

# CHAPTER I

## INTRODUCTION

This chapter introduces overall study of the research. This chapter consists of background of the research, problem formulation, research objectives, limitations of the research, and outline of final project report. Each topic will be explained in the paragraph below.

### 1.1 Background

Inventory is something that cannot be avoided by organizations. Fluctuation of demand and the unreliability of supplier make the organization needs inventory. Organization, such as a company, cannot predict the demand significantly. This condition turns the inventory being essential to fulfill the demand. In other condition, sometimes the supplier cannot fulfill the demand of company immediately. Inventory can protect the company from unreliable suppliers or when an item is scarce and it is difficult to ensure a steady supply (Muller, 2003).

Inventory includes all stock of any items or resources used in an organization. To control and monitor the levels of inventory, there is a set of policies to determine what levels should be maintained, when stock should be replenished, and the quantity of orders should be ordered. It is called as the inventory system. Different kind of organization may have different definition of inventory. In services, inventory generally refers to the stored goods to be sold and the supplies that is necessary to administer the service. Analysis of inventory, whether in manufactures, distribution, retail, or services, is purposed to specify when items should be ordered and how large the order should be (Jacobs and Richard, 2013).

Inventory has to be controlled by a company. The increasing of number of inventory will also increase the investment of inventory and it makes the modal

cannot be used to other sector. In the other side, the decreasing of inventory will increase the number of stockout. When the company does not have enough inventory to fulfill the demand, it can increase the stockout cost. Thus, the company must control the inventory to be optimum by minimizing of all cost in inventory (Baroto, 2000).

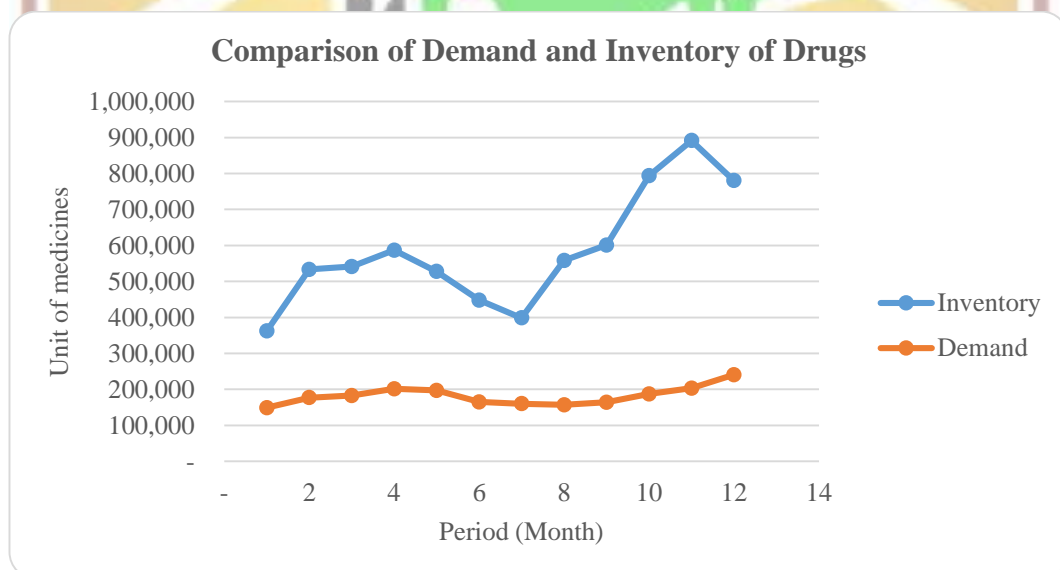
The problem of inventory can be occurred in service organizations. One of them is in hospital. Hospital is one of health service facilities for people who need medical service. Based on the UU No. 44 year 2009, hospital is a health care institution that provides individual health care and serves the inpatient, outpatient, and emergency patient. Hospital has a functional unit to manage the drugs and other medical products such as disposable medical product and medical laboratory material which is called Pharmacy Department.

Pharmacy Department has responsible to do all of pharmacy services in the hospital. Based on Permenkes RI No. 58 year of 2014, the standard of pharmacy services includes direct service and the responsible to the patient that is related to pharmacy supplies, medical products, disposable medical product, and provides clinical pharmacy services to increase the life quality of patient. Pharmacy Department needs to manage the inventory of drugs, disposable medical product, and medical laboratory materials. It is essential to convince that the needs of patients in term of drugs can be fulfilled at the time while the inventory cost is kept minimum, and the availability of drugs will make the recovery process becomes better and faster.

