

CHAPTER 1



INTRODUCTION

1.1 Background and Rationale

1.1.1 Overview of the Universal Health Care Coverage Policy (30 Baht scheme) (Adrian Towse, Anne Mills and Viroj Tangcharoensathien, 2004: 103-105)

Thailand government introduced Universal Healthcare Coverage Policy in 2001 on a platform including the “30 baht treat all” scheme for universal access to subsidized health care. Under the scheme, people paid 30 baht for each visit or admission.

The National Health Security Act was passed by parliament in November 2002, creating new institutions to regulate the quality and financial elements of the scheme. It preserved all benefit entitlements for members of the civil service and social security schemes but places management of their financing with the National Health Security Office, which ran the 30 baht scheme. The act allowed for the civil service and social security schemes to be merged into a single universal coverage scheme by decree should that become politically acceptable in the future.

Cost of universal care

Estimating the financial implications of universal care and setting capitation rates had been contentious. Some analysts proposed a capitation rate as high as 1,500 baht. In fiscal year 2002, the government used a per capita rate of 1,202 baht. A rate of 1,414 baht was set for 2003. A key issue in setting this was compliance—the extent to which patients used their registered provider rather than another (in which case they must pay themselves). The 2003 figure assumed 85% compliance for outpatients and 100% for inpatients. Compliance rates also had implications for the revenue of public hospitals from user fees. Before universal coverage was introduced, public hospitals received 20-50% of their income from user fees. The total health budget for 2002 was

51 billion baht. Comparable figures for spending in earlier years were difficult to identify, but spend had not increased to the same extent as the number of people covered.

The per capita allocations for 2002 and 2003 resulted in many provinces and hospitals having deficit budgets. This partly reflected the previous geographical funding imbalance relative to population. Rather than phase in the new formula, a contingency fund of 10% (5 billion baht) was set up to relieve hospitals in 2002. However, because of fiscal constraints and evidence of low compliance among universal coverage beneficiaries, no contingency fund was planned for 2003. It is too early to tell if this will give rise to problems. Teaching and other super tertiary hospitals had been particularly affected by the financial redistribution. Although some special provision had been made, a separate stream of funding for teaching and research activities may be required.

If the universal coverage scheme relied totally on general taxation and the capitation rate was not adjusted to reflect costs and usage, the quality of care and confidence in the scheme could deteriorate. Various options available to manage the financial pressures generated. These include:

- Changing the benefit package (this would be politically difficult)
- Collecting contributions from beneficiaries through higher co payments (for higher income users or for some services) or some kind of social insurance contribution or separate tax (the National Health Security Act provides for this)
- Expanding the social security scheme to include spouses and dependants so reducing the numbers covered by the 30 baht scheme.

As the mention about the hospital budget deficit, Hospital committee needs to **reduce the operation cost or increase hospital income. Traditionally, healthcare organizations have attempted to reduce costs by implementing across-the-board reductions enforced by hiring freezes and elimination of wage increases.** This approach sends the message to staff to "work harder, do better" to maintain or improve

performance levels with reduced resources. **Across-the-board cuts may affect short-term cost advantages, but they offer limited long-term value.**

Another cost-reduction approach is to use benchmarks from other, comparable organizations to gain a better perspective on what changes need to be made to improve performance. Although benchmarking can provide useful information, many organizations only benchmark financial results, such as overall costs as a percentage of revenues. This approach to benchmarking provides a measure, but no way to understand the processes underlying the measure.

A third approach to reducing costs is to tackle high-cost areas. However, traditional cost systems typically reflect costs in terms such as salaries and benefits. Knowing the cost of a staff member's salary is of little value unless it can be related to the person's activities and the value he or she adds. The value a person adds is measured by their work output. If this output involves physically delivering a service to a customer (e.g. taking an x-ray) or contributes to improved customer satisfaction (e.g. comforting a patient), it adds value.

Activity-Based Management and Activity-Based Costing, focuses on costs associated with activities, but also evaluates whether those activities add value, thus providing a means of understanding how to most effectively reduce costs.

