

# Prospective Provider Payment : Efficiency and Quality for Inpatient Care in Public Hospitals in Thailand

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## Abstract

Healthcare financing in Thailand has been substantially changed, from a retrospective payment system (RPS) to a prospective payment system (PPS). Before late 2001, only health care services for social security patients (about 7.2% of the total) were pre-paid, leaving the majority to be under a fee-for-service retrospective payment system. Since late 2001, under the Universal Health Care Coverage Project, one of the state main policies, the budget payment mechanism for health facilities, has moved in the opposite direction. Only civil service and state enterprise patients still have been covered by RPS.

In this situation, hospitals received a fixed budget. The study hence, focused on the effects of the changed method of budget payment on the efficiency and quality of inpatient care, and the reduction in length of stay in community, general and regional hospitals in Thailand. This research was combination of three sub-studies: 1) a comparison of the changes to inpatient length of stay and service outcomes, together with analyses of hospital efficiency, 2) an evaluation of the administrative environment of efficient hospitals; the reasons behind reduced length of stay were also analyzed, and 3) an evaluation of opinions about hospital services and the success of their treatment of patients discharged from the efficient hospitals, within a month after discharge.

The study showed that inpatient length of stay under every medical benefit scheme was reduced. Most of the hospitals had not only lower case fatality rates, but also higher early readmission rates. Forty percent had high inpatient service efficiency while the others had moderate and low efficiency levels. The qualitative study in the efficient hospitals revealed that the hospital administrators had strong abilities to adapt their performance. The reduction in average length of stay was caused not only by the intention to reduce costs, but also by efforts on quality improvement. Most discharged patients from the efficient hospitals were satisfied with their treatment outcomes.

This study identified the policy implications of setting up an organization for evaluating and monitoring the efficiency and quality improvement of hospitals. There should be a service agreement between the person paying and the service provider for conscientious improvement in service quality. The hospital must also provide for premature discharge, and co-payments may be required for additional services.

**Key words:** prospective payment system, retrospective payment system, length of stay, efficiency



## Introduction

Healthcare financing in Thailand has changed substantially since late 2001. Healthcare welfare was distributed to a large group of Thai people under the Universal Health Care Coverage Project, under the slogan "30 baht for all diseases". This government medical welfare project was different from the previous ones, in that it used the prospective payment system (PPS) with health facilities depending on registered capitation. Moreover, in Thailand, the salaries of hospital personnel were included in this prospective payment budget. This budget has affected the morale of health personnel because of uncertainty with the wage structure.

In the past, Thailand has adopted many types of public and private healthcare financing schemes that paid health facilities on a cost-based or retrospective payment system (RPS) and a prospective payment system (PPS) by government and private agencies<sup>(1)</sup>. There were five main types of healthcare financing; 1) civil servants' medical benefit, 2) welfare for low-income and social-support groups, 3) social security and workmen's compensation fund, 4) voluntary health insurance, private insurance and health card, and 5) out-of-pocket expense scheme.<sup>(2-3)</sup> Each scheme differed in healthcare financing, beneficiaries, and medical benefits.

The objectives of the Universal Health Care Coverage Policy were to relieve the financial burden of individuals impoverished by the economic crisis, to remove overlaps in coverage, and to improve the equity and efficiency of health service production.<sup>(4-6)</sup> The target groups for the project included people in the social welfare scheme, health-card scheme, and people who did not previously have public health in-

urance, totaling about 70 percent of the Thai people nationwide. The healthcare financing characteristics were related to the government budget by limited pre-payment. Moreover, the Ministry of Public Health designated management criteria in the payment mechanism, by dividing capitation into three funds: ambulatory patient, inpatient, and personal health promotion and disease prevention funds.<sup>(7)</sup> Regarding the inpatient fund, payment by the diagnosis-related groups (DRG) formula was employed to divide inpatient inclusive funds among hospitals.

The hospitals in each level sustained various positive and negative impacts from the PPS. For general and regional hospitals, the risk not only depended on the number of registers but also on hospital expenditures. Labor costs were of the utmost concern.<sup>(8-9)</sup> The other risks also depended on referral cases from nearby hospitals, because in the case of inclusive capitation payments that included the inpatient fund with other service funds. As such, the hospitals with lower potential prefer to save their resources by treating patients themselves instead of referring the severe cases to any higher potential hospitals.

The objectives of this research were to study and compare the changes in the average inpatient length of stay (ALOS) between the RPS period and PPS period, to study the negative outcomes of inpatient healthcare service, and to compare the efficiency and quality of inpatient service, including the administrative factors of public hospitals that were able to provide efficient inpatient care.

## Methodology

The research design was composed of three



sub-studies: Sub-study I was a quantitative research comparing the changes in inpatient length of stay and service outcomes, case fatality and early readmission (the return of inpatients to the same DRG within 28 days), between one year before PPS (FY 2001) and two year after PPS (Fiscal Year 2002 - 2003). Case fatality and early readmission data were used as indicators to adjust the negative outcomes of inpatient care. Furthermore, the hospital efficiency levels were derived from two methods of analysis.

1. Decrease in length of stay and negative outcomes were used as indicators of efficiency. In order to be an efficient hospital, the ALOS, case fatality rate, and early readmission rate had to be decreased in the PPS period.<sup>(10-14)</sup> Using these criteria, the hospitals from which the inpatient sample groups were selected, assessed and classified into six levels using a plus sign (+)

1.1 The hospitals that could continually reduce the ALOS, case fatality rate, and early readmission rate in the first year of prospective payment (PPS1) and the second year of prospective payment (PPS2), were labeled with the highest efficiency, and given a 6-plus (+6).

1.2 If any indicator was higher than that in the a year before prospective payment (PPS0), 1-plus (+1) would be taken off.