Pharmacy Department of RSUD Pariaman is the functional unit for pharmacies services in RSUD Pariaman. It manages some kinds of pharmacies supplies such as drugs, disposable medical product, and medical laboratory material. All of these goods are ordered from external suppliers by using two types of funding source, they are APBD (*Anggaran Pendapatan dan Belanja Daerah*) and BLUD (*Badan Layanan Umum Daerah*) funding. APBD funding is sourced from the regional governance and the using of this funding has to follow some rules.

Pharmacy Department has to order through the central distribution. BLUD funding is sourced from hospital revenue which the hospital management has an authority to use it based on the governance rules. Thus, the pharmacies supplies can be ordered directly from external supplier.

The current order quantity is only determined based on the average of the last three months' demand and it will be ordered to fulfill the next three months' demand. Frequently, it is also influenced by the assumptions of the storage supervisor to add it or reduce it based on the cases previously. Some other drugs are ordered if the stock is almost empty and the order quantity is the same with the demand before. This decision makes the number of inventory becomes inefficient. Sometimes the number of inventory balances the demand, but most number of inventory is much bigger than demand. This causes some materials piling in the storage. Figure 1.1 will show the condition of inventory and demand of drugs in overall during 2015 in Pharmacy Department of RSUD Pariaman.



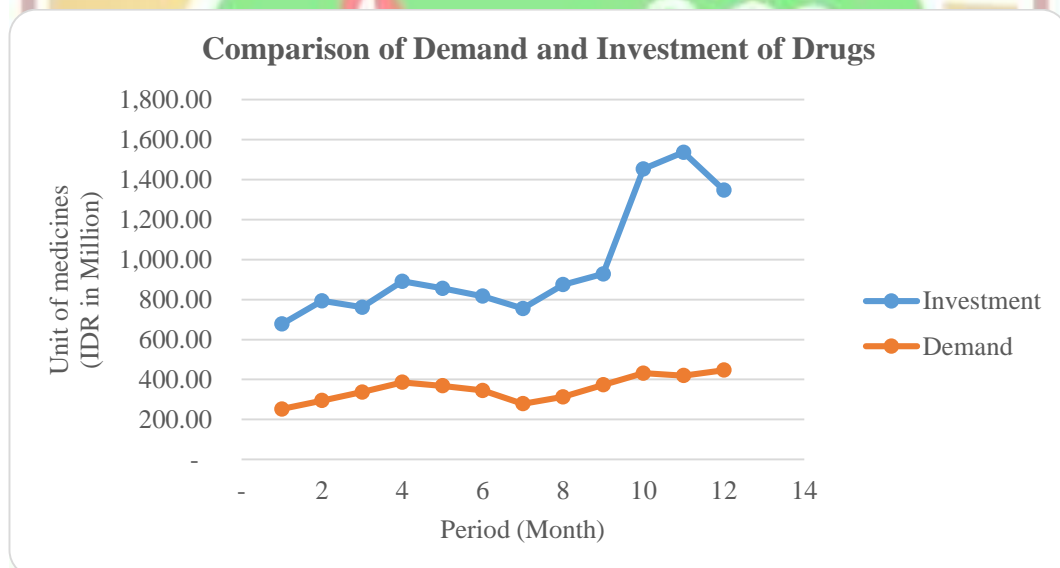
**Figure 1.1** The Comparison of Demand and Inventory of Drugs  
(Source: Pharmacy Department of RSUD Pariaman, 2015)

The graph in Figure 1.1 shows that the number of inventory in each period is always higher than the demand which the amount of inventory can reach double of demand and sometimes more. The highest investment is during November. In



this period, the number of inventory is maximum because the Pharmacy Department keeps inventory more than usual to anticipate the demand and unreliability of supplier early in next year.