Activity-Based Management uses performance measures to evaluate the value of activities. These measures include both traditional financial measures and non financial measures, such as quality of care, cycle time, and customer satisfaction. Understanding the effect that activities have on key performance measures is critical to achieving the optimal answer - not just the lowest-cost one. In fact, an Activity-Based Management analysis may show that increasing costs actually will yield a greater benefit for a specific activity. (Steve Player, 1998)

1.1.2 The Standard of Financial Devolution 7 Hurdles

(Chaisit Chalermmeeprasert, 2001: 301-314)

In 1999 Fiscal Year, The Bureau of the budget in Thailand research and develop The Standard of Financial Devolution 7 Hurdles including 1) Budget Planning, 2) Outputs Costing, 3) Procurement Management, 4) Financial Management/Fund Control, 5) Financial and Performance Reporting, 6) Asset Management, 7) Internal Audit.

One of those standards was **Output Costing** being important standard because administrator could use this information for budget planning and allocation. Besides, administrator could use cost of output in performance monitoring and evaluation as well, whereas, one of the efficiency indicator was unit cost.

Then, Output Costing calculation was important technique that governmental organization should operated before used performance-based budgeting system. For detailed process as follows:

- 1) To clarify activities and output
- 2) To set allocation criteria for allocate cost
- 3) To calculate output cost
- 4) To monitor and evaluation
- 5) To set cost management

In production process or service process, organization had to know about the production process, output form those process and calculate cost of output and cost of those processes using Activity-Based Costing technique.

Activity-based costing was an advanced cost calculation technique that allocates resource costs to products based on activity consumption (Yolande Lievens, Walter Van Den Bogaert and Katrien Kesteloot, 2003: 522). Activity-Based Costing was developed in the 1980s for manufacturing companies, and had subsequently been applied to retail, service, and healthcare organizations (Gary Siegel et al., 1999: 5).

Many U.S. hospitals and health organizations had explored and used Activity-based costing to improve resource management (Hugh Waters et al., 2003 quoting Player, 1998; Canby, 1995; Dowless, 1997). Some analyses of health services in developing countries had used components of Activity-based costing (Hugh Waters et al., 2003 quoting Levin et al, 1999).

The healthcare finance literature consistently demonstrated that Activity-based costing produced more accurate product and service costs than do traditional costing systems. Many researchers selected activity-based costing to measure the costs of processes and cost objects because, compared to traditional costing systems, Activity-based costing produces more accurate costs.

1.1.3 Overview of traditional costing system

(Dor R. Hansen and Maryanne M. Mowen, 1997: 301-314)

Traditional costing systems assume that **all cost can be classified as fixed or variable with respect to changes in the units or volume of product produced.** Thus, **units of product or other drivers highly correlated with units produced, such as direct labor hours and machine hours, are the only drivers assumed to be of importance.** The unit- or volume-based are used to assign production costs to be product. **A cost accounting system that uses only unit-based activity drivers to assign costs to cost objects is called a traditional costing system.** Since unit-based activity drivers usually are not the only drivers that explain causal relationships, much of the product cost assignment activity must be classified as allocation (recall that allocation is cost assignment based on assumed linkages or convenience). We can say, therefore, the traditional cost accounting systems tend to be allocation-intensive.

1.1.4 Limitation of Traditional Costing System

Traditional costing system assigns only **manufacturing costs** to products. Assigning the cost of direct materials and direct labor to products poses no particular challenge. These costs can be assigned to products using direct tracing or very accurate driver tracing. and most traditional cost systems are designed to ensure that this tracing

takes place. Overhead costs, on the other hand, pose a different problem. The physically observable input-output relationship that exists between direct labor, direct materials, and products is simply not available for overhead. Thus, assignment of overhead must rely on driver tracing (and perhaps allocation). In a traditional cost system, only unit based activity driver are used to assign costs to products. Unit-based activity drivers are factors that cause changes in costs as the unit produced change.

The use of only unit-based driver to assign overhead costs to products assumes that the overhead consumed by products is highly correlated with number of unit produced, measured in term of such factor as direct labor hours, machine hours, or material costs. These unit-based activity drivers assign overhead to products through the use of either plant-wide or departmental rates.

