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**THE DECISION PROCESS FOR THE ACQUISITION OF CAPITAL EQUIPMENT
IN TEACHING HOSPITALS**

The University of North Carolina at Greensboro

Ed.D. 1983

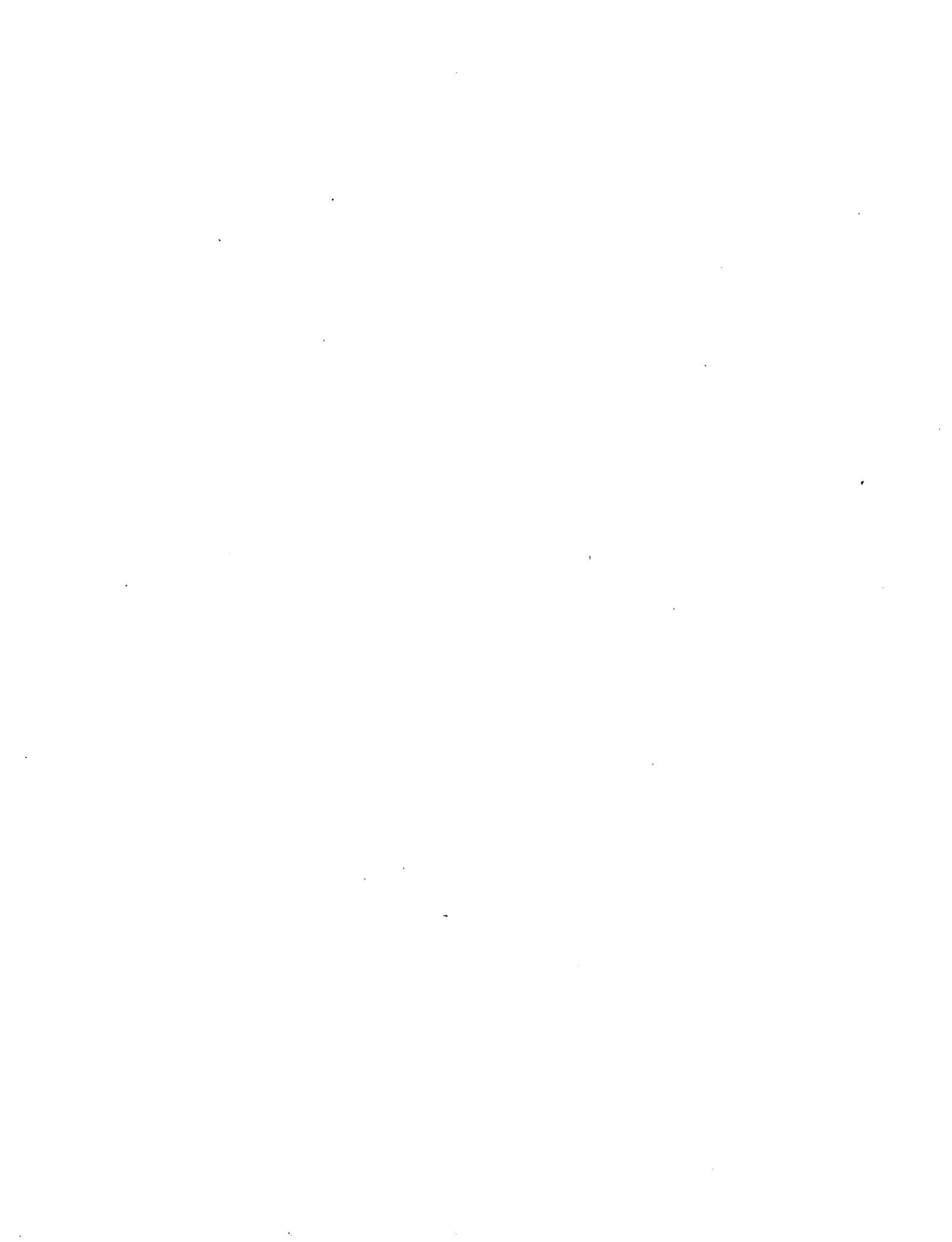
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THE DECISION PROCESS FOR THE
ACQUISITION OF CAPITAL
EQUIPMENT IN TEACHING
HOSPITALS

By

Gerald Neal Hewitt

A Dissertation submitted to the
Faculty of the Graduate School at
the University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Greensboro
1983

Approved by



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Technological innovations have been the foundation of modern medical advances which have provided cures for some formerly incurable diseases. Reflecting this new technology, state-of-the-art equipment must be acquired by hospitals. However, greatly increased costs of acquiring as well as operating and maintaining this equipment have caused both public and professional concern. Therefore, the decision process for the acquisition of capital equipment has become increasingly important. That process, as conducted by teaching hospitals, is the subject of this study.

A questionnaire was administered to a sample of the 419 hospitals with membership in the Council of Teaching Hospitals (COTH) of the Association of American Medical Colleges in order to gather data for a descriptive study.

The results were arrayed by ownership, governance, and medical school affiliation. It was determined that in the highest percentage of these hospitals, physicians were the most

prevalent requesters of capital equipment; those in administrative positions prevailed in the screening process, with the exception of federal government hospitals; however, administrators made the final decisions.

Capital equipment committees made the final decision in 48% of the hospitals. But, in 36.9% of these hospitals, the hospital administrator held membership on the capital equipment committees. It was fair to assume, therefore, that the administrator made these final decisions also. Consequently, capital equipment committees served purposes other than decision-making.

Teaching hospitals operate in a changing environment. To cope with the ambiguity, flexibility was built into the budgets through contingency money and justified substitution of items if the situation changed. The analytical process used by these hospitals was cost/benefit analysis which placed an equal priority on patient care and cost. Hospitals and medical schools differ on their funding goals; hospitals fund patient care, and medical schools fund research.

No significant decrease in expansion projects was noted over the 1977-1981 period. These hospitals on the average spent 6% of their total expenditures for capital equipment. If requests were rejected, there was an informal, highly political appeal process.

ACKNOWLEDGEMENTS

My interest in the subject of this research grew from twenty-two years of experience in the business and financial division of the North Carolina Baptist Hospital, the primary teaching hospital of the Bowman Gray School of Medicine of Wake Forest University. The two institutions in combination comprise an academic medical center, a regional tertiary-care medical center. Through this experience and as a participant on the capital equipment committee, I became interested in the process of acquisition. Although the research was not conducted to test a hypothesis, it does seem that improvement in medical care and increases in costs are driven by developments in technology. If this is true, it is important to know the decision process these teaching hospitals utilize in their capital equipment acquisition. This dissertation is the result of that interest.

A number of persons contributed to the work. Most important to the effort were the encouragement, tolerance, and assistance of my wife, Phyllis, and my parents, Mrs. Colene Tuttle Hewitt and my late father, Mr. Artis Clifton Hewitt who instilled the love of learning. My children--Tim and his wife Dee, Scott, and Angela--were always encouraging. I am grateful for the support and encouragement of the Baptist Hospital and Dr. John E. Lynch, President, a fellow pursuer of learning; my fellow-workers, Len Preslar,

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TABLE OF CONTENTS

	Page
APPROVAL PAGE	ii
ACKNOWLEDGEMENTS.iii
LIST OF TABLES.vii
LIST OF FIGURES	xi
CHAPTER	
I. INTRODUCTION1
Purpose of the Study7
Limitations of the Study9
Definition of Terms.	11
II. LITERATURE REVIEW.	14
Introduction	14
Open-Systems Theory as Foundation for Understanding Teaching Hospitals	18
The Teaching Hospital as an Organization	22
Resource Allocation by Teaching Hospitals.	27
Health Care Costs and Resource Allocation in Teaching Hospitals	36
Participation and Coalition Formation.	39
Planning as the Establishment of Direction, Framework, and Limits	41
The Budget.45
Environmental Inputs and Influences That Affect Capital Equipment Acquisition.49
Technology.49
Innovation.54
Public Policy57
Summary.	61

CHAPTER

III. METHODOLOGY	63
The Research Population	64
The Research Instrument	66
The Research Process.	67
Data Analysis	70
IV. THE RESULTS	74
The Problem	74
Profile of Respondent Hospitals	76
Ownership, Governance and Medical School Affiliations	79
The Capital Equipment Acquisition Process	88

CHAPTER

V. CONCLUSIONS AND RECOMMENDATIONS	136
Conclusions	136
Recommendations for Further Research.	138
BIBIOGRAPHY	142
APPENDIX A. THE RESEARCH INSTRUMENT.	150
APPENDIX B. CORRESPONDENCE	157
APPENDIX C. RESPONSE DATA PROFILED BY STATE.	186
APPENDIX D. A CHRONOLOGY OF MAJOR HEALTH LEGISLATION: 1776-1976	193
APPENDIX E. SUMMARY OF RESULTS: A PROFILE OF THE POPULATION	212

