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DEPARTMENT OF HEALTH

**A STUDY ON COST CONTAINMENT
IN DOH HOSPITALS
OCTOBER 1991**

VOLUME I: FINAL REPORT

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MANAGEMENT SCIENCES FOR HEALTH

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EXECUTIVE SUMMARY

BACKGROUND AND OBJECTIVES

Over the past 13 years, the government has provided about 25 per cent of total health care financing in the country. While it continues to function as a key player in the health sector, concern has arisen regarding its increasing difficulty to provide the financial resources for health care.

Given the trends of government spending on health care, the need to generate additional sources for effective health care financing therefore, becomes more apparent. On one hand, the search for alternative sources of health care funds must be accelerated. On the other, it becomes imperative that whatever funding is available from the government and other sources must be used efficiently.

The primary aim of this study is to come up with a program of action for the effective implementation of cost containment schemes in DOH facilities at different levels. Originally, this was to be accomplished through the following:

- o development of a methodology for identifying cost containment schemes, and
- o use of the methodology in Region 3 and determination of schemes to be implemented.

During the course of the study, however, the task of establishing an appropriate methodology faced obstacles from the limitations of existing financial and operational data. In extensive meetings and consultations with the DOH, it was observed that the limitations of initial approaches in determining cost containment opportunities were rooted in a fundamental problem, the lack of a methodology to measure the specific costs of the services of hospitals.

It therefore became necessary to backtrack and address this underlying problem of inadequate sources of accurate and timely cost information.

While the primary goal of this study remained essentially the same, that is, to come up with an action plan for executing cost containment schemes, the focus shifted to the following objectives:

- o establishing a system for determining and monitoring meaningful cost data,
- o use of this methodology in hospitals in Region 3,

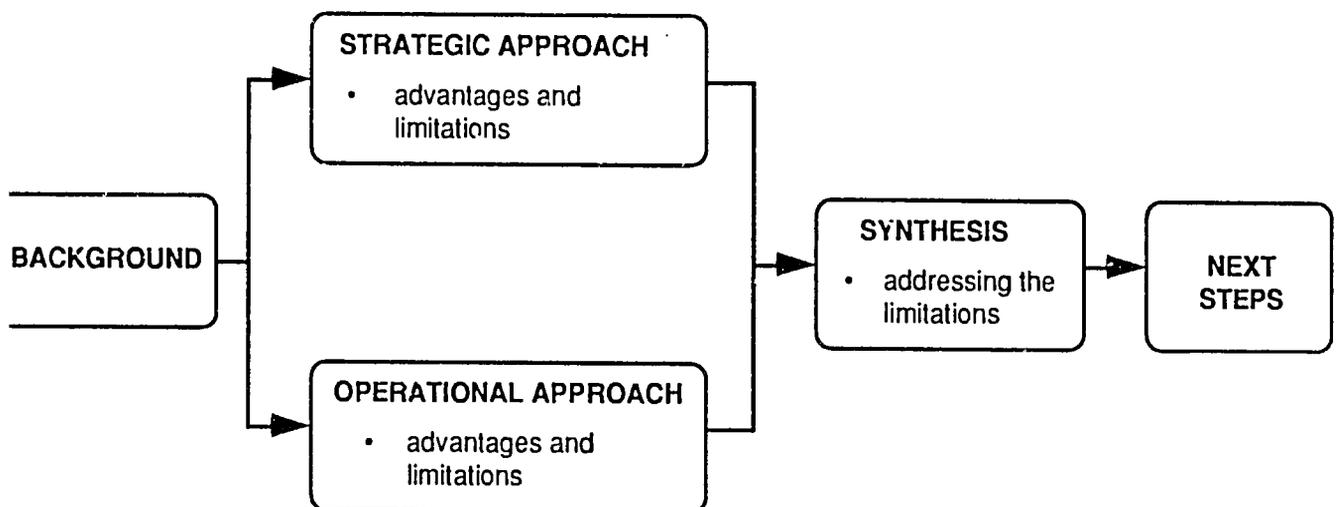
- o use of the output as a springboard for identifying cost containment areas,
- o recommending specific mechanisms to improve replication of the methodology in other areas.

COST CONTAINMENT

Cost containment can be defined as the activity which is aimed at maximizing efficiencies in the use of resources; the process through which output or quality is either maintained or increased with less input requirements. It seeks to achieve greater efficiency in the health care sector so that more could be accomplished with the same level of resources.

Furthermore, cost containment is perceived as a management effort, rather than a responsibility of accountants or operations personnel. Managerial cost containment efforts recognize the different cost categories and the interplay of different cost classes in determining the overall cost structure of an organization. Thus, the effort is to understand and manage the different cost classifications in an organization; this is in contrast with cost reduction efforts which simply aim to cut specific cost items.

For this study, a two-pronged approach of the strategic and operational analyses is presented. The study proceeds as indicated in the following figure:



The study approaches cost containment in Region 3 hospitals from strategic and operational perspectives. Cost containment under the strategic standpoint covers a wider scope and depth of the health system and usually defines strategic decisions and policies on capital and resource allocations. Strategic cost containment generates greater and longer running cost savings and achieves higher overall efficiency. From this standpoint, the study analyzes financial and statistical information of Region 3 hospitals from the DOH database.

The strategic approach used financial and statistical analyses in the effort to determine whether economic efficiencies exist or at what levels the economies of scale exist. The study used the correlation and regression techniques on the financial and statistical records of a sample of hospitals from Region 3. The correlation analysis is used to determine whether the size of the hospital or the performance of the hospital facility within a time frame directly impacts the level of expenditures. Additionally, the regression analysis is used to define the underlying relationship between the same parameters.

Results of the correlation and regression analyses indicate that economies of scale are achieved to some extent although no definitive range or behavior could be distinguished to indicate scale economies or diseconomies. No implications on the optimal size and site and setting issues could therefore be derived for policy recommendations.

On the other hand, cost containment from the operational standpoint is undertaken to identify and utilize ways to manage the costs of a process or service and to eliminate waste within the health care facility. Operational cost containment measures are designed to reduce cost and increase output in a specific segment in the health care delivery process. These measures effect limited cost savings or added value since focus is limited on the relevant operational segments in the health delivery process. At the operational angle, the study seeks to rationalize existing cost containment activities from national and hospital-specific viewpoints.

This approach documents operational strategies implemented in the entire health care delivery network and in particular, hospitals, to maximize the use of resources available to these health facilities. This also attempts to evaluate the benefits and impact of these cost containment schemes on the overall cost structure of the hospitals, and the feasibility of replicating these schemes in other hospitals.

Specific operational strategies implemented in the health delivery network include the bulk purchasing and bidding process, office supplies and utilities conservation, the controlled use of government assets and equipment, recycling, low cost substitute inputs, re-autoclaving, and in-house processing of supplies. The apparent complication in measuring the net benefit of each of these schemes in quantitative terms however, poses a serious problem in assessing the effectiveness of the surveyed cost containment efforts. The absence of a mechanism to monitor cost changes and transfers makes the calculation of the net effect on total spending a difficult effort.

To be able to effectively strike a balance in the interactions of costs and bring about the most economic positive net effect in the overall cost containment effort, it is imperative that hospitals implement a methodology designed to measure and analyze costs of providing medical services. This cost finding methodology will afford considerable benefits including cost benchmarks per type of service that can be used for budget evaluations and allocations and performance and managerial evaluations. This cost finding methodology can also be effectively used for a rate setting mechanism for these hospitals. Also, on a cost per unit of service basis, the interaction of the different types of costs may be clearly seen and therefore, readily projected.

A METHODOLOGY FOR MEASURING COSTS

Cost accounting furnishes management with the necessary accounting tools for planning and controlling activities. Although technically not a part of the cost finding process, cost accounting remains an important prerequisite to effective cost analysis because cost accounting provides the critical processes of recording, classifying, and summarizing transactions, data to be used in determining costs. The important concepts of cost accounting underlying the cost finding process used in this study include responsibility accounting and depreciation accounting. For this purpose, cost accounting is largely an information-generating procedure rather than a cost control device.

The methodology for measuring costs of services comprises six basic steps: identification of cost centers; tracking of costs; classification; assignment of direct costs; allocation of indirect costs to the different cost centers; and consolidation. While the methodology is straightforward, the specific nature of the processes and the level of detail in actual implementation will depend primarily on the cost objective.

The cost finding methodology was employed and tested in two different settings in a secondary district hospital and in a tertiary provincial hospital: the Sapang Palay District Hospital (SPDH) in Bulacan and the Quezon Memorial Hospital (QMH) in Lucena, Quezon. The choice of the two hospitals was justified by the availability of reliable financial and statistical data necessary for the cost finding and rate setting processes evaluated in both the User Fees and Cost Sharing Study and this study. The decision was also influenced by the geographical distance factor.

The rationale behind the case studies were:

- o to test the steps of the methodology,
- o to see how the methodology can be applied in a real setting, particularly in ascertaining feasibility of implementation within specific hospital environments,

- o to generate initial data to determine the potential for identifying cost containment opportunities from the cost finding methodology, and
- o to determine information system improvements required for a bigger scale pilot project, without necessarily requiring significant changes in the current reporting system.

THE RESULTS

The cost finding methodology finds value in its presentation of the cost structures and levels on a per service and per department basis. This methodology also establishes a groundwork for a system of measuring and monitoring costs prerequisite in the long term sustainability of a cost containment effort.

The cost finding exercise in this study made possible the allocation of actual direct and indirect expenditures to the different cost centers or departments in the hospital organization. This cost containment study however, does not end at the cost finding level. The main point of the cost finding exercise is to generate the information necessary for the identification of areas for cost containment in the hospital facility.

Based on the results of the cost finding process, the potential areas for cost containment in the Sapang Palay District Hospital and the Quezon Memorial Hospital may be found in the following:

- o where costs are indicated to be considerably high, the specific cost center, service or treatment, or cost type (supplies and materials, overhead, etc.) provides the major opportunities for cost containment. In this case, cost containment can be done where possible, through cost avoidance, cost reduction, cost control, or cost effectiveness.

In both settings, the pharmacy and emergency room cost centers present opportunities for cost containment. Also, it may prove considerably beneficial for the hospitals if on a per service level, direct costs which account for the bulk of expenditures, can be considerably controlled.

- o where costs are indicated to vary significantly from those indicated in the schedule of costs in previous years for the same facility or across different facilities for the same time period.

In analyzing the level of costs and taking steps to implement cost containment measures however, it is important not to fall into the trap of merely looking at volume of costs and the reductions in absolute expenses. More often than not, complex interrelationships among various costs exist so that cost cutting in one area may lead to cost increases in other areas. Consequently, a higher aggregate cost level may be incurred by the entire hospital organization.

INFRASTRUCTURE/DATABASE IMPROVEMENTS

The sustainability of the cost containment effort in the hospital setting requires that its information system be sufficiently reliable and readily able to generate accurate and complete relevant information. During the pilot test, the following factors that hamper the flow of information within the system are identified. These factors include:

- o the absence or incompleteness in detail of the required data at the department level and the disorganized recording of information,
- o inconsistencies in the use, interpretation, and entry of information into reports and logbooks;
- o difficulties in collecting the needed information due to the absence of summaries; and
- o the lack of a structure clearly defining the flow of information through the system and the responsibilities of various entities in the processing and analysis of data.

Suggested specific reforms in the management information systems include the use of standardized forms for data tabulation, classification and reporting, the design and implementation of a coding mechanism, the regular consolidation of data, and the implementation of a proper data processing system.

NEXT STEPS

These next steps outline the processes needed after a system that tracks, classifies, and consolidates relevant cost data has been approved to promote cost containment.

Implementing the Cost Finding Methodology

First, for the methodology to be truly effective in helping generate cost containment opportunities, the cost finding process should be replicated in several hospitals in the DOH network. As the previous section showed, the implementation of this methodology need not require significant manpower increases or investments in data processing technology. Thus, the implementation requirements should not hinder the implementation of this process in several DOH hospitals.

By implementing this methodology in several facilities, comparative cost information can be generated. This information, if gathered on a large scale and long term basis, can serve as the foundation of policy and strategy formulations. Specifically, this information can help in the following:

- o the generation of more accurate data for economies of scale analyses and other policy and planning needs,
- o the establishment of cost benchmarks for budget evaluations and allocations and performance and management evaluation, and
- o rate setting.

Secondly, within the context of a facility, the understanding of cost structures should be moved away from a purely accounting interest, to one that is a concern of the entire organization. Output from the methodology, specifically, the unit costs of the services provided by the different cost centers should be distributed throughout the entire organization. In doing so, the hospital administration signals that the organization should be concerned with and responsible for its costs.

The development of an interest in costs can be facilitated by the dissemination of information that is easily understood by non-accounting staff. Aside from this development of interest, personnel of the different departments are made to feel more responsible for their departmental costs because it becomes easier to understand and relate to the costs that pertain to their operations.

Developing and Implementing Cost Containment Opportunities

From a strategic perspective, the development of cost containing policies and plans that will affect the entire range of operations of the DOH can be facilitated by:

- o disseminating the data gathered from the cost finding efforts to policy and strategy planners, and
- o involving planning experts and researchers in productivity improvement, logistics and inventory management, and other disciplines; their work will be greatly enhanced by the availability of relevant data which had always been inadequate.

From an operational perspective, the development of cost containment opportunities becomes easier if the entire hospital organization is involved. Department teams can be formed to analyze their operations, develop and implement operating plans for cost containment, and monitor the effects of these plans. Hospital administrators may find it considerably beneficial for the cost containment effort if the cost consciousness concept can be articulated by the hospital's entire pool of staff in the day-to-day hospital operations.

Cost analysis can provide insights into areas which offer potential cost containment opportunities. Once these areas have been identified and prioritized, hospital administrators have at their disposal a variety of specific techniques to further explore cost interactions and/or determine and implement ways to contain costs. Hospital administrators can institute a value analysis program, cost-benefit analysis, and cost-productivity analysis.

- o **Value Analysis**

Value analysis is a productivity improvement technique implemented mainly to reduce unnecessary costs. Under this scheme, identified hospital services and their corresponding cost structures can be independently assessed through comparisons with the costs and practices of other comparable institutions.

Value analysis can be conducted by teams consisting of hospital administrators, physicians, and staff with different backgrounds and skills. As a first step, the team focuses its attention to the high expense centers which gives indications of potential areas where significant cost reductions can be achieved.

Comparison of hospital costs with other hospitals is done to provide indications where one hospital is spending more than the others. Costs per item are compared with the best demonstrated cost (BDC) within the lot. This leads to identification of target costs and determination of opportunities and practices used in more efficient hospitals which could be adopted to yield savings without compromising quality of care. With these results, action plans are then developed by task forces and the changes are implemented and monitored.

o Cost-Benefit Analysis

Potential savings from cost containment efforts can be measured against the costs of implementing the effort. Thus, containment efforts that actually increase costs because of the difficulty of implementation or the expense required to acquire the technology may be identified and rejected. Cost containment recommendations can thus be carefully evaluated because of the data provided through cost tracking and monitoring. Definitive decisions on whether to implement or not to implement certain measures may in this way be reached.

o Cost-Productivity Analysis and Allocation

Because results cannot be significantly detached from costs, selectivity in cost containment must be exercised. As was established earlier, certain costs should be allowed to remain because whimsical and poorly thought out cost saving measures may ultimately only damage long run productivity and prevent the achievement of vital performance targets.

In its very essence, cost productivity analysis and allocation groups costs together and orders them according to a spectrum of categories: cost avoidance, cost reduction, cost control and cost effectiveness. Savings realized from the discontinuation of activities categorized under cost avoidance and cost reduction are rechanneled to the more productive uses outlined by the cost effective measures.

Policy Areas

Ideally, the proposed methodology is supposed to provide impetus for promoting efficient hospital management in the public sector. The result of increased efficiency will ultimately be added savings (non-expenses) in the case of efficient hospitals. This advantage creates certain problems or policy issues pertaining to the beneficiaries and use of savings.

Under current regulations on budgeting and disbursement, any amount of savings generated by a hospital at the end of the fiscal year will accrue to the national treasury, that is, it will essentially remain undisbursed. In actual practice, however, hospital expenditures rarely fall way below budgeted figures. A possible reason may be that budgets are simply too low to support hospital operations. However, hospital administrators also cited two major reasons for this occurrence. First, since hospitals cannot access the difference between their actual expenditures and budget in the succeeding year, they choose to consume as much of the allocated funds as they can. Secondly, officials expressed apprehensions that if they did not use up most of the funds allocated for a given year, their total budgets might be reduced in subsequent years.

Hospitals, therefore, do not have any real incentives to substantially improve efficiency and reduce costs. If they do undertake these activities, savings would normally not reach the regional or national government levels. In effect, this may promote inefficiencies within hospitals.

It appears, therefore, that hospitals could be allowed to accumulate and access part of their savings. However, use of the funds should be based on specific guidelines and regulations, particularly on the nature of allowable expenditures. Savings should be used primarily as long-term investments for use in strategic cost areas such as personnel training, new equipment or expansion of facilities. On the other hand, excess funds should not be used to supplement short-term operational expenditures since these costs are already covered by the annual budgets.

The issue of allowing hospitals access to their savings raises some more points. Implementation of the methodology implies that the budget process may be improved since costs are now based on actual levels of expenditures. However, problems appear when savings are computed based on the current practice of deducting expenditures from budgets. A hospital can simply force savings by not meeting its performance targets. The savings generated by each hospital should therefore be measured against actual performance targets.

Since the issue of hospital access to savings has wide and far reaching implications, further studies and evaluations will be required in this area.

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INTRODUCTION

BACKGROUND

Over the years, perennial budgetary constraints and economic difficulties have gradually eroded the government's ability to provide adequate funds for the delivery of health care services. Government hospitals, further burdened by rapidly increasing input costs, are increasingly at a loss on how to effectively address the health care needs of a growing population. It is therefore imperative for government hospitals to establish sustainable programs for increasing economic efficiencies without sacrificing the quality of care that they provide.

OBJECTIVES

The primary aim of this study is to come up with a program of action for the effective implementation of cost containment schemes in DOH facilities at different levels. Originally, this was to be accomplished through the following:

- o development of a methodology for identifying cost containment schemes, and
- o use of the methodology in Region 3 and determination of schemes to be implemented.

During the course of the study, however, the task of establishing an appropriate methodology faced daunting obstacles from the limitations of existing financial and operational data. In extensive meetings and consultations with the DOH, it was observed that the limitations of initial approaches in determining cost containment opportunities were rooted in a fundamental problem, the lack of a methodology to measure the specific costs of the services of hospitals.

It was therefore deemed necessary to backtrack and address this underlying problem of inadequate sources of accurate and timely cost information.

While the primary goal of this study remained essentially the same, that is, to come up with an action plan for executing cost containment schemes, the focus shifted to the following objectives:

- o establishing a system for determining and monitoring meaningful cost data,
- o use of this methodology in hospitals in Region 3,

- o use of the output as a springboard for identifying cost containment areas, and
- o recommending specific mechanisms to improve replication of the methodology in other areas.

SCOPE AND METHODOLOGY

The study approaches cost containment in Region 3 hospitals from strategic and operational perspectives. From a strategic standpoint, the study analyzes financial and statistical information of Region 3 hospitals from the DOH database. At the operational angle, the study sought to rationalize existing cost containment activities from national and hospital-specific viewpoints.

The cost finding methodology was envisioned as the logical interface between two perspectives. The framework for the cost finding methodology was developed based on analysis of the cost study conducted by Dr. Ricardo Ramos of the Tarlac Provincial Hospital in 1989 and other research on cost finding techniques, and refined after discussions with the Hospital Operations and Management Service (HOMS) office of the DOH.

The conduct of the study involved the following major activities:

- o review of related local and foreign studies and other publications on cost containment and cost analysis,
- o documentation of all laws, policies, and regulations pertaining to cost containment since 1980, and
- o survey of selected hospitals in Region 3.

For the survey of hospitals, the study team proceeded to test the cost finding methodology within different hospital environments in Region 3. However, the eruption of Mt. Pinatubo disrupted the original plan to stage the exercise in two hospitals in Tarlac; the scope shifted to the Sapang Palay District Hospital in Bulacan and the Quezon Memorial Hospital in Lucena in Region 4. The documentation of the process and findings are presented as case studies in Annex A. Annex B presents summaries of related literature on cost containment.