2. Hospital efficiency was adjusted by applying the Pabon Lasso graph;<sup>(15,16)</sup> the analysis about the main relationship between bed occupancy rate (BO) and bed turn over rate (BT). This graph was divided into four quadrants by average value of BO for X axis and average value of BT for Y axis.

Statistical analysis that used for predicting length of stay is Poisson regression analysis.

The research population was inpatients dis-

charged from all levels of public hospitals located in every region in the Kingdom, including regional, general, and community hospitals, comprising 50 hospitals representing each region of Thailand. These inpatient data were divided into three periods; PPS0: 1 year, or one period, before the hospitals launched the Universal Health Care Coverage Project (in FY 2001), PPS1: the period since the first day that the hospitals launched the Universal Health Care Coverage project until the last day of FY 2002, and PPS2: the period of FY 2003. For controlling the differences in the sample group among the three study periods, inpatient cases only from the first ten most common DRGs were selected. The DRGs of the regional and general hospitals were composed of 1) major lens procedure, no complication; 2) C/S no complication; 3) appendectomy, no complication; 4) otitis media and URI, no complication; 5) respiratory tract infection, no complication; 6) COPD, no complication; 7) esophagus, gastroenteritis >9 years, no complication; 8) gastroenteritis < 10 years, no complication; 9) bronchitis and asthma, no complication; and 10) kidney and urinary tract infection, no complication. Meanwhile, the first ten most common DRGs of the community hospitals were composed of 1) otitis media and URI, no complication; 2) respiratory tract infection, no complication; 3) COPD, no complication; 4) esophagus, gastroenteritis > 9 years, no complication; 5) gastroenteritis < 10, no complication; 6) bronchitis and asthma, no complication; 7) kidney and urinary tract infection, no complication; 8) vaginal delivery; 9) poisoning, toxic agent; and 10) disequilibrium. The cases numbered 99,904, 126,365 and 104,934; or 17.37, 22.65, and 18.45 percent of total inpatient cases in each study



period, respectively. These data were accompanied by hospital and financial data.

Sub-study II was a qualitative evaluative research, conducted in Fiscal Year 2004 after the sub-study I finished, focusing on the administrative environment of the efficient hospitals previously identified. The researchers needed to elicit clear answers for the other important factors that affected and could predict inpatient length of stay. The samples were selected from the hospitals with highest efficiency in each hospital level.

Sub-study III, conducted at the same time as sub-study II, was quantitative research; an evaluation of the opinions about hospital services and the success of their treatment of patients discharged from the efficient hospitals within a month after discharge. These patients were appendectomy cases discharged from regional and general hospitals where the researchers could follow-up 57 of 149 cases, or 38.25 percent. The cases of kidney and urinary tract infection (no complication) who had ALOS of 3.8 days were a tracer for the community hospital. The sample group was selected from the discharged patients who had Length of stay (LOS) less than two third of ALOS or 1 or 2 days. Nine out ten cases could be followed up. These collected data were analyzed by using descriptive statistics.

### Results

**Sub-study I:** Among the three types of hospitals, the regional hospitals had the highest ALOS (3.44 days), while the general and the community hospitals had shorter ALOS (3.32 and 2.65 days, respectively). During PPS1, ALOS declined in general and regional, while during PPS2, ALOS slightly increased but re-

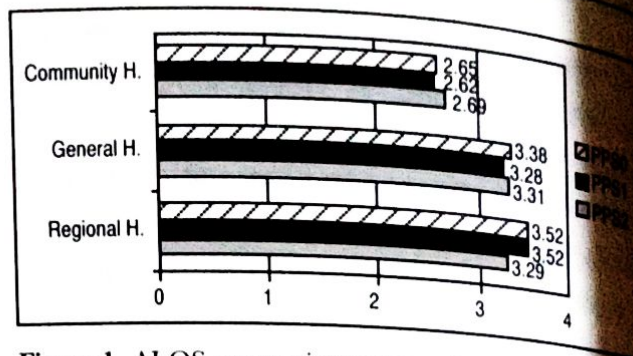


Figure 1 ALOS comparison among hospital types, classified by PPS period

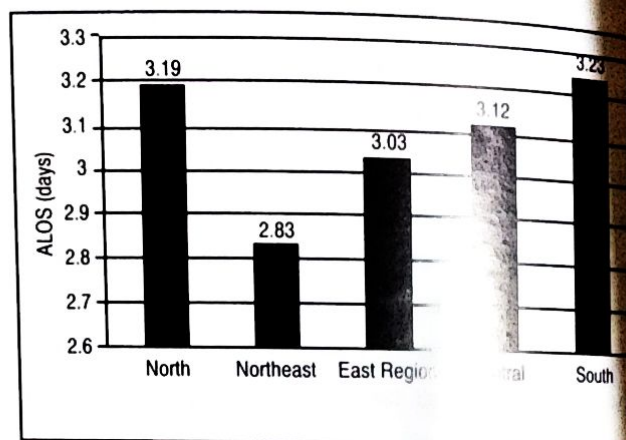


Figure 2 ALOS comparison by region in the PPS periods

maintained lower than that in PPS0. There was a significant difference of ALOS among each hospital type, as shown in Figure 1.

The ALOS of hospitals in each region differed. The hospitals in the South had the longest ALOS, while those in the North had the shortest ALOS. (Figure 2)

Each medical benefit scheme demonstrated a different proportion in healthcare utilization in every PPS period. The number of inpatients in the UC scheme accounted for the highest proportion. This group increased in admission when hospitals were under PPS, especially in PPS2, when it reached the highest of 64.24 percent of total inpatients. Patients in the



CSMBS (Civil servant medical benefit scheme) and SSS (Social security scheme) clearly increased in the PPS period, while the number of inpatients in the out-of-pocket expense and uninsured groups decreased.

