CHAPTER I
INTRODUCTION

This chapter will discuss on the background and problem statement happened with the healthcare supply chain in Thailand, including the objective, scope of work and expected results.

1.1 Background and problem statement

According to Thailand Health Profile 2005-2007, Thai's health expenditures was on a rapid upward trend, rising from 25,315 million baht in 1980 to 434,974 million baht in 2005 (Figure 1.1). Overall health expenditure per capita rose from 545 baht in 1980 to 6,994 baht in 2005 (Figure 1.2). From Figure 1.1 and Figure 1.2, they can show that Thais have expenditure for their health as increasing rates every year.

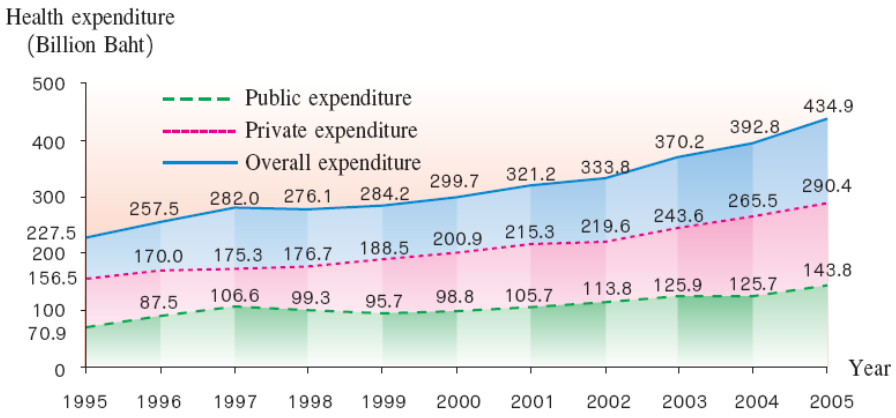

Figure 1.1 Overall, public and private health expenditures, 1995-2005

Sources: 1.Office of the National Economic and Social Development Board. National Income, Thailand, 2005.

2. Tangcharoensathien V., Sufferings and Causes in Health Systems, 1996

3. Myers C., Financing Health Services and Medical Care in Thailand, 1985

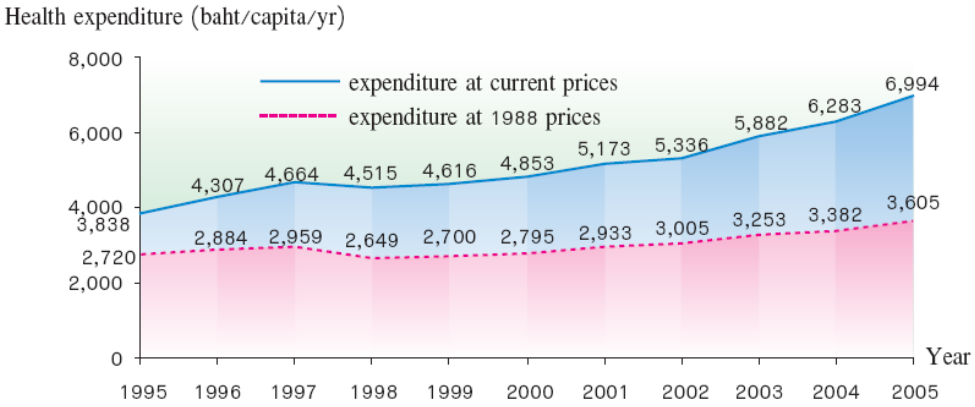

Figure 1.2 Overall health expenditure per capita at current prices and at 1988 prices, 1995-2005

Sources: 1.Office of the National Economic and Social Development Board. National Income, Thailand, 2005