The initial findings and major issues in the process of implementing the methodology were presented in a series of interviews, consultative meetings, and workshops with DOH senior staff. The list of the key informants for this study is presented in Annex C. Documentation of the workshop is contained in Annex D.

Although attempts were made to establish costs for different hospital departments, the figures arrived at are at best indicators of actual financial performance of the hospitals surveyed. The study does make categorical statements about the efficiencies or inefficiencies in the operations of the hospitals based on the data generated by the methodology.

HEALTH CARE FINANCING IN THE PHILIPPINES

Over the past 13 years, the government has supported about 25 per cent of the costs of health care in the country. In 1989, it provided the single biggest contribution of about P8.6 Million or less than one per cent of gross national product (GNP) for health care programs and activities.

While the government continues to function as a key player in the health sector however, concern has arisen regarding its increasing difficulty to provide the needed financial resources for health care.

With its perennial budgetary constraints, the government has become an increasingly limited source of resources for health care financing. Over the past four years, the government's health expenditures have comprised only a very small portion of total government expenses. Only 2.8 per cent to 3.8 per cent of total national expenditures were spent for health care programs and activities (see Table 1).

Table 1
Total Health Expenditures
as Per cent of Total Government Expenditures
(In Million Pesos)

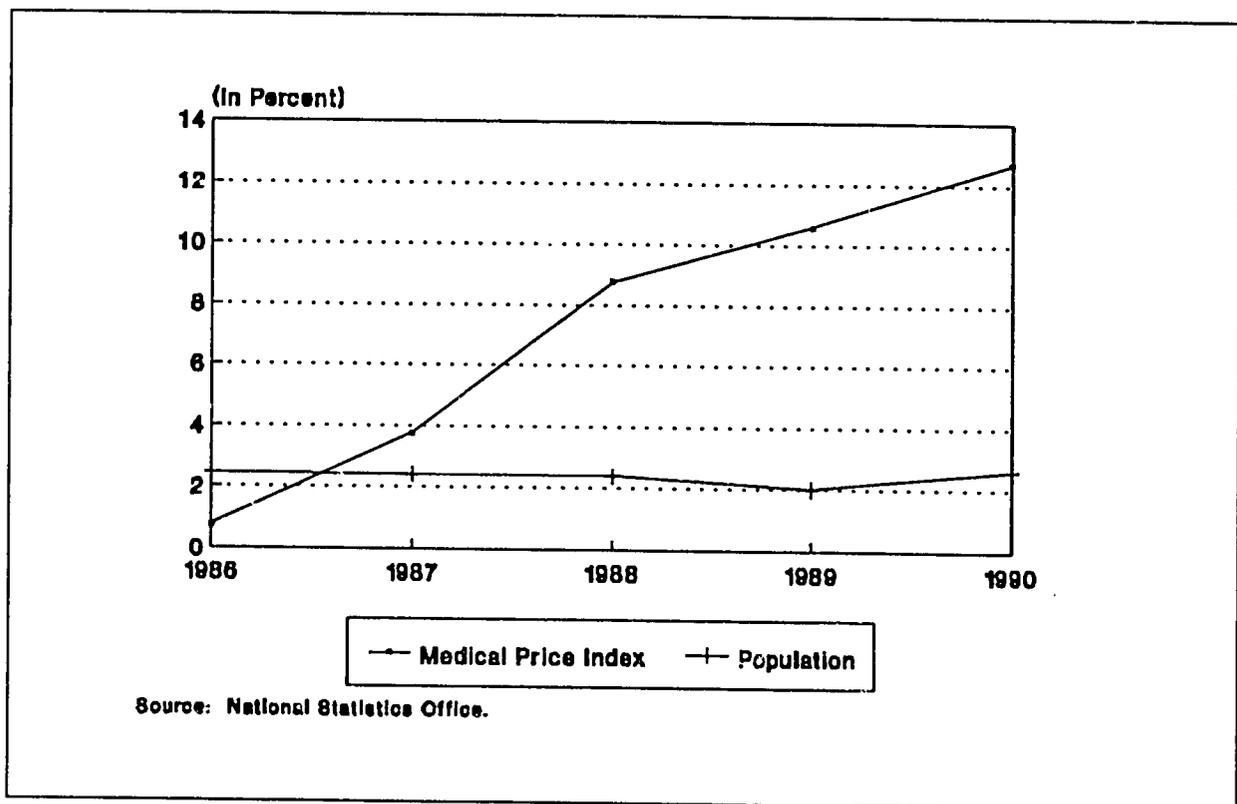
<u>Year</u>	<u>Total Government Expenditures</u>	<u>Total Health Expenditures</u>	<u>Per cent to Total</u>
1986	123,306	3,985	3.2
1987	163,998	4,659	2.8
1988	179,161	6,186	3.5
1989	187,233	7,174	3.8

Sources: Department of Budget and Management.
Budget of Expenditures and Sources of Financing.
The COA Annual Financial Reports.

Obviously, the largest public sector contributor of health care funds is the Department of Health (DOH). The DOH has provided on average, 83 per cent of the government's health care financing from 1986 to 1989.

The lack of financial resources available to the health sector is further compounded by increasing health care costs and rising population figures. Figure 1 below displays the trend of the medical price index (MPI) and the population growth.

Figure 1
Historical Trend of the Medical Price Index
and Population Growth



As a result of the increasing costs of medical services, government health care expenditures in real terms have increased at 11.2 per cent annually from 1986 to 1989. Furthermore, due to the rising population, the rate of growth of per capita health expenditure is recorded to be lower, at 8.8 per cent per year. Table 2 presents the historical total and per capita health care expenditures in nominal and real terms.

Table 2
Per Capita Public Sector Health Expenditures
1986-1989
(In Million Pesos)

Year	Total Health Care Expenditures		Per Capita Expenditures	
	At Current Prices	At Constant Prices	At Current Prices	At Constant Prices
1986	3,985	71.50	580	10.40
1987	4,659	81.76	627	11.01
1988	6,186	106.24	760	13.05
1989	7,174	120.67	797	13.41
Compounded Annual Growth Rate (Per Cent)	21.6	19.1	11.2	8.8

Sources: Budget of Expenditures and Sources of Financing.
The COA Annual Financial Reports.

The trend of the government's direct health care delivery expenditures per capita proves even more disturbing. During the last five years, capital outlay and general administrative, support and other service expenditures have grown at a significant rate of 50.6 per cent. On the other hand, expenditures for the health delivery network have increased at a much lower rate of 22.7 per cent per year on average. These growth patterns consequently show a declining effective peso for each person for health care (net of administrative costs).

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Table 3
Uses of the Budget of the Department of Health
1986-1990
(In Thousand Pesos)

	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
General Administrative and Support Services	164,505	445,197	595,047	1,551,873	1,564,694
Regional Training	2,706	1,747	-	275	-
Wages - Malaria Sprayman	-	-	-	-	34,564
Retirement Gratuity	-	2,746	12,528	17,615	64,060
Terminal Leave	-	1,258	3,189	5,337	31,277
Radiation Hazard/Risk Pay	-	-	-	16,940	12,787
Capital Outlay	164,543	40,872	-	-	-
Total Administrative and Support Services	<u>331,754</u>	<u>491,820</u>	<u>610,764</u>	<u>1,592,040</u>	<u>1,707,382</u>
Compounded Annual Growth Rate (Per Cent)	50.6				
Field Health Services	17,794	17,879	17,919	19,713	19,707
Primary Health Care	66,219	297,589	382,282	349,507	285,419
Drugs and Medicines	300,000	287,080	300,000	400,000	363,000
Aid to Puericulture Centers	1,452	519	1,394	1,493	1,543
Curative Hospitals	1,805,998	2,333,091	3,117,222	3,687,281	4,301,824
Total: Health Care Facilities	<u>2,191,463</u>	<u>2,936,158</u>	<u>3,818,817</u>	<u>4,457,994</u>	<u>4,971,493</u>
Compounded Annual Growth Rate (Per Cent)	22.7				
TOTAL	<u>2,523,217</u>	<u>3,427,978</u>	<u>4,429,581</u>	<u>6,050,034</u>	<u>6,678,875</u>

Source: Office of Management Services, DOH.

In the health delivery network, the last four years have also witnessed a widening gap in the appropriations and expenditure financing of public hospitals. Deficit financing has grown at a significant annual average rate of 27 per cent as expenditures rise at an average rate of 20 per cent compared to a much lower 15 per cent rise in budget appropriations for these hospitals (see Table 4).

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Table 4
Historical Appropriations and Expenditures
of Public Hospitals: 1987 - 1990
(In Thousand Pesos)

<u>Year</u>	<u>Appropriations</u>	<u>Expenditures</u>	<u>Deficit</u>	<u>Per Cent of Deficit to Appropriations</u>
1987	3,334,887	6,142,047	2,807,160	84
1988	3,832,246	7,847,296	4,015,050	105
1989	4,371,532	9,202,344	4,830,812	111
1990	5,085,279	10,791,293	5,706,014	112
Compounded Annual Growth Rate (%)	15.1	20.1	26.7	

Source: Office of Management Services, Department of Health.

Aside from these figures, other data show that strategic investments have been deferred or curtailed.

One of these is capital investments particularly in hospital facilities. In a survey of the financial statements of a sample of 22 government hospitals in Region 3, capital investments were indicated to be the first recipient of budgetary cuts among hospital cost accounts. These were indicated to account for only 10 to 14 per cent of total indicated expenditures of the sample hospitals in 1989 and 1990. Aside from comprising a small share of total expenditures, on average, 1989 capital expenditures of the sample of hospitals decreased by 33.18 per cent.

Furthermore, the value of personnel expenditures between 1988 and 1989 also decreased by eight per cent, indicating that most of the growth in expenses of these hospitals is accounted for by the rising costs of MOOEs. Table 5 presents the relative shares of these accounts in the total hospital expenditures.

Table 5
Expenditures of
Selected Region 3 Government Hospitals: 1988-1989

	Number of Hospitals	1988		1989		Growth Rate
		Value	Percent to Total	Value	Percent to Total	
PRIMARY	5					
Personnel Expenses		2,181,376	45.56	1,478,115	28.75	-32.24%
MOOE's		1,821,143	38.04	2,099,659	40.84	15.29%
Capital Outlay		785,000	16.40	1,563,000	30.40	99.11%
Total		4,787,519	100.00	5,140,774	100.00	7.38%
SECONDARY	13					
Personnel Expenses		18,188,850	43.04	17,263,397	42.89	-5.09%
MOOE's		14,323,440	33.89	18,758,233	46.61	30.96%
Capital Outlay		9,748,050	23.07	4,225,000	10.50	-56.66%
Total		42,260,340	100.00	40,246,630	100.00	-4.77%
TERTIARY	1					
Personnel Expenses		10,761,352	44.53	9,905,520	40.99	-7.95%
MOOE's		13,404,488	55.47	13,010,736	53.84	-2.94%
Capital Outlay		-	-	1,250,000	5.17	0.00%
Total		24,165,840	100.00	24,166,256	100.00	0.00%
ALL FACILITIES	19					
Personnel Expenses		31,131,578	43.72	28,647,032	41.19	-7.98%
MOOE's		29,549,071	41.49	33,868,628	48.69	14.62%
Capital Outlay		10,533,050	14.79	7,038,000	10.12	-33.18%
TOTAL		71,213,699	100.00%	69,553,660	100.00%	-2.33%

Source: Annual Financial Statements of Selected Hospitals.

All these trends in government health care expenditures, to summarize:

- o the consistently small share of health care expenditures to the government's total expenditures,
- o the increasing costs of health care services as indicated in changes in the medical price index and the growth in the country's population which have both resulted in the slow growth rate of health care expenditures per capita,
- o the sluggish increase in effective health care expenditures,
- o the increasing deficit financing of public hospital expenditures, and
- o the drastic cuts in public sector health care investments and to some extent, manpower,

all show an increasing inability of the government to adequately finance the health care needs of the country.

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The need to generate additional sources for effective health care financing becomes apparent given these trends of government spending on health care. On one hand, the search for alternative sources of health care funds must be accelerated. On the other, it becomes imperative that whatever funding is available from the government and other sources must be used efficiently.

The study on efficient use of funds and other resources for government provided health care is the primary focus of this project. In particular, this project attempts to identify mechanisms that will allow the health care delivery system to manage, if not increase, its output given declining resources.

This project focuses its attempt to identify, document, and recommend cost containment schemes on the DOH hospital network. This focus on the DOH hospitals, rather than the field health service units, comes from the recognition that most of government health care budget allocations and expenditures are used up for hospital services. From 1986 to 1989, an average of 60 per cent of the government's allocations for health care went into hospital services.

Because of the amount of funding needed and consumed by the hospital network, hospitals were considered to be the ideal place to implement cost containment mechanisms and schemes.

COST CONTAINMENT

A METHODOLOGY FOR CLASSIFYING COSTS

An efficient cost containment effort should recognize that there are different types of costs that have to be considered. The different types of costs can be classified into the following matrix.

Figure 2
Types of Costs

	STRATEGIC	OPERATIONAL
TANGIBLE	<ul style="list-style-type: none">• new equipment• new services• facilities expansion	<ul style="list-style-type: none">• personnel• medical and administrative expenses• drugs and medicines• materials and supplies• repairs and maintenance• utilities
INTANGIBLE	<ul style="list-style-type: none">• technological obsolescence• poor facilities location• redundant services	<ul style="list-style-type: none">• poor manpower quality• excessive administrative requirements• wastage/pilferage• overloaded staff

Rather than looking at costs as homogeneous, this matrix classifies different types of costs. Based on this view, the different classes of cost affect the over-all structure in a unique way and thus, the management of these costs are different, depending on the category.

In this matrix, costs are classified as either tangible or intangible. Tangible costs are those that are easily measured, evaluated, and reported. Intangible costs, on the other hand, are often ignored as these are rarely indicated in financial reports. Intangible costs, however, have significant impact on the overall cost structure of a unit of service and on the entire organization.

This matrix also recognizes that strategic decisions require expenditures that form the basis of the operating cost structure of an organization. For example, decisions on strategic costs determine the size of a hospital, its location, its manpower complement, and the investment of capital assets. These decisions in turn, determine operating or day-to-day costs.

Lastly, this matrix recognizes that distinct types of costs interact with other cost classes. Without considering the interaction of different costs, cost containment efforts may actually be counter-productive in the long term. The reduction of a cost component may lead to an increase in other inputs or activities needed to provide the service. Some interactions are:

- o that strategic costs affect operating expenses; for example, delaying strategic decisions on capital investments for better equipment may lead to greater operating expenses in repairs, maintenance and downtime in the long term.
- o that reductions in tangible costs may lead to higher intangible costs, consequently this may negate the effects of the costs containment effort; for example, personnel cuts reduce personnel expenditures of a hospital but may result in increased inefficiency, poor morale levels, and lower quality of service.
- o that cost reductions may merely shift costs in other categories; for example, the use of indigenous fuel substitutes can lead to added manpower expenses for people assigned to watch open flames and clean up the ashes caused by the substitute fuel.

WHAT IS COST CONTAINMENT?

Cost containment can be defined as the activity which is aimed at maximizing efficiencies in the use of resources; the process through which output or quality is either maintained or increased with less input requirements. Integral to this definition is that cost containment is a management effort that recognizes the different cost categories and the interplay of different cost classes in determining the overall cost structure of an organization.

For this project, cost containment and cost management in the DOH hospital network are considered synonymous. Taking into account interactions of cost classes, both mean maintaining, if not increasing, the number of persons served at hospital facilities as well as sustain, if not improve, the quality of health care that is provided to these users, despite:

- o rising medical costs due to inflation and other economic factors,
- o decreasing government budget allotments, particularly in real terms, and
- o increasing health care demands from a growing number of hospital users that cannot afford to share in the costs of treatment and health care benefits.

Cost containment efforts look not only at the reduction of expenses indicated in the financial reports or in the funding requirements in the budget of a hospital. They seek to achieve greater efficiency in the health care sector so that more could be accomplished with the same level of resources. Thus, the cost containment effort may actually require an increase in expenditures in the short term for greater savings in the long term.

Cost containment cannot thus, be compared with cost reduction activities which simply reduces the level of overall costs by cutting expenditures. This practice may reduce expenditures of an organization in the short term, but can result in lead to higher levels of costs or decreased efficiencies in the long term.

Significant differences between cost containment and cost reduction are outlined in Table 6.

Table 6
Differences between Cost Containment
and Cost Reduction

<u>COST CONTAINMENT</u>	<u>COST REDUCTION</u>
o a continuous process.	o usually a one-time activity involving cuts in planned budgets and allowed expenses.
o a strategic approach which looks not just at specific cost items but interactions between costs associated with manpower, materials and supplies, technology, and capital.	o usually fragmented, operations focused and concerned with the reduction of specific cost items.
o dependent on understanding the total costs of operations, not only of costs that are easily measured.	o focused on costs that are easily measured and usually indicated in the expense statements of the hospital.
o spearheaded and monitored by the hospital administrator and top officials in response to environmental changes.	o usually initiated by the hospital's accountants and operations personnel in response to deviations from budgets and plans.
o involves the entire organization.	o usually involves the personnel of a particular group or division.
o results are usually long term or permanent.	o benefits are usually short term.

SOURCES OF COST CONTAINMENT OPPORTUNITIES

Cost Containment from a Strategic Perspective

Cost containment under the strategic standpoint covers a wider scope and depth of the health system. This approach usually defines strategic decisions and policies on capital and resource allocations.

These decisions can include the size of a hospital in a location, the services that will be offered, and the level of technology that will be invested in the facility. These decisions ultimately determine the operating costs of the health care facility.

Strategic cost containment generates greater and longer running cost savings and achieves higher overall efficiency. While operational cost containment measures focus on the processes of a health care facility, the strategic measures encompass the resource allocation of the DOH and the government health care system.

Strategic cost containment can be attained through measures including:

- o relating the policies on hospital size and investment decisions with economies of scale.

Strategic cost containment determines relative costs across health facilities and considers whether the cost of a service is a function of the size and technology level of the facility. To achieve cost efficiencies, strategic cost containment sets policies on facility size and the level of investment and technology to achieve the lowest possible cost per unit of service.

- o the selection of the appropriate services for each level of facility in the health care system.

Strategic cost containment considers the focus or breadth in the services that should be provided in each hospital level. The mix of services offered in the hospital provides significant implications on the overall cost structure of the hospital.

- o relating the referral system and economies of scale.

To achieve a high level of cost effectiveness in the entire system, strategic cost containment finds means to redirect the market's health seeking behavior so that services are administered at the level where the cost of providing them is lowest.

Cost Containment from an Operational Perspective

From an operational perspective, cost containment is undertaken to identify and utilize ways to manage the costs of a process or service and to eliminate waste within the health care facility. Operational cost containment measures are designed to reduce cost and increase output in a specific segment in the health care delivery process. These measures effect limited cost savings or added value since focus is limited on the relevant operational segments in the health delivery process. Operational cost containment examples are:

- o recycling of hospital supplies and the reduction of wasted resources,
- o the use of lower costing substitutes for hospital services and processes,
- o the elimination of redundant or non-value adding activities and processes,
- o personnel level management to increase productivity and decrease personnel expenditures,
- o inventory management of drugs and medicines, and medical, surgical and other supplies and materials, and
- o efficient scheduling of therapeutic treatments, immunizations and other health care activities so that manpower and supplies are used efficiently and waste is minimized.