There were different ALOS in each group. Patients in the CSMBS had the highest ALOS, while those in the SSS had the shortest ALOS throughout the study periods. During the PPS periods (PPS1 and PPS2), patients in different medical benefit schemes had different ALOS. (Figure 3)

In the PPS period, the case fatality rate in every hospital type decreased. The case fatality rate in the regional hospitals was higher than that of the other hospitals. Interestingly, the early readmission rate was higher in the PPS1 and PPS2 compared with the rate in the PPS0. Especially in regional hospitals, the early readmission rates were 12.85, 19.65, and 22.35 percent in the PPS0, PPS1, and PPS2, respectively.

The results of efficiency analyses showed that most hospitals ranked between +2 and +4. Some community hospitals were ranked +6, which meant that they could continually reduce LOS, case fatality and early readmission rates.

The highest rating for the general hospitals was +5, while the highest for the regional hospitals was +4. In contrast, one regional hospital and three community hospitals had only +1, as shown in Table 1.

By applying the Pabon-Lasso graph, service efficiency in PPS1 was analyzed and shown by the following: In PPS1, regional hospitals (1) reduced hospitalization (inpatient admission) and still provided severe and critical care while the general hospitals reduced hospitalization

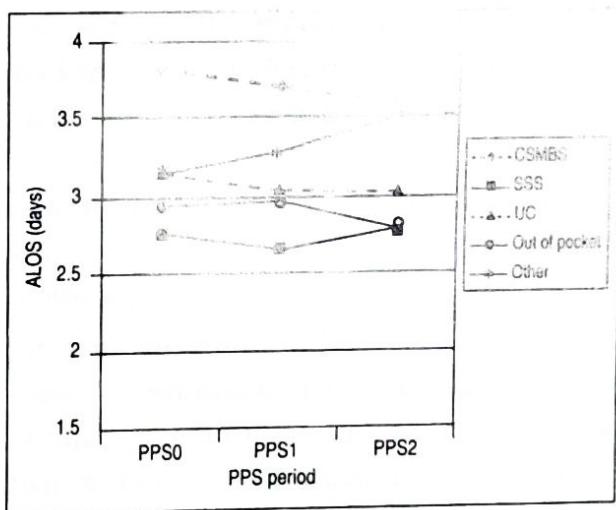


Figure 3 ALOS comparison among patients differentiating medical benefit schemes in each PPS period

Table 1 Efficiency level of hospital classified by plus sign (+)

Efficiency Level	Hospital type (number)			Total
	Regional	General	Community	
+6	0	0	4 (12.12)	4 (8.00)
+5	0	3 (25.00)	3 (09.09)	6 (12.00)
+4	2 (40.00)	2 (16.67)	6 (18.18)	10 (20.00)
+3	2 (40.00)	5 (41.66)	8 (24.24)	15 (30.00)
+2	0	2 (16.67)	9 (27.27)	11 (22.00)
+1	1 (20.00)	0	3 (09.09)	4 (8.00)
Total	5 (100.00)	12 (100.00)	33 (100.00)	50 (100.00)



hospitalization and length of stay. The community hospitals (3) were in quadrant 1, indicating that it had excess bed availability.

The hospitals in the North (1) fell from quadrant 3 (in PPS0) to quadrant 4, since they reduced hospitalization and patient length of stay. Also, they reduced bed turnover rate and had predominantly chronic cases. (Figure 5)

The hospitals in the Northeast (2) in quadrant 3 reduced hospitalization, but increased bed occupancy rates. Likewise, the hospitals in the East (3) and in the Southern (5) substantially reduced hospitalization and length of stay. The hospitals in the Central (4) and in the East (3) continually reduced bed turnover rates (Figure 5).

For predicting inpatient length of stay, Table 2 showed the regression analyses for three overall PPS periods, PPS0, PPS1, and PPS2, where every factor significantly affected the length of stay, with different positive and negative effects (at column 4). Columns 1 and 2, the PPS period variables, PPS1 and PPS2, had