LIST OF TABLES

			Page
Table	1.	Percentage of Gross National Product Expended for Health Expenditures	4
Table	2.	Increases in Health Expenditures: Factors Affecting Growth 1965-1980	6
Table	3.	Response to Mailing of the Questionnaire	69
Table	4.	Summary of Usable Responses: By Mailings	71
Table	5.	Comparison of Total Population to Respondent Hospitals - 1981	71
Table	6.	Year the Hospitals Were Organized.	77
Table	7.	Respondent Hospital Bed Complement	77
Table	8.	Number of Active Physicians	78
Table	9.	Number of Housestaff	79
Table	10.	A Profile of the Population: Percentages	84
Table	11.	Teaching Hospitals Governing Board	85
Table	12.	Medical School Affiliation	86
Table	13.	Positions That Typically Request Capital Equipment: By Ownership	90
Table	14.	Positions That Typically Request Capital Equipment: By Governance.	91

	Page
Table 15.	Positions That Typically Request Capital Equipment: By Medical School Affiliation. . . . 92
Table 16.	Data Required to Support Requests For Capital Equipment: By Ownership 94
Table 17.	Data Required to Support Requests For Capital Equipment: By Governance. 95
Table 18.	Data Required to Support Requests For Capital Equipment: By Medical School Affiliation 96
Table 19.	Characterization of Analytical Method Used to Justify Purchases of Capital Equipment: By Ownership. 99
Table 20.	Characterization of the Analytical Method Used to Justify Purchases of Capital Equipment: By Governance. 100
Table 21.	Characterization of the Analytical Method Used to Justify Purchases of Capital Equipment: By Medical School Affiliation. . . . 101
Table 22.	Characterization of Analysis Methods: By Ownership. 102
Table 23.	Characterization of Analysis Methods: By Governance 103
Table 24.	Characterization of Analysis Methods: By Medical School Affiliation 104
Table 25.	Positions That Typically Screen Capital Equipment Requests: By Ownership. 106
Table 26.	Positions That Typically Screen Capital Equipment Requests: By Governance 107
Table 27.	Positions That Typically Screen Capital Equipment Requests: By Medical School Affiliation 108

	Page
Table 28.	Positions That Hold Membership on Capital Equipment Committees: By Ownership 111
Table 29.	Positions That Hold Membership on Capital Equipment Committees: By Governance. 112
Table 30.	Positions That Hold Membership on Capital Equipment Committees: By Medical School Affiliation 113
Table 31.	Final Decision Maker: By Ownership 116
Table 32.	Final Decision Maker: By Medical School Affiliation 117
Table 33.	Respondents' Rating of Present Capital Equipment 119
Table 34.	Teaching Hospitals' Level of Satisfaction With Their Capital Equipment. 120
Table 35.	Status of Depreciation Funding and Investment 123
Table 36.	Number and Percentage of Teaching Hospitals That Provided Financial Data 126
Table 37.	Percentage of Responding Hospitals With Expansion Programs 1977-1981 127
Table 38.	Gross Operating Expenses and Capital Equipment Expenses: By Ownership 130
Table 39.	Change in Expenditures 1978-1981: By Ownership 131
Table 40.	Changes in Expenditures 1978-1981: By Governance 132
Table 41.	Changes in Expenditures; 1978-1981: By Medical School Affiliation. 133

			Page
Table	42.	Gross Operating Expenses and Capital Expenses: By Medical School Affiliation . . .	134
Table	43.	Satisfaction With Capital Equipment Acquisition Process	135
Table	A.	A Profile of the Population By State and By Medical School Affiliation and Medical School	187
Table	B.	Teaching Hospitals By Ownership Responses By State	189
Table	C.	Teaching Hospitals By Governance Responses By State	190
Table	D.	Medical School Affiliation Responses by State	192
Table	E.	Capital Equipment Acquisition Processes In COTH Member Hospitals: A Summary of the Results	213

LIST OF FIGURES

	Page
Figure 1. Open-Systems Theory: A Cycle For Organizational Goal Achievement	19
Figure 2. Three Power Structures in Teaching Hospitals	28

CHAPTER I
INTRODUCTION

The seeds from which current problems in health care grew were planted during the decades of the 1920s, 1930s, and 1940s. Blue Cross began as a prepaid health-care plan at Baylor University in the late 1920s. Social Security legislation and the Wagner Act which gave legal standing to labor unions to bargain collectively for their membership were enacted in 1935. Immediately following World War II Congress enacted legislation known as the Hill-Burton Act, which funded hospital construction all across America, in small towns and in large cities, as a national effort to put health care within the reach of every citizen. Hill-Burton programs lasted until 1973 and built hundreds of hospitals.

As Americans were provided opportunity to obtain health care, their attitudes toward health care changed. Health care has been bargained into union contracts and given to nonunion employees as a company fringe benefit. Consequently, more and more Americans view health care as their right (Mackintosh, 1978, p. 18) and therefore expect it to be free in both public and private sectors.

The enactment of Public Law 89-97 in 1965 was a major milestone in medical history. This federal law added Title XVIII (Medicare) and Title XIX (Medicaid) to the Social Security Act and thus

brought about profound changes in the health-care industry. The Medicare section (Title XVIII) provided health-care benefits for all Social Security beneficiaries 65 or older. Subsequent revisions have added to the program persons disabled for two years or more and persons with chronic renal disease. Medicaid (Title XIX), designed to replace existing welfare programs, was implemented over a period of five years (1966-1970). Besides providing basic health-care benefits to persons with dependent children, Medicaid assists impoverished elderly people through Old Age Assistance (OAA), the blind through Aid to the Blind (AB), and the disabled through Aid to the Permanently and Totally Disabled (APTD).

Under these government programs, persons who had previously been denied health care, who had failed to seek health care because they lacked funds, or who had been cared for in "free" clinics and charity hospitals were given the opportunity to obtain health care from regular clinics, hospitals, and private physicians.

While public health laws were developing in the period of the 1930s through 1960s, a concomitant growth in funds available for health care was taking place in the private sector. As unions negotiated for more health-care benefits for their members, many companies, with and without unions, gave their employees full or partial medical coverage.

Parelleling these phenomena, especially since World War II, there has been a tremendous surge in the growth of medical knowledge, skills, and techniques. Furthermore, with the advent of the national space program and the development of computer technology, the machines available to the health-care industry have been revolutionized.

Although they have greatly improved diagnostic and therapeutic methods, however, these new technologies have generated enormous cost increases. During this period of exploding technological development (1930-1970), much of this expensive equipment was obsolete by the time it was installed. Furthermore, instead of increasing employee productivity, it usually required additional personnel with new skills (Fuchs, 1974). Some critics charged that hospitals purchased these new machines as status symbols; yet physicians were demanding the latest equipment in the hospitals where they treated their patients (Rapoport, 1978).

The expansion in the health-care industry had a decisive impact on the consumption of national resources, the extent of which can be measured by the percentage of the gross national product (GNP) consumed by the industry. Table 1 illustrates the expansion of health care, measured by a percentage of the GNP.

TABLE 1
 PERCENTAGE OF GROSS NATIONAL PRODUCT
 EXPENDED FOR HEALTH CARE, 1929-1980

<u>Year</u>	<u>Expenditures In Billions</u>	<u>Percentage of GNP</u>
1929	\$ 3.6	3.5
1940	4.0	4.0
1950	12.7	4.4
1960	26.9	5.3
1965	41.7	6.0
1970	74.7	7.5
1975	132.7	8.6
1980	247.2	9.4

(Source: U.S. Public Health Service, 1981, p. 195)

Several factors have influenced the increasing percentage of the GNP consumed by health care during the last twenty years. The ratio of full-time employed personnel to patients in hospitals has steadily increased, from 226 full-time equivalent employees per 100 average daily patients in 1960 to 302 in 1970, and 388 in 1980, (U.S. Public Health, 1981, p. 188). Another factor is the increase in the intensity of service given to each patient. Intensity reflects growth in the number of services provided to the patient (laboratory tests, surgical procedures, x-rays, etc.). Thus, while

the patient "load" has increased, the number and cost of the employees who serve them has increased even more. Finally, inflation has had a considerable impact.

Table 2 indicates that increases in expenditures for health care stem mainly from price increases due to inflation and from intensity; population growth is less of a factor. The increase in personnel reflects a decline in productivity and is a growing drain on national economic resources. On the other hand, the growth due to intensity reflects new technology and the ability of medicine to diagnose and provide broader ranges of therapy. Nevertheless, however noble its source, the prodigious growth has created concern that it would cause national economic problems. Thus, Lee (1983) said "The national health-care tab has become a national headache. . .throbbing at a little over 10% of the GNP and still growing."