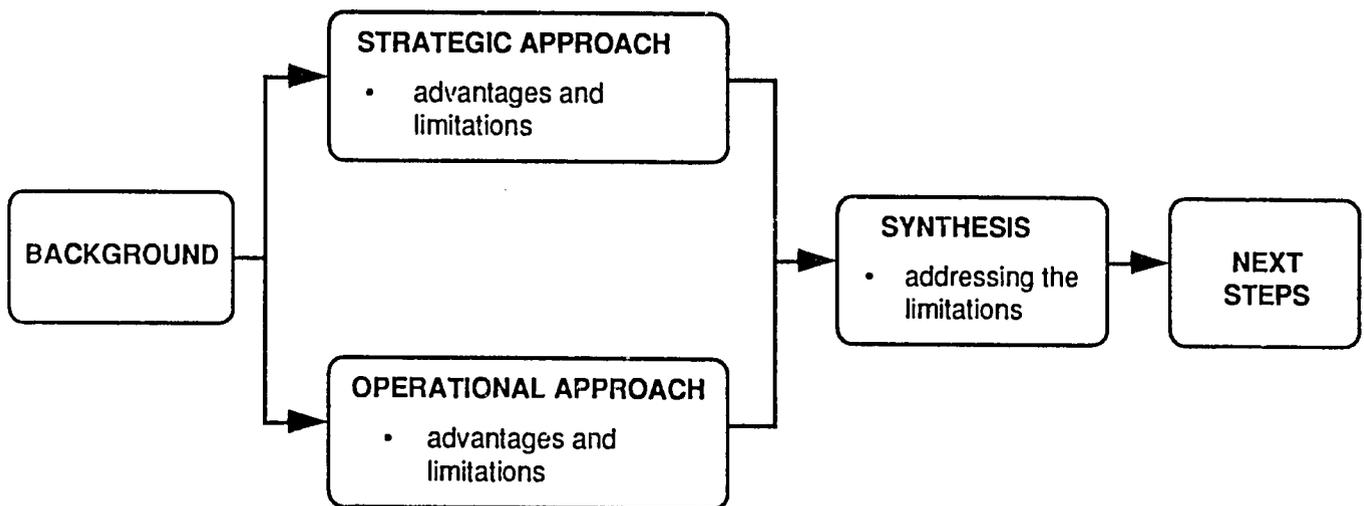
THE COST CONTAINMENT PROJECT

Using these strategic and operational perspectives of cost containment, the cost containment project attempts to determine cost containment opportunities that can be implemented in the DOH network. In particular, this project aims to:

- o assess the advantages and limitations of each perspective as a means of determining cost containment opportunities,
- o from the use of these approaches and given the data gathered in the course of this project, arrive at tentative recommendations for cost containment, and
- o most important, to define the limitations and propose resolutions to make these approaches more valuable for both DOH strategic planners and policy makers as well as hospital administrators and operating heads of DOH facilities.

Figure 3 below outlines the flow of this study. Brief descriptions of the strategic and operational approaches follow the figure.

Figure 3
Project Flow



The Strategic Approach to Cost Containment

This approach is based on the idea that costs of a unit of service offered by a hospital, in this case, an inpatient day, is related to and influenced by the size of facility. Based on this theory of scale economies, the cost advantages of a large facility come from efficiencies that can be generated by performing at a larger scale. Furthermore, costs of administration, inventory, and other intangibles are spread out to a greater number of beneficiaries, thus decreasing the cost per unit of service.

From this theory, this project attempts to test the following hypotheses:

- o that the size of the DOH hospital, as indicated by the number of beds of the facility, is related to and determines the unit cost of an inpatient day,
- o as an alternative, the study also determines if volume performance or the number of inpatient days provided by the facility within a given time affects the unit cost of service, and

- o there is an optimal size of a facility, beyond which, the cost per unit of service increases.

Data for this approach were gathered from the financial and statistical reports of hospitals in Region 3; specifically, from the Hospital Operations and Management Service Department (HOMS) of the DOH. Data gathered were supplemented with primary data from sample hospitals as limitations to the HOMS data base was uncovered. To process the data, the study utilized statistical analyses tools, particularly, correlation and regression analyses.

The Operational Approach to Cost Containment

This approach aims to document existing operating practices in DOH hospitals that have helped reduce the costs of the hospitals' operations. From this documentation, this study proceeds to evaluate the benefits of these activities.

Two types of cost containment schemes were looked at in this study; in particular, these are:

- o cost containment schemes that are practiced by the entire DOH network as a result of Department and Administrative Orders, and other legislation, and
- o schemes that were developed by specific hospitals; these schemes arise, in general, from the creativity and ingenuity of the hospital administrators and other personnel. The study looks at the feasibility of replicating these practices in other DOH hospitals.

To gather data, the project team first looked at a compilation of Administrative, Department, and other orders that require specific practices in the DOH hospitals. Interviews were conducted with several hospital administrators to evaluate the benefits of these mandated practices.

From these interviews, the team also gathered and documented specific cost containment practices of different hospitals. The team then attempted to evaluate the impact of these schemes on the cost structure of the organization.

THE STRATEGIC APPROACH : STUDY OF THE FINANCIAL AND STATISTICAL PERFORMANCE OF REGION 3 HOSPITALS

This section of the study attempts to determine policy and strategy implications based on optimal scales of the DOH facilities. An optimal scale of a facility is the hospital size in which the costs per unit of service are at its lowest.

This part of the study focuses on economies of scale in hospital facilities, and tries to establish whether or not the level of the costs of hospital services is related to and depends on the number of beds in the hospital.

As an alternative hypothesis, this study also tries to determine whether the number of inpatient days achieved by a facility within a given period affects the average cost of an inpatient day. Underlying this hypothesis is the theory that as experience (as indicated in the level of performance of a hospital) increases, the unit cost of a product or service decreases.

It is hoped that results of this analysis of economic efficiencies could be used to formulate policy recommendations for the cost containment efforts of the government health system, particularly those recommendations that deal with:

- o the size of the facility,
- o its service emphasis; for example, if the level of performance decreases unit costs, then hospital facilities should concentrate on in-patient care to achieve this optimal level of performance, and
- o the budget allocations of particular categories of hospitals; for example, should there be significant variations in the cost structures of hospitals of different sizes or performance achievements.

This particular focus on the economies of scale was based on assertions of Schulz and Johnson and many other health economists that

"there are economies of scale to a point, beyond which the economies begin to diminish... However, there is considerable disagreement regarding the point or range of minimum long-run average cost."

In other studies, Carr and P. Feldstein (1967) suggest that the minimum is about 190 beds; M. Feldstein (1968) thinks it is between 300 and 900 beds.

In the effort to determine whether these economic efficiencies exist or at what levels the economies of scale exist, the study uses the financial and statistical records of a sample of hospitals as the data for correlation and regression analyses.

The correlation analysis is used to determine whether the size of the hospital or the performance of the hospital facility within a time frame directly impacts the level of expenditures. Additionally, the regression analysis is used to define the underlying relationship between the same parameters.

Financial and Statistical Analyses

Data Sources

Two sources of data were used in this analysis; these are:

- o the HOMS data base composed the of annual statistical and financial reports of 33 DOH hospitals in Region 3; this was used primarily for the correlation analysis,
- o the financial and statistical data of the 14 secondary hospitals in the HOMS data base were used in the regression analyses, and
- o a sample of four (4) primary, 11 secondary, and one (1) tertiary hospitals in Region 3 was used particularly in the regression analyses.

The Region 3 hospitals that compose this sample is listed in Annex E. Rather than use the entire data base of Region 3 hospitals' financial records, only fourteen secondary hospitals were used in the regression analysis because of the differences in the scale of operations among the different levels of hospitals and distortions on the data on indicated hospital expenditures.

The scatter plot analyses, on the other hand, uses a 16 hospital sample because of certain problems encountered with the data base. In particular, it was learned that several hospital expense reports in the data base included field health expenditures which may distort the analyses. The financial data from this sample of hospitals involves only hospital expenditures.

Table 7 shows the summary statistics of the 14 secondary hospitals contained in the HOMS data base. The correlation analyses uses the entire data base; the regression analyses uses the 14 secondary hospitals as inputs.

Table 7
Region 3
Service Performance Indicators
of Government Hospitals Included
in the HOMS Data Base: 1989

<u>Service Performance Indicator</u>	<u>All Hospitals for the Correlation Analysis</u>	<u>Secondary Hospitals for Regression Analysis</u>
Number of Hospitals	33	14
Primary Hospitals	5	
Secondary Hospitals	24	
Tertiary Hospitals	4	
Average Number of Beds	57	30
Average Occupancy Rate (In Percent)	92	101
Average Total Expenditures (In Pesos)	6,879,641	3,020,637

Source: Annual Hospital Statistical Report, 1989.
Financial Statements of Government Hospitals, 1989

Table 8 presents the statistical and financial data of the sample of hospitals used in the analyses. The list of the sample hospitals for this statistical and financial study is presented in Annex F.

Table 8
Region 3
Service Performance Indicators
of Selected Government Hospitals: 1989

<u>Service Performance Indicators</u>	<u>Primary Hospitals</u>	<u>Secondary Hospitals</u>	<u>Tertiary Hospitals</u>
Number of Hospitals	4	11	1
Average Number of Beds	13	32	250
Average Inpatient days	3,756	13,347	76,723
Average Length of Stay (Days)	3	4	5
Total Inpatient Admissions	6,109	35,228	15,078
Average Total Expenditures	802,228	3,010,049	24,166,256

Sources: Annual Hospital Statistical Report, 1989.
Financial Statements of Government Hospitals, 1990.

Correlation Analysis

The correlation analysis seeks to establish a relationship between the size of the hospital and the level of expenditures. Alternatively, this analysis also attempts to determine if the performance of a hospital (based on the number of patient days registered) has a relation on the cost per patient day.

For this analysis, the financial statements of selected hospital facilities and their annual statistical reports have been obtained from the Hospital Operations Management Services Department of the DOH. The analysis uses the number of beds as the size parameter for the hospitals and inpatient days as the measure of performance.

Table 9 below presents the results of the correlation analysis of a sample of 33 hospitals in Region 3.

Table 9
Correlation Analysis of Expenditure Levels,
Patient days and Number of Beds
of Selected Hospitals in Region 3:
Correlation Coefficients
1989-1990

	1988		1989	
	Number of Beds	Average Patient days	Number of Beds	Average Patient days
Average Personnel Expenditures				
Per Bed	0.045		-0.056	
Per Patient day		-0.046		-0.325
Average Maintenance and Other Operating Expenses				
Per Bed	0.394		0.278	
Per Patient day		-0.299		-0.097
Average Expenditures				
Per Bed	-0.027		0.027	
Per Patient day		-0.451		-0.245

Sources: Annual Hospital Statistical Reports from the HOMS database.

The preceding tabulation of computed correlation coefficients for each of the expenditure accounts and the size parameters (number of beds) does not indicate that economies of scale are achieved as hospital size is increased. The correlation analysis cannot establish a relationship between hospital size and expenditure levels given the small values of the coefficients.

However, the negative coefficients posted by the correlation analysis illustrates that as performance or inpatient days increase, average expenditures decrease. This may indicate that performance levels of hospitals may lead to cost level improvements.

Regression Analysis

To determine the impact on average hospital expenditures by the inpatient day, regression analysis was performed on the financial and service performance statistics provided by a sample of 14 hospitals.

Table 10 presents the regression equation and the R² derived from the analysis of 14 secondary hospitals in Region 3.

Table 10
Region 3
Regression Equations and R²:
Expenditures and Bed Capacity

Regression Equation	R ²
Average Expense per Patient day = 663 - (10 x Number of Beds)	9
Average Personnel Expense per Patient day = 306 - (5 x Number of Beds)	10
Average MOOE per Patient day = 275 - (4 x Number of Beds)	15

Source: 1989 Hospital Financial Statements of 14 Selected Hospitals.

These equations on expenditures and bed capacity of the 14 secondary hospitals indicate some degree of economic efficiencies as exhibited by the negative beta or variable coefficient. The impact however of bed capacity on the average expenditures is probably statistically insignificant given the computed R² of the regression equations. Because of these results, the equations do not clearly explain the variations in the level of average expenditures. This implies therefore, that there is a wide range of other determinant factors that are not captured by the regression equation.

The relationship as shown in the regression equations between inpatient days and average expenditures per inpatient day is shown in Table 11 in the next page.

Table 11
Region 3
Regression Equations and R²:
Expenditures and Patient days

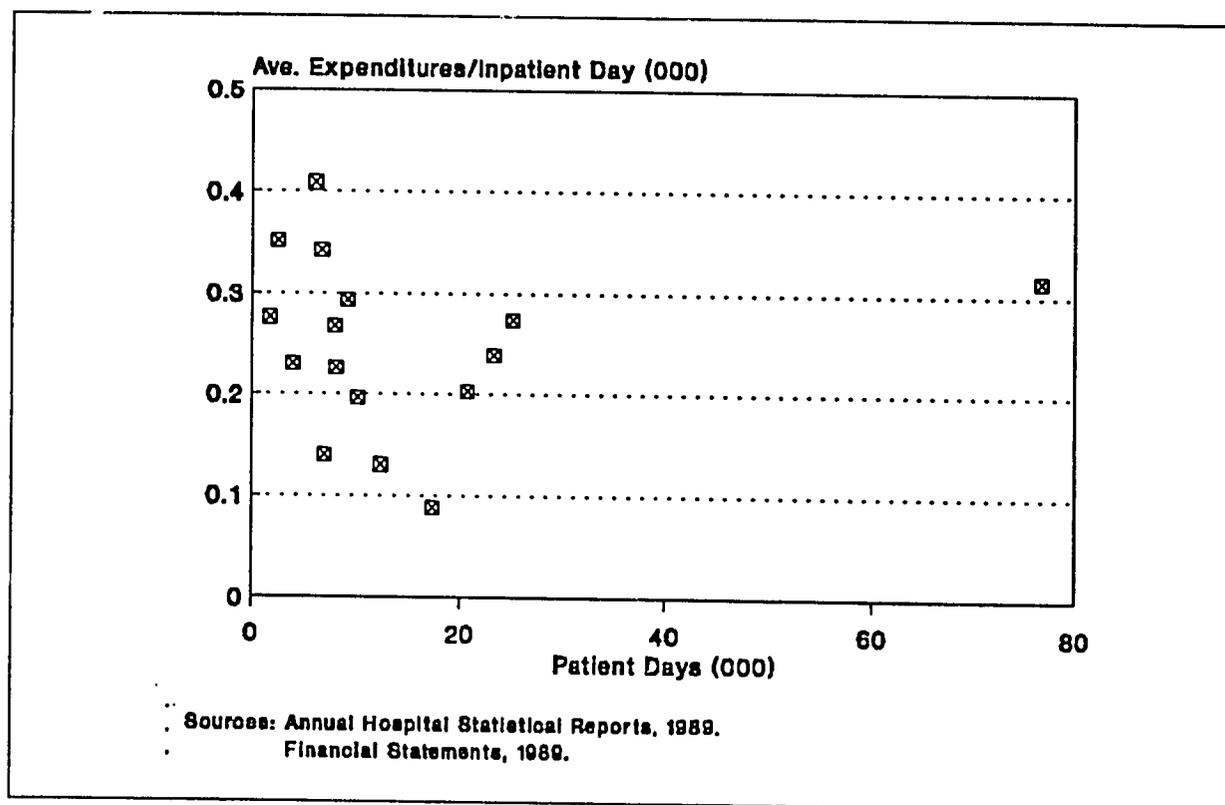
<u>Regression Equation</u>		<u>R²</u>
Average Expense per Patient day	= 387 - (0.00702 x Patient days)	20.0
Average Personnel Expense per Patient day	= 184 - (0.00338 x Patient days)	23.5
Average MOOE per Patient day	= 162 - (0.00267 x Patient days)	21.8

Source: 1989 Hospital Financial Statements of 14 Selected Hospitals.

The table shows that the relationship between performance (number of patient days) and the average expenditures per patient day is also unsubstantial. This is indicated by the low beta coefficients and the negligible computed R².

This weak relationship is also seen in the following scatter plot.

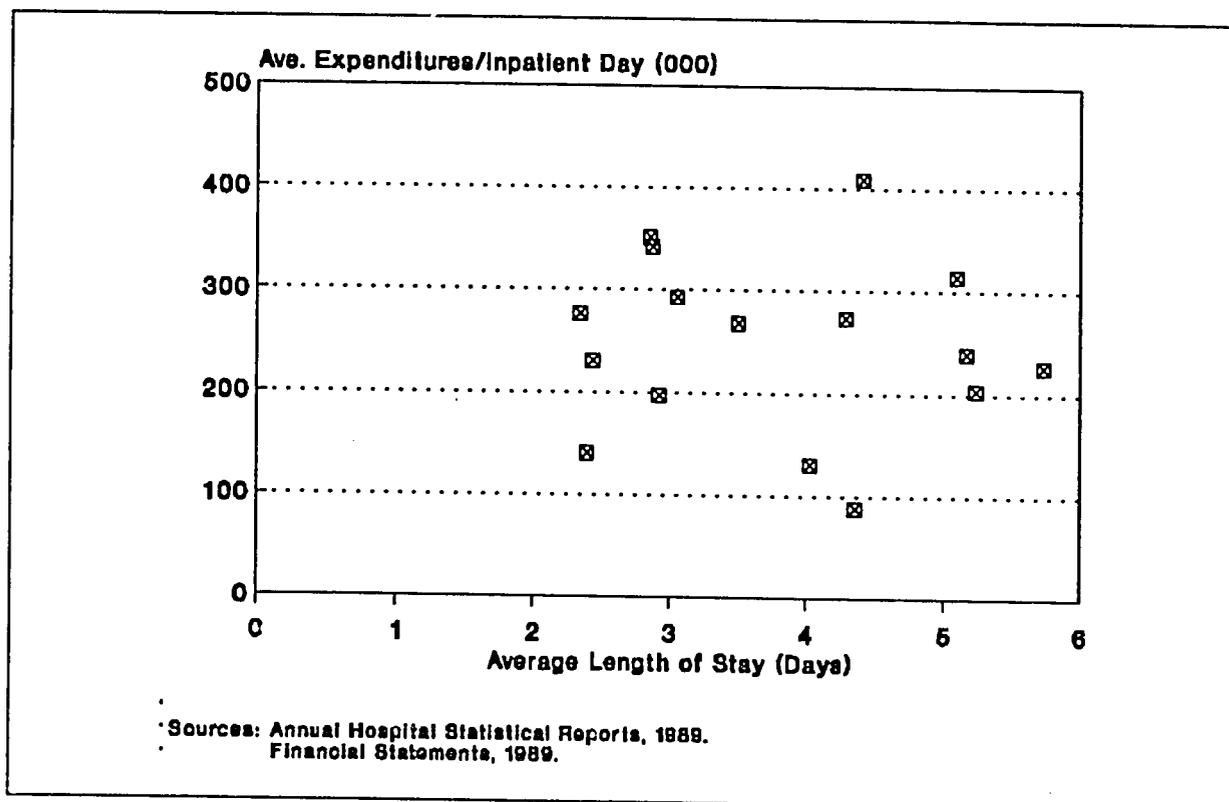
Figure 4
Scatter Plot: Inpatient Days and
Average Expenditures per Inpatient Day



As Figure 4 above shows, the alignment of sample hospitals along the \$100 to \$500 range of average expenditures per inpatient day indicates that regardless of the annual number of inpatient days, these hospitals tend to have relatively the same level of average expenditure per inpatient day. No economies of scale is therefore distinguishable from this set of statistical data.

Analyses of size parameters other than the inpatient day also do not provide a clear display of the economies of scale mentioned in the health studies of Shulz and Johnson. The average length of stay as a determinant of level of average expenditure per inpatient day does not also provide a clear trend of economies or diseconomies in hospital operations. Figure 5 shows the negligible relationship between the average length of stay and the average expenditures per patient day.

Figure 5
Scatter Plot: Average Length of Stay
and Average Expenditures per Inpatient day



Limitations of the Financial and Statistical Approach

As a tool for identifying areas for cost containment, the financial and statistical approach presents several limitations including the following:

- o The financial and statistical approach takes form through reported service performance statistics and expenditure data. The regression and correlation analyses employed in the study rely only on the quantity and quality of data available for analyses and cannot account for other relevant qualitative factors and costs which may have a greater impact in policy formulation. Variables such as market demand and health seeking behavior, hospital case mix, local costs, and other factors cannot be considered in this statistical approach. Thus, this method is only at best, able to determine economies for factors that are provided for in the data base.

With the statistical output, hospital policy makers have only vague ideas on which to base specific strategies and action plans for implementation. Rather than provide a guideline for hospital policy makers for identifying scale and performance relationships with costs per unit, the results of this method prove to be academic and possibly irrelevant to the concerns currently faced in hospital planning and management. Also, the approach only considers financial and service performance statistics in periodic reports which in most cases, are found to be "window-dressed."