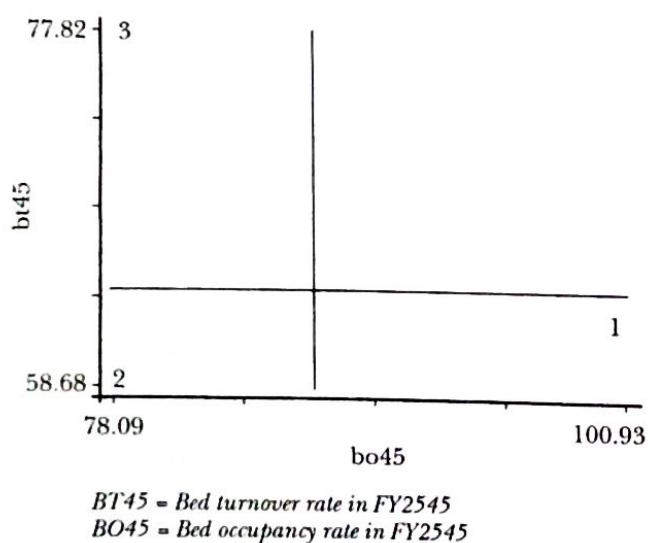


Figure 4 Pabon-Lasso Scatter Plot Graph, PPS1 data classified by hospital type

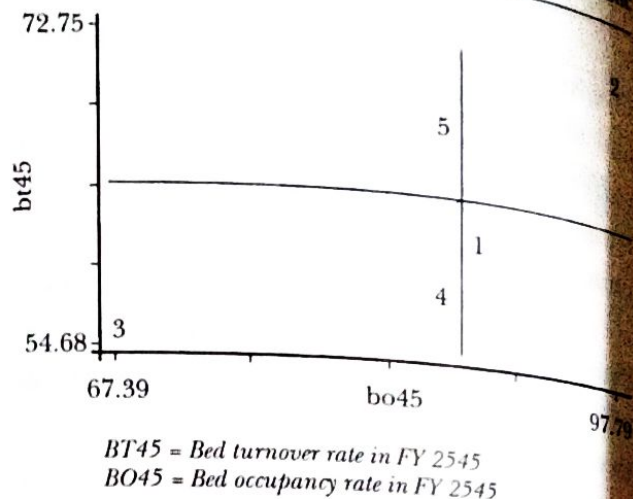


Figure 5 Pabon-Lasso Scatter Plot Graph, PPS1 data classified by region

negative effects by reducing 1 2.56 and 4.88 percent, respectively. Compared with the community hospitals, the patients admitted to the regional and general hospitals experienced longer lengths of stay, at 14.11 and 18.33 percent, respectively. The hospitals in the Central had a negative effect on ALOS, reducing it by 13.12 percent, compared with the hospitals in the South. The hospitals located in the normal area induced ALOS to increase 7.11 percent. The higher doctor-inpatient ratio was a longer ALOS, at 5.47 percent. Cross-subsidization had a negative effect on ALOS (6.97 percent). For inpatient in different medical benefit, every group had a negative effect, except for the civil servant group, which showed longer lengths of stay (8.95 percent). Moreover, it was likely that patients aged 60 or older would have longer ALOS, but the coefficient was very small.

Some independent variables had a small effect on length of stay (less than 5 percent). Then, only the independent variables with strong coefficients were entered into the regression analysis. Financial factors were composed of 1) cross-subsidization; the proportion be

Table 2 Length-of-stay regression for hospital, including before and after prospective payment system

Independent variables	Coefficient	SE	Z
<b>PPS Period</b>			
PPS1	-.025	.002	-10.15***
PPS2	-.048	.002	-18.64***
<b>Hospital type</b>			
Regional hospital (REG)	.141	.006	22.93***
General hospital (GEN)	.183	.003	47.76***
<b>Region</b>			
Northern (NOR)	.065	.003	20.08***
Northeast (NOE)	-.088	.003	-26.73***
Eastern (EAS)	-.117	.004	-29.18***
Central (CEN)	-.131	.003	-37.28***
<b>Location</b>			
General area (GER)	.071	.005	13.98***
<b>Hospital factors</b>			
Doctor-inpatient ratio (DOR)	.054	.002	22.16***
Nurse-inpatient ratio (NUR)	.008	.000	23.07***
Bed occupancy rate (BOR)	.000	.000	5.69***
<b>Financial factor</b>			
Cross-subsidization (CRO)	-.069	.005	-11.85***
<b>Patient factors</b>			
:Patient benefit scheme			
Civil servant (CIV)	.089	.004	20.03***
Social security (SOC)	-.121	.006	-19.36***
State welfare (UC) (UC + low-income card)	-.022	.003	-5.74***
Out-of-pocket payment (OUT)	-.074	.004	-16.34***
: age ≥ 60 (AGE)	.004	.000	112.36***
Intercept	.746	.008	88.16***
Pseudo R <sup>2</sup>	0.026		
n	319,772		

\*\*\*Significant at .001 level

tween the case number of CSMBS/UC, 2) cost subsidization; the income from the contingency fund, 3) salary payment 1; the salary paid at the central office, 4) salary payment 2; the salary paid at the health service network, 5) inclusive capitation; including the inpatient budget for the other operating budgets, and 6) exclusive capitation; excluding the inpatient budget of every hospital for one collective fund. The re-

sults are shown in Table 3.

These results were transformed into a regression equation for predicting inpatient length of stay by coefficient.

$$LOS = 1.05 + .36 REG + .29 GEN + .04 NOR - .10 NOE - .07 CEN + .02 CRO - .08 COS - .03 SAR2 - .10 EXC + .17 CIV - .12 SOC - .06 OUT$$

Although this equation could predict with statistical significance, the significance was low.



**Table 3** Length of stay regression for hospitals selected only high coefficient value in the first year of PPS

Independent Variables	Coefficient	Standard error	Z
<b>Hospital type</b>			
Regional h. (REG)	.359	.005	61.59***
General h. (GEN)	.291	.005	56.25***
<b>Region</b>			
Northern (NOR)	.041	.006	5.90***
Northeast (NOE)	-.101	.006	-15.85***
Eastern (EAS)	-.000	.009	-0.02
Central (CEN)	-.066	.006	-9.75***
<b>Financial factors</b>			
Cross-subsidization (CRO)	.021	.007	2.79**
Cost-subsidization (COS)	-.082	.008	-9.70***
Salary payment1 (SAR1)	-.012	.010	-1.29
Salary payment2 (SAR2)	-.034	.006	-5.24***
Inclusive capitation (INC)	-.020	.014	-1.41
Exclusive capitation (EXC)	-.101	.015	-6.38***
<b>Patient factors</b>			
:Patient benefit scheme			
Civil servant (CIV)	.173	.007	22.50***
Social security (SOC)	-.121	.011	-10.62***
UC	.004	.007	0.71
Out-of-pocket payment (OUT)	-.062	.007	-7.87***
Intercept	1.052	.016	63.47***
Pseudo R <sup>2</sup>		0.019	
n		113,227	

\*\*Significant at .01 level

\*\*\*Significant at .001 level

**Sub-study II:** The finding from the qualitative research clearly showed that LOS reduction was not a direct effect of PPS, but there were other enabling environmental factors. The relationship between PPS and LOS reduction did not occur alone, but it was accompanied by other phenomena, all of which affected each other, as multi-interactions occurred intentionally and unintentionally. As such, interaction between dependent and independent variables became complicated. LOS reduction was due not only to the physicians but also to the pa-

tients and their relatives. In addition, socio-economic change is an important factor causing a reduction in LOS. The detail findings in sub-study II were hereby described.