2. Tangcharoensathien V., Sufferings and Causes in Health Systems, 1996

3. Myers C., Financing Health Services and Medical Care in Thailand, 1985

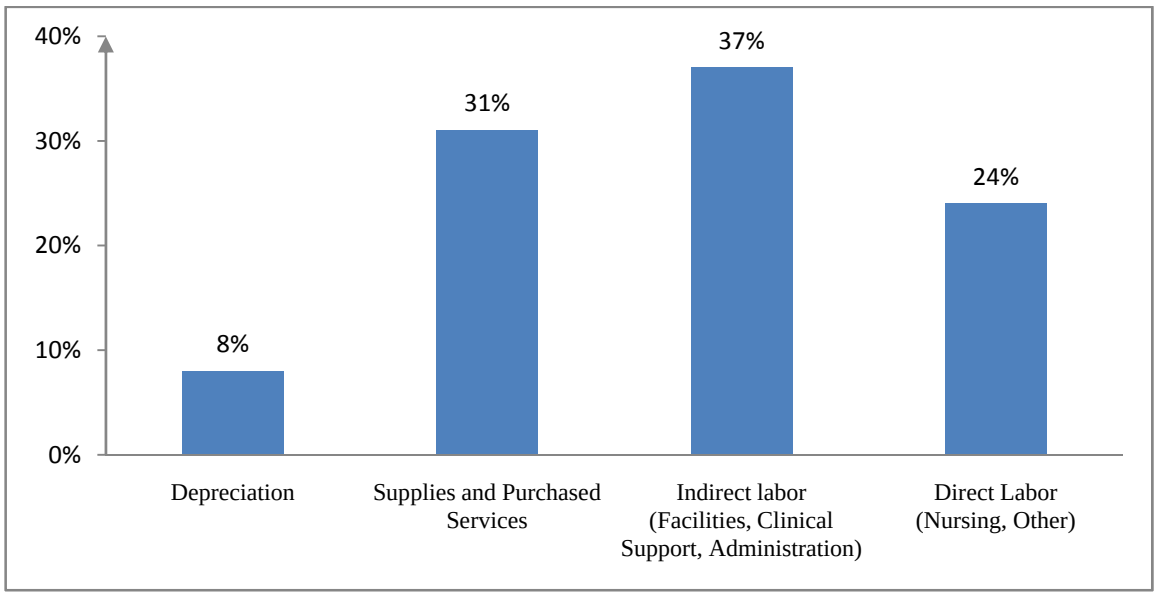

Figure 1.3 Hospital operating expenses

Souces: Schneller E.S. and Smeltzer L.R., Strategic Management of the Health Care Supply Chain, 2006

Figure 1.3 shows the overall hospital operating expenses by major expense. Supplies and purchased services accounting is one of hospital operating expense and it is the 2nd largest cost for a hospital. It is increasingly acknowledged that supply chain management is one of the organizational ways for the improvement of organizational performance.

In addition, the number of foreign patients has been increased from 0.55 million in 2001, to 1.3 million in 2005, which is the highest rank in Asia (Cheng, 2001). Pachanee and Wibulpolprasert (2006) addressed the estimated number of patients from medical tourism in Thailand in the year of 2015 that is about 7 million outpatients and 0.4 million inpatients. It can confirm that there are urgent needs for the improvement of Thai healthcare sector.

Nowadays, the successful supply chain is not only concern about the quality of products for customers, but also with the organizational and supply chain management that aims to gain competitive advantage. The supply chain comprises all processes associated with raw materials until finished goods flow to end users. Beamon (1999) and Handfield et al. (1999) define a supply chain as a system of organization, activities, information and raw materials involved in moving a product or service from supplier to customer. The competition of the business world has changed. Many businesses need to gain a competitive advantage over others and to maintain themselves. There are many way to improve businesses and one of most considerable improvement has been made in supply chain management. The supply chain management has aimed to gain the benefits over competitors (Chan, 2003). Many literature reviews of health care supply chain related reveal one of the barriers to implementation of supply chain management practices that is the need for data collection and performance measurement (McKone-Sweet et al., 2005). Performance measurement is a key which can quantify both the effectiveness and efficiency in a supply chain (Neely et al., 1995; Beamon, 1999; Gunasekaran et al., 2001; Shepherd et al., 2006; Ramaa, 2009). It can provide necessary management feedback to decision makers according to Sink et al. (1989) claim that you cannot manage what you cannot measure. However, many studies have argued the performance measurement in only financial term in the present (Gunasekaran et al., 2001; Yuan and Chiu, 2007; Wang et al., 2008). There are different kinds of performance measurement with dissimilar

industry sectors and many literatures have already been discussed (Beamon, 1999). However, there is not complete discussion which is the suitable measurement to unique supply chain.