In an effort to slow down the rapid escalation in the cost of health care, Congress, in 1974, enacted Public Law 93-641, the National Health Planning and Resource Development Act. The focus of this legislation was to control purchases of capital equipment--viewed by Congress as the fundamental cause of tremendous increases in the cost of providing health care. Despite this move, costs have continued to rise sharply each year. National expenditures for health care increased from an estimated \$50 billion in 1950 to

TABLE 2
 INCREASES IN HEALTH EXPENDITURES:
 FACTORS AFFECTING GROWTH 1965-1980

<u>Year</u>	<u>Percentage of Price Increase Due To Inflation</u>	<u>Percentage of Population Increase</u>	<u>Percentage of Intensity Increase</u>	<u>Percentage of all Factors</u>
1966	46	11	43	100
1970	48	8	44	100
1975	70	7	23	100
1978	69	9	22	100
1980	75	8	17	100
1965-1980	58	9	33	100

(Source: U.S. Public Health Service, 1981, p. 196)

\$268 billion in 1982 (Yaggy, 1982, p. 4). Whether or not the cost of capital equipment was the principal cause of this jump, it is undisputed that the proliferation of new, ever more sophisticated and technically complex machinery has been very expensive to acquire, maintain, operate, and replace. An investigation of the processes whereby hospitals acquire their equipment, how they select, decide, and budget for it would thus seem to be timely and useful.

Purpose of the Study

The purpose of this study was to identify the processes used by teaching hospitals for the acquisition of capital equipment. Who requests the equipment? Who makes the decision to purchase it, and what criteria are used in making that decision?

No previous effort has been made to describe the decision process by which capital equipment is acquired in teaching hospitals; yet understanding this process is basic to answering some of the questions about the justification for such purchases and the benefits afforded by this expensive equipment (Rapoport, 1978).

The population selected for the study consisted of 419 hospitals that are members of the Council on Teaching Hospitals of the Association of American Medical Colleges. It is in teaching hospitals that new technology is tested, perfected, and introduced into medical practice and where the physicians and other professionals

who work in the health-care industry are trained (Ebert, 1977). Having learned to depend on the latest technological developments while in teaching hospitals, these professionals may then demand that the 50-bed community hospital, or wherever they work, provide that same state-of-the-art technology (Rapoport, p. 108). Therefore, a study of the acquisition process may yield information that may be applied beyond the framework of the teaching hospitals.

A research questionnaire (Appendix A) was designed (a) to provide a profile of the responding hospitals (age, size, residency programs, and relationship to a medical school); (b) to identify the persons participating in the decisions to purchase capital equipment and the methods by which these decisions were made; and (c) to obtain five years (1977-1981) of financial data.

Using these data, this study focuses on the following questions:

1. How is the process of acquiring capital equipment affected by the following factors: (a) hospital ownership, (b) hospital governance, (c) type of relationship with a medical school (primary or affiliated teaching hospital)?
2. Who participates in the process by which capital equipment is acquired? To what extent do the traditional centers of power in a hospital (trustees, administrators, and physicians) participate in this process?

3. Who gives final approval for acquisition of capital equipment?
4. Do primary teaching hospitals rate their equipment as state-of-the-art more frequently than affiliated teaching hospitals?
5. Are teaching hospitals planning for their future by funding depreciation expense and investing their depreciation funds? Government no longer provides capital funds for hospitals; thus hospitals need to provide for their own future.
6. Have legislative efforts to control capital expenditures retarded hospital expansion programs over the past five years?

The research design was a descriptive study of a sample of the 419 teaching hospitals with membership in the Council of Teaching Hospitals of the Association of American Medical Colleges. All of these are government (federal and nonfederal) hospitals, or hospitals designated by the Internal Revenue as tax exempt under regulation 501 (c) (3), generally characterized as not-for-profit.

Limitations of the Study

Loss of Control over the Respondent

Inability to control who responds is a limitation of all mail questionnaires. The questionnaires were sent to hospital adminis-

trators, but the position or role of the person who completed the questionnaire is not known. Additionally, the responses reflect the person completing the questionnaire and these may have been different had the questionnaire been completed by those in other positions within the hospital.

Exclusion of Proprietary Hospitals

A second problem is the exclusion of proprietary hospitals. Such hospitals constitute the fastest growing group of hospitals in the United States, but they are not admitted to membership in the Council of Teaching Hospitals and are therefore excluded from this sample population. Nevertheless, the original sample size (419) was large enough to be representative of all the teaching hospitals in the country.

Nonparticipating Hospital Associations

There were also problems with obtaining questionnaires. Hospitals from four states (California, Connecticut, Michigan, Pennsylvania) and from New York City returned the questionnaire with the notation that it had to be approved by their respective hospital association. Approval was subsequently obtained from the hospital associations in California and Michigan, but those in Connecticut and Pennsylvania rejected the request for approval. While the hospital association for the New York City area never responded, the New York State Hospital Association replied that each hospital

made its own decision about filling out such questionnaires. Elimination of the 14 teaching hospitals in Connecticut, the 37 in Pennsylvania, and the 14 in New York City reduced the sample size to 354.

Response Rate

The number of hospitals responding to the questionnaire was 123 or 29.4 percent of the original sample population (419) and 35.0 percent of the 354 hospitals outside the three nonparticipating associations. It cannot be claimed that these 123 hospitals are representative of all the teaching hospitals in the country. A significant number of the hospitals that did return the questionnaire failed to give adequate financial data.

Definition of Terms

Certain terms used in this dissertation may need clarification for readers outside the field of hospital administration.

Affiliated hospital: A hospital associated with another health program, usually a medical school.

Appropriations budget: A budget which authorizes a maximum expenditure within broad parameters, usually employed in government.

Capital equipment: New or replacement capitalized equipment and the facilities renovation necessary to install, maintain, and operate the equipment.

Capital expenditure budgeting: "The process of planning and controlling expenditures for property, plant, and equipment items" (Seawell, 1975, p. 549).

Certificate of need or necessity: "A certificate issued by a governmental body to an individual or organization proposing to construct or modify a health facility, or to offer a new or different health service, which recognizes that such facility or service when available will be needed by those for whom it is intended". (Committee on Interstate Commerce, p. 26).

Depreciation expense: "That portion of the original cost of a tangible asset allocated to a particular accounting period" (Seawell, 1975, p. 551).

Funded: "Capital depreciation is said to be funded if the amounts included in an institution's reimbursements for capital depreciation are set aside in a fund used for capital purposes rather than being spent on current operating costs" (Committee on Interstate Commerce, p. 63).

Health systems agency (HSA): A health planning and resources development agency designated under the terms of the National Health Planning and Resources Development Act of 1974, P.L 93-641 (Committee on Interstate Commerce, p. 75).

Medicaid: Title XIX of P.L. Act 89-87; A federally aided, state operated and administered program which provides medical benefits for certain low-income persons.

Medicare: Title XVIII of P.L. Act 89-87; "A nationwide health insurance program for people aged 65 and over, for persons eligible for social security disability payments for over two years, and for certain workers and their dependents who need kidney transplantation or dialysis" (Committee on Interstate Commerce, p. 102).

Primary care: "Basic or general health care which emphasizes the point where the patient first seeks assistance from the medical care system and the care of the simpler and more common illnesses" (Committee on Interstate Commerce, p. 127).

Teaching hospitals: A hospital which provides undergraduate or graduate medical education, internships, residency programs, and affiliation with a medical school (Committee on Interstate Commerce, p. 161).

Tertiary care: Medical care provided by specialized hospitals which frequently require sophisticated technological and support facilities (Committee on Interstate Commerce, p. 161).

CHAPTER II

LITERATURE REVIEW

Introduction

The costs of capital equipment, of new clinical services, and of inflation in health care related to technology are all of concern to the public and the public's elected representatives. It is important to know how capital equipment gets into the health-care industry and into general use.

The purpose of this research was to examine decision processes by which capital equipment is acquired within a major segment of the nation's teaching hospitals, specifically, those with membership in the Council of Teaching Hospitals (COTH) of the Association of American Medical Colleges. The reason for studying teaching hospitals rather than all hospitals is that technological innovations enter the health-care industry through teaching hospitals; subsequently, having been proven effective in the teaching hospitals, they become commonplace throughout all hospitals (Rapoport, 1978). Thus, teaching hospitals control innovations in health-care technology. Therefore, understanding how capital equipment for them is approved for purchase is one vital aspect of the complex issue of health care costs and quality.