### The effects of the Universal Health Care Coverage Project

The Universal Healthcare Care Project is the main national policy of the government. The hospital directors were obliged to accept the changes and adapt administrative performance to sustain organizational survival. Sev-



eral activities were conducted during the preparation period. They had to learn about budget management; past financial status had to be calculated and compared with future income and expense expectations. This situation had come to the attention of all health personnel. They also obtained as much details of this project as possible, because they were afraid of the impacts on their salaries, wages, daily allowance, overtime costs, professional fees and job security. Regardless of their advocacy, they responded to the hospitals' policies enthusiastically and adjusted behaviors for their own survival and their organizations'.

The hospital directors had to implement many cost-saving measures. The monthly income and expenditure statement was regarded as a warning sign. Cost studies internally compared within the hospital, and externally compared between hospitals. All of these measures and new activities resembled a cloud of smoke in the hospital, and finally the hospital officers had to saturate, comply, and change their service operations.

For service quality improvement, the effect of the project was quite an important force supporting the hospital accreditation procedure (HA); the result of quality improvement via the HA process generated successful management and service provision, to enable the hospital to endure a critical situation and survive. Improvements in information technology were utilized to accommodate for example, inpatient medical care claims. Some health facilities could not improve their lower service standards vis a vis increasing workload resulting from greater accessibility. The facilities with lower potential were continually improved to act as gatekeepers, by screening patients for facilities

with higher potential and providing ongoing care for referred cases from hospitals with higher potential.

### The method for reducing costs

Some efficient hospitals clearly declared a cost-reduction policy. Medicines on the National Essential Drugs list were considered first priority, while other medicines could only be prescribed by a committee with three authorizing signatories. These difficult and strict methods annoyed the clinicians, so they avoided using them except in essential cases. Medicines and medical items were bought co-operatively by the hospitals. Furthermore, the medicines and item reserves were shorter-stocked than before. Electricity and fuel saving were monitored. The hospital staffs, including the physicians, pharmacists and nurses, conducted studies to identify more effective methods of treatment and care, for example, using one antibiotic medicine to replace a dual regimen with the same outcome, reducing medical prescriptions and replacing them with Thai traditional medicines under the scrutiny of a family doctor, and sterilization by boiling instead of using expensive chemical substances. Some hospitals developed themselves to be a health-promoting hospital. The admission of unnecessary cases was reduced by following the hospital admission criteria, because home-care by relatives and nurses at the PCU was deemed a better service. Quality service was provided for more rapid recovery and early discharge, with continual care by a nurse at the PCU until the patient could return to a normal life. Furthermore, medicinal herbs used in Thai massage replaced some modern medicines and treatments.



### The method of increasing revenue

Hospitals had many methods for increasing revenue, such as by setting up a new unit for introducing registration, checking medical benefits, and marketing to expand services for a wider fee-paying group. The relative weight value (RW) was increased by recording more clearly and in more detail information on the medical chart. The RW average value was used as an index for surveillance in an effort to, at least, maintain it at the same level. The ward nurses who gathered financial data and calculated the service price were replaced by accountants. The number of private rooms was increased, and alternative medicines were promoted in order to increase revenue.

### Factors affecting LOS reduction

Improving hospital quality by implementing HA generated a process of more rapid treatment and reduction in work conflict, contributing to speedier recovery. Some hospital developed lower-level facilities for providing continuous care for early discharges. Hospitals had policies for reducing lengthy stay. Physicians had to early discharge inpatients immediately once they got better because of a long waiting list. Some wards that served chronic cases or long length-of-stay cases intentionally reduced periods of hospitalization. These patients were discharged for ongoing care in the community. For the patients and their relatives, rapid discharge allowed them return to their normal livelihood.

### Policy recommendations for the hospital administrator's perspective

Hospital administrators had policy recommendations contributing to hospital self-reli-

ance and providing quality services to people under the PPS; 1) the Ministry of Public Health should allow hospitals to be more autonomous to improve efficiency and compete with private hospitals; 2) adjust the rules that monitor hospitals closely and create a new medical care benefit package. These two methods would enable hospitals to charge additional fees or co-payments; 3) some people, when affordable, should co-pay for capitation, such as those who had been under the health card system. As such, their self care and individual healthy life style become direct incentive; 4) the UC card should only cover the poor. Those with private insurance should not be covered; 5) the 30-baht co-payment should step into a hierarchical rate based on chronicity or severity of disease; 6) for hospital efficiency improvement, each hospital should pay for referred inpatient claims by itself. Only high-cost services would be guaranteed and paid centrally by the global fund; 7) the PPS should not be used for the civil servant medical care group, and should designate a service system using public facilities in the first choice; 8) the downsizing public policy should not apply to organizations or facilities already serving a large number of clients; 9) health personnel should be allocated according to duty or service output. Community hospitals providing services for chronic cases should have a medical physician included in their staff as incentive for those wish to remain there after their specialized training.

Although these policy recommendations were concluded from only the efficient hospitals, they still should be worth discussing on a broader scale.

**Sub-study III** addressed quality assessment for inpatient cases when they were discharged



and stayed home. Discharged patients from the regional and general hospitals had ALOS of 4.10 and 4.13 days, respectively. About 96.49 percent of them were discharged with the physician's permission; 91.23 percent of them felt ready to return home, but only 8.77 percent were uneasy because their ailments still persisted.

They became healthy within 30 days ( $\bar{x}=30.15$ ), and could return to work 40 days ( $\bar{x}=43$ ) after discharge. Most of them (92.98 percent) thought highly of medical care. Some patients admitted their un-satisfaction with the quality of care and temperamental nurses yet did not attempt to seek services elsewhere. Most of them had recovered within a month after discharge but a few of them had unsatisfactory signs, such as abdominal pain (31.58%), weakness (22.81%) and dry cough (19.30%).

The discharged patients from the community hospitals, who were diagnosed with kidney and urinary tract infection without any complication, were discharged with the physicians' permission, and satisfied with their post-discharge recovery. They felt healthy within one or two days ( $\bar{x}=1.52$ ) and could resume normal activities within one to three days ( $\bar{x}=1.58$ ) once returning home. All of them acknowledged good quality service and the technical capacity of the institutes. However, some unfavorable symptoms remained within one month after discharge, such as frequent urination, vomiting, and lower abdominal pain.