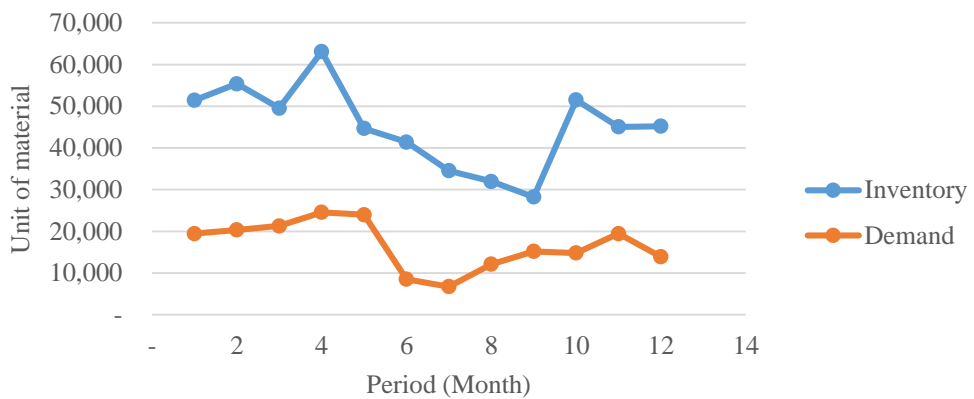
When the unit number of drugs inventory is converted to unit of money (IDR), the pattern is almost the same with the graph above in which the investment to keep the inventory is bigger than the value of demand. The average of investment for drugs in a month is IDR 974.319.538,08 in which the average of demand value is only IDR 353.853.175,17. The average of inventory in the end of period is still high in which the value is IDR 620.466.362,92 in a month with the number of item is 586 item. The comparison of demand value and investment for drugs in IDR is shown in Figure 1.2.



**Figure 1.2** The Comparison of Demand Value and Investment of Drugs in IDR  
(Source: Pharmacy Department of RSUD Pariaman, 2015)

The same condition is also occurred to disposable material. The demand of disposable materials is more fluctuates that of drugs. Figure 1.3 shows the condition of demand and inventory of disposable medical product during 2015 in which the number of inventory is not balanced with the demand. Sometimes the number of inventory is too much and it is always more than the demand.

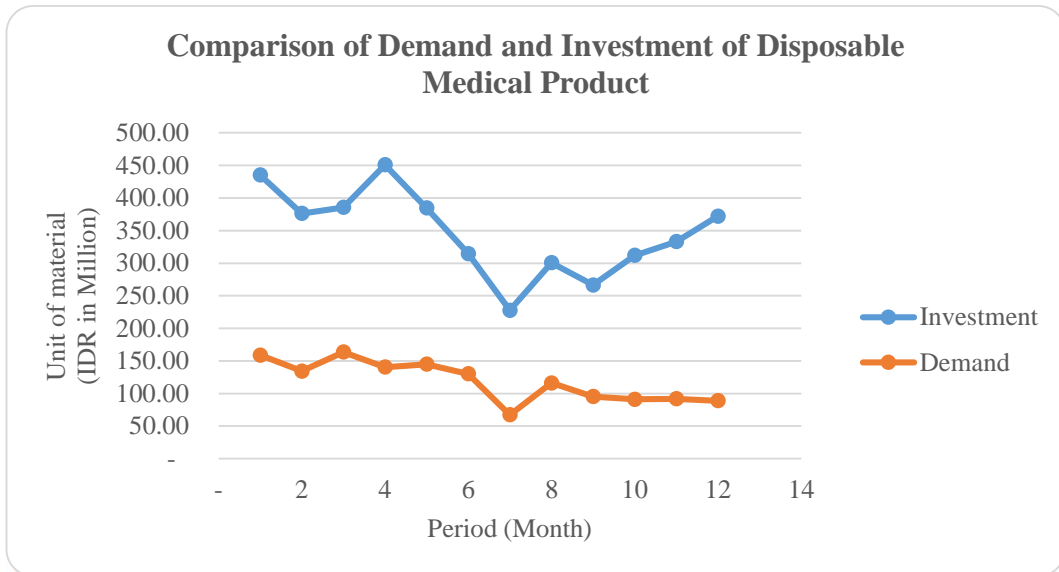
**The Comparison of Demand and Inventory of Disposable Medical Product**