Although these statistics identifies areas of potential efficiency in determining factors such as performance of the hospital, the methodology does not adequately identify cost containment opportunities in the planning and policy formulation process.

- o The financial and statistical methodology approach to cost containment is limited because it relies on financial accounting information which fails to relate with relevant managerial accounting concerns. Analyses are based on reported absolute values of costs or expenditures in the financial statements which are rather static and tend to overlook opportunity and strategic costs. Cost information from a managerial accounting perspective however, provides a wide range of potential areas for evaluating cost containment areas.

THE OPERATIONAL APPROACH: SURVEY OF EXISTING COST CONTAINMENT EFFORTS

This section of the study documents operational strategies implemented in the entire health care delivery network and in particular hospitals in the effort to maximize the use of resources available to these health facilities. This also attempts to evaluate the benefits and impact of these cost containment schemes on the overall cost structure of the hospitals, and the feasibility of replicating these schemes in other hospitals.

Interviews indicate that current cost containment efforts are implemented on both a macro or national level and a local or institutional level. Cost containment schemes implemented in the entire network of government health care facilities are based on policies and regulations set forth by the DOH through Administrative and Department Orders. Cost containment efforts are also being practiced on a national scale through the mandated budget planning and disbursement process. On the other hand, hospital specific cost containment efforts are being implemented through local initiatives.

Nationwide Cost Containment Efforts

The Budget Process

The DOH is in its second year of implementing a new budget process called the Area/Program Based Plan. Through this new Area/Program Based Plan, increased benefits are introduced into the budgeting process of the health care delivery network. Features of this new process include:

- o the use of a bottom-up approach in which personnel at the lowest level of the DOH health care delivery network, such as the nurses and midwives in the field health units, provide their inputs on targets and budget requirements, and
- o the creation of a budget committee which sets performance targets and budgets based on the inputs of the organization; previously, this was a task assigned to a budget officer. The composition of the Budget Committee is shown in Annex G.

Through this consultative process, the preparation of a budget provides several advantages, namely:

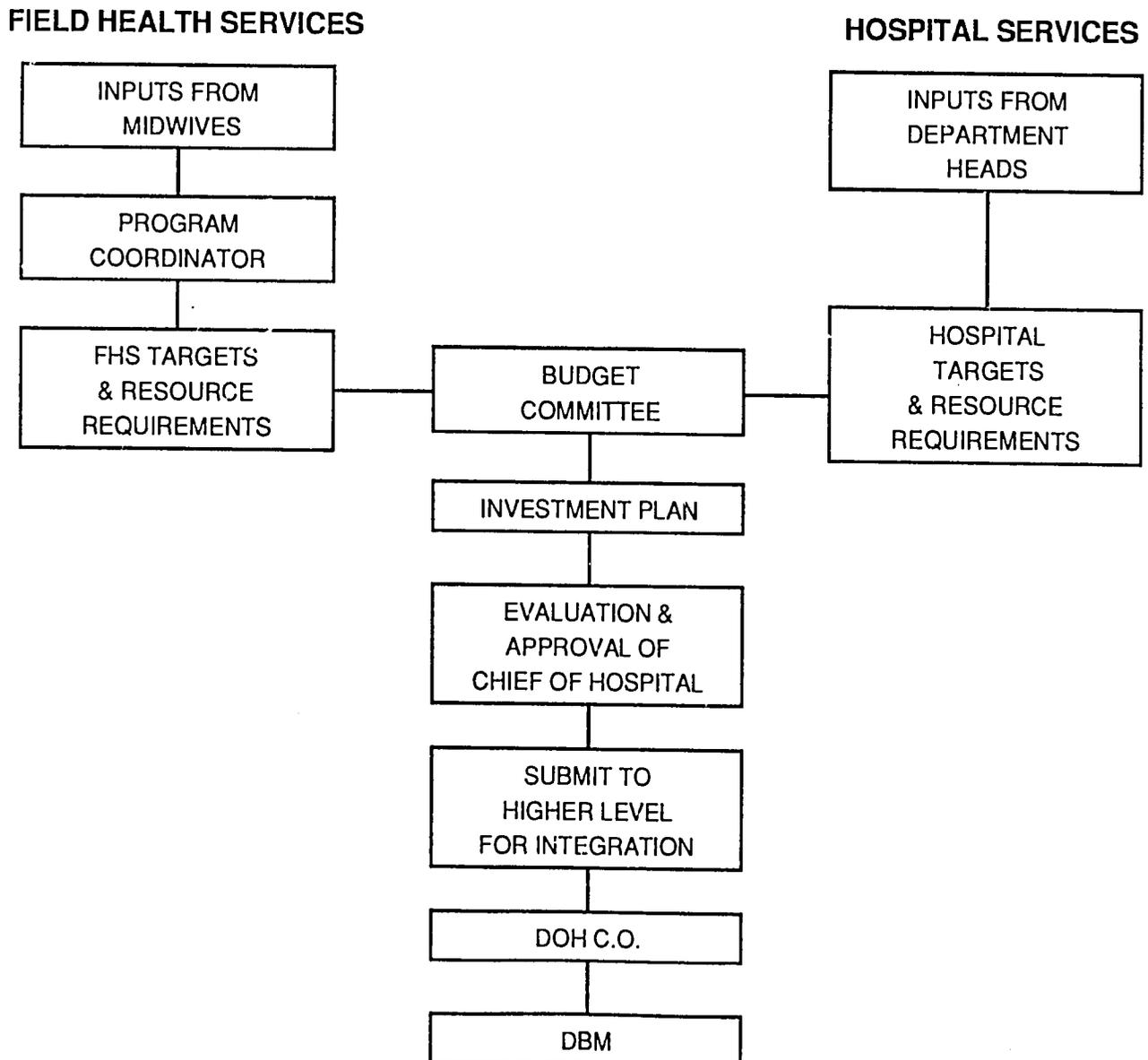
- o the process relates the budgeting activities to performance targets established by line personnel knowledgeable of their area's health care needs,
- o it secures the cooperation of the entire organization by providing a venue through which the operations of channels in the DOH's network can be integrated,
- o it establishes a system of setting priorities in cases of insufficient budget allotments, and
- o it provides a basis for comparing period by period and area based performance.

The Investment Plan

The first step in the preparation of Area Based/Program Plan is the formulation of an Investment Plan (or a Proposed Operations Plan) by the Budget Committee. The Investment Plan (IP) is usually prepared in October, 15 months prior to the budget year. The plan typically reflects the primary goal of the DOH personnel, whether in the field units or in the DOH hospitals: to upgrade the quality and variety of services their facilities provide. The Investment Plan usually calls for additional personnel, an increase in the budget for hospital supplies, new equipment and improved facilities.

Inputs from lower level DOH personnel are consolidated by the Budget Committee to form an area plan. Upon completion, the proposed Investment Plan is submitted to the Chief of Hospital for evaluation and approval, after which it is passed to the next higher level of the Department of Health (DOH) hierarchy for further evaluation, approval, and integration. Upon submission to the Central Office of a region's Investment Plan, this is subjected to a Central Office review. Approved regional plans plus the Investment Plan of the Central Office is consolidated into a DOH Proposed Operational Plan which is then submitted to the Department of Budget and Management (DBM). The flow of work in the preparation of the Investment Plan is shown in Figure 6.

Figure 6
Investment Plan Preparation



Budget Preparation

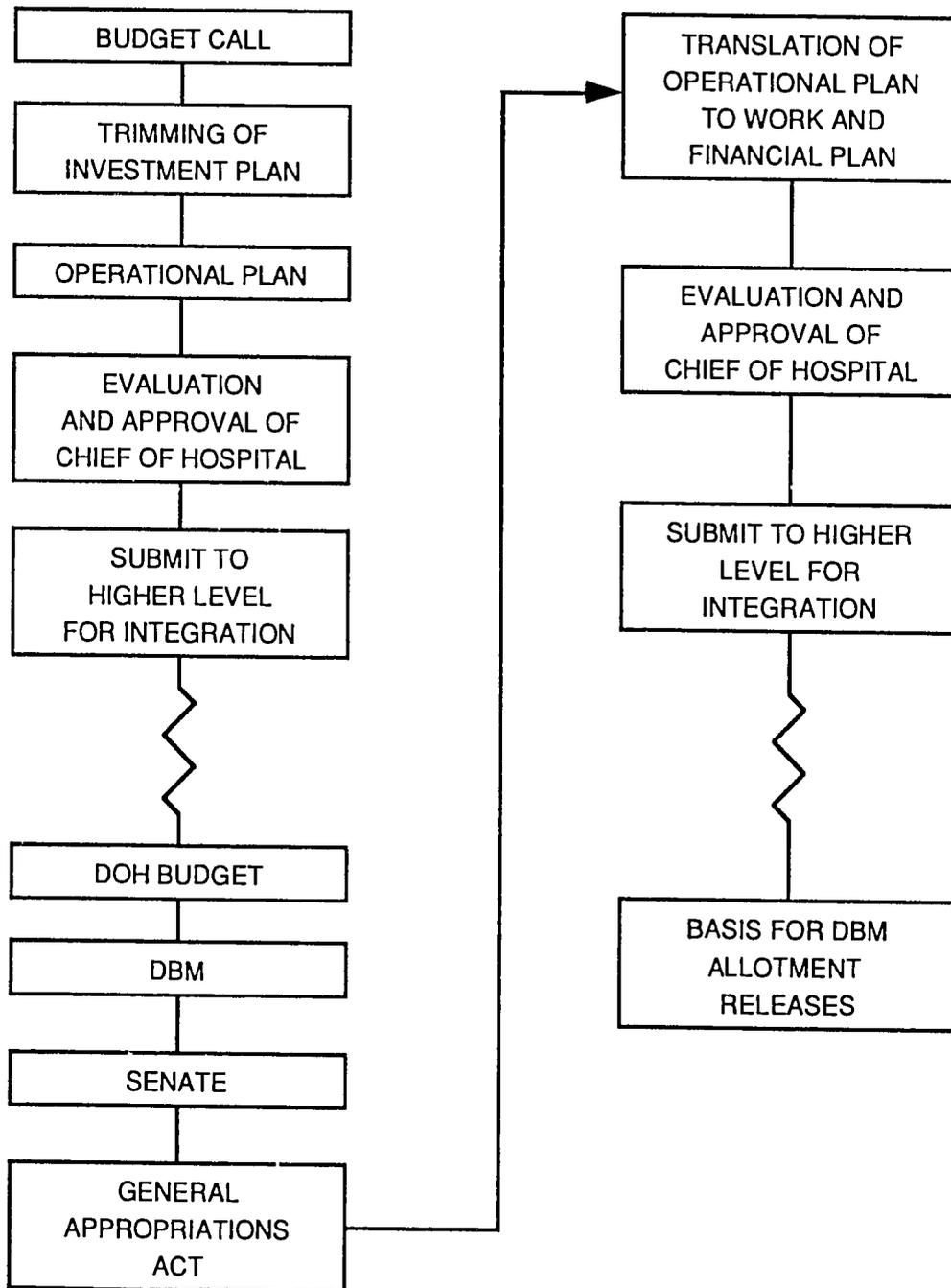
By January of the following year, 12 months before the budget year, the DBM releases the Budget Call which includes the budgetary guidelines, directional plans, and priority areas. Budget ceilings are either included in the budget call or announced during this period. Interviews in the field indicate that the budget ceiling is usually about sixty per cent (60%) of their investment plan.

Being constrained by the budget ceiling, hospitals are forced to trim their Investment Plans drastically in their preparation of the Operational Plan or Budget. The flow of work in the preparation of the Operational Plan is shown in Figure 7.

Figure 7
Preparation of the Operational Plan

Approved Budget Preparation

Basis of Allotment Releases



Interviews indicate that planned expenditures for additional personnel, capital outlay for both construction and equipment, and repairs and maintenance are typically the first to be trimmed. The planned expense for materials and other operating supplies (MOOEs) are usually not trimmed as much as other planned expenses.

Hospital Administrative Officers (AOs) interviewed on the budget process give conflicting reports on the pruning of the Investment Plan:

- o on one hand, interviews indicate that to come up with the Regional Operational Plan, the proposed Investment Plans are pruned by administrators themselves at the lowest stages of the district hospital and field health unit levels,
- o in contrast, other interviews indicate that the reduction of planned expenditures is done at the Regional Health Office to come up with a Regional Operational Plan.

The Regional Operational Plan goes through a similar process of evaluation, approval, and integration in the different levels of the DOH hierarchy as the Investment Plan. Upon receipt of the plans by the Central Office, the DOH Budget is prepared for submission to DBM. The DBM then prepares the President's Budget for the approval of the Congress and the Senate through the General Appropriations Act.

Budget Disbursement

Upon approval of budget requests, the DBM releases the Notice of Allotment to the concerned health facility as funds are made available in the local government banks. Designated officers of the facility could then draw funds from its account in the local government banks. Through this arrangement, health care funds are directly transmitted to the health care facilities for immediate use. Interviews indicate however, that these appropriations to the health care facilities are released only on a quarterly basis and that these facilities do not actually obtain the absolute value of its appropriated funds. Through a DBM ruling, health facilities only obtain 90 per cent of their appropriated funds while a forced savings of 10 per cent is retained in the National Treasury.

Issues in the Budgeting Process

While this Area/Program Based budgeting process should theoretically provide several benefits for planning and budgeting, as practiced, several of these benefits are not realized.

The Area/Program Based Planning Process is not yet fully implemented in the DOH network because of the following issues:

- o the lack of understanding of the new process,

- o the difficulty of coordination and priority setting among hospital and field unit administrators and private organizations and NGOs, and
- o intrinsic problems of the consultative approach.

Those that have implemented the process are disappointed about the outcome, particularly because there is no apparent connection between their proposed Investment Plans and the budget guidelines and ceilings imposed by the DBM. This creates a feeling of futility among the budget planners. Furthermore, while the Investment Plans are prepared through consultation and coordination, the actual budget preparation is conducted by an isolated group of personnel. This further reinforces the disappointment of the investment planners.

Table 12 below shows the variance between funding requested by the DOH network in Region 3 in the Investment Plan and the approved Budget Appropriation.

Table 12
Region 3
Comparison of Investment Plan and
Approved Appropriation: 1990
(In Thousand Pesos)

<u>Province</u>	<u>Investment Plan</u>	<u>Approved Appropriation</u>	<u>% Approved Appropriation to Investment Plan</u>
RHO Total	751,292	467,234	62
Regional and Medical Centers	85,498	70,319	82
Bataan	79,405	53,631	68
Bulacan	131,036	79,253	60
Nueva Ecija	104,314	52,112	50
Pampanga	83,649	62,635	75
Tarlac	66,200	46,843	71
Zambales	78,766	38,427	49
Region Proper	122,424	64,014	52

Sources: General Appropriations Act, 1990.
RHO 3 Investment Plan, 1990.

Lastly, there is the fundamental problem of relating the performance targets with the costs of providing medical services. While targets can be set based on the health care needs of the area, the costs of providing these benefits have not been determined; in fact, budget planners do not have a methodology to determine an appropriate funding needed to provide these benefits.

Based on several interviews with these budget planners, the planned expenditures for providing their services are based on cost benchmarks estimated as far back as the 1970's. The use of an assumed inflation factor, usually, a ten per cent increase in costs, is the only means of updating cost estimates in the budgeting process.

The Budgeting Process and Cost Containment

Because of the drastic reductions of funding from the amount requested in the Investment Plan, planners are required to search for cost containment opportunities even at the budgeting process. Typical responses to the budget ceilings imposed by the DBM are:

- o the reduction of planned expenses for additional manpower and capital outlay,
- o the substitution of cheaper medical and operating materials and supplies, and
- o the postponement or reduction of repairs and maintenance requirements.

The imposition of a ceiling on the budget could be considered in itself, an effective measure to contain costs. Because of the imposed ceilings, budget planners are compelled to evaluate their schedule of expenditures carefully, eliminate unnecessary spending, and find lower cost inputs.

The drawbacks of this forced cost containment, on the other hand, are:

- o additional manpower, automatically disapproved in the budgeting process may actually be necessary with the work load of the present staff,
- o the postponement of repairs and maintenance may lead to greater costs in the future as facilities and equipment deteriorate before the end of their useful lives, and
- o the limited budget can also serve as a de-motivating factor to hospital administrators and personnel to deliver the target levels of output or services at standard levels of quality since whatever cost savings that may be derived from cost containmnet efforts will eventually be credited to the National Treasury.

Furthermore, because of the inability of the planners to base their budgets on more accurate costs of the services they provide, the budget allocations are usually unrelated to the established service targets. Thus, actual costs incurred by the different hospital departments normally vary significantly from the planned expenditures. Interviews also indicate that while some hospitals suffer from a shortage of funds, others are not able to use their entire budget allocations for normal operations due to severe scrimping in funds in the early stages of the budget year. Consequently, these hospitals increase spending during year-end to consume their entire budget.

Other Nationwide Cost Containment Efforts

Legislated and nationally mandated cost containment schemes include bulk purchasing, office supplies and utilities conservation, and the controlled use of government assets and equipment.

Bulk Purchasing and Bidding

Bulk purchasing is conducted by the Regional Health Office on a quarterly or semiannual basis through a competitive bidding process to reduce the total purchase price of drugs and medicines, and other medical supplies of the health facilities.

The process begins with the submission of projected requirements for the semi-annual period by all DOH hospitals within the region to the Regional Health Office (RHO). The RHO estimates the aggregate requirements for drugs and medicines and other supplies by the hospital facilities within its jurisdiction. For field health service units, requirements for supplies are based on targets established by each region for each program under implementation. After consolidating all requirements, the RHO then calls for a bidding among prospective suppliers. Winning suppliers then deliver according to specified regular schedules the requirements of the hospitals within the region.

Through this process, the DOH realizes substantial cost savings through discounted prices since the participating suppliers offer low-priced sales packages with the high indicated volume requirements of each region. Interviews with DOH personnel indicate that prices of medical supplies have decreased significantly by as much as 20 per cent with the price discounts offered by suppliers. This process also creates a less complicated procedure of supplier selection as the need to deal with different vendors for the same requirements is eliminated.

Several disadvantages however, have arisen from this practice. Some of these are:

- o unreliable supplier service, manifested in delivery delays which force hospitals to stock-up on inventories or purchase their requirements at retail rates,

- o inventory surplus and spoilage resulting from purchases of supplies at levels exceeding the hospital's requirements. Hospital administrators are apparently compelled to purchase more even during periods of lean requirements since suppliers refuse to deliver or delay the delivery of purchases if these are below the indicated minimum purchase volumes.

These however, are issues that can be remedied through a stricter supplier selection process and the preparation of better demand projections for medicines and supplies. These shortage or over-supply problems are more acute in the case of purchases for field health units. Because of the remoteness of these health stations, it is more difficult to provide for and monitor the requirements of these field units. Again, better demand and usage planning may decrease these problems.

Waste Minimization and Regulated Use of Government Assets

To further curb costs, hospital administrators are encouraged to minimize wasteful practices specifically involving the use of administrative and medical supplies and facilities. Ministry Order No. 262 specifically urges the reduction, conservation, and judicious use of hospital supplies and controlled use of hospital facilities.

Administrative Order No. 85 also encourages regulated use of office equipment and utilities. The use of government ambulance is likewise controlled to minimize expenses associated with the use of these vehicles.

Institutional Cost Containment Efforts

Through the initiative and creativity of hospital administrators and staff, several cost containment schemes have been developed and implemented in Region 3 hospitals. These innovations are essential given the limited budget appropriations provided to the hospitals for their health care services. Some of these cost containment schemes are described below.

Recycling

Several hospitals, particularly those surveyed in Tarlac and Bulacan, have initiated measures to maximize the use of their limited resources. One example of these measures is the re-autoclaving of medical supplies wherein used supplies such as syringes, gauze, gloves and other supplies are sterilized for reuse. Interviews indicate that substantial cost savings are realized from this practice.

However, while this reduces the requirement of constant re-purchases of these supplies, the practice may not be very safe and hygienic and might even be harmful to patients in the long-run. A hospital administrator has suggested the shift from disposable syringes and needles to syringes and needles that are designed for re-use. The savings generated from re-using these supplies warrants the investment in a sterilizer for these supplies.