### Discussion

The researchers found that some theories and relevant research as a conceptual framework provided only a linear relationship<sup>(17)</sup> between the independent variable and the output

or public health budget payment and the medical care that the patient received. Besides, public health budget provider payment and medical care, some variables are always ignored, especially in the context of the overall linkage. Overseas literatures confirm the observation,<sup>(18,19)</sup> that the mechanism of budget allocation was the main motivation for physicians' behavior. The result of this study showed that reducing the length of stay was not only a result of the fixed budget allocation, but was also affected by other relevant factors, for example, the characteristics of the hospitals, physicians' ethics, medical innovation, and the social and political environment. Theories and concepts from other countries have strongly confirmed that they were not applicable to the Thai context because of differences in time, other environments, and the characteristics of public health policies. For this reason, the researchers believed that the conceptual framework was not suitable, in both flexibility and sensitivity. Although this framework is supported by qualitative research, which is much more flexible because it can change some variables during the data collection process, sample size remained a problem because of its invalidity. For these reasons, an unclear result has been produced regarding the main reasons in physicians' decision-making for reducing the length of stay of patients in Thailand.

Furthermore, the nature of the healthcare sector and the healthcare financing system in each country has also directly generated different effects on physicians' behavior and hospital revenues, respectively. Other variables, such as the mixture of different financial provider payment systems, financial status before launching the PPS, socialization and the commitment of



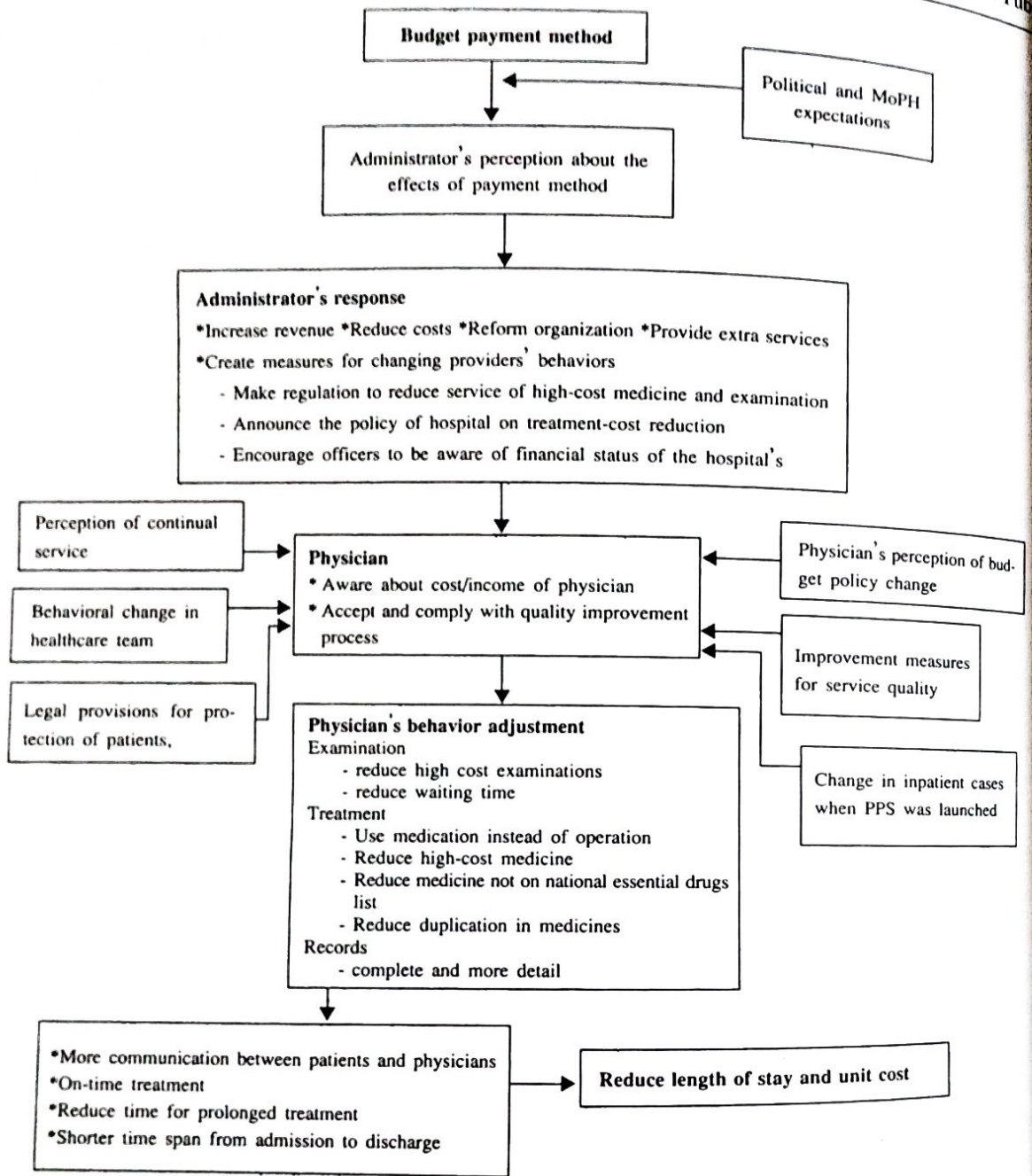


Figure 6 Recommended conceptual framework

the physicians' ethics, and the community financial support for the hospital have substantial influence on physicians' behavior patterns. The methodology of qualitative research will provide a suitable process for collecting the concerned variables as much as possible based on reality,

and not merely based on theory.<sup>(20)</sup> Regarding the methodology, it was found that starting with quantitative research was the main strong point, as it can nearly provide a complete representation of the research results. It may be assumed that some ambiguities and