Teaching hospitals are complex organizations. Decision processes in complex organizations such as teaching hospitals not only involve accumulation of data to understand the issues, but also human interactions, political activity, and multiple power structures. Within hospitals, the medical staff, the administration, and the trustees comprise the three traditional interest groups, but the medical school is a fourth influence on the teaching hospital's organization (Mankin & Gleuck, 1977).

Physicians are the powerful profession in hospitals. Their power comes from their expert medical knowledge that is obtained through medical education and confirmed through licensing procedures. They obtain patients, admit patients needing hospitalization, order all services for the hospitalized patients, and personally perform some of the services such as surgery. Each time a patient is admitted, physicians commit unspecified hospital resources by virtue of their position on the hospital staff. This staff privilege gives the physicians power to commit resources without specific authorization from anyone. It also makes the hospital dependent on them for patients and, therefore, for revenue (Zald, 1974).

Physicians with admitting privileges in teaching hospitals are usually jointly appointed as teaching and clinical faculty. This means that these physician educators not only provide patient care, but also teach medical students, train residents in graduate medical education programs, and engage in research.

A hospital is managed by its administration on a day-to-day basis under policies established by its governing body. The administration, operating under governing-body direction provides the physician with facilities, equipment, and support personnel for rendering patient. The administration's power is exercised through control of the hospital's resources and is primarily focused on patient care. While physicians control the quantity of services provided to the patient, they can only order services that are available. Though not absolute, the administration has the formal power to allocate resources, including the acquisition of capital equipment which physicians need (Mackintosh, 1978).

The third focus of power, the governing body, employs the administration and influences the hospital through establishing policy. The governing body's responsibility includes the hospital administration and the medical staff. Yet, at the same time, the governing body, usually the trustees, is the public's voice in the affairs of the hospital (Pellagrino, 1976).

The medical school's primary goals are teaching and research. The hospital, on the other hand, while interested in teaching and research in so far as they advance its ability to render patient care, is primarily concerned with patient care. From the standpoint of the medical school, patients are the object of the clinical faculty's duty to care for the sick and they provide resources

for clinical training for housestaff and medical students. Thus, for the medical school, the patient is both a lesson to be learned and a person to be treated. The different foci of the teaching hospital and the medical staff are potential sources of conflict over resources.

Hospitals affiliate with medical schools, as either primary or affiliated teaching hospitals. The primary teaching hospital is that in which the medical school engages in medical education for undergraduate medical students and is also engaged in graduate medical education through the various hospital residency training programs. The affiliated teaching hospitals are more diverse than primary teaching hospitals and may vary from a graduate medical education program approximating the primary teaching hospital in number of resident physicians in training to one with only a few residents in a single program in a community hospital.

In addition to these major power blocks--trustees, administrators and physicians--with their multiple goals, teaching hospitals include numerous professional and semi-professional groups: registered nurses, registered radiological technicians, profusionists, registered record librarians, social workers, managers, accountants, respiratory therapists, and others. One characteristic of professional groups is the tendency to place loyalty to their profession above loyalty to the hospital.

Regardless of these diverse professional groups and their secondary loyalty to the hospital, management still must accomplish its goals.

The development of workable decision mechanisms in such a setting is a decided challenge. How are these professional personnel and physicians to be included in the decision processes?

Open-Systems Theory as Foundation for
Understanding Teaching Hospitals

Teaching hospitals' goals are complex because they share in the goal fulfillment of other organizations such as the medical school and government agencies, and because they are influenced by various interest groups. Consequently, there are powerful influences on teaching hospitals from outside and within. They also require resources from a variety of sources to operate. As a theoretical basis for understanding the system, open-systems theory provides a useful framework (Figure 1).

Open-systems theory, in contrast to closed-systems theory, views the organization in its social and environmental context. No social system is closed, because each organization must interact with the environment in which it exists. Open-systems theory suggest that resources from the external environment (inputs) must first be taken in by the organization and transformed by the internal organizational processes (Katz, Kahn, & Adams).

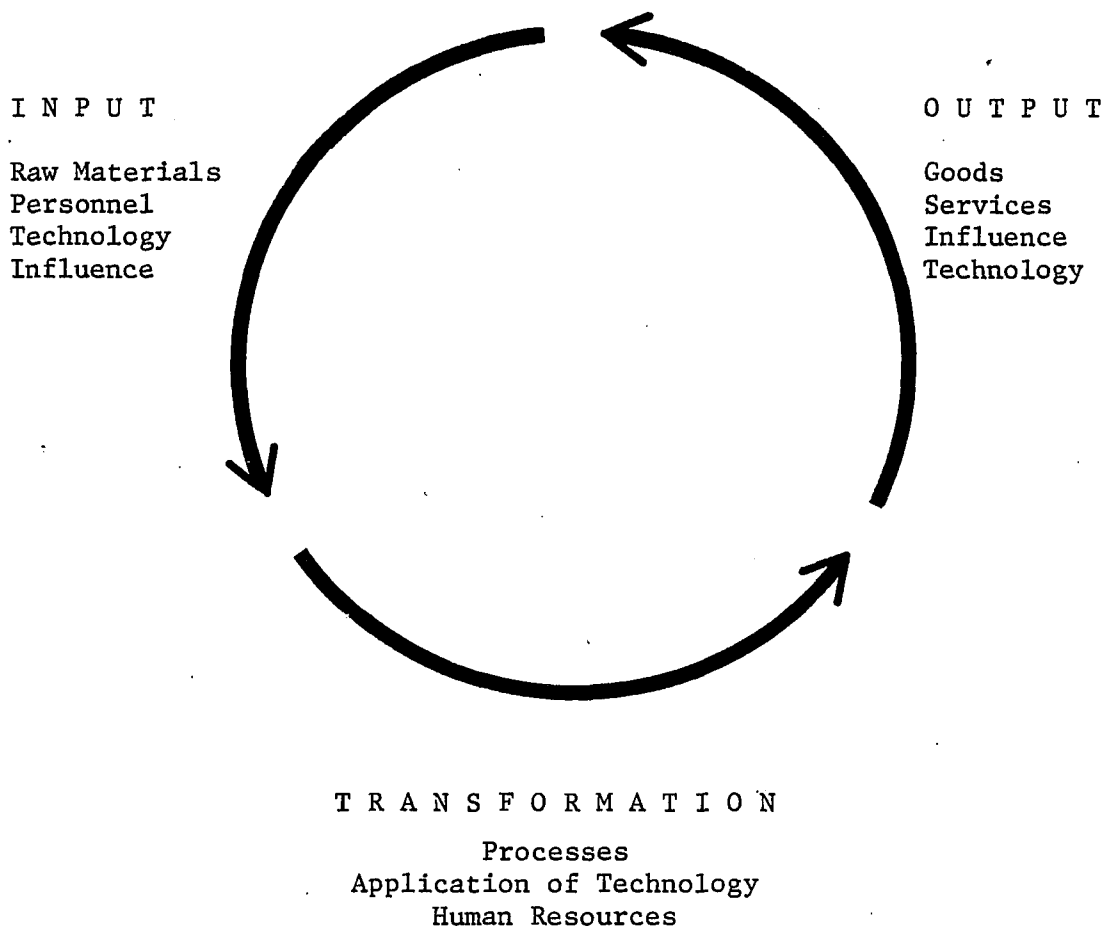


Figure 1. Open-systems theory: A cycle for organizational goal achievement

These transformed resources, which are either products or services, are then returned to the external environment as outputs. The organizational outputs are the source of compensation to the organization from the environment, which provides additional inputs to the organization. The cycle is thus completed, and repeated if the organization is to survive.

The survival of an organization depends on obtaining inputs of raw material to be transformed, and the willingness of the external environment to accept the organization's outputs. Inputs consist of raw materials (for hospitals, patients) and energy and resources to maintain the organization and to transform the inputs into products or services.

Since every living system runs down (entrophy) without constant importation of energy, open-systems theory suggests detailed consideration of maintenance inputs to preserve the structure, as well as get the work done (katz, Kahn & Adams, 1980, pp. 5-6).

Open-systems theory thus emphasizes that no organization exists as an isolated, self-sufficient unit capable of functioning without regard to the availability of inputs from the organization's environment. Availability and reliability of the supply of inputs must be adequate to sustain the organization. Furthermore, the organization's internal structure and processes --its communication, technology, and people--must be adequate to

sustain itself and to transform inputs to meet organizational goals. Otherwise, entropy will occur and the organization will cease to function.

According to Katz, Kahn and Adams (1980), open-systems theory suggests three major types of subsystems of organization: "Procurement arrangements for material and personnel, production structures, and disposal procedures" (p. 6). The organization in order to survive must rationalize the processes of input transformation while at the same time provide for human considerations, i.e., satisfaction (Etzioni, 1962). Hage, Aiken & Marrett (1980) identified organizational structure and communications as the two key linkages in the organization. The structure includes organization rules and routines or standardization. New information through organizational feedback allows the organization to adjust both to the needs of the people and to nonhuman aspects, such as markets and production quotas. The organization then functions as a whole.