Low Cost Substitute Inputs

Rice husk or "ipa" has replaced LPG as the cooking fuel in the dietary section of the Tarlac Provincial Health Office. The abundance of this waste material makes it a good fuel substitute. In fact, the hospital only had to invest in a suitable stove to be able to operationalize this cost containment scheme.

A drawback of this practice, however, is that the use of this fuel substitute is more time consuming for the dietary personnel since it requires constant supervision.

A hospital administrator has proposed the investment in a biogas converter using waste material from the hospital. Fuel could efficiently be used for cooking, without additional manpower to manage the process.

In-house Processing of Supplies

Hospitals further attempt to reduce their expenses by processing their own supplies. For example, the purchase of gauze in bulk form and cutting into various sizes is a practice in several of the region's hospitals. The re-packing of bulk medical supplies, purchased at a volume discount, into more convenient quantities is also another cost containment practice. Some hospitals also grow their own vegetables and livestock for the requirements of their dietary departments.

Again, decreases in costs may be realized through these activities, but other expenses are likewise incurred. In the processing of materials for instance, the savings from the cost of supplies are apparently shifted to personnel expenses incurred by the hospital staff assigned to this job.

Observations and Issues Arising from the Survey of Cost Containment Efforts

The significance of cost containment activities lies on the impact these efforts have on the overall spending of hospitals. It is imperative, therefore to quantify the actual amount of costs reduced, determine and measure other cost changes and be able to calculate the net effect on total spending in order to determine the effectiveness of these schemes.

The bulk purchasing and bidding process has been successful in reducing the costs of drugs and medicines on a per unit basis. However, such high volume purchases increase the probability of wastage and spoilage of drugs and medicines. This disadvantage may be attributed to inaccurate demand projections. The difficulty in the preparation of demand estimates may also result in supply shortages in which case supplies would have to be purchased at retail value.

In view of the negative effects of bulk purchasing and the bidding process, it is difficult to assume that this scheme effectively contributes to lower total supplies expenditures. Cost reductions are apparently offset by costs related to material wastage. Unless the preparation of demand estimates is improved, significant cost reductions through bulk purchasing and the bidding process would be impossible to achieve.

Similar to the initial effect of bulk purchasing and the bidding process on unit cost of supplies, other cost containment activities undertaken by specific hospitals, such as recycling of medical supplies, use of low cost substitute inputs and in-house processing of supplies contribute to decreased supplies expenditures. The difficulty however comes in measuring benefit on a per service basis. The recycling of medical supplies for example may trim down expenses on these items, but it would be impossible to determine how the actual amount of costs reduced should be allocated among the different services.

Specific schemes may also lead to mere shifts of costs to other accounts. In the use of "ipa" or rice husk as substitute cooking fuel for instance, the apparent cutback in fuel expenditure is accompanied by increased spending on an extra dietary personnel required to supervise this procedure. Similar effects on costs are observed in other existing activities such as the growing of vegetable and livestock and the re-autoclaving of supplies. Reduced cost of food and medical supplies are shifted to personnel expenses incurred with the extra hours put in by staff assigned to accomplish this task. Since such procedures are time-consuming, costs incurred by the supervising personnel may even be greater than the actual amount of costs reduced where, in such case, total spending increases.

Moreover, additional costs incurred as a direct effect of cost transfers are difficult to quantify. Consequently, it is very hard to detect when these schemes may actually be increasing over-all costs rather than effectively containing them.

The apparent complication in measuring the net benefit of each of these schemes in quantitative terms poses a serious problem in assessing the effectiveness of the surveyed cost containment efforts. The absence of a mechanism to monitor cost changes and transfers makes the calculation of the net effect on total spending a futile effort. And while this basic problem remains unresolved, all efforts put into the implementation of the existing cost containment activities would be meaningless.

To be able to effectively strike a balance in the interactions of costs and bring about the most economic positive net effect in the overall cost containment effort, it is imperative that hospital management have a clear understanding of how costs behave relative to changes in cost levels of other cost items.

A mechanism that tracks the effects of these cost interactions and determines the levels of savings in the cost containment schemes may prove considerably beneficial in the cost containment effort of government hospitals. Through this mechanism, management can have a more wholistic view of the cost structure and components of the hospital system. Management would also be in a better position to monitor and control costs and implement other effective cost containment schemes.

ADDRESSING THE LIMITATIONS : THE NEED FOR A METHODOLOGY TO MEASURE THE COSTS OF HEALTH CARE SERVICES

The limitations of both the strategic and operational approaches in the determination of cost containment opportunities are based on a fundamental problem, the lack of a methodology to measure the specific costs of the services of hospitals. This problem, in turn, is a result of the following factors:

- o current cost monitoring mechanisms are designed for financial accounting and reporting needs of the DOH; these mechanisms track aggregate expenditures and are limited in tracking costs assigned and allocated to particular services, and
- o the lack of organizational orientation to determining and managing the costs of services.

Addressing these two factors which inhibit the identification and implementation of cost containment opportunities will inevitably help in the cost containment efforts of the DOH.

Financial Accounting and Cost Monitoring

Current cost information are derived from financial accounting processes which are limited in providing cost information for management and planning. The objective of the financial accounting is to gather, consolidate, and report expenditure levels and trends. Rather than provide unit costs, most of the expenditure data are presented in aggregate form. For this reason, the results of financial accounting processes are of limited help in cost management, particularly when dealing with costs per unit of service.

Thus, the impact of cost containment efforts is usually lost in the consolidation of financial data. Money saved, for example, in one department of a hospital cannot be traced as the expenses of this department are often consolidated with the rest of the hospital.

Because of this consolidation of data, the comparison of service cost levels across hospitals or a hospital in time has limited validity. This is the primary difficulty of establishing economies of scale; an aggregate cost per in-patient day is compared across hospitals and economies of scale observations become less clear because of this use of consolidated data. With this system, the scale analyses cannot take into account factors such as the case mix, costs of supplies and other inputs, the scope of service within a facility, and other variables. However, if the costs incurred by one section or department is compared across similar departments of other hospitals, scale economies may become more apparent.

Financial accounting is also primarily concerned with the presentation of historical financial performance for audit and control, thus, the data presentation is primarily designed for outsiders and is rarely seen by key members of the hospital organization. Furthermore, financial accounting processes are concerned with accuracy of data presentation, despite the lack of relevance of the information presented to the cost management effort. Because of the predominant emphasis on financial accounting, very little relevant data is available for the determination of costs per service or hospital segment.

The Lack of Orientation Towards Understanding Costs

Except for the accountants, the hospital organization usually lacks the orientation to understand and manage costs. This attitude is understandable as most cost information are contained in financial reports which are only provided to the personnel in the upper levels of hospital management. Furthermore, the information is provided in formats that are difficult to understand and relate to, particularly by non-accountants.

Furthermore, cost containment is usually associated by the hospital organization to mean budget cutbacks and personnel reductions. This unpleasant connotation of cost containment usually deters the organization's involvement in cost containment efforts.

Lastly, while the hospital organization is aware of the rising costs and increasing demands for subsidized health care services, there is no incentive to motivate hospital personnel to develop cost containment schemes. In fact, interviews with hospital administrators revealed that savings from cost containment efforts is generally perceived as actually disadvantageous. According to these interviewees, savings as expressed in expenditures less than the allotted budget does not accrue to the organization. Furthermore, because of this savings, a lower budget usually results in the next fiscal period. Thus, there is the rush to spend the entire budget allotment as the closing of fiscal year approaches.

The Advantages of a Methodology

The implementation of a methodology designed to measure and analyze costs of providing medical services is expected to provide the following benefits:

- o from a strategic approach, the ability to determine the full costs of medical services at the different levels of hospitals in the DOH network would assist the DOH in their policy formulations and strategic planning. Planners and policy makers will have better bases to determine and exploit scale economies.
- o hospitals will be able to compare the level of their respective costs, determine relative efficiencies, and set cost benchmarks for future performance evaluations.
- o cost benchmarks could, in turn, be linked to the budgeting processes, allowing the government to make more accurate budgets for the delivery of hospital services.
- o opportunities and priority areas for cost reduction could be readily identified and the effects of cost containment schemes could be more accurately and promptly monitored.
- o the hospitals would have a better basis for the setting of service fees and rates with prices linked to cost levels.

One of the most important benefits that this cost finding process will generate is that on a cost per unit of service basis, the interaction of the different types of costs may be clearly seen. For example, the impact of technology investments on the costs of a service in a hospital can be measured by comparing these costs with those of a hospital with less technology investments. The contrast in cost structures of the two hospitals may help rationalize further investments in equipment.

Aside from these advantages in policy planning and performance measurement, making available to the hospital organization the full costs of the services in a manner that non-accounting personnel can understand will have several benefits as well:

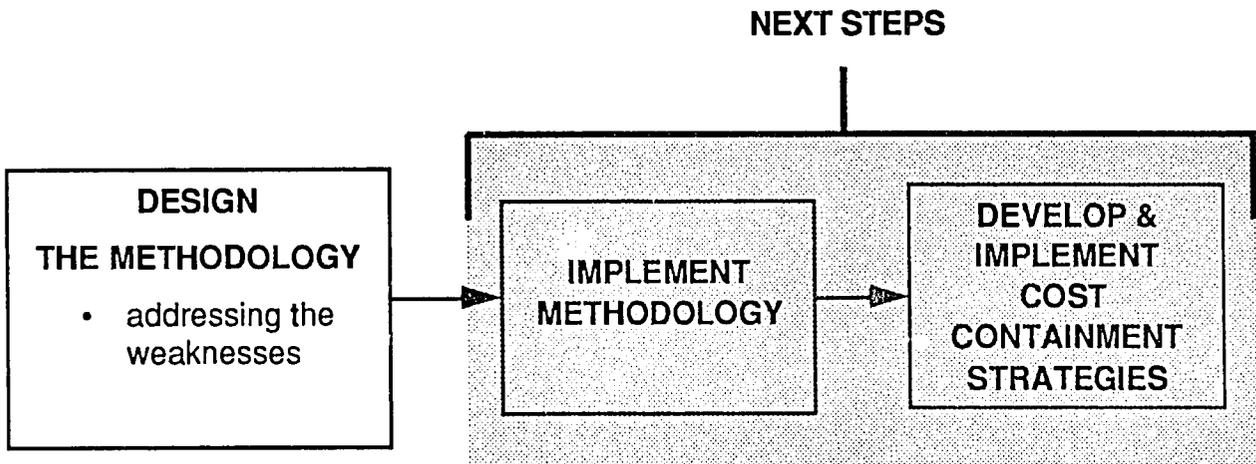
- o the hospital organization will be able to see the costs based on a per unit of service; this format is easily understood and personnel can relate to specific costs that they are responsible for.
- o the organization will be able to measure the results of different cost containment efforts within a shorter time period; this will help sustain the motivation to continue cost containment practices.
- o personnel will be able to dissociate cost containment from its unpleasant connotations as the impact of their actual efforts on the cost levels are easily perceived.

The need for establishing a cost finding process in DOH hospitals is apparent because effective and sustainable cost containment programs are predicated on a system of measuring and monitoring costs. The limitations to the current accounting systems of the DOH hospitals, plus the imperative to contain the costs of government health care services justify this investment in a cost finding process.

The following sections of this study outline the cost finding methodology in the case studies conducted in the Sapang Palay District Hospital, in Bulacan, and in the Quezon Memorial Hospital. Results of the cost finding exercise as well as recommendations to improve the hospitals' information system to facilitate the use of this methodology are also provided.

Lastly, some recommended future actions regarding the use of this methodology for cost containment and the development of a cost containment strategy for DOH hospitals are indicated in the latter part of this study. Figure 8 outlines the succeeding sections.

Figure 8
Next Steps



A METHODOLOGY FOR MEASURING COSTS OF SERVICES

COST ACCOUNTING FOUNDATIONS

Cost accounting furnishes management with the necessary accounting tools for planning and controlling activities. Although technically not a part of the cost finding process, cost accounting remains an important prerequisite to effective cost analysis because cost accounting provides the critical processes of recording, classifying, and summarizing transactions, data to be used in determining costs.

Proper cost accounting helps in the accomplishment of the following tasks:

- o Creating and executing plans and budgets;
- o Establishing costing methods and procedures that permit control and, if possible, reduction or improvement of costs;
- o Creating inventory values for costing and pricing purposes;
- o Determining costs and profit; and
- o Choosing from among the two or more alternative procedures in carrying out hospital services which might increase revenue or decrease costs.

It should be noted, however, that cost accounting is largely an information-generating procedure rather than a cost control device.

The important concepts of cost accounting underlying the cost finding process used in this study are:

- o Responsibility Accounting

The adoption of responsibility accounting involves the classification of managerial responsibilities at every level of the organization. Responsibility accounting entails designating specific individuals, usually also responsible for budgeting the costs under their control, as responsible and accountable for the expenses of their departments.

The accountability of the head, however, is limited to controllable costs. Generally, costs that are charged directly to a department with the exception of fixed costs are controllable by the department head.

Evaluation of performance usually will be based on comparisons of actual costs and budgeted costs. To simplify things, the hospital accountant may use standard costs, which are predetermined costs of direct materials, direct labor, and overhead. Also, the hospital may want to compare their costs with those of other hospitals to determine similarities and differences. It must be noted however, that the results of the above will only indicate that a difference exists and not the reason for the variances. Further analysis must be undertaken to determine whether the reason is due to inefficiency, lack of cost control, design of the physical plant, variations in standards of service, or to some other reason.

o Cost Classifications

Proper classification of costs is very important in any cost accounting process. The different cost classification includes the following: the direct cost which are readily identifiable with the department in which the cost originates and as such, are directly chargeable to the cost center; the indirect cost which involves expenses shared by several departments that benefit from its occurrence; the variable costs which are directly related to the volume of service rendered; and the fixed costs which refers to costs incurred by the hospital regardless of the volume of service rendered for a given period.

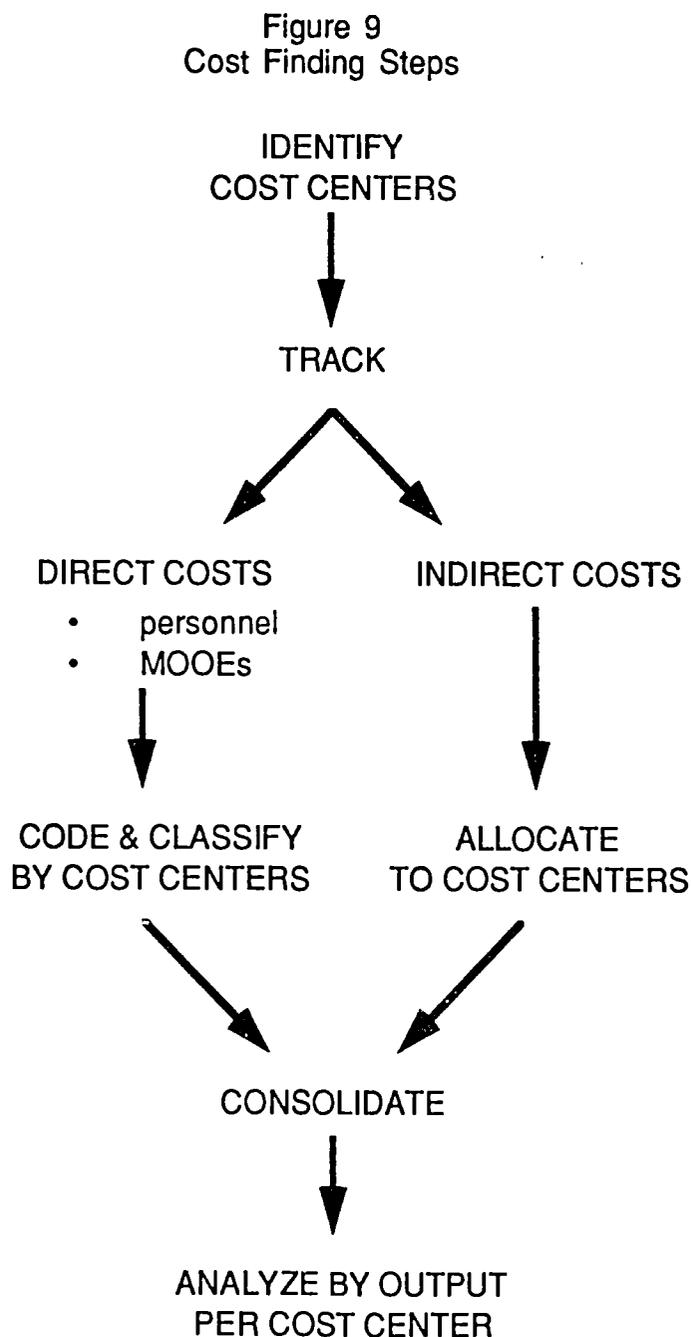
o Depreciation Accounting

Depreciation is a system of accounting which aims to distribute or allocate the cost of a tangible capital asset over the estimated useful life of the asset in a systematic and rational manner. The objective of depreciation accounting is to have each period benefitting from the use of the asset bear an equitable share of the asset cost. This cost allocation approach is in conformity with the proper matching of costs against revenues.

While government accounting does not recognize depreciation as an expenditure for National Government Agencies (such as DOH hospitals), the cost structure analysis incorporates depreciation expenses in order to determine the full costs of the different services. Depreciation was applied instead of the normal government practice of charging the entire capital outlay to the year of disbursement because the latter will result in the overstatement of costs and understatement of the hospital income for that year.

THE STEPS INVOLVED IN COST FINDING

The methodology for measuring costs of services is presented in Figure 9. The system comprises six basic steps: identification of cost centers; tracking of costs; classification; assignment of direct costs; allocation of indirect costs to the different cost centers; and consolidation. While the methodology is straightforward, the specific nature of the processes and the level of detail in actual implementation will depend primarily on the cost objective.



o Identification of Cost Centers

Proper identification of the various cost centers is a prerequisite to the actual assignment and allocation of costs. The subdivisions of the hospital must be known and the responsibility for the management of each subdivision must be defined clearly. As such, the organizational structure of the hospital represents the key document for determining cost centers.

Cost centers are generally classified as either nonrevenue-generating centers (also referred to as support centers) or revenue-generating centers. The administration, linen and laundry, and medical records functions are examples of support centers. Revenue-generating centers, on the other hand, would include the pharmacy, laboratory, O.R., and inpatient and outpatient services.

o Tracking of Costs, Classification, and Assignment of Direct Costs

In these three phases, direct expenses incurred by each cost center are accumulated and assigned to that center. Personnel expenses and consumption of supplies and materials are the most common items and the large-cost accounts of any center. Other expenses such as utilized services (e.g., repairs of equipment, travel and training) and some indirect costs such as depreciation can also be included in the assignment of costs at this stage.

The classification of costs must be consistent; the chart of accounts used by DOH hospitals provides a basis for the groupings.

o Allocation of Indirect Costs to Other Centers

Determining the full costs of each service requires allocating the costs of each nonrevenue-generating cost center to other support centers and revenue-producing centers. There are three generally accepted ways of performing this task: the direct apportionment, step-down, and double distribution methods. Table 13 below summarizes the main features, advantages, and limitations of each method.

Table 13
Comparison of Cost Allocation Methods

<u>Method</u>	<u>Features</u>	<u>Advantages</u>	<u>Disadvantages</u>
Direct Apportionment	costs of nonrevenue centers are allocated only to revenue centers	simplest to implement - less clerical effort and fewer statistics required	does not produce full costs of nonrevenue centers
Step-down	nonrevenue centers are considered closed after the first allocation	sufficient for reliably finding full costs of revenue producing centers for rate setting	does not produce full costs of nonrevenue centers; can result in distortions to the costs of nonrevenue centers
Double Distribution	after first allocation, nonrevenue centers are reopened to receive cost allocations from other nonrevenue centers	most accurate finding of full costs of all centers	

Source: Cost Finding and Rate Setting in Hospitals, American Hospital Association.

The study applied the step-down method of cost allocation because this technique is relatively simple to perform and implement, and is adequate for purposes of determining the full costs of the revenue-producing centers and providing a basis for cost recovery.

The bases for allocating costs used in the study are explained in depth in the discussion of the cases in Annex A.

o Consolidation

After the allocation of the costs to the revenue-producing centers has been completed, the cost for service rendered by each center can be determined. The two important indicators are the full costs per center and the cost per unit.