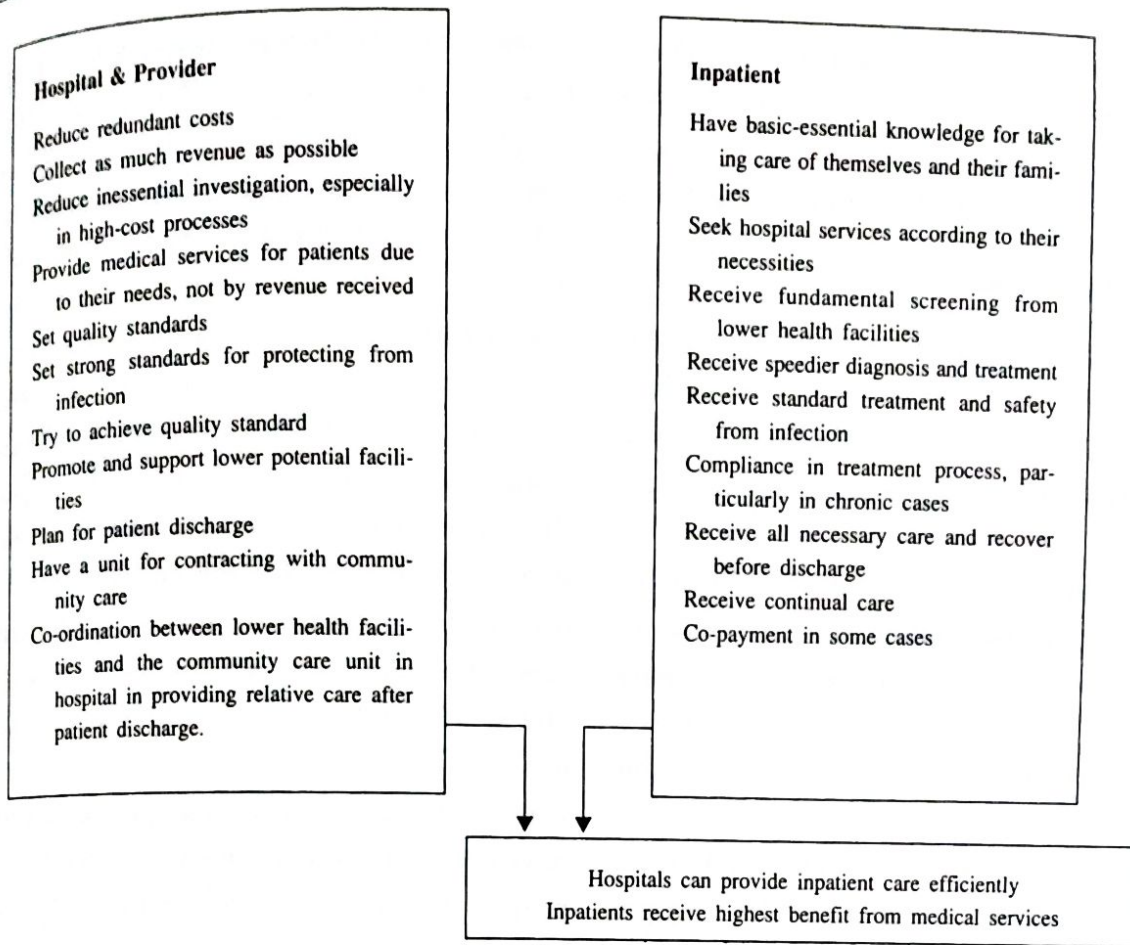


Figure 7 Conceptual framework: the components of efficiency and quality in inpatient services

points of criticism could be clarified in the next stage of the qualitative research. All answers, incidentally, cause the researchers to conjecture about the situation in other hospitals in Thailand. However, further research should start with enquiry with administrative teams based on the framework obtained from a literature review. Sharing ideas with experts in administrative teams may be a good and practical way for checking that the variables based on international research are suitable for the context of Thai society.

At any rate, it was found that incomplete data recording was common in most of community hospitals. Although this is a weak point

for any research, these hospitals should not be left out. On the other hand, data should be collected by researchers on the ground that improvements in community hospitals could reduce the number of patients in general or regional hospitals. This reduction could be very beneficial for the national public healthcare.

After launching the PPS, it was found that the number of inpatients could be reduced because of the physician judgment in treatment for reducing hospital costs. However, the hospital cost-reduction policy should be more concerned about ambulatory and other costs than dealing only with length of stay, because some illnesses could normally required costly treat-



ment even at the lowest length of stay.<sup>(19,21)</sup>

Finally, this research has generated a new conceptual framework that should be much more suitable for the Thai context. (Figure 6).

### Recommendations

To promote PPS as a workable policy for generating high-quality hospital services, hospital officers and patients, as the key stakeholders, must be reoriented in many ways (Figure 7).

Serving the ultimate purpose, hospitals should not only use routine data for evaluation, but also establish a special unit for monitoring long-term performance. Improvements in the service network, development of an information system, and improvements of medical care for patients in hospitals and in the community must become progressively available. This measure should function in the area of evaluation, consultation, and advice for preventing damage to the health service system. The progressive measures should be practical tools for reducing resource loss due to increasing early readmission cases. At the same time, new innovative research for medical care cost control, such as reducing medicine overuse and adjusting nursing care techniques, must be strongly promoted for the betterment of the whole system.