**Figure 1.3** The Comparison of Demand and Inventory of Disposable Medical Product

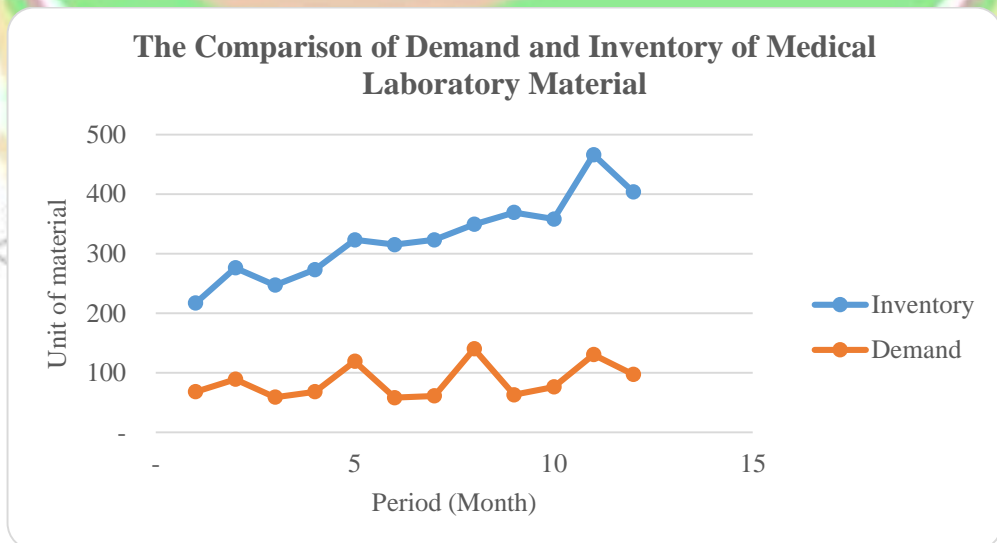
(Source: Pharmacy Department of RSUD Pariaman, 2015)

In term of money, the investment for disposable medical product is also bigger than the demand value. The pattern of the graph is almost same except for the first and the last period of 2015. In unit of goods, the number disposable medical product inventory for the first period is lower than second period, but the investment for the first period is higher. It is caused in the first period there are some purchases for disposable medical product that the prices are more expensive than the product which are purchased in second period. The same condition is also occurred during the last period. The average of investment for disposable medical product in a month is IDR 346.610.363,17 and the average of demand value is only IDR 118.550.422,42. At the end of period, the average of inventory value is about IDR 228.059.940,75 with the number of item is 384 kinds of product. The comparison of demand value and the investment for disposable medical product in each period can be seen in the graph below.



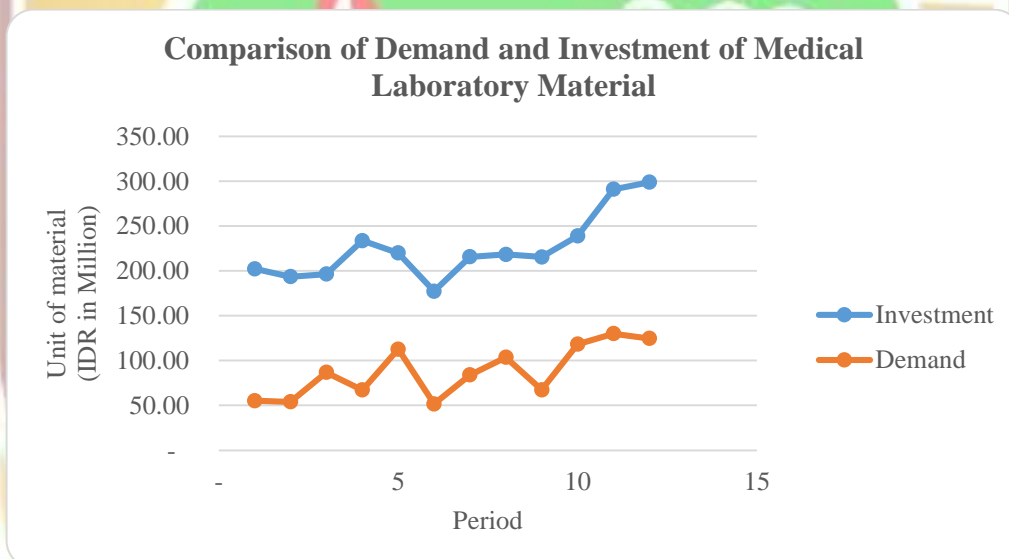
**Figure 1.4** The Comparison of Demand Value and Investment of Disposable Medical Product in Rupiah  
 (Source: Pharmacy Department of RSUD Pariaman, 2015)

Pharmacy Department does not only manage the drugs and disposable medical products, but also medical laboratory materials. The same condition is occurred with these materials, as well Figure 1.5 shows the condition of demand and inventory of laboratory materials in Pharmacy Department of RSUD Pariaman during 2015. The graph shows that the demand fluctuates while the inventory takes place for beyond demand with increasing trend over time.