Open-systems theory thus provides a broad framework in which various types of organizations can be analyzed. This analysis will consider teaching hospitals in terms of environmental resources (input), internal organization and processes (transformation), and their interaction with their environment through the transformed inputs (output). Initially, the focus will be on internal processes:

the teaching hospital as an organization, costs of medical care, resource allocation which involves decision-making, participation of people, and coalition building, planning, and budgeting. Later discussion of the environmental influences on the teaching hospitals will focus on three factors that are pertinent to this research: technology, innovation, and public policy.

The Teaching Hospital as an Organization

Teaching hospitals are complex organizations. Complex organizations have specialized component units, formalized behavior, interdependence of parts, wholeness, constancy (routine methods), continuity, and equifinality (more than one way to achieve a goal) (Georgopoulos, 1972). Teaching hospitals, as complex organizations, contain these general organizational characteristics. An organizational chart or internal policy and procedures from any teaching hospital will show these characteristics. Furthermore, teaching hospitals are influenced by their ownership, governance, and type of medical school affiliation. As a result systems from one hospital to another vary, and the different systems accomplish the same task or objective as another system does in another teaching hospital--equifinality. Systems also relate to ownership of the hospital. A federal hospital, for example, has different systems than a not-for-profit hospital does, but the resultant output may be the same. The same might be said for different governances or medical school affiliations.

Although teaching hospitals are akin to other complex organizations, they are just one example of complex organizations. What distinguishes a hospital from a complex manufacturing organization? Two characteristics are unique in teaching hospital organizations. They render personalized care to individual patients who randomly present themselves for care, and they are unable to mechanize or automate care (Georgopoulos, 1972).

The hospital's inability to mechanize many of its services means that it must offer a wide range of customized services on demand. Preplanning of service levels (e.g., number of x-rays at a particular time of day) is difficult, because the number of patients seeking services is difficult to predict. Sales departments in businesses target certain products for certain groups and attempt to sell the product. The organizational resources allocated are then proportional to the sales. Hospitals are similar in that their product offering is available and generally known, but when hospital demand is slack, resource reduction is not as easy as in a business. Also, as a public-good industry (Mackintosh, 1978), hospitals must react to potential demand more than businesses. Moreover, hospitals must maintain redundant equipment in the event of unusual medical demand.

In this minimally planned and controlled environment, hospitals also face high risk. Because mistakes have such profound

consequences for the patient, the physician, and the hospital, hospitals tend to be scrupulously rigid in procedural regulations.

As Georgopoulos (1972) observed,

The hospital shows great concern for favorable outcomes and clarity of responsibility and accountability, with little tolerance for ambiguity or error. Correspondingly, even at the risk of dysfunctional rigidity, it [the hospital] frowns upon deviation from existing rules and procedures. (p. 18)

On the surface, the hospital's rigidity in a high-risk environment, and insistence on adherence to rules in an unplanned situation seem to be inconsistent, but it is a necessary inconsistency.

Hospitals cannot, for example, designate a certain day "hysterectomy day" in the operating room since there may be a need for emergency surgery or a community disaster. The day's plan must be flexible enough to be changed if an emergency arises. Nevertheless, the treatment of community disaster is rendered according to prescribed rules and acceptable practices of medicine, which are adhered to as stringently as if the situation had been expected.

This rigidity, even in a completely unplanned situation, is for the mutual protection of patient, hospital, and physicians. Adherence to a prescribed set of procedures, even when faced with multiple trauma, assures the patient that the immediate approach of the medical team is to stop immediate threats to life, and stabilize the patient. Then efforts are directed toward therapy. Through

these routinized approaches, the patient's life is protected from harm, and the physician and hospital are protected from injury to their reputations.

Such adherence to procedure is the result of direction, and this direction emanates from the three major power centers--governing body, administration, and medical staff. The administrator exercises power through the right to determine resource allocation while the physician exercises power based on expert knowledge. The trustees are representatives of powerful interests in the community, who theoretically control the hospital and are ultimately responsible for the actions of both the administrator and physicians. But which of these power centers actually decides which capital equipment is obtained, and thus determines the future course of the hospital?

The influence of each group is, of course, limited. The trustee as the community representative "is committed to provide an optimal quality of care to the patients of the community in terms largely defined by the physician and implemented by the administrator" (Pellegrino, 1972, p. 303). But the trustee, usually a layperson, is dependent upon information supplied by the administrator about administrative matters. Furthermore, the trustees have only indirect authority over the physicians because they usually lack expert knowledge. The problem, then, is how trustees, dependent upon physicians and administrators for

information, are able to exercise control. How do the trustees participate in decisions related to acquiring capital equipment? Do they represent their constituents and the community, or do they simply act on information supplied by the administration and medical staff?

The administrators face a related set of problems. According to Pellegrino (1972), administrators are also dedicated to optimal patient care in the abstract. However, there is difficulty in fulfilling this mission because of the real limits on administrative power, which emanates chiefly from the resource allocation responsibility. Power over the medical staff can theoretically be exercised by freeing or withholding resources for the purchase of capital equipment or other programs the physician wants. However, the physician has a strong power base, so administrators cannot lightly offend physicians. Moreover, according to Zald (1974), each time a patient is admitted, a physician not only commits an unknown amount of patient resources, but he also commits the hospital's resources to provide whatever he orders for the patient. In this sense the physician is more powerful than the administrator or the trustees.

The source of this physician power is expert knowledge, defined by Bacharach and Lawler (1980) as "formal or specialized knowledge about particular issues or activities within an organization" (p. 33). This expert knowledge is obtained through formal medical

training and affirmed through government and professional testing and licensing. With the license comes the authority to act on "generally accepted medical practice." Physicians control through their expert knowledge (Georgopoulos, 1972). Figure 2 illustrates the lines of dependence and authority that exist among the three power centers of a hospital.

Resource Allocation by Teaching Hospitals

Resources come in many forms: personnel, machines, raw materials. Teaching hospitals use these resources, which in turn are purchased via allocations of funds. What is the money allocated to do? Does the budget plan include money for a new technology or does it simply maintain current technology? Are personnel and space allocation issues also addressed when money is allocated?

This section examines resource allocation in terms of 1) decision-making; 2) participation, influence, and coalition formation by various individuals and groups to obtain their particular objectives; 3) planning as a method of controlling the organization or moving it in a particular direction; and 4) budgeting as the specific manifestation of the end result of resource allocation.

Decision-making in teaching hospitals varies from hospital to hospital. The internal structure and internal relationships among professionals and units of a hospital affect decision-making according to the way the hospital is governed, owned, or its medical school relationship. Decisions made regarding the purchase of capital

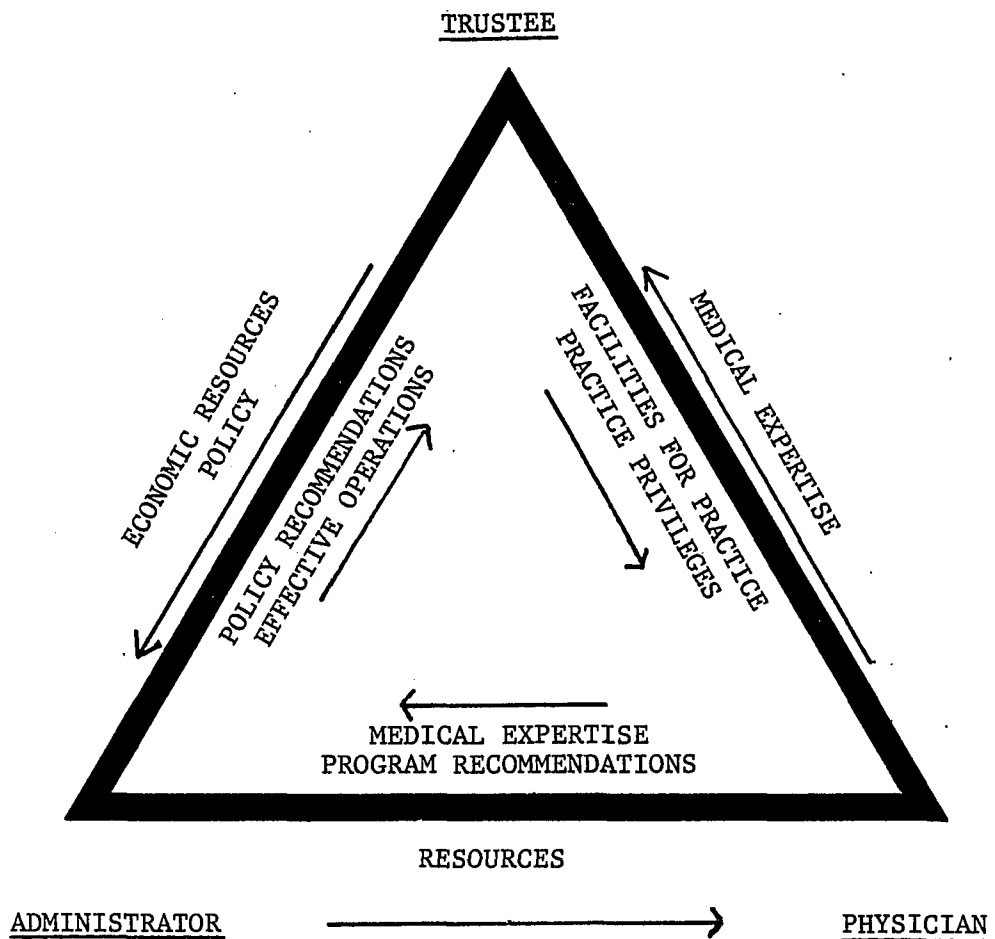


Figure 2. The relationships of power centers in hospitals.