To maintain and improve the competitive power of many industries, there is a critical step to select agile, competent and compatible partners quickly. However, the competitive advantages are not just concern about the quality of products for customers, but also concern with the internal organization management including the relationships with the external organizations (suppliers, and vendors) as partner. The improvement of the overall performance of supply chain, the member of supply chain should behave as a part of a unified system and coordinate with each other. At the present, many industries spend their interesting on supply chain management and collaborating with others supplier chain networks increasingly aims to improve their performance and competitive advantage (Sanders and Premus, 2005; Simatupang and Sridharan , 2004a, 2005; Vereecke and Muylle, 2006). Collaboration is a driving force of supply chain management to be more effective (Horvath, 2001). The collaborative perspectives involved with collaborative working for joint planning, joint product development, mutual exchange information and integrate information systems, cross coordination on the various level in the companies that is similar to provide improved business success for organization and supply chain collaboration is a strategic response to the challenges that originate from the dependencies supply chain members (Arshinder et al, 2008). Nowadays, there are relevant research endeavors in measuring supply chain performance aims either to identify the critical performance measures (Gunasekaran et al., 2001; Lambert and Pohlen, 2001; Hofman, 2004) or to investigate the collaborative success in a supply chain (Corsten and Kumar, 2005; Fawcett et al., 2008), however there are no research which applied the related collaboration performance measures with other performance measures in their model framework.

There is a new important key issue for a supply chain that is supply chain collaboration. Simatupang and Sridharan (2004a); Sanders and Premus (2005); Vereecke and Muylle (2006); Sanders (2008) claim that successful supply chain collaboration enables firms to achieve better performance improvement. For example, Wal-Mart has collaborated with its major suppliers about demand planning and replenishment that these can increase in inventory turns, reduce inventory costs,

reduce storage and handling costs, and improve retail sales (Parks, 1999). The fact of supply chain performance was revealed by Christopher (1989) that it depends on the quality of the relationship between upstream to downstream partners.