**Figure 1.5** The Comparison of Demand and Inventory of Medical Laboratory Material  
 (Source: Pharmacy Department of RSUD Pariaman, 2015)

The investment for medical laboratory materials is the smallest one compared with the investment of drugs and disposable medical products, but it is still higher than the demand value. Medical laboratory materials also consume bigger investment for lower number of inventory then the higher number of inventory as it happened in disposable medical products. The main cause is the difference in prices of material purchased. The average of investment for laboratory materials in a month is IDR 236.807.056,17 in which the average of demand value is only IDR 88.006.502,42. At the end of period, pharmacy Department still keeps high inventory in which the average value in a month is about IDR 137.189.467,75 with the number of item is 134 item. The comparison of demand value and investment for medical laboratory materials can be seen in Figure 1.6.



**Figure 1.6** The Comparison of Demand Value and Investment of Medical Laboratory Materials in Rupiah  
(Source: Pharmacy Department of RSUD Pariaman, 2015)

Pharmacy Department of RSUD Pariaman consumes high investment for inventory. The average of investment in each month is always higher than the demand value and reaches the double of the demand value. The high investment causes high value of inventory at the end of period. It means that Pharmacy Department keeps more inventories, and it needs more cost both to purchase it and hold it at the storage.



Inventory is needed to reach higher service level, but keeping inventory too much will increase the cost to carry it. The problem in Pharmacy Department is not only about the decision to determine the number of order quantity. Although stockout is never happened in Pharmacy Department, but frequently some of drugs is stockout in the supplier and it makes Pharmacy Department cannot order for the next time. In this case, a new brand will replace it. Stock out is usually occurred because of unavailable product from the distributor. Thus to fulfill the next demand, Pharmacy Department is usually looking for other distributors which can give the same price or make a request to the Director of RSUD Pariaman to order from the other brand with higher price. It will increase the cost of inventory in Pharmacy Department of RSUD Pariaman. Based on this situation, Pharmacy Department of RSUD Pariaman needs to evaluate the actual inventory policy to maximize the customer service while keeping optimum inventory cost.

## **1.2 Problem Formulation**

The problem formulation of this research is how to evaluate and propose the inventory policy of drugs, disposable medical products, and medical laboratory material. This is aimed to optimize the total cost of inventory in Pharmacy Department of RSUD Pariaman. The evaluation and proposal includes the inventory management and order mechanism.

## **1.3 Research Objectives**

There are some research objectives that will be achieved in this research. They are:

1. To evaluate the current inventory policy of drugs, disposable medical products, and laboratory material in Pharmacy Department of RSUD Pariaman.
2. To determine the proposed inventory policy of drugs, disposable medical product, and medical laboratory material to optimize the inventory cost in Pharmacy Department of RSUD Pariaman.



## 1.4 Limitations of the Research

The limitations of research will vary for one another. In this research, the limitations are:

1. All of data that will be used in calculation is the data in 2015.
2. The research is only for drugs for BPJS' patient, disposable medical product, and medical laboratory material in Pharmacy Department of RSUD Pariaman that is used BLUD's funding.

## 1.5 Proposal Report Organization

This report consists of five chapters. The contents of each chapter are:

### CHAPTER I INTRODUCTION

This chapter will explain about the motivation in conducting the research. There is problem formulation that will be completed, as well of objectives of the research, the limitation of research object, and outline of this report.

### CHAPTER II LITERATURE REVIEW

This chapter explained about some theories which is appropriate with the research. The theories will be used as a guidance to determine the optimal solution of the problem in the research.

### CHAPTER III RESEARCH METODOLOGY

The method of the research will be explained in this chapter. Research methodology describes all of the process of doing the research. It is started from doing the preliminary study, identify the problem, the steps to get the result and discussion, and the conclusion of the research.

### CHAPTER IV RESULT AND DISCUSSION

This chapter consists of result and discussion. Result explains about the process of data analyzing which is started from collecting the data and determine the solution. Discussions explain the analysis of the result to make sure the result can be implemented.

## CHAPTER V CONCLUSION AND RECOMMENDATION

This chapter consist of two sub chapter. The first is conclusion which explain about the main result of the research. The second is the recommendation for the research in future.