Capitation should be divided into an inpatient fund and prepaid to every service network, as the same budget amount provided for inpatients in previous years and adjusted by the inpatient costs of efficient hospitals. Inpatients requiring treatment above the standard must be supported by the hospitals, and the inpatients who request additional services, beyond what is considered normal treatment, must co-pay. Where the costs are high, the central global fund

should cover. These regulations are to be helpful in promoting healthcare quality, preventing the problem of necessary service reduction in severe cases, and protecting hospitals from the risk of payments due to unexpected expenditure. For quality improvement, the main contractor and sub-contractor facilities must cooperate in providing healthcare services. The lower potential facilities must screen for normal cases, sending only severe and chronic cases to the higher potential facilities and caring for some chronic cases that will be referred back from higher potential facilities for continuing care. The main contracted hospitals have to cooperate and collaborate with their subcontractors to improve the quality of facilities and services in all aspects, such as the physical environment, medical equipment, medicine and medicinal supplies, and the treatment skills of health personnel. The Ministry of Public Health should set up an incentive system for compliance with the quality criteria; furthermore, the service agreement between healthcare purchasers and healthcare providers should address service quality improvement.

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**บทคัดย่อ** การจัดสรรงบประมาณสาธารณสุขภาครัฐแบบเหมาจ่ายก่อนล่วงหน้า: ประสิทธิภาพและคุณภาพในการดูแลผู้ป่วยในของโรงพยาบาลรัฐในส่วนภูมิภาคของประเทศไทย  
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 วารสารวิชาการสาธารณสุข ๒๕๔๙; ๑๕:๔๒๗-๔๒.

ระบบการคลังสาธารณสุขของประเทศไทย ได้มีการเปลี่ยนแปลงครั้งใหญ่ นับแต่ช่วงปลายปี ๒๕๔๔ จากระบบการตามจ่าย (Retrospective Payment System: RPS) เป็นระบบการเหมาจ่ายก่อนล่วงหน้า (Prospective Payment System: PPS) โดยในปี ๒๕๔๔ ประชาชนที่มีการจ่ายค่าบริการแบบเหมาจ่ายก่อนล่วงหน้า เป็นผู้ป่วยกลุ่มประกันสังคม ซึ่งมีเพียงร้อยละ ๓.๒ ที่เหลือเป็นกลุ่มประชาชนที่มีการจ่ายแบบตามหลัง ภายใต้นโยบายหลักประกันสุขภาพถ้วนหน้าของรัฐบาล วิธีการจ่ายเงินให้สถานบริการได้ปรับเปลี่ยนไป โดยเป็นการเหมาจ่ายก่อนล่วงหน้าเป็นหลัก เหลือเพียงแต่กลุ่มข้าราชการและรัฐวิสาหกิจเท่านั้น ที่ยังคงมีการจ่ายแบบตามหลัง ภาวะเช่นนี้ทำให้สถานบริการได้รับงบประมาณแบบจำกัด

การศึกษานี้จึงมีวัตถุประสงค์หลักเพื่อศึกษาผลกระทบของการเปลี่ยนแปลงการจัดสรรงบประมาณ ที่มีต่อประสิทธิภาพและคุณภาพในการดูแลผู้ป่วยใน ในโรงพยาบาลรัฐทุกระดับในส่วนภูมิภาค การศึกษาประกอบด้วย ๓ การศึกษาย่อย ได้แก่ ๑) การศึกษาเชิงปริมาณ เป็นการเปรียบเทียบการเปลี่ยนแปลง วันนอนของผู้ป่วยใน กับผลการรักษา และวิเคราะห์ประสิทธิภาพการให้บริการของโรงพยาบาล ๒) การศึกษาในเชิงคุณภาพ จากโรงพยาบาลที่ได้รับการประเมินว่าสามารถให้บริการผู้ป่วยในได้มีประสิทธิภาพ ศึกษาถึงปัจจัยแวดล้อมในเชิงบริหารที่ทำให้โรงพยาบาลสามารถให้บริการผู้ป่วยในได้มีประสิทธิภาพ และวิเคราะห์สาเหตุที่โรงพยาบาลลดวันนอนผู้ป่วยใน ๓) การศึกษาเชิงปริมาณเมื่อประเมินความคิดเห็นของผู้ป่วยที่ถูกจำหน่ายออกจากโรงพยาบาลที่สามารถให้บริการผู้ป่วยในได้มีประสิทธิภาพในเวลา ๑ เดือน หลังการจำหน่าย เกี่ยวกับความคิดเห็นต่อบริการที่ได้รับ และความสำเร็จของการรักษา

ผลการศึกษาแสดงว่า สถานบริการมีการปรับตัวครั้งใหญ่ วันนอนผู้ป่วยในทุกกลุ่มสิทธิประโยชน์ลดลง การตายในโรงพยาบาลลดลง ในขณะที่การกลับมารับการรักษาเป็นผู้ป่วยในซ้ำสูงขึ้น โรงพยาบาลร้อยละ ๔๐ มีประสิทธิภาพการให้บริการผู้ป่วยในอยู่ในเกณฑ์ดี ในขณะที่บางโรงพยาบาลมีประสิทธิภาพอยู่ในระดับปานกลางและต่ำ พบว่าการลดลงของวันนอนไม่ได้เกิดจากความตั้งใจโดยตรงเพียงอย่างเดียว แต่เป็นผลจากมาตรการอื่น ๆ ด้วย เช่น การพัฒนาคุณภาพการบริการ ผู้ถูกจำหน่ายเกือบทุกรายพอใจผลการรักษา จึงเสนอแนะในเชิงนโยบายให้มีการจัดตั้งองค์กรประเมินและควบคุมกำกับการพัฒนาประสิทธิภาพและคุณภาพของโรงพยาบาล สถานบริการทุกระดับต้องพัฒนาคุณภาพอย่างจริงจัง มีการลงนามในสัญญา เพื่อให้บริการที่มีคุณภาพ โรงพยาบาลมีส่วนรับผิดชอบในกรณีรับจำหน่ายและเกิดผลเสียกับผู้ป่วย ควรมีการปรับกลไกการจ่ายเงินผู้ป่วยใน ให้มีการร่วมจ่ายในกรณีการรับบริการเกินความจำเป็น

**คำสำคัญ:** การเหมาจ่ายก่อนล่วงหน้า, การจ่ายตามหลัง, วันนอนผู้ป่วยใน, ประสิทธิภาพ