equipment are a vital element of planning and day-to-day operations in hospitals. Dodson (1981) emphasized the crucial nature of those decisions:

What is important to recognize is that acquisition of equipment and instrumentation into a hospital is a system introduction and like a row of dominoes being pushed over, the acquisition of the equipment is the first domino to fall, the rest falling subsequent [sic] (p. 29).

Thus, the decision to acquire equipment or instrumentation sets a course for the hospital which, when adopted, is halted or redirected with great difficulty. Moreover, introducing new technology means that the costs of operations are almost certain to increase. It is important, then, to review the literature on decision-making because decisions in hospitals have significant impact, not only on the hospitals' operations, but eventually on the general public as patients, as purchasers of insurance, or as taxpayers.

The literature includes several decision-making models. None fully explains decision-making in teaching hospitals, but they do provide some insights.

Rational decision models have the longest history. According to Vroom and Jago (1980), rational decision making involves a five-step process:

1. Discover the problem
2. List all alternatives and possible solutions
3. Select the best alternatives
4. Implement the decision
5. Analyze feedback and make corrections

A major modification of the rational system of decision-making was suggested by Herbert Simon (1976; March and Simon, 1958) in his "bounded rationality" and "satisficing" concepts. Bounded rationality acknowledges that decisions are made on the basis of the best information available, rather than on full information on all options and the consequences of each option. Simon pointed out also that the decision reached is not necessarily the best possible decision, but the one that satisfies enough of the participants to be acceptable. Finding the best decision, Simon said, is too time-consuming and costly, and while the search is on for the best decision, other equally important issues may be neglected.

Cyert and March (1963) agreed with Simon that seeking the best solution is a drain on the resources of an organization and diverts it from other equally important problems. According to these writers, a business firm's decision-making is the result of ambiguity created by the problem and the need to move on to other things. "The four major concepts of [business decision-making]" they said, "are (1) quasi-resolution of conflict, (2) uncertainty avoidance, (3) problemistic search (stimulated by a problem), and (4) organization learning" (p. 116).

Another significant decision-making concept is that of "organized anarchy" or ambiguity in organizations as postulated by Cohen, March and Olsen (1979) in their "Garbage Can" model. Cohen, March and Olsen (1979) modified the rationalistic model by pointing out the ambiguity

which results from conflicting priorities and temporary participation of individuals within the organization. To understand decision processes within organizations,

One can view a choice opportunity as a garbage can into which various kinds of problems and solutions are dumped by participants as they are generated. The mix of garbage in a single can depends on the mix of cans available, on the label attached to the alternative can, on which garbage is being produced, and on the speed with which garbage is collected and removed from the scene. (p. 26)

The garbage can model thus identifies four streams that flow within an organization. First, there is the stream identified as problems. Problems are "concerns of people inside and outside the organization" (p. 26). A distinction is made between problems and choices, and choices may be made without solving the problems. Second, there are solutions which are "somebody's product" (p. 26). A major difference in this model and the rational model is the concept that

despite the dictum that you cannot find the answer until you have formulated the question, you often do not know the question in organizational problem solving until you know the answer. (p. 27)

A third stream consists of participants who come and go because of other demands on their time. Last, the authors identify choice opportunity as a stream which flows within the organization. A choice opportunity is an occasion "when an organization is expected to produce behavior that can be called a decision" (p. 27). These choice opportunities are regular events such as contract signing, money allocation, or people hired.

Within an organization at any one time, according to these authors, there are countless problems with many solutions. Most of these problems are solved by "oversight" or "flight". Oversight means that the organization does not consider a problem significant enough to deal with and consequently ignores it. Flight means that the organization, while recognizing the problem, chooses to dodge it, hoping it will subside or go away. Cohen et al. (1979) recognized, of course, that organizations do consider some problems as significant and solvable (p. 33).

While the literature reflects a general desire for the rational model of decision-making, the concepts of most recent writers are more in line with organizational realities. The "garbage can" model describes the problem-selection process better than the Vroom and Jago model (1980) but the "bounded rationality" and "satisficing" concepts more aptly describe the resolution of those problems not solved by "flight" or "oversight".

Obviously, whatever process is employed, it is people who make decisions. Who makes decisions in hospitals? Physicians? Administrators? Trustees? How do hospitals compare with other organizations in this decision making? According to Perrow (1980), the executive makes the key decisions; March and Olsen (1979) said that decisions are made by "relatively few people". "The more routine the organization," said Hage and Aiken (1974), "the more centralized the decision-making about organizational policies, the more likely the presence of a rules

manual and job description. . ." (p. 312). According to Mankin and Glueck (1977), "the evidence is clear that, in industry, the crucial strategic decisions are made by top management. The board ratifies and corporate staff may help a little" (p. 10).

Hospitals are different from business firms in that they operate with a "triad of managers" (Mankin & Glueck, 1977), consisting of the administrators, the medical staff, and the board of trustees. Mankin and Glueck believe that "key decisions are still made by the top administrator" (p. 10).

Decision-making is the issue in the study of how teaching hospitals acquire capital equipment. Since capital equipment is the basis of cost increases and charges in medical practice, it is important to know who decides to acquire equipment and who participates. Is the process rational, or does ambiguity within the organizations produce a garbage-can model of decision making? None of these basic models competely describes the teaching hospital situation. Nevertheless, teaching hospitals do make decisions to acquire capital equipment, and how those decisions are made is a subject worthy of research because of the impact those decisions have on patient care, medical education, and health-care costs.

"Any decision-making system of interest is a system for resolving conflict over scarce resources" (Cyert & March, 1964, p. 156). If an organization had unlimited resources, resource allocation would be unnecessary. As it is, however, resources are limited and

the allocation of resources in an organization is an effective mechanism of control. Although political scientists and economists have studied resource allocation between organizations, according to Pfeiffer (1974), "there has been no systematic study of resource allocation within organizations" (p. 397).

Characterizing resource allocation as a political activity as well as a bureaucratic activity, Pfeiffer predicted that when there is relatively equal distribution of power among organizational subunits, resource allocation will be stable. As Nackel and Wesbury (1978) have pointed out, "The resource allocation process greatly affects which programs are funded, when they are funded, and at which level they are funded" (p. 79).

Resource allocation is so important that one would expect the process to be done carefully in the framework of an overall plan (Helmer et al., 1982). According to Herbert Simon (1976), however, "the decisions are made in an almost complete absence of the evidence which would be necessary to validate them" (p. 189).

Some models of resource allocation decisions are available in the literature. "Decision-tree analysis is the oldest and most widely used form of decision analysis" (Ulvila & Brown, 1982, p. 131). Magee stated, "the decision tree can clarify for management, as can no other analytical tool...the choices, risks, objectives, monetary gains and information needs involved in an investment" (1964, p. 84). A decision tree is a typical computer model which weighs alternatives

at specified junctures. If the decision is "yes", the yes branch is followed to the next juncture; a "no" answer directs to another branch. Hospitals use decision-tree models in feasibility studies especially when considering construction programs.

A second model, cost-benefit analysis, as the term implies, compares the cost to the benefit expected. Herkimer (1978) listed the key factors in cost-benefit of capital expenditures: (1) evaluation of each capital expenditure request on its own merit, (2) estimation of future net increases in cash inflows or net savings in cash outflow, and (3) determination of required total investment. Massachusetts General Hospital used this analysis when presented with a proposal to establish a heart transplant program. The proposal was rejected because the cost was too high to benefit so few patients (Rammage, 1981).