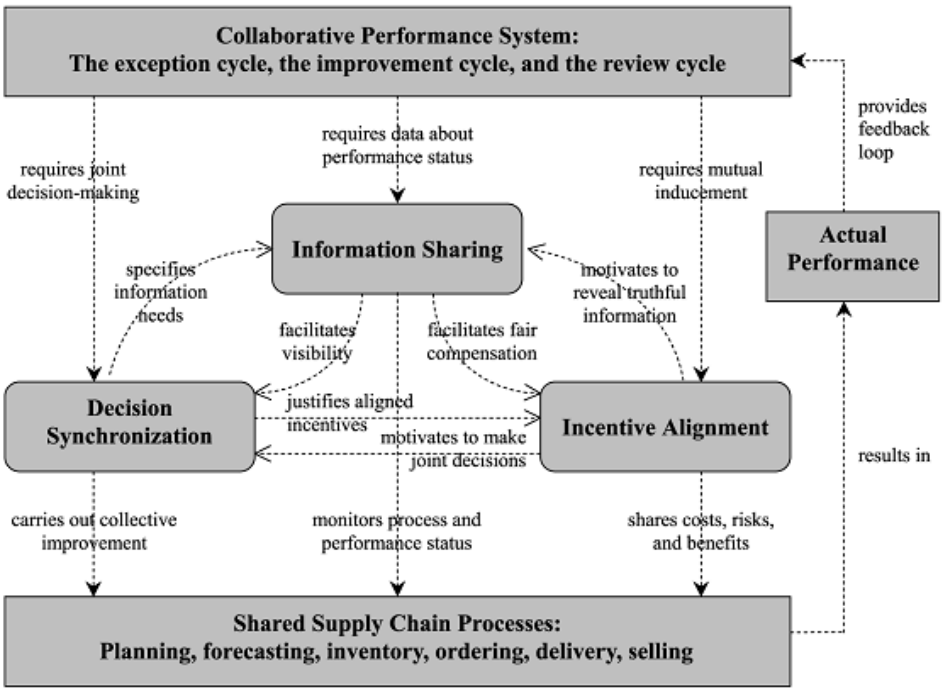

Figure 1.4 A conceptual model for supply chain collaboration

Source: Simatupang and Sridharan, 2004b

Figure 1.4 reveals the linkage that the three dimensions of information sharing, incentive alignment, and decision synchronization are contribute to supply chain performance improvement and Wan and Chen (2010) have applied this conceptual model in studies of the relational embeddedness, manufacturer-supplier collaboration and performance improvement: a theoretical model. For example by Simatupang and Sridharan (2004b), information sharing utilizes better visibility of process status and performance metric for decision maker. Incentive alignment motivates chain members to make joint decisions that aim to the common goals. Decision synchronization drives the improvement process through using key operational metrics.

This research is to study criteria and sub-criteria involving with the performance of healthcare supply chain and to develop a framework which adopted

the viewpoints of Simatupang and Sridharan's study (Simatupang and Sridharan, 2004a, 2005) to this study. The analysis of criteria and sub-criteria is based on Delphi method as modeling tool and Analytical Network Process (ANP) method as prioritizing and evaluating tool. The objective of the performance measurement framework for healthcare supply chain is to prioritize criteria and sub-criteria reflecting the overall healthcare supply chain performance and also contribute to the suggesting the important criteria and sub-criteria for improving healthcare supply chain performance in the next future. This study considered with both quantitative and qualitative criteria relating the performance of healthcare supply chain. However, the relationships among criteria and sub-criteria analysis, it is so complicate to identify appropriated criteria. Thus, the modified Delphi method was employed in criteria and sub-criteria selection process and the Analytical Network Process (ANP) method was used in prioritizing and evaluating process.

The Delphi method is a tool that used to obtain the most reliable consensus of among group and it was developed by the RAND Corporation in the 1950s (Dalkey and Helmer, 1963). It has an iterative process and non-bias outcomes with specific related experts. For this study, Delphi method was employed in selecting criteria and sub-criteria which those form to be the performance measurement framework for the healthcare supply chain .

The Analytical Network Process (ANP) method refers to prioritize criteria and sub-criteria and evaluate the supply chain performance for this study. ANP is a method that has a relative measurement of tangible. Its method has different from the traditional Analytical Hieratical Process (AHP) technique that it can generate the dependence and feedback (Saaty, 2005). ANP also can help and assist the managers to prioritize which is the suitable criteria and sub-criteria for supply chain improvement aligned with organization's goals. (Gencer and Guürpinar, 2007; Yang et al., 2009; Çelebi et al., 2010). The general model creates the relationship among strategic criteria for multiple attribute decision analysis.

1.2 Objectives

The objectives of this research are following:

1.2.1 To analyze criteria and sub-criteria representing healthcare supply chain performance.

1.2.2 To present a framework for analyzing the priorities of the performance improvement and applying the framework to a selected supply chain which is a part of the healthcare supply chain for evaluating supply chain performance.

1.3 Scope of work

This research studied criteria and sub-criteria representing healthcare supply chain performance. The appropriate framework is built based on the modified Delphi method and the Analytic Network Process method. This framework will be applied to a selected pharmaceutical supply chain as a case study. Data is supported by reviewing literatures and collecting data from experts relating healthcare supply chain field.

1.4 Expected results

This study will lead to:

1. Suggested criteria and sub-criteria which represent the performance measurement framework for the healthcare supply chain.

2. A framework for analyzing and evaluating the priorities of the performance improvement for the healthcare supply chain.