines, meanwhile the demand for this medicines are only 3, so that this added to the overstock medicine supply. This problem occurs in many types of medicines at the Apotek XX. Detailed data about sales, purchasing, and inventory can be seen in **Appendix A**. Based on an interview with the Apotek XX, the *stock of purchasing medicines for tomorrow is based on purchases on the previous day*, which causes daily medicine purchases to be varied and uncertain, and many medicines will reach their *expiration* so they must be destroyed.

Based on the problems above, it can be concluded that the Apotek XX requires certain policies to control medicine supply because the problem of shortage and excess of medicines is detrimental to both the pharmacy and the consumer. Inventory control can also help the Apotek XX in minimizing the costs incurred by the pharmacy in storing medicines. Until now, there has been no research that discusses the control of medicine supply at the Apotek XX. Therefore, the researchers conducted a study to evaluate the inventory control used by the Apotek XX and propose appropriate inventory control planning using predetermined methods to reduce inventory costs.

1.2 Formulation of the problem

Based on the explanation on the background, there is an imbalance between supply and consumer demand at the Apotek XX. Often there is a shortage of supplies due to demand for medicines that are too high, or excess supplies of medicines due to low demand for medicines. The formulation of the problem that will be discussed in this study is how to make an inventory control for medicines supply at the Apotek XX?

1.3 Research Objective

Based on the formulation of the problem and the background of the research, the purpose of this study is to make an inventory control for medicines supply to be implemented at the Apotek XX.

1.4 Research Scopes

The scopes of the problem used in this study are as follows:

1. The medicines inventory control at the Apotek XX is calculated using data on sales and purchases of medicines from January to December 2021.
2. The buying and selling prices of all medicines are assumed to be constant
3. All medicines ordered by the pharmacy are assumed to be in good condition.

1.5 Writing system

The writing systematics used in this research are as follows:

CHAPTER I INTRODUCTION

This chapter contains the background of the research, problem formulation, research objectives, research scopes, and systematic writing of the Final Project.

CHAPTER II THEORETICAL BASIS

This chapter contains the theories related to inventory control planning. The theory discussed is inventory, ABC analysis method for medicines inventory classification, continuous review system method for calculating order lot size, joint replenishment method for ordering several items simultaneously in large quantities, and forecasting demand for the future.

CHAPTER III RESEARCH METHODOLOGY

This chapter contains the steps involved in conducting research. The stages are literature study, problem identification, problem formulation, data collection and processing, results analysis and discussion, and a flowchart from the overall research results.

CHAPTER IV DATA PROCESSING

This chapter contains the processing of the data, start from classifying the medicines using ABC analysis, calculate the data using model Q probabilistic and joint replenishment method, and forecasting demand for the future.

CHAPTER V ANALYSIS

This chapter contains the analysis of the data processing, start from ABC classification analysis, model Q probabilistic analysis, joint replenishment method analysis, comparison of the actual and proposed method, and analysis of demand forecasting.

CHAPTER VI CLOSING

This chapter contains the summary of the research and suggestions that can be given for the next research.