Nackel and Wesbury's model (1978) emphasized how people within the organization rather than the economic considerations are primary in allocation of resources. They identified two methods of resource allocation: 1) the consensus approach which results in scattered dissatisfaction but normally yields a higher degree of organizational satisfaction because it involves all the affected parties, and 2) the leader approach to allocation, in which power is concentrated in one individual and offers the advantage of consistency. One issue is whether capital equipment resource allocation is improved when a committee is the decision maker rather than the administrator. Are expenditures more or less dependent on who participates?

The literature is not in agreement as to the best resource allocation model, but it does indicate that allocation of resources varies in importance proportionately to resource availability. In an era of genuine or perceived plenty, resource allocation takes a less important role in organizational life, and emphasis is directed more toward managing the abundance in order to prevent destructive growth. However, in an era of scarce resources, allocation becomes a high priority function.

Health Care Costs and Resource Allocation in Teaching Hospitals

Increasingly costs are becoming a factor in hospital decision-making (Luce, 1980). Medical costs are high; technology is expensive; employees are expensive; and capital equipment and buildings are expensive (Mechanic, 1978; Fuchs, 1974). Inflation has been devastating to hospitals (Davis, 1982), and the demand for more services has created shortages of capital for expansion (Tiscornia, 1980).

The total cost of health care in America has been rising at a rate approximating 15% per year--faster than the 8.8% inflation of the overall economy. Although there have been large variations in cost increases over the past two decades, the health-care industry has consumed an increasing percentage of the gross national product: 6.7% (\$58 billion) in 1968; 9.4% (\$247 billion) in 1980; 10.0% (\$460 billion, projected) in 1983 ("An Appropriate Role", 1982). This increase in expenditures reflects both inflation and growth in services.

The expenditures are attributable to the following major areas of the health-care system ("An Appropriate Role", 1982, p. 2).

Hospitals	40.3%
Physicians	18.9%
Nursing Homes	8.4%
Drugs	7.8%
Dentists	6.4%
Administrative Expenses	4.2%
Public Health Programs	3.0%
Construction	2.5%
Research	2.2%
Other	6.5%

The government is the largest purchaser of health care. With the increase in government expenditures due to increases in health-care costs, accompanied by the current emphasis on reducing these expenditures by paying less than costs, hospitals are forced to add the underpayments to the bills of other purchasers of health care. "Cost shifting" is the term for this government practice.

Bad debts and cost-shifting are significant costs in hospitals... probably 15% of total hospital charges nationally. The shopworn quip, "there is no free lunch", contains a real truth. If the recipient of medical care or the recipient's payer (i.e., Medicare, Medicaid) does not pay for the services, someone else does. Thus the users of expensive new technology and those who pay the bills are not identical, leading to additional pressure for cost reduction.

The public attitude is that hospital care has become a "civil right", which must be provided regardless of the patient's ability to pay. Although the public appears disturbed by the costs of

hospital care, it still demands that there be no restriction on access to health care. Yaggy and Anlyan (1982) quoted Reinhardt on the difference in public attitude toward the health-care industry and the automobile industry.

Cultural patterns appear to dictate the sphere we select for policy debates. In discussions of the automobile industry...we tend to treat the income-employment function of that industry as its primary social purpose and act accordingly. By contrast, in discussions of the health-care sector, we tend to focus strictly on the output-expenditure sphere...and so it is that we celebrate additional expenditures on automobiles as a sign of economic health, while deploring additional expenditures on hospital care as a sign of economic malady. (p. 17)

This observation succinctly points out the dichotomy in attitude between the health-care industry and those who consider health care a drain on the national resources.

Modes of hospital care are slow to change, even though market mechanisms (the environment) are working to change the system. Rising concerns over the costs of medical care are creating pressures to change modes of delivery and financing. The Business Roundtable (1982) advised business to take action.

Luce (1980) has characterized the nature of the public's concern about medical costs:

Today, there is serious concern that the increasing costs of health-care are not accompanied by increasing benefits. The government's concern is not that we are spending too much on health-care, but rather that we are not evaluating whether we are getting our money's worth...This concern has led to increasing attempts to match projected benefits with costs. (p. 21)

Since health care costs are a major concern of government and capital equipment is a major driver of these increasing costs, how are cost decisions made by teaching hospitals? Resource allocation is both an internal activity and a response to influences from the external environment. This section relates to internal resource allocation. A later section will discuss the influences on teaching hospitals from the external environment, i.e., public policy, technology, and innovation. There are many types of resource allocation decisions made within a hospital, i.e., medical decisions, personnel decisions, architectural decisions. The main focus of this section, however, is economic resources allocated for capital equipment.

Participation and Coalition Formation

In most human-service organizations, groups and individuals are seeking to gain power and to participate in the decision-making processes (Hasenfeld & English, 1974). Because three recognized power structures exist in teaching hospitals, there is perhaps a greater need for participation and more opportunity for political activity and coalition formation in this arena than in less complex organizations (Hage, Aiken & Marrett, 1980). In explaining why coalitions form and what they do, Selznik (1963) said, "the ideals of those who construct the organization are one thing; the 'facts of life' operating independently of and often against these ideals are something else again" (p. 147). In other words, there is an informal organization operating within the organization which may be supportive of or dysfunctional to the formal organizational goals.

Although coalitions pervade organizations, they tend to be temporary groupings based on a mutual self-interest. Several writers (March & Olsen 1979; Bacharach & Lawler, 1980) have pointed out the temporary nature of participation in coalitions by individuals. That permanent coalitions would be disruptive has been suggested by Homans (1963): "The greater the inward solidarity [of a group or organization], the greater the outward hostility." Aware of this potential hostility and its consequences, March and Simon wrote (1958):

One problem in organizing control systems in complex organizations is to neutralize or eliminate the dysfunctional consequences of subgroup organization without destroying its ability to perform necessary functions (p. 78).

Coalitions form to influence purchase of new technology (e. g., heart surgery), change admitting practices, or community outreach.

Moreover, hospital organizations are replete with professional and semi-professional groups whose loyalty is to the profession rather than to the hospital. One challenge to the hospital is to minimize dysfunctional reactions to decision-making processes by professional groups which make the hospital less effective or non-competitive:

To some extent, clinical and economic efficiency are inherently antithetical: . . . This antithesis . . . can be minimized when physicians become seriously and explicitly concerned with economic rationality in addition to clinical rationality, and administrators become similarly concerned with clinical, in addition to economic rationality. (Georgopoulos, 1982, p. 53).

Thus, while ultimate authority rests with the hospital's board of trustees, the literature suggests that involvement of various persons in the decision process is inevitable and possibly functional for the organization (Seawell, 1975). Participation creates support for organizational goals and satisfaction for the people within the organization.

Planning as the Establishment of Direction, Framework and Limits

In hospitals, which are dependent on widely disparate knowledge of professionals, planning is even more essential than the usual business situation demands (Hage, Aiken & Marrett, 1980). Planning provides the opportunity for the various specialists to participate in the setting of goals and in the allocation of resources. Furthermore, their participation in the planning process minimizes conflict through the interchange of ideas and knowledge, and this planning interchange serves as an educational process for the entire group (Rosenblith, 1980). This research attempts to measure participation and satisfaction with the process in an effort to determine the extent of such participation.

Planning in hospitals became a legal requirement when Congress passed the National Health Planning and Resources Act of 1975 (PL 93-641). Before that time, hospitals had planned from necessity as new buildings or new equipment were needed or new programs were instituted. "Bigger was better" (Mott, 1981). The National Health Planning and Resources Act not only required planning by hospitals, it also established Health Systems Agencies (HSAs) to implement

regional and state-wide planning. The HSAs, made up predominantly of laymen, were charged with developing state-wide and regional health plans and reviewing all requests for capital expenditures by hospitals that had a cost over the established threshold (Brown, 1978). Additionally, the HSA review was to insure that the equipment or program was congruent with the regional and state-wide health plan. Such requests might stem from a hospital's desire to begin a new program (e.g., heart surgery), to purchase new or replacement capital equipment (e.g., x-ray equipment), or to build new buildings or renovate old ones (Thomas, 1982). For the first time the federal government established a planning process with enforcement powers. Hospitals that failed to comply with the legal planning process could be denied payment for government-sponsored programs, such as Medicare and Medicaid.

The government's interest in planning and the control of expenditures for equipment and programs stems from the fact that hospitals are high-technology organizations. High technology is expensive both in initial purchase and operations. Consequently, high technology in hospitals does not achieve efficiency in the usual industrial sense. The result of technology in hospitals is to improve medical care, reduce risks, or offer new or improved services. In most cases, the acquisition and application of technology results in higher costs because the initial purchase price is just the beginning. Hospitals continue to pay high operating costs over the

life of the equipment (Whitted, 1982). This results because technology in hospitals does not achieve automation as on the industrial assembly-line, i.e., reduced personnel costs. Instead, in hospitals, technology requires new personnel or more highly trained personnel, adding costs that continue over the life of the equipment. So, practically, these personnel become permanent additional costs to the health-care system.