Each revenue center should have a unit of measure by which the center can be evaluated. Some of these instruments are fairly common, such as number of prescriptions for pharmacy, laboratory tests for the laboratory department, number of operations for the operating room, etc. Annex H lists the unit of measure for each center used in this study.

CASE STUDIES

The cost finding methodology was employed and tested in two different settings, in a secondary district hospital and in a tertiary provincial hospital. Originally, the Concepcion District Hospital in Tarlac and the Tarlac Provincial Hospital were targeted as the case hospitals for the methodology. However, due to the difficulties imposed by the eruption of Mt. Pinatubo on the data gathering efforts, the Sapang Palay District Hospital (SPDH) in Bulacan and the Quezon Memorial Hospital (QMH) in Lucena, Quezon were chosen as alternative sites for the project. The choice of the two hospitals was justified by the availability of reliable financial and statistical data necessary for the cost finding and rate setting processes evaluated in both the Benchmark II.C.7 User Fees and Cost Sharing and this study. The decision was also influenced by the geographical distance factor.

The rationale behind the case studies were:

- o to test the steps of the methodology,
- o to see how the methodology can be applied in a real setting, particularly in ascertaining feasibility of implementation within specific hospital environments,
- o to generate initial data to determine the potential for identifying cost containment opportunities from the cost finding methodology, and
- o to determine information system improvements required for a bigger scale pilot project, without necessarily requiring significant changes in the current reporting system.

Case Scope

Although the operations of both hospitals include field health services, the study focused on the hospital operations aspect. This presented some problems, particularly in gathering financial information solely for hospital operations. The time frame of the cost finding process was for the years 1989 and 1990.

Data Sources

Data gathering efforts mainly involved reviews of summary statistics normally prepared by each department or, in the absence of such data, searching for information in logbooks. The case studies utilized financial and operating statistics provided by the hospital as well as data generated from interviews and sample documents. Whenever necessary, statistically valid samples were taken from hospital records.

As shown in Table 14, there are differences in the data sources for Sapang Palay and Quezon Memorial Hospital.

Table 14
Information Requirements and Data Sources

DATA REQUIREMENTS	SOURCE DOCUMENTS	
	Sapang Palay District Hosp.	Quezon Memorial Hospital
o Hospital Expenditures (1989-1990)	Financial Statements (from JAO)	Financial Statements (from JAO)
o Organizational Structure and Manpower Complement (1989-1990)	Organizational Structure	Organizational Structure
1. Total Personnel Service Expenditures	Financial Statements	Financial Statements
2. Personnel Service Expenditure by Level or Rank	Plantilla of Personnel (authorized vs. actual)	Plantilla of Personnel (authorized vs. actual)
3. No. of Personnel by Level/Rank and by Department		
o Floor Area of Different Cost Centers	Blueprint/Floorplan/ Actual Measurements	Blueprint/Floorplan/ Actual Measurements
o Number of Rooms By Type of Class - ward, semi-ward, private - lying-in, recovery, ICU	Physical count	Physical count
o Patient Admissions (1989-1990)		
1. Total Inpatient Cases & Days by Center - inpatient (med., surg., OB, etc.) - nursery	Annual Statistical Report	Annual Statistical Report
2. Occupancy Rate	Annual Statistical Report	Annual Statistical Report
3. No. of Outpatient Visits	Annual Statistical Report	Annual Statistical Report
4. No. of Emergency Cases	Annual Statistical Report	Annual Statistical Report
5. No. of Dental Cases	Not Available	Logbook of Outpatient Visits
o Unit of Measure (Instrument) of Ancillary Departments (1989-1990)	Annual Statistical Report	Annual Statistical Report
1. Types of Services Offered	Org. Chart/Interviews	Org. Chart/Interviews
2. No. of Radiology/ECG Procedures (RVU)	Annual Statistical Report/ Sample from Logbook of X-rays	Annual Statistical Report/ Monthly Summary of X-rays
3. No. of Laboratory Tests (RVU)	Annual Statistical Report/ Sample from Logbook	Annual Statistical Report/ Lab. Tests Logbook
4. No. of Operations Performed by Type (RVU)	Annual Statistical Report	Annual Statistical Report/ Sample from OR Logbook
5. No. of Deliveries	Annual Statistical Report	Annual Statistical Report
o Expenditures for Supplies and Materials		
1. Drugs and Medicines - total expenditures - total no. of prescriptions filled - value and volume allocated to the different departments	Purchases of Drugs & Medicine Annual Statistical Report Sample of Billings	Purchases of Drugs & Medicine Annual Statistical Report Sample of Prescriptions
2. Medical and Surgical Supplies - total expenditures - value and volume allocated to the different departments - acquisition price/price list of requisitions for supplies	Financial Statements/RIVs RIVs/sample of supplies consumed by patient center RIVs	Financial Statements/RIVs RIVs/sample of supplies issued by CSR RIVs/Price Monitoring Sheet
3. Laboratory Supplies - total expenditures - total no. of tests by major type of test/by department - acquisition price/price list of requisitions for supplies	Financial Statements Monthly report of lab. tests conducted RIVs	Financial Statements Monthly report of lab. tests conducted RIVs/Price Monitoring Sheet

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Table 14
(continued)

DATA REQUIREMENTS	SOURCE DOCUMENTS	
	Sapang Palay District Hosp.	Quezon Memorial Hospital
4. Linen and Laundry Supplies - total expenditures - volume or value allocated to different departments	Financial Statements Interviews	Financial Statements Logbook of linen issued
5. Dietary Supplies - total expenditures - meals served per center	Financial Statements Annual Statistical Report	JAO Annual Statistical Report/ Logbook of meals served
6. Office Supplies - total expenditures - volume or value allocated to different departments	Financial Statements RIVs	Financial Statements RIVs
7. Housekeeping Supplies - total expenditures - volume or value allocated to different departments	Financial Statements RIVs	Financial Statements/RIVs RIVs
8. Other Supplies - total expenditures - volume or value allocated to different departments	Financial Statements RIVs	Financial Statements/RIVs RIVs
o Gasoline and Oil Expenses - total expenditures - value allocated to ambulance calls, adm. expenses, etc. - total no. of ambulance calls by center (e.g., med., OB, surgery, pediat)	Financial Statement Sample of Trip Tickets Logbook for ambulance calls	Financial Statements Not Applicable Not available
o Other Operating Costs Allocated to Different Departments		
1. Travel Expenses	Fin'l Statement/Interviews	Interviews/ROA
2. Communications Service	Fin'l Statement/Interviews	Fin'l Statement/Interviews
3. Repairs and Maintenance of Bldg & Eqpt	Financial Statement	Fin'l Statement/Interviews
4. Utilities	Fin'l Statement/Floor Area	Fin'l Statement/Floor Area
5. Security Service	Fin'l Statement/Floor Area	Fin'l Statement/Floor Area
6. Transportation Service	Financial Statement	Financial Statement
7. Auditing Service	Not Applicable	Financial Statement
8. Maintenance of Motor Vehicles	Fin'l Statement/Interviews	Fin'l Statement/Interviews
9. Other Services	Fin'l Statement/Interviews	Fin'l Statement/Interviews
o Movable and Fixed Equipment Depreciation		
1. List of active movable and fixed equipment by department/center	Inventory of Equipment	Inventory of Equipment
2. Historical value, Book value	Inventory of Equipment	Equipment ledger cards
3. Year of Acquisition	Equipment ledger cards	Equipment ledger cards
o Buildings Depreciation		
1. Historical cost, Book value	Not Available	Inventory List
2. Year of Construction	Not Available	Ledger Cards/Interviews
3. Major Renovations	Not Available	Inventory List/Interviews
- Year		
- Activity		
- Value		

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The major source of financial information for the two hospitals were the financial statements generated from the Journal of Allotment and Obligations (JAO). Cost components contained in the financial statements conform with the standard chart of accounts used by government hospitals.

Limitations of the Financial Model

The cost figures presented in the following section are benchmarks designed to provide reasonable indicators of actual hospital performance during the periods concerned. The results are constrained primarily by the unavailability of data at the required level of detail, as well as limitations on time and manpower to document all contents of the logbooks.

The use of sampling was also required due to the voluminous amount of data that had to be sifted through to arrive at some information of expenses per center. In particular, because of the lack of consolidation of issuances of medical supplies, office supplies and other material to the different hospital centers, the project team had to source information from primary documents such as RIVs. To facilitate the data gathering process, data on issuances of these items for sample months were gathered rather than the total annual issuance information.

In addition, the differences in the methods of determining and allocating costs for some accounts between the two hospitals may be a factor for differences in the output.

THE RESULTS

The following discussion presents the results of the cost finding process in the Sapang Palay District Hospital and Quezon Memorial Hospital. The complete financial statements, supporting tables, and assumptions are contained in Annex A.

TOTAL COSTS

Based on the cost finding process, total expenditures of Sapang Palay amounted to ₱4.9 million and ₱5.8 million in 1989 and 1990, respectively. In the case of Quezon Memorial, total expenses were estimated at ₱21.6 million in 1989 and ₱27.3 million the following year.

General Hospital Cost Structure

As shown in Tables 15 and 16, support service centers of Sapang Palay comprised 40.5 per cent of total costs, while total costs of support service centers in QMH accounted for only about 31.1 per cent of total hospital expenditures despite the fact that the integrated operations of QMH (hospital and field health) would normally support a larger administrative infrastructure. Possible reasons for the smaller support service cost to revenue center cost ratio of QMH may be the larger scope of its medical practice, economies of scale, and/or the magnitude of total expenditures of the hospital.

In Sapang Palay, the major centers in terms of total costs are Pharmacy and Administration/Financial Services, which accounted for 18 per cent each of total operating expenses in 1990. One reason for the large contribution of the Pharmacy to hospital costs is that it consumed almost half of total expenses for supplies and materials. Administration, on the other hand, incurred a large portion of overhead costs, both personnel expenditures and other operating expenses.

Likewise, the largest cost center in Quezon Memorial was the Pharmacy Department, which accounted for 11.4 per cent of total expenses in 1990. Other major cost areas included the administrative, emergency service, dietary, and medicine cost centers.

Table 15
Total Operating Expenses by Cost Center, 1990
Sapang Palay District Hospital
(value in thousand Pesos)

COST CENTER	TOTAL COSTS		Personnel		Supplies		Other OE	
	Value	%	Value	%	Value	%	Value	%
Nonrevenue-producing Centers								
Adm. & Fin'l Services	1,059	18.2	693	25.5	96	4.5	270	28.5
Property & Supply	127	2.2	78	2.9	15	0.7	34	3.6
Dietary	716	12.3	214	7.9	436	20.3	67	7.1
Linen & Laundry	124	2.1	76	2.8	28	1.3	20	2.1
Medical Records	243	4.2	37	5.0	82	3.8	24	2.5
Social Service	81	1.4	56	2.4	2	0.1	13	1.4
Subtotal	2,351	40.5	1,267	46.5	659	30.7	429	45.3
Revenue-producing Centers								
Pharmacy	1,057	18.2	84	3.1	954	44.5	19	2.0
Laboratory	226	3.9	106	3.9	96	4.5	23	2.5
Radiology/ECG	163	2.8	75	2.8	55	2.6	33	3.4
OR Service	198	3.4	140	5.1	29	1.4	29	3.1
DR Service	144	2.5	114	4.2	3	0.1	27	2.9
Surgery	127	2.2	87	3.2	14	0.7	26	2.7
Obstetrics & Gynecology	175	3.0	101	3.7	42	2.0	32	3.4
Pediatrics	204	3.5	114	4.2	49	2.3	40	4.3
Medicine	289	5.0	124	4.6	91	4.3	74	7.8
Nursery Service	60	1.0	28	1.0	21	1.0	11	1.1
Emergency Service	254	4.4	137	5.0	2	0.1	115	12.2
Outpatient	413	7.1	230	8.5	116	5.4	68	7.1
Dental Service	149	2.6	111	4.1	14	0.7	23	2.5
Subtotal	3,459	59.5	1,452	53.5	1,487	69.3	519	54.7
TOTAL	5,810	100.0	2,715	100.0	2,146	100.0	949	100.0

Table 16
Total Operating Expenses by Cost Center, 1990
Quezon Memorial Hospital
(value in thousand Pesos)

COST CENTER	TOTAL COSTS		Personnel		Supplies		Other OE	
	Value	%	Value	%	Value	%	Value	%
Nonrevenue-producing Centers								
Adm. & Fin'l Services	2,302	8.4	1,438	11.6	178	1.7	686	14.8
Property & Central Supply	854	3.1	285	2.3	326	3.2	242	5.2
Janitorial & Maintenance	2,060	7.5	389	3.1	1,323	12.9	348	7.5
Dietary	2,206	8.1	574	4.6	1,502	14.6	131	2.8
Linen & Laundry	745	2.7	354	2.8	233	2.3	157	3.4
Medical Records	229	0.8	154	1.2	5	0.0	70	1.5
Social Service	93	0.3	71	0.6	6	0.1	16	0.4
Subtotal	8,490	31.1	3,266	26.3	3,573	34.8	1,651	35.6
Revenue-producing Centers								
Motor Pool	529	1.9	213	1.7	-	-	316	6.8
Pharmacy	3,103	11.4	184	1.5	2,865	27.9	55	1.2
Laboratory	1,065	3.9	487	3.9	409	4.0	169	3.6
Radiology/ECG	760	2.8	386	3.1	268	2.6	106	2.3
OR Service	1,636	6.0	593	4.8	762	7.4	282	6.1
DR Service	567	2.1	234	1.9	253	2.5	80	1.7
Anesthesiology	282	1.0	244	2.0	-	-	38	0.8
Surgery	1,712	6.3	1,103	8.9	312	3.0	297	6.4
Obstetrics & Gynecology	1,736	6.4	1,024	8.2	396	3.9	317	6.8
Pediatrics	1,283	4.7	859	6.9	183	1.8	242	5.2
Medicine	2,209	8.1	1,353	10.9	379	3.7	477	10.3
Nursery Service	452	1.7	262	2.1	111	1.1	79	1.7
Emergency Service	2,294	8.4	1,626	13.1	369	3.6	299	6.4
Outpatient	1,094	4.0	509	4.1	373	3.6	212	4.6
Dental Service	118	0.4	94	0.8	1	0.0	23	0.5
Subtotal	18,841	68.9	9,171	73.7	6,680	65.2	2,990	64.4
TOTAL	27,331	100.0	12,437	100.0	10,253	100.0	4,641	100.0

LEVELS OF COMPARISON OF COST LEVELS

Cost Structure of Revenue-Generating Center

Tables 17 and 18 present the cost structure of fully-loaded centers, i.e., the total costs of each revenue center after the allocation of indirect costs from the support centers. In Sapang Palay, direct costs accounted for the bulk of expenses with the exception of inpatient service, in which more than half of expenditures were contributed by indirect costs. The largest indirect cost contributor was from the dietary in the form of meals.

Table 17
Cost Structure of Revenue-producing Centers
Sapang Palay District Hospital, 1990

COST ITEM	Pharmacy	Laboratory	Radiology	O.R. Service	D.R. Service	Surgery	Obstetrics and Gynecology	Pediatrics	Medicine	Nursery Service	Emergency Service	Outpatient Service	Dental Service
Direct Costs													
Personnel	6.1	37.2	36.4	56.6	64.8	36.8	19.1	19.2	14.3	28.1	42.9	34.1	60.6
Supplies and Materials	68.9	33.7	26.7	11.8	1.5	6.1	7.9	8.3	10.5	20.2	0.7	17.3	7.8
Other Operating Expenses	1.3	8.2	15.8	11.8	15.3	10.9	6.0	6.8	8.5	10.4	36.2	10.0	12.8
Total Direct Costs	76.3	79.1	78.9	80.2	81.7	53.8	33.0	34.3	33.2	58.7	79.8	61.4	81.2
Allocated Indirect Costs													
Admin. & Fin'l Services	17.0	17.6	17.6	17.9	18.2	12.0	7.4	7.7	7.4	13.1	17.8	13.7	18.1
Property & Supply	6.7	3.3	2.6	1.1	0.1	0.6	0.8	0.8	1.0	2.0	0.1	1.7	0.8
Dietary	-	-	-	-	-	23.4	38.2	39.1	44.2	-	-	-	-
Linen & Laundry	-	-	0.9	0.8	-	4.9	7.2	8.2	4.7	-	2.3	0.6	-
Medical Records	-	-	-	-	-	3.0	7.3	5.5	5.4	26.3	-	22.6	-
Social Service	-	-	-	-	-	2.3	6.2	4.4	4.1	-	-	-	-
Total Indirect Costs	23.7	20.9	21.1	19.8	18.3	46.2	67.0	65.7	66.8	41.3	20.2	38.6	18.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0						

Table 18
Cost Structure of Revenue-producing Centers
Quezon Memorial Hospital, 1990

COST ITEM	Motor-pool	Pharmacy	Laboratory	Radiology	O.R. Service	D.R. Service	Anes- thesiology	Surgery	Obstetrics and Gynecology	Pediatrics	Medicine	Nursery Service	Emergency Service	Outpatient Service	Dental Service
Direct Costs															
Personnel	34.0	4.9	38.0	40.6	24.5	33.4	75.8	35.1	33.5	44.9	32.1	40.3	61.3	33.5	68.5
Supplies and Materials	-	76.5	31.9	28.2	31.5	36.2	-	9.9	12.9	9.6	9.0	17.1	13.9	24.5	1.0
Other Operating Expenses	50.3	1.5	13.2	11.2	11.6	11.4	11.8	9.5	10.4	12.6	11.3	12.1	11.3	13.9	16.5
Total Direct Costs	84.3	82.8	83.0	80.0	67.6	81.0	87.6	54.5	56.8	67.0	52.5	69.6	86.4	71.9	86.0
Allocated Indirect Costs															
Adm. & Fin'l Services	7.8	7.6	7.6	7.4	6.2	7.5	8.1	5.0	5.2	6.2	4.8	6.4	8.0	6.6	7.9
Property & Central Supply	-	8.5	3.5	3.1	3.5	4.0	-	1.1	1.4	1.1	1.0	1.9	1.5	2.7	0.1
Janitorial & Maintenance	7.9	1.1	5.9	4.4	10.8	7.5	4.3	6.6	7.8	9.2	8.6	5.7	4.1	14.9	6.0
Dietary	-	-	-	5.1	11.9	-	-	23.3	16.5	10.2	20.9	-	-	-	-
Linen & Laundry	-	-	-	-	-	-	-	6.8	9.6	4.7	9.6	8.2	-	-	-
Medical Records	-	-	-	-	-	-	-	2.0	2.1	1.3	2.1	8.2	-	0.9	-
Social Service	-	-	-	-	-	-	-	0.6	0.6	0.4	0.6	-	-	3.0	-
Total Indirect Costs	15.7	17.2	17.0	20.0	32.4	19.0	12.4	45.5	43.2	33.0	47.5	30.4	13.6	28.1	14.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0						

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Cost Per Unit of Service: Sapang Palay vs. Quezon Memorial

The costs per unit of service of comparable revenue centers in both hospitals are presented in Table 19. It appears that the costs per unit of service in Sapang Palay are generally lower than those in Quezon Memorial. Quezon Memorial has a much higher hospitalization cost than does Sapang Palay for the pediatrics and outpatient service centers.

Table 19
Comparison of Unit Cost Per Service for Selected Centers
Sapang Palay and Quezon Memorial
(cost/unit in Pesos)

	1990			1989		
	Sapang Palay	Quezon	% Diff. QM/SP	Sapang Palay	Quezon	% Diff. QM/SP
Dietary	12.39	16.07	30	11.09	11.97	8
Medical Records	8.16	4.16	-49	4.46	4.93	11
Social Services	29.59	6.69	-77	22.57	16.80	-26
Pharmacy	34.24	32.98	-4	35.14	23.76	-32
Laboratory	23.20	29.44	27	14.04	24.57	75
Radiology	82.98	88.15	6	113.20	115.94	2
O.R. Service	1,746.88	804.59	-54	1,000.71	1,073.96	7
D.R. Service	210.58	187.07	-11	198.60	128.38	-35
Surgery	206.21	146.82	-29	121.46	130.67	8
OB-Gynecology	126.49	207.73	64	114.17	167.04	46
Pediatrics	123.92	336.94	172	102.13	273.16	167
Medicine	109.22	163.90	50	91.48	159.30	74
Nursery Service	47.37	72.23	52	34.12	79.61	133
Outpatient	36.77	81.51	122	23.62	46.98	99

Note: Outpatient includes Emergency Room and Dental Service.