1) Using only unit-based activity drivers to assign non unit-related overhead costs can create distorted product costs.

The use of either plant-wide rates or departmental rates assumes that a product's consumption of overhead resources is related strictly to units produced. But what if there are overhead activities that are unrelated to the number of units produced? Setup costs, for example, are incurred each time a batch of products is produced. A batch may consist of 1,000 or 10,000 units and the cost of setup is the same. Yet as more setups are done, setup costs increase. The number of setups, not the number of units produced, is the cause of setup costs. Furthermore, product engineering costs may depend on the number of different engineering work order rather than the units produced of any given product. Both these examples illustrate the existence of non unit-based drivers. Non unit-based activity driver are factor, other than the number of units produced, that measure that cost objects place on activities. Thus, unit-based activity drivers cannot assign these costs accurately to products.

Using only unit-based activity drivers to assign non unit-related overhead costs can create distorted product costs. The severity of this distortion depends on what

proportion of total overhead costs these non unit-based costs represent. For many companies, this percentage can be significant. Schrader Bellows and John Deere Component Works, for example, experienced non unit-based overhead cost ratios of about 50% and 40%, respectively. This suggests that some care should be exercised in assigning non unit-based overhead costs. **If non unit-based overhead cost are only small percentage of total overhead costs, the distortion of product costs would be quite small. In such a case, using only unit-based activity drivers to assign overhead costs might be acceptable.**

2) Product Diversity: If we have product diversity, then we have product cost distortion because the quantity of unit-based overhead that each product consumes does not vary in direct proportion to quantity consumed of non unit-based overhead.

The presence of significance non unit-based overhead cost is necessary but not sufficient condition for plant-wide and departmental rate failure. If products consume the non unit-based overhead activities, then no product costing distortion will occur (with the use of traditional overhead assignment methods). The presence of product diversity is also necessary. Product diversity simply means that products consume overhead activities in different proportions. For example, differences in product size, product complexity, setup time, and sizes of batches all can causes products to consume overhead at different rates. Regardless of nature of the product diversity, product cost will be distorted whenever the quantity of unit-based overhead that a product consumes does not vary in direct proportion to the quantity consumed by a product is defined as the consumption ratio. How non unit overhead costs and product diversity can produce distorted product costs is best illustrated with an example.(see chapter 2)

1.1.5 Advantage of Activity-Based Costing System

The service environment, like the manufacturing environment, is undergoing significant changes. Events such as deregulation, budget cuts, and changes in social

programs are causing service organizations to reevaluate the way they conduct business. The results are surprisingly similar to manufacturing organizations. **Service organizations are now emphasizing waste elimination, increased productivity, new technology, total quality management, and cost reduction.** Knowing what each service cost has also become important. **Providing accurate cost information about services can lead an organization to change its mix of services and help in reducing the cost of services that are going to be offered.**

1) Activity-Based Costing can produce significant product costing improvements in service organizations that experience product diversity.

Consider, for example, a hospital. What is the output of a hospital? The product of a hospital is commonly defined as a patient's stay and treatment. If we accept this definition, then it becomes immediately obvious that a hospital is a multi product firm because there are many different kinds of "stay and treatments". During the stay, a patient will consume many different services. To the extent that this consumption of services is homogeneous, product groups can be defined. For example, maternity patients without complications would all stay about the same time in the hospital and consume essentially the same services

To illustrate the potential of activity-based costing, we will focus on one type of service provided to each patient: daily care. Daily care is made up of three activities: occupancy, feeding, and nursing. We will define output as patient days (the "stay" part of the output only). Hospitals have traditionally assigned the cost of daily care by using daily rate (a rate per patient day), it means that if daily care has high rate then cost is high as well. There are actually different kinds of daily care, and rates are structured to reflect these differences. For example, a higher daily rate is charged for an intensive care unit than for a maternity care unit. Within units, however, the daily rates are the same for all patients. Under the traditional approach, the daily rate is computed by dividing the annual costs of occupancy, feeding, and nursing of a unit by

unit's capacity expressed in patient days. A single activity driver (patient days) is used to assign the cost of daily care to each patient.