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Cost Per Unit of Service: 1989 - 1990

Table 20 shows the unit cost for each center in Sapang Palay. Significant increases in the unit cost will be noted in the linen and laundry, medical records, social service, laboratory, O.R., surgery, outpatient and dental services from 1989 to 1990. Most of the variances can be attributed to the cost structure of the centers and are directly tied to the number of units produced by the center. Since a large proportion of costs in these centers are fixed costs, differences in the number of units performed would have a great impact on the unit cost.

Table 20
Cost Per Unit of Service: 1989-1990
Sapang Palay District Hospital

Cost Center	1990		1989		1989-1990 % Change in Cost/Unit
	Units	Cost/Unit	Units	Cost/Unit	
Nonrevenue-producing Centers					
Admin. & Fin'l Service	5,809,986	0.18	4,937,100	0.18	3.2
Property & Supply	1,609,277	0.10	1,358,168	0.10	(4.2)
Dietary	71,073	12.34	74,153	11.06	11.6
Linen & Laundry	30,350	5.09	32,760	3.49	45.6
Medical Records	36,819	8.27	44,433	4.49	84.3
Social Services	3,644	27.38	3,563	22.22	23.2
Revenue-producing Centers					
Pharmacy	34,935	39.66	30,879	37.81	4.9
Laboratory	15,921	17.91	17,056	14.59	22.7
Radiology/ECG	2,537	81.16	2,109	73.06	11.1
O.R. Service	143	1,723.88	220	968.56	78.0
D.R. Service	853	206.90	812	193.94	6.7
Surgery	1,146	206.36	2,269	120.74	70.9
OB-Gynecology	4,201	126.35	3,632	114.91	10.0
Pediatrics	4,821	123.46	5,138	102.46	20.5
Medicine	7,989	109.16	8,319	91.84	18.9
Nursery Service	2,284	44.43	2,377	32.60	36.3
Outpatient (incl. ER)	29,334	33.80	35,374	22.56	49.8
Dental	2,610	70.17	4,288	32.37	116.8

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The opposite is true for Quezon Memorial. Table 21 indicates that unit costs fell across a number of departments, although large decreases in cost per unit are accompanied by significant rises in unit production or service rendered. Substantial cost reductions were observed for motorpool, social services, and anesthesiology. That the emergency room registered a marked increase in unit costs might probably be explained by the significantly lower volume of cases it attended to compared to 1989.

Table 21
Cost Per Unit of Service: 1989-1990
Quezon Memorial Hospital

Cost Center	1990		1989		1989-1990 % Change in Cost/Unit
	Units	Cost/Unit	Units	Cost/Unit	
Nonrevenue-producing Center					
Admin. & Fin'l Services	27,330,589	0.08	21,623,953	0.09	(6.83)
Property & Central Supply	8,922,837	0.10	6,817,915	0.10	2.37
Janitorial	7,931	302.17	7,931	256.07	18.00
Dietary	164,582	16.07	160,563	11.97	34.23
Linen and Laundry	161,895	6.51	203,046	6.25	4.20
Medical Records	73,604	4.16	82,950	4.93	(15.63)
Social Services	16,934	6.69	6,519	16.80	(60.16)
Revenue-producing Centers					
Motorpool	176	3,561.53	61	9,663.13	(63.14)
Pharmacy	113,610	32.98	86,739	23.76	38.82
Laboratory	43,581	29.44	40,808	24.57	19.81
Radiology/ECG	10,778	88.15	5,511	115.94	(23.97)
O.R. Service	3,008	804.59	3,187	1,073.96	(25.08)
D.R. Service	3,743	187.07	3,398	128.38	45.72
Anesthesiology	3,008	106.96	3,187	176.41	(39.37)
Surgery	21,371	146.82	16,387	130.67	12.35
OB-Gynecology	14,717	207.73	14,640	167.04	24.36
Pediatrics	5,681	336.94	4,871	273.16	23.35
Medicine	25,685	163.90	20,692	159.30	2.89
Nursery Service	8,986	72.23	8,905	79.61	(9.27)
Emergency Service	7,781	341.09	12,619	151.12	125.71
Outpatient	42,926	35.47	48,589	20.07	76.70
Dental	2,220	61.97	2,413	44.06	40.65

The preceding comparison of the unit costs of the services rendered by each department of the two hospitals should ideally yield a study of relative efficiencies. Areas of particular strength for each health facility could be determined by finding the health center which enjoys the advantage of being able to provide the same service at a lower cost. Unfortunately, certain requirements exist which prevent the scheme from being applied to these two particular health facilities. Of these, perhaps the most important requisite is that no fundamental difference, in terms of size, type and other essential characteristics, should exist between the hospitals to be compared.

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Break-even Analysis

Break-even analysis provides some indications on the quantitative relationship between the hospitals variable and fixed costs and the rates that are charged. This analysis can be approached from two perspectives:

- o based on a full capacity operating level (assuming a 100 per cent occupancy rate), the analysis determines the break-even price of the hospitals.

If the break even-price is greater than the current inpatient day rate of the hospitals, then the rate structure should be re-evaluated. On the other hand, if the break-even price of the hospitals are greater than that of a private, for-profit hospital, then even at commercial rates, the DOH facility will never break-even. This would indicate severe deficiencies in the efficient use of variable inputs as well as the appropriateness of the hospitals' level of fixed costs.

- o conversely, a rate standard, such as that of a private, for profit hospital, could be used in the break-even equation to measure the break-even operating level of the facility. If the break-even level or total number of in-patient days to break even exceeds the 100 per cent capacity utilization of the hospitals, then this would also indicate deficiencies in the cost structure of the hospitals.

Fixed costs in this analysis are composed of personnel and other operating expenses of the entire hospital. The value of the variable cost figure in this analysis is based on the following:

- o the weighted average value of the supplies directly consumed by the different inpatient centers, plus
- o the weighted average value of the materials and supplies component of the allocated indirect expenses (from the step-down process) to the inpatient centers.

Break-even Price

For the two hospitals, an analysis was done to determine the break-even prices at full hospital capacity. The analysis considers the basic cost of a confinement day, which includes room and board, physician visits, meals, and linen and laundry services.

Table 22
Break-even Analysis on Price

	<u>Sapang Palay</u>		<u>Quezon Memorial</u>	
	<u>1989</u>	<u>1990</u>	<u>1989</u>	<u>1990</u>
Variable cost (₱) per bed-day	40.40	45.45	50.05	57.77
Total FC (₱000)	1,120	1,409	6,373	8,422
No. of Beds	50	50	250	250
Equiv. Patient Days	18,250	18,250	91,250	91,250
BE _{Price} (₱) at Full Occupancy	102	123	120	150
1989-1990 Rates (₱)	55 ¹	55	80 ²	80
Commercial Rates (₱) Semi-private Ward	110 ³ 60	n.a. n.a.	140 ⁴ 60	n.a. n.a.

- 1 Average semi-pay room rate for medicare and pay patients, and fees for doctor's visits
- 2 Average room rate for medicare and pay patients, and professional fees (general practitioner)
- 3 Rates in Dr. Yanga's Clinic and Hospital, a private 50-bed secondary hospital in Bulacan
- 4 Rates in La Salle University Medical Center, a private 170-bed tertiary hospital in Cavite

n.a. - Not Available

The resulting figures show that the two hospitals charge rates that are much lower than the needed break-even price for an average confinement day, assuming that all rooms can be charged at the given rate. Other observations are:

- o current rates at ₱55 per day for Sapang Palay and ₱80 for Quezon Memorial are more than sufficient to recover the variable costs per inpatient day, estimated at ₱45.45 and ₱57.77, respectively, in 1990,

- o these rates, however, are insufficient to recover the allocated fixed costs of an inpatient day; this would imply a drastic increase in the rates to recover this fixed cost allocation and the need to implement cost containment efforts on fixed costs,
- o even if the Sapang Palay hospital charges at commercial ward rates (P60) for all its rooms, the hospital will not break-even at full occupancy. Only at the semi-ward rates of (P110) will the hospital break-even.
- o likewise, the Quezon Memoria' hospital will also have to charge semi-ward rates for all its rooms to come close to breaking even at full occupancy.

Break-even Volume

As an alternative to the abovementioned analyses, the break-even volume, or the necessary inpatient days needed to recover full costs, given commercial rates was calculated. Based on the estimates on fixed and variable costs, current rates of the two hospitals and the commercial rates of representative private hospitals, Table 23 shows the calculated break-even volume. Because of the lack of information on 1990 private hospital rates, the 1989 rates were used in this analyses.

Table 23
Break-even Analysis on Volume

	<u>Sapang Palay</u>		<u>Quezon Memorial</u>	
	<u>1989</u>	<u>1990</u>	<u>1989</u>	<u>1990</u>
1989-1990 Rates ¹	55	55	80	80
Break-even Volume (current rates)	76,712	147,539	212,788	378,857
Equivalent Occupancy Rate (per cent)	420	808	233	415
Commercial Rates				
Semi-private	110 ²	110	140 ³	140
Ward	60	60	60	60
Break-even Volume (commercial rates)				
Semi-private	16,092	21,828	70,850	102,420
Ward	57,143	96,838	640,503	*
Equivalent Occupancy Rate (per cent)				
Semi-private	88	120	78	112
Ward	313	531	702	*

1 Average room rate for medicare and pay patients, and professional fees

2 Rates in Dr. Yanga's Clinic and Hospital, a private 50-bed secondary hospital in Bulacan

3 Rates in La Salle University Medical Center, a private 170-bed tertiary hospital in Cavite

* - Figures exceed three million patient days and 4,000 per cent.

The resulting figures show that although the current rates of the two hospitals are sufficient to recover variable costs, even if the hospitals can charge all patients at the current rates, it will be impossible for these hospitals to break even. The contribution generated by the current rates will not be able to cover the respective fixed costs of the two facilities. Only at semi-private commercial rates will these two hospitals have a potential to recover full costs or break-even.

TENTATIVE AREAS FOR COST CONTAINMENT

The results of the previous exercise provide a basis for identifying possible cost containment opportunities. In the case of Sapang Palay, one possible area where additional studies on the costs of providing health services could be made concern the operating room.

While statistics indicate that on the average only two operations take place every day, there seems to be an inordinate amount of personnel expenditures being assigned to the OR. These figures assumes a special meaning when compared to those of the Quezon Memorial Hospital. Though the number of operations performed was 16 times as much as those conducted in the Sapang Palay District Hospital, the personnel cost for the Quezon Memorial OR was only five times greater than that of Sapang Palay.

What seems to be suggested is that there is an unnecessarily high concentration of staff in the Sapang Palay operating room. Given the fixed plantilla of personnel, this high concentration in the OR center means less personnel for other hospital centers. In a way, this agrees with the observation of hospital personnel outside the OR department that they are under-staffed. Such an explanation might likewise account for the comparatively smaller unit personnel expenses in the surgery, obstetrics-gynecology, medical, and pediatrics wards of the district hospital.

Other areas where cost containment investigations may be directed consist of those items where large variances in the costs of providing a service are observed in different years for the same facility or across different facilities for the same time period. In the Sapang Palay District Hospital and the Quezon Memorial Hospital, these include expenditures incurred in the dietary, social services and motorpool departments, the emergency room and the dental, surgery and anesthesiology cost centers among others. Further analysis can be undertaken to assess whether the differences are due to the case mix, inefficiencies in hospital operations or various other extraneous factors.

Once it has been established that costs may be higher than usual due to inefficiencies and that avenues for cost containment exist, action may be taken to reduce costs to specified benchmark levels. Measures to eliminate wastage or cut materials usage at selected stages in the provision of health services may be enacted.

In analyzing the level of costs and taking steps to implement cost containment procedures, however, it is important not to fall into the trap of looking at the sheer volume of costs and the reductions in absolute expenses that would result were specific cost containment schemes to be adopted, to the sheer exclusion of the secondary and tertiary effects of cost cutting measures. More often than not, complex interrelationships among various costs exist. Cutting expenditures in one particular area does not automatically mean that greater efficiency or larger cost savings will result for the system as a whole. Very frequently, spending at certain areas of operations is justified because there would be no other way by which the viability of the system will be maintained or merely because the decision not to spend would be detrimental to the entity as a whole.

INFRASTRUCTURE/DATABASE IMPROVEMENTS

Potential cost containment opportunities in the Sapang Palay District Hospital and the Quezon Memorial Hospital introduced in the preceding section attest to the value of implementing a cost finding methodology. Notwithstanding the basic limitations of the information system currently in place in these hospitals, some opportunities for improved cost and economic efficiencies have been identified. The sustainability of the cost containment effort, however, requires that the current status of the hospitals' information system be developed and improved to facilitate the effective use of cost finding as a tool for cost containment.

The cost finding effort undertaken in this study was aimed not only to see how the methodology could be applied in a real setting, but also to determine the information system requirements of a sustainable cost containment tool.

OBSERVATIONS

During the pilot test, the study team noted several limitations posed by the current accounting and records keeping processes. To enable the information system to generate reliable and relevant cost data, the study team then analyzed these limitations and identified areas in the system that require improvement and strengthening. The following section of this study will provide some observations on the current hospital information systems and offer recommendations to address deficiencies.

Possibly the most critical concern identified in the information system of the hospitals is its relative inflexibility to allow for the proper and accurate collection, consolidation and measurement of personnel expenditures, materials consumption, other direct costs and the outputs associated with providing health services. Table 24 below presents a cross section of the observed difficulties with the information systems in both the Sapang Palay District Hospital and the Quezon Memorial Hospital, as well as the resultant problems and their potential solutions.

Table 24
Observations, Problems and Recommendations
Pertinent to the Surveyed Hospital Information Systems

<u>Observations</u>	<u>Problems</u>	<u>Recommendations</u>
<p>Data are not recorded in a clear, uniform and consistent manner. In most centers where logbooks were prepared, for example, linen and laundry, the central supply room, and operating room, entries were written illegibly or else they were incomplete. Inconsistencies were also perceived with the entry of items into the financial statement accounts.</p>	<p>Garbled and illegible records may cause errors in producing reliable information. If bookkeeping and recording is not accomplished in a consistent manner, errors in the interpretation of historical data will result.</p>	<p>Guidelines should be issued defining the record keeping process within the hospital system such that it is accomplished in the same manner for different hospitals across various years. Standardized forms should be issued and codes utilized to facilitate the interpretation and recovery of data.</p>
<p>Materials and supplies consumption are recorded in the RIVs and logbooks in such a way that the type of supply and its destination are not clearly indicated. In the Central Supply Rooms of the two hospitals, the destinations of the various materials disbursed could not be determined with ease and confidence from the CSR logbooks and records. The RIVs also do not indicate the type of supplies, whether office, medical, laboratory, housekeeping or others, issued to the departments.</p>	<p>The materials usage levels of the various departments cannot properly be determined. A component of the direct cost of providing health services thus becomes difficult to measure.</p>	<p>Coded entries must be made for the type of supply and destination in the RIVs. The logbooks of the departments themselves should corroborate the RIVs and should also indicate the type of supply received.</p>
<p>Time devoted by the staff, particularly medical personnel, to the various sections cannot be accounted for easily and accurately.</p>	<p>Total hospital personnel costs cannot be distributed among the various cost centers. This prevents the full costs of hospital services from being determined.</p>	<p>Time sheets and schedules where the times logged by hospital personnel in each department are recorded may be utilized. Costs may then be allocated accordingly.</p>
<p>While they are recorded in the logbooks, the output of ancillary and support departments are not allocated by the centers which avail of the services they provide. Laboratory services, for instance, were not listed according to the departments for which they were requested.</p>	<p>The precise computation of the full costs is made difficult since the contributions of other departments towards the providing of the service are not taken into account.</p>	<p>The outputs of ancillary and support services should be allocated according to their end users.</p>
<p>Documents pertaining to the consumption of materials, supplies, drugs, medicines and the outputs of the cost centers are not consolidated regularly. Most departments fail to provide reports summing and classifying received materials and units of output produced.</p>	<p>The lack of summary reports makes the data gathering portion of the costing methodology difficult and tedious.</p>	<p>Consolidation of entries in all ledgers, logbooks and records must be done on a regular basis.</p>

Several factors are observed to hinder the effective flow of information within the system. These factors can be generalized into several major subgroupings including:

- o the absence or incompleteness in detail of the required data at the department level and the disorganized recording of information,
- o inconsistencies in the use, interpretation and entry of information into reports and logbooks;
- o difficulties in collecting the needed information due to the absence of summaries; and
- o the lack of a structured information system.

Problems

Disorganized Recording and the Lack of Data

In the two surveyed hospitals, the data necessary to implement the cost finding methodology were either missing or lacking in the required level of detail. The typical lack of uniformity in the presentation of data among individual hospitals and sometimes, even across different years within the same facility was also noted. A fundamental deficiency with the process by which hospital information was collected and organized thus became evident.

Frequently, no standard forms are utilized for the recording and the processing of data at the initial and intermediate stages, so that hospital staff have to resort to creating makeshift forms or to recording data in logbooks according to their own concept of how and what should be logged. In either case, valuable information may be lost through omissions or improper recording. The variegated means by which data is taken down also makes it difficult for third parties to retrieve, understand and verify the data without assistance.

When the DOH does release standard forms however, problems persist in getting all health facilities to make use of these documents. To an extent, this difficulty is caused by the DOH's constant revision of the format of the reports (as in the case of the annual statistical report).

Inconsistencies in the Recording of Data

Likewise, cost finding is hampered because of inconsistencies in the manner data is encoded or accounts are used. This was especially evident when hospital personnel were asked about how they assigned expenses to specific items in financial statements or how certain materials or personnel were classified. Essentially, this can be attributed to the lack of guidelines that determine which data should be collected, classified and recorded.

Lack of Summary Reports of Data

For many departments of the Sapang Palay District Hospital and the Quezon Memorial Hospital, summaries of detailed information were inaccessible. Any data gathering process then had to involve expending much effort in sifting through voluminous documents and records before usable aggregates of information could be produced. Outputs and the flow of materials of the various departments, for instance, had to be determined from individual logbooks, where only information noted down on a daily basis was recorded. The disorganized, incomplete and sometimes unreliable nature of the data and the time-intensive nature of the task of consolidation required the use of sampling schemes and certain assumptions for this cost finding study.

Lack of a Data Flow Structure

Connected with the difficulties in data coding and consolidation are the problems of who should be responsible for the data before, during and after it is processed and the design of the activities, requirements and outputs of the processing system itself.

At present, databases are largely decentralized so that in most cases, record keeping is either redundant across departments or deficient. Other than the records clerk or the accountant, no specific personnel is assigned to process the detailed data on an aggregate basis. While the records officer has been given the duty of collecting and aggregating information from all the departments from a hospital wide perspective, the summaries of information that are generated are not sufficient to meet the requirements of cost finding. Information is apparently gathered, processed, and prepared for Department of Health reporting purposes. Prepared reports therefore, do not prove to be functionally helpful in the decision-making processes of administrators in managing hospital operations. The information system lacks a flexible report processing system that would provide information not only for DOH Central Office purposes but also for managerial planning and control in the hospitals.

A structure information flow or pathing from department to department such that processing is done efficiently and accurately is also missing. The required inputs, the activities and the outputs of each person at each stage of the information processing mechanism also need to be clearly established.

Recommendations

To develop substantial qualitative improvements in the management information systems of DOH health facilities, a concurrent shift in the orientation of reports in the DOH system must be made. For DOH to come up with information that would provide hospital and health administrators with clearer measures of effectiveness, productivity and efficiency, substantial changes in data requirements and processes would have to be effected. Because record keeping costs would mostly be augmented considerably in most facilities, a commitment to improving the information system must be secured at the highest levels of the health administration.

In general, all subsequent recommendations will be geared to resolving the previously perceived difficulties with an eye towards facilitating the adoption of a cost finding methodology in hospitals. Recommendations shall likewise try to address these problems by covering the three major areas of any information system:

- o data recording;
- o processing; and
- o output

Specifically, reforms in the management information systems would concern the use of standardized forms and coding, the regular consolidation of data and the implementation of a proper data processing system.