But what if costs of the three care activities are consumed in different proportions by patients? This would imply product diversity and possible requirement to use more than one activity driver to assign daily care costs accurately to patients. To illustrate, assume that the demands for nursing care vary within the maternity unit, depending on the severity of patient's case. Specifically, demand for nursing services per day increase with severity. Assume that within the maternity unit there are three levels of increasing severity: normal patients, Caesarian patients, and patients with complications. Now suppose that a hospital has provided the following activity and cost information:

Activity	Annual Cost	Activity Driver	Annual Qty
Occupancy and feeding	\$1,100,000	Patient days	11,000
Nursing care	\$1,100,000	Hours of nursing care	55,000

The activity pool rates are \$100/patient day and \$20/nursing hour.

To see how activity costing can affect patient charges, assume that the three types of patients have the following annual demands:

Patient Type	Patient Days Demanded	Nursing Hours Demanded
Normal	8,000	30,000
Caesarian	2,000	13,000
Complications	1,000	12,000
Total	11,000	55,000

The traditional approach for charging daily care would produce a rate of \$200/patient day ($\$2,200,000/11,000$)—total cost of care divided by patient days. Every maternity patient—regardless of type—would pay the daily rate of \$200. Using the pool rates for each activity, however, produces a different daily rate for each patient—a rate that reflects the different demands for nursing services:

Patient	Daily Rate*
Normal	\$175
Caesarian	\$230
Complication	\$340

* Normal: $\{(\$100 \times 8,000) + (\$20 \times 30,000)\} / 8,000$

* Caesarian: $\{(\$100 \times 2,000) + (\$20 \times 13,000)\} / 2,000$

* Complication: $\{(\$100 \times 1,000) + (\$20 \times 12,000)\} / 1,000$

This example illustrates that activity-based costing can produce significant product costing improvements in service organizations that experience product diversity. Although Activity-Based Costing has not yet had the reception in service organizations compared to manufacturing organizations, it has been adopted by some. Example of services organizations that have adopt an Activity-Based Costing approach include Union Pacific, Amtrak, and Armistead Insurance Company.

Additional example in healthcare services is an Activity-Based Costing analysis of the salary costs (resource) associated with taking patient information (activity). The resource driver associated with this activity would be the percentage of staff time spent performing the activity. The cost object would be patients, and the activity driver would be the number of admissions. Thus, if total department salary costs were \$300,000, and 40 percent of staff time were spent taking patient information, then the amount of salary devoted to this activity would be \$120,000 dollars ($\$300,000 \times 0.4 = \$120,000$). If the number of admissions were 20,000, then the salary cost per admission would be \$6 ($\$120,000 / 20,000 = \6). (Steve Player et al. 1998)

In the other word, traditional costing systems assume that the allocation of indirect resource costs should be proportional to the volume of the products that are produced or number of services that are provided. Activity-Based Costing rejects the premise that products and services directly consume resources. Rather, Activity-Based Costing is based on the contention that products and

services consume activities and activities consume resources. Therefore, *according to Activity-Based Costing, controlling resource costs requires the identification and management of activities and the factors that drive these costs.*

This difference in approach is most revealing when low-volume products or services are complex in nature and consume a large proportion of indirect expenses. **When the traditional cost accounting method is used, a portion of indirect costs is allocated to products or services in accordance with the number of procedures or services performed. Using Activity-Based Costing, costs are allocated to services based on factors such as the number, complexity, and duration of activities involved in providing a service. Using cost drivers such as cycle time, or the time that elapses from the patient's arrival until the results have been delivered.**

2) Activity-Based Costing system can estimate the cost of resources used to produce outputs.

Cooper R. and R. S. Kaplan (1992) said that one of the most important components of activity-based costing was the fact that it could estimate the cost of resources used to produce outputs. There was a relationship between the costs of resources used and the cost of resources supplied. It was shown with this formula:

$$\begin{aligned} &\text{Costs of resources supplied} \\ &= \text{Costs of resources used} + \text{Cost of unused capacity.} \end{aligned}$$

The article gave an example to illustrate this equation. It described a department of ten employees who processed purchase orders. The payroll for each of these employees was \$2,500 monthly, which lead to a total expense of \$25,000 per month. The example then looks at the capacity of each employee. At practical capacity, each employee could process 125 purchase orders per month, or 1,250 processed in total. Now assume that only 1,000 purchase orders were needed this month.

A traditional costing system would allocate the full \$25,000 towards the cost. An Activity- Based Costing system would analyze it differently. Since it costs \$2,500

to pay the employee each month and practical capacity is 125 purchase orders, \$20 (2,500/125) should be allocated to the cost of each purchase order. Since only 1,000 purchase orders were processed, \$20,000 worth of expenses would be charged and the remaining \$5,000 spent would be unused capacity. Lets look at the formula again:

$$\begin{aligned} & \$25,000 \text{ (cost supplied)} \\ & = \$20,000 \text{ (cost used)} + \$5,000 \text{ (unused capacity)} \end{aligned}$$

The financial statements will show the total expense of \$25,000, whereas the Activity-Based Costing system will show the \$20,000 actual cost of activities used.

Many companies tend to think of the \$25,000 cost of resources supplied (employees) as a fixed cost. This may seem true in the short-run, but it is important to remember that the quantity of these resources used will fluctuate depending on the activities performed (purchased orders processed).

Two key terms had been used in this example. The measurement of costs of resources supplied showed current spending and the capacity that the spending allows.

The costs of resources used will give the managers information needed for performance actions. They were able to find the amount of unused capacity, which could lead to finding ways to eliminate this unused capacity, or using it somewhere else.

The existence of unused capacity in an organization highlights the need to eliminate activities that did not add value to a product or service or to increase the utilization of resources that are available. For example, unused capacity may focused the attention of managers on bottlenecks in a given area, allowing them to reduce the amount of resources expended in nonproductive ways or improve processes and functions by better scheduling or interdepartmental communication, adding equipment or employees, or increasing employee training.

Identifying activities that did not add value to a product or service reveals opportunities for potential reductions in overall capacity and its associated costs. **Activity-Based Costing analysis enables managers to learn the extent to which**

they can reduce spending without adversely affecting service delivery. When the current capacity for a service far exceeds the demand for the service, managers can minimize costs by reducing capacity.

3) Activity-Based Costing analysis will enable organization to obtain process cost measurement that, along with quality and cycle time measurement, will provide three important parameters to characterize important internal business processes.

As companies use either continuous improvement (such as TQM) or discontinuous improvement (such as reengineering or business process redesign) of important internal business processes, the three sets of measurements on cost, quality, and time will provide data on whether the goals of these improvement programs are being achieved. (Robert S. Kaplan and David P. Norton, 1996)

As mention of the advantage and several application of Activity-Based Costing technique providing more accurate product and service cost than traditional costing and give more information to help manager to improve efficiency of healthcare service, then researcher decide to use Activity-Based Costing technique to analyze Cost Analysis of OutPatient Department services in Manorom district hospital.

1.2 Research Questions

What is the unit cost of services using Activity-Based Costing technique in OPD?

1.3 Research Objectives

Calculate unit costs of services using Activity-Based Costing technique in OPD

1.4 Scopes of the Study

Outpatient Department services in Manorom district hospital during May – September in 2003 Fiscal Year (after close Primary Care Unit in hospital)

1.5 Possible Benefit

1.5.1 Activity-Based Costing allows an in-depth product analysis by explaining the relationship between the products and activities. The improved insights in the (cost) structure of products and of departments supports continuous process improvements, referred to as activity-based management.

1.5.2 In Balanced scorecard, internal business processes perspective, Among all the attention to process time and process quality measurements, one lose sight of the cost dimension process. Activity-Based Costing analysis will enable organization to obtain process cost measurement that, along with quality and cycle time measurement, will provide three important parameters (cost, quality and time) to characterize important internal business processes. The three sets of measurements-on cost, quality, and time-will provide data on whether the goals of these improvement programs are being achieved