Data Recording

Deficiencies in the quality of hospital information often have much to do with the initial phase of data accounting and recording. As such, the use of appropriate schedules and charts for data recording and classifying will be crucial. Also, the design of a coding scheme would largely simplify and systematize the data recording process.

Use of Standardized Forms

Given the importance of accuracy, clarity and completeness in the accounting and reporting of information, data should be classified under properly constructed tables. This may entail the use and modification of existing forms such as the supply cards, requisition and issuance vouchers (RIVs) and logbooks, or the setting up of entirely new forms, like time reports. What is essential is that all the information which may be used to fully describe hospital operations be included and presented in as clear and uniform a manner as possible. To ensure this and the uniform interpretation and analysis of data throughout the network of hospitals, standard forms covering the information reporting requirements of health centers, as determined by the cost finding process, could be issued by the DOH Central Office. Once issued, steps could be taken to guarantee that all health facilities make proper use of these documents.

Coding

Similarly, the data entry process may be improved to ensure reliability and completeness in detail with the adoption of clear guidelines on how hospital information, statistics and data should be reported so that incorrect entries could be avoided. This may, in fact, be achieved with the use of a coding system based on the standard forms.

For items such as particular departments, supplies, equipment, expense accounts and personnel, entries may be made by utilizing codes arbitrarily determined by the DOH or lifted from the existing hospital charts of accounts, whichever one is adjudged to be most suitable.

The coding system may be illustrated using a hypothetical form issued by the Central Supply Room for various materials requisitioned by a particular department. Aside from an itemization of the supplies issued, a multi-numbered code indicating the source department (the CSR), the destination department (the Operating Room, for example), the type of supply given out would be entered and a control number. This way, transaction details are preserved while the recording system is kept simple. The volume and variety of the transactions conducted in the CSR also show the value of a coding system. Without it, the transfer of materials between the CSR and the many departments of the hospital may not be accounted for easily, such that either the consumption of the various departments is left unmonitored or the CSR incurs an overly large expense from recording these exchanges.

Other concrete examples of areas where standardized data records and coding schemes could be implemented include:

- o Patient Charts

Aside from the patient's bio-data, patient charts should contain encoded data pertaining to the patient's ability to pay (pay, charity or medicare), case particulars (OB-Gynecology, Surgery, Pediatrics, Medical, etc.), admission date, release date, area confined, services rendered, attending physicians, prescriptions given, and other information accumulated throughout the patient's stay in the hospital.

o Schedules of Personnel (doctors, medical staff, others)

The time spent by each personnel in a specific area is the basis for the allocation of personnel expenses. Hence it is relevant that hospital staff schedules that were initially prepared and approved by the Chief of Hospital be strictly followed. However, in the light of emergency cases and other unavoidable incidents, supplementary records should be available to account for possible changes in schedule. Logbooks where physicians and the medical staff can record their working time should be employed in each service area.

Non-medical staff should be assigned to specific administrative or support service departments. Their personnel service expenditures should be specific to their assigned center.

o Prescription Schedules

Drugs and medicines released through the pharmacy by the staff in charge should be correctly recorded in separate schedules. Drugs issued out through prescriptions and those which are distributed to the different medical wards for treatment purposes should be assigned separate logbooks. The records of drugs prescribed should specify the drug's name, quantity released, the related service area and the payment scheme followed. On the other hand, records of medicines circulated to the different service areas should enumerate the items, the corresponding quantities, the receiving service area and the date of release. A separate column should also be designated for signatures of the receiving personnel.

o Schedules of Services Rendered

Records should be maintained separately for each service, whether administrative (CSR, Dietary), ancillary (lab and X-ray) or patient related (Surgery, OB-Gynecology). This will contribute to a more organized and detailed recording of data. In the radiology department for example, separate logbooks should distinguish services rendered to the inpatients from those rendered to the outpatients. Each logbook should contain ledgers segregating the many types of x-rays performed. A separate column should also be assigned to summarize all ECGs procedures conducted. Logbooks for the inpatients should specify the patient's name, type of test performed, date performed, patient's case (OB-Gynecology, Surgery, Pediatrics, Medical, etc.) and the quantity and type of materials utilized (eg. X-ray film). This will provide the radiology area a reliable mechanism for monitoring their use of inventories.

Generally, in recording performance indicators, codes should be utilized to indicate the source department, the type of output produced and the destination department, if any.

o Supply Cards

Similar to those maintained by the Chief of Supplies in the hospitals surveyed, supply cards contain information regarding the items purchased by the hospital. Before these items are distributed among the different service areas however, supply cards should first be furnished for each new item procured, while for the replenishment of stocks, existing cards should be updated. Data descriptive of the items acquired should be listed down and coded. These include the item's name, quantity purchased, price per quantity, date purchased and the name and address of the supplier.

Recording and accounting of data should be done separately for each service area. This not only narrows down the scope and makes work less tedious, but also simplifies subsequent consolidation on the hospital level.

Data Processing

Data Consolidation

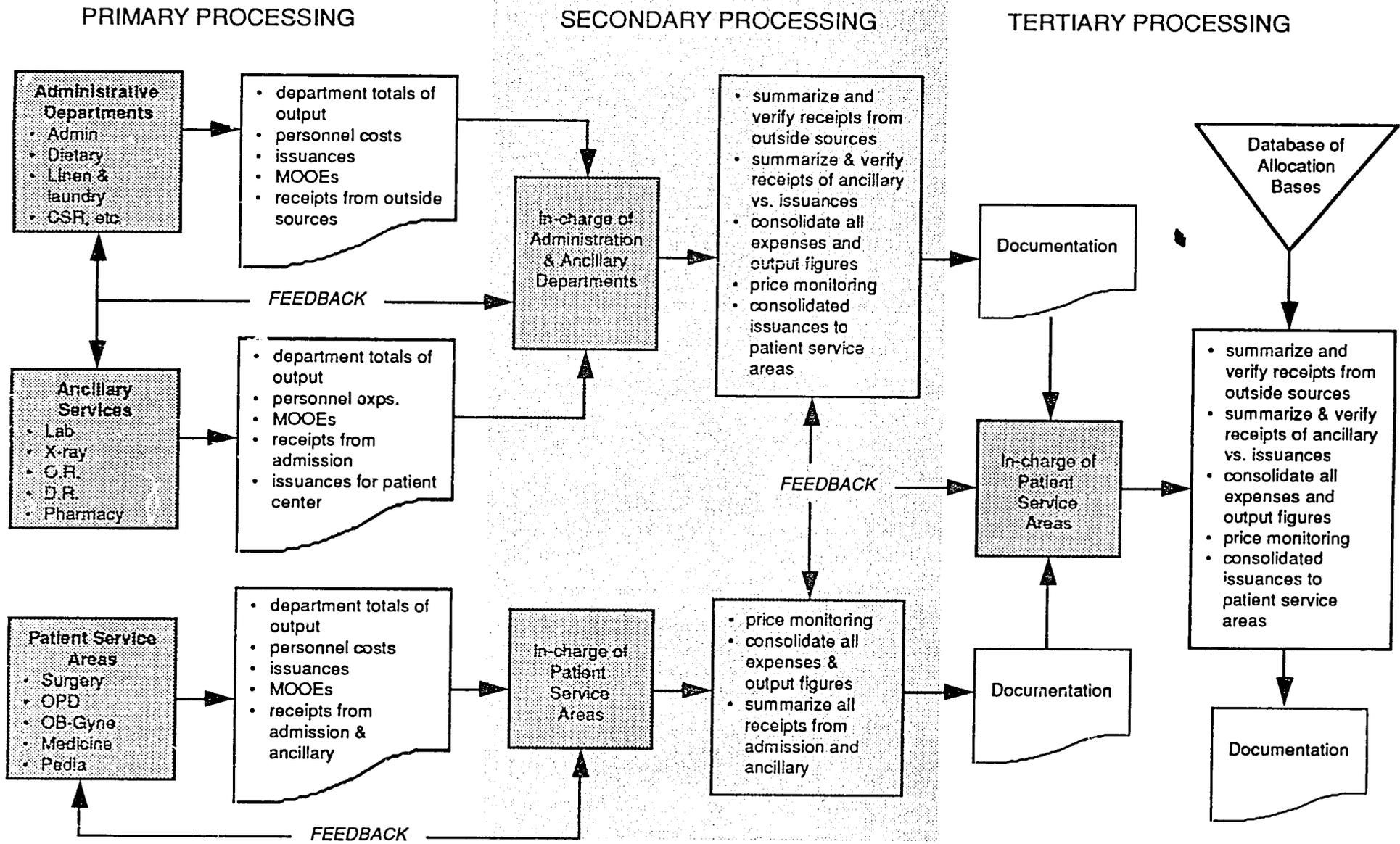
After the requisite tabulation of information, the data consolidation should be predetermined on a regular basis. Summaries of pertinent output statistics, materials consumption, issuances, receipts and expenditures from the different departments should be consolidated for the preparation of hospital reports and their ensuing use in the cost finding process. Ideally, consolidation should be accomplished on a per center basis. The department chiefs could assign a person to summarize the recorded data regularly. To achieve controls, different persons may be assigned to perform the different functions of recording and summarizing of data. This will ensure checks and balances, and that data is tabulated correctly and verified.

For example, a nurse could add up the relevant personnel costs, material requisitions and patient data for the ward; a clerk in the radiology department, on the other hand, could summarize the total number of x-rays performed, the associated personnel expenditures incurred, and the materials consumed and received. The department heads could then acknowledge and note the completion and accuracy of the prepared summary.

The Data Flow System

Implicit in the collection and accumulation of data is the necessity for a systematic flow which would clearly define the roles of entities, from those involved in encoding to those participating in the final aggregation of the data on a hospital wide basis, and their related inputs and outputs. One such pattern outlining the flow of data in an information system remodelled to accommodate the demands of cost finding is shown in Figure 10.

Figure 10
 Cost Finding System Information Flow



In the proposed information and work flow pattern, the departments of a hospital, as outlined in its organizational chart, are divided into three major subgroups: the administrative departments, the ancillary service centers and the patient service centers. Included in the administrative departments classification would be the administration, linen and laundry, dietary, maintenance, medical records, social services, motorpool and property and central supply. The ancillary services subgrouping would include the pharmacy, the laboratory, the radiology and ECG department, the operating room, anesthesiology, and the delivery room. The patient service centers would be composed of surgery, ob-gynecology, pediatrics, medicine, the nursery, the outpatient department and the emergency room.

For each specific department, the requisite data outputs would be determined by the subgroup under which each belong. These would be prepared by the department chief or the assigned member of the staff.

o Administrative Service Centers

These centers would generate summaries of their own direct expenses (personnel costs and MOOEs) and their outputs. For each department, reports of services and materials received from other administrative departments and sources outside the hospital would be tallied. Services and materials issued out to the other administrative units, the ancillary services and the patient service centers would also be tallied. For instance, dietary services will keep records of how many meals it serves the other departments and at the same time, keep a record of services and materials received from administration, the Central Supply Room, and other administrative units.

o Ancillary Service Centers

Direct expenses and all performance outputs shall be logged by each ancillary service department as will all outflows to the patient service centers and all the inflows from the administrative departments. The cost finding procedure being employed (see the Step Down Method) will assume that only inflows from the administrative centers will be received. In a similar vein, the outputs of the ancillary departments would be coursed only to the patient service centers.

o Patient Centers

Direct expenses and all performance statistics shall be recorded by each patient service are as will all inflows from the administrative and ancillary service departments. Unless hard evidence is provided to indicate otherwise, the cost finding procedure being employed will assume that no inter-patient center flows will occur.

The summaries of each administrative and ancillary unit will be submitted to the person in charge of administrative and ancillary functions in the second stage of the information processing system. This person will further consolidate this data. Expense and output figures of the various centers will be consolidated after verifications have been made and the issuances of all the administrative units to the ancillary services will be checked against the receipts, recorded by the ancillary departments, of services and material received from the administrative subgroup. Likewise, the total of all the issuances from the administrative and ancillary sections to the patient service centers will be computed. Since the prices of supplies may fluctuate within a given time period, costs of received and issued supplies will also be monitored and multiplied to the given quantities to generate the total costs of supplies sent out and acquired. The consolidated report is then submitted to the tertiary phase of the processing cycle.

A second person, in charge of patient service areas, in this phase of the information processing mechanism would also compute for the direct expense and performance statistics of all the patient service areas. The receipts of all inputs from the administrative and ancillary subgroups would be summed and verified and price monitoring accomplished before the report is forwarded to the final phase of the information consolidation process.

Unlike the first two phases where the persons in charge of summarizing the data need not have any special training, the lead person in this final step would need to have some fundamental knowledge of accounting and costing as the results of the cost finding methodology would ultimately be assembled in this stage. In this last phase, the issuances from administrative units to the ancillary services and the patient centers and the issuances from the ancillary services to the patient centers would be given a final checking and verification against all receipts made by the administrative, ancillary and patient service units. Direct costs of all centers would also be gathered.

Costs that could be assigned based on the confirmed figures of issuances would then be distributed to the relevant cost centers. Costs that cannot be directly assigned will be allocated according to specified cost drivers (records of the number of personnel, total floor area of various buildings) contained in a database at this final stage. Performance statistics would be compiled and the costs per unit of service for each department would be computed.

To limit the duplication of tasks, the statistical reports ordinarily filed by the medical records officer could be accomplished using the data accumulated at this stage. The medical records officer might also assist in the final verification of figures and computation of costs.

Output

For the cost finding procedure to have any value, the data that is generated by the exercise would have to be disseminated to hospital management and subsequently to health administrators and hospital department heads. Based on the findings, feedback should be given and the measures to improve services taken. Policy changes for the health care infrastructure as a whole might also be developed after sufficient cost data have been gathered.

NEXT STEPS

IMPLEMENTING THE COST FINDING METHODOLOGY

The previous section outlines recommendations to facilitate the implementation of the cost finding methodology. These recommendations pertain particularly to answer the need for a system that tracks, classifies, and consolidates relevant cost data. These next steps outline the processes needed after this system has been approved to promote cost containment.

First, for the methodology to be truly effective in helping generate cost containment opportunities, the cost finding process should be replicated in several hospitals in the DOH network. As the previous section showed, the implementation of this methodology need not require significant manpower increases or investments in data processing technology. Thus, the implementation requirements should not hinder the implementation of this process in several DOH hospitals.

By implementing this methodology in several facilities, comparative cost information can be generated. These information, if gathered on a large scale and long term basis, can serve as the foundation of policy and strategy formulations. Specifically, and repeating previous sections, this information can help in the following:

- o the generation of more accurate data for economies of scale analyses and other policy and planning needs,
- o the establishment of cost benchmarks for budget evaluations and allocations and performance and management evaluation, and
- o rate setting.

Secondly, within the context of a facility, the understanding of cost structures should be moved away from a purely accounting interest, to one that is a concern of the entire organization. Output from the methodology, specifically, the unit costs of the services provided by the different cost centers should be distributed through out the entire organization. In doing so, the hospital administration signals that the organization should be concerned with and responsible for its costs.

As indicated earlier, this development of an interest in costs can be facilitated by the dissemination of information that is easily understood by non-accounting staff. Aside from this development of interest, personnel of the different departments are made to feel more responsible for their departmental costs because it becomes easier to understand and relate to the costs that pertain to their operations.

DEVELOPING AND IMPLEMENTING COST CONTAINMENT OPPORTUNITIES

From a strategic perspective, the development of cost containing policies and plans that will affect the entire range of operations of the DOH can be facilitated by:

- o disseminating the data gathered from the cost finding efforts to policy and strategy planners, and
- o involving planning experts and researchers in productivity improvement, logistics and inventory management, and other disciplines; their work will be greatly enhanced by the availability of relevant data which had always been inadequate.

From an operational perspective, the development of cost containment opportunities becomes easier if the entire hospital organization is involved. Department teams can be formed to analyze their operations, develop and implement operating plans for cost containment, and monitor the effects of these plans. Hospital administrators may find it considerably beneficial for the cost containment effort if the cost consciousness concept can be articulated by the hospital's entire pool of staff in the day-to-day hospital operations.

As shown in the previous sections, the cost analysis can provide insights into areas which offer potential cost containment opportunities. Once these areas have been identified and prioritized, hospital administrators have at their disposal a variety of specific techniques to further explore cost interactions and/or determine and implement ways to contain costs. Hospital administrators can institute a value analysis program, cost-benefit analysis, and cost-productivity analysis.

- o Value Analysis

Value analysis is a productivity improvement technique implemented mainly to reduce unnecessary costs. Under this scheme, identified hospital services and their corresponding cost structures can be independently assessed through comparisons with the costs and practices of other comparable institutions.

Value analysis can be conducted by teams consisting of hospital administrators, physicians, and staff with different backgrounds and skills. As a first step, the team focuses its attention to the high expense centers which gives indications of potential areas where significant cost reductions can be achieved.

Comparison of hospital costs with other hospitals are done to provide indications where one hospital is spending more than the others. Costs per item are compared with the best demonstrated cost (BDC) within the lot. This leads to identification of target costs. This also leads to the determination of opportunities and practices used in more efficient hospitals which could be adopted to yield savings without compromising quality of care. With these results, action plans are then developed by task forces and the changes are implemented and monitored.

o Cost-Benefit Analysis

Potential savings from cost containments effort can be measured against costs of implementing the effort. Thus, containment efforts that actually increase costs because of the difficulty of implementation or the expense required to acquire the technology may be identified and rejected. Cost containment recommendations can thus be carefully evaluated because of the data provided through cost tracking and monitoring. Definitive decisions on whether to implement or not to implement certain measures may in this way be reached.

o Cost-Productivity Analysis and Allocation

Because results cannot be significantly detached from costs, selectivity in cost containment must be exercised. As was established earlier, certain costs should be allowed to remain because whimsical, and poorly thought out cost saving measures may ultimately only damage long run productivity and prevent the achievement of vital performance targets.

In its very essence, cost productivity analysis and allocation groups costs together and orders them according to a spectrum of categories: cost avoidance, cost reduction, cost control and cost effectiveness. Savings realized from the discontinuation of activities categorized under cost avoidance and cost reduction are rechanneled to the more productive uses outlined by the cost effective measures.

POLICY AREAS

Ideally, the proposed methodology is supposed to provide impetus for promoting efficient hospital management in the public sector. The result of increased efficiency will ultimately be added savings (non-expenses) in the case of efficient hospitals. This advantage creates certain problems or policy issues pertaining to the beneficiaries and use of savings.

Under current regulations on budgeting and disbursement, any amount of savings generated by a hospital at the end of the fiscal year will accrue to the national treasury, that is, it will essentially remain undisbursed. In actual practice, however, hospital expenditures rarely fall way below budgeted figures. A possible reason may be that budgets are simply too low to support hospital operations. However, hospital administrators also cited two major reasons for this occurrence. First, since hospitals cannot access the difference between their actual expenditures and budget in the succeeding year, they choose to consume as much of the allocated funds as they can. Secondly, officials expressed apprehensions that if they did not use up most of the funds allocated for a given year, their total budgets might be reduced in subsequent years.

Hospitals, therefore, do not have any real incentives to substantially improve efficiency and reduce costs. If they do undertake these activities, savings would normally not reach the regional or national government levels. In effect, this may promote inefficiencies within hospitals.

It appears, therefore, that hospitals could be allowed to accumulate and access part of their savings. However, use of the funds should be based on specific guidelines and regulations, particularly on the nature of allowable expenditures. Savings should be used primarily as long-term investments for use in strategic cost areas such as personnel training, new equipment or expansion of facilities. On the other hand, excess funds should not be used to supplement short-term operational expenditures since these costs are already covered by the annual budgets.

The issue of allowing hospitals access to their savings raises some more points. Implementation of the methodology implies that the budget process may be improved since costs are now based on actual levels of expenditures. However, problems appear when savings are computed based on the current practice of deducting expenditures from budgets. A hospital can simply force savings by not meeting its performance targets. The savings generated by each hospital should therefore be measured against actual performance targets.

Since the issue of hospital access to savings has wide and far reaching implications, further studies and evaluations will be required in this area.

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