Furthermore, these new skills create pressure for professional certification and licensing. Certification and licensing limit the number of persons available to perform the work and thus further increase costs.

The increasing costs of health care stimulated the interest of Congress in health planning as a means of reducing cost increases. To plan or not to plan is no longer an issue. The current emphasis is to determine the best techniques for planning and enforcement. The technique most favored in the literature review is strategic planning, defined by Mankin and Glueck (1977) as

that set of decisions and actions which lead to the development of an effective strategy...a unified, comprehensive, and integrated plan designed to assure that the basic objectives of the enterprise are achieved.
(p. 6)

Falkson and Leavitt (1982) assert that "strategic planning is a way of thinking about business problems and of devising solutions to solve them, but it is not another form of budgeting" (p. 51). Neither is planning a prophecy of the future, according to Magee (1975); rather, it is attempting to ascertain the future impact of current decisions.

Planning is a method of reducing uncertainty through a "negotiated environment" (Cyert & March, 1963). Uncertainty is never completely eliminated, but planning is a method to establish organizational direction, activities, and identify resource needs for some future period to the best of the organization's ability with the data in hand.

Mankin and Glueck (1977) gave three reasons why hospitals should engage in strategic planning:

The conditions of most hospitals change so fast that strategic planning is the only way to anticipate future threats and opportunities.

Strategic planning provides all the employees and departments with clear goals and directions to the future of the enterprise.

Businesses which perform strategic planning are more effective than those which do not ... (p. 7)

Although strategic planning is postulated as an essential function of organizations in general and hospitals specifically, the best technique or model for such planning is not certain.

Financial planning is one important aspect of the planning process (Herkimer, 1978; Lusk & Lusk, 1979). Many advocates of planning seem to be wary of long range financial planning and program planning. Bander (1980) in a study of ten Massachusetts hospitals, learned that hospital planning most often involved facility planning. He concluded that facility planning is easier than program planning and that most planning relates to facilities and capital equipment planning.

In conclusion, planning in hospitals ideally serves to direct the institution in an orderly path as new programs and technological

advances create opportunities for change. Some of these opportunities may cause severe financial, program, or political problems. Planning is designed to minimize these threats of disruption and to set the direction of the hospital against which choices are judged.

The Budget

The final step in internal financial decision making prior to actual implementation, is to detail plans in a budget. Budgeting may involve an appropriations budget, that is, an authorization level to spend. Government hospitals are the most prevalent users of appropriations budgets, but some other hospitals also use them. Other types of budgeting are supposed to provide flexibility for the board of trustees and for the administration to monitor and adjust the budget during the budget period.

A budget is a financial plan, a control mechanism, and a measure to evaluate success or failure. The budget is the result of internal negotiated decisions among subunits (Cyert & March, 1963). Parsons (1962) tied resource allocation to implementation through the budget. "Analytically the budget is a central conception. It means the allocation of fluid financial resources which in turn can be committed to a particular use" (p. 46). Fluid resources are monies to spend for capital equipment.

According to Pfeiffer (1974), "Budgets... represent decisions that are both critical and contested within most organizations. Because resources are scarce, organizational subunits compete for a share of these resources, with the total fixed in the short run" (p. 400). The amount of conflict depends on the availability of funds (March & Simon, 1958).

The budget represents the negotiated division of fixed monetary resources among the various departments. This negotiation is an organization wide-activity. "Analysis of how hospitals incur costs suggests that a successful response to cost-containment requires hospital managers to incorporate attending physicians into the management-control process" (Young & Saltman, 1983, p. 127).

From their studies of business organization, Cyert and March (1963) concluded that "all decisions... were made within budgetary constraints" (p. 78). Lusk and Lusk (1979) related budgeting and control:

Budgeting is the process by which decision makers allocate resources to effect a particular organizational plan for ensuing periods. In contrast, control is the process by which actual performance is compared with budgeted performance and the necessary corrective actions are taken to modify or reorient actual performance to planned performance." (p. 303)

Budget preparation creates a crisis in that resource allocation decisions must be made by the organization. Seawell (1975) emphasized the importance of the budget in the management of hospitals of any size. Herkimer (1978) agreed that budget preparation is the catalyst that causes hospitals to plan and commit themselves to carrying out their plans. The

budget control process is defined as a system which guides and assists all levels of the health-care facility's management hierarchy in achieving its established financial and statistical goals, objectives, and performance standards. Herkimer (1978) elaborated on his concepts by defining six normative objectives of the budgetary control process:

1. Provide a financial and statistical expression of the policies and plans of the department
2. Identify the allocation of resources, i.e., people, equipment, and finances required
3. Provide a basis for measurement and evaluation of a department's actual performance of a plan
4. Provide periodic reports which serve as useful tools for the effective management of a department's resources, operations, and its profitability
5. Create cost awareness throughout the department
6. Assist management in program and rate or price evaluation and determination (p. 133).

Hospitals budget according to how they receive funds and the subsequent control of those funds is influenced by the ownership or governing body. Capital budgeting is allocation of large sums of money and should be a process which is more involved than budgeting for office supplies, and should be based on four technical requirements. These are spelled out by Lusk and Lusk (1979):

First, the organization must forecast its future environment... Second, the available sources and amounts of capital financing must be delineated so that the ability to finance various investments can be ascertained. Third, the department must have a means of specifying and justifying investment proposals... Finally, the organization

must have a chief financial officer or a planning committee responsible for selecting investment alternatives that enable the organization to achieve its mission. (p. 319)

Cleverley and Felkner (1982) stand alone in questioning the need for a sophisticated capital budget system in a hospital. According to Cleverley and Felkner:

Failure to adopt sophisticated capital budgeting techniques in the hospital industry may not be a negative finding, but a positive one if there is no association with improved performance and if sophisticated capital budgeting techniques are more costly (p. 3).

From the literature, however, it is clear that most hospitals do not agree with Cleverley and Felkner, since more and more of them are establishing sophisticated capital-budgeting techniques.

It can be argued that budgeting should provide for the future also by accumulating funds through depreciation. Financing of capital equipment depends on the accumulation of funds--chiefly through depreciation--and on borrowing (Bradford, Caldwell, & Goldsmith, 1982; Mehta & Mahere, 1977; Seawell, 1975; Silvers, 1974; Tiscornia, 1980). When borrowing is a source of funds, budgeting must provide for debt repayment. Debt has long-term consequences and should be entered into cautiously (Bradford et al., 1982; Lusk & Lusk, 1979; Tiscornia, 1980).

The literature on budgeting also reflects growing interest in capital budgeting and the acquisition of capital equipment. For example, Oszustowics (1982) emphasized the importance of proper budget analysis and set forth a 33-step analysis process for evaluating

the advisability of purchasing capital equipment. This process points to the fact that control systems are vital to the process of acquisition of capital equipment. Young and Saltman (1983) stated it pointedly: "A successful management control system requires closer cooperation between doctors and administrators, including a much more meaningful role for attending physicians within the hospital's overall cost-containment effort." (p. 129).

Environmental Inputs and Influences That Affect Capital Equipment Acquisition

Open-systems theory emphasizes the influences on the organization of factors outside it. These influences take many forms and vary in the way they influence the organization. These include the availability of resources, personnel, technology or demographic changes, and government action. Allocation of funds for medical research influences the ability of researchers to engage in basic research or clinical research. Decreased allocation for indigent care causes an increase in bad debts because there is no decrease in indigent patients. Bad debts in the current atmosphere are shifted through health insurance to the general public so there is not savings to the public.

Technology

Capital equipment availability in a hospital is thus dependent on both what proven technology is available and whether the capital funds are available to pay for it. Thus, several environmental factors impact teaching hospitals when they make decisions to acquire capital equipment. Three of the most important are technology, innovation, and public policy.

Reflecting the development of knowledge in society as a whole, technological changes have permeated the field of medicine, thus making hospitals high-technology organizations. The literature contains several definitions of technology. Perrow (1980) said, "By technology is meant the actions that an individual performs upon an object, with or without the aid of tools or mechanical devices, in order to make some change in that object" (p.119). Bennett (1977) defined technology as "a way of doing things with objects that are not part of one's own body" (p. 125). Hannay and McGinn (1980) defined technology as "the complex of knowledge, methods, and resources used in making a particular kind of product or in creating a particular procedural system" (p. 27). According to Simon (1973):

Technology is not things; it is knowledge--knowledge that is stored in hundreds of millions of books, in hundreds of millions or billions of human heads, and, to an important extent, in the artifacts themselves. Technology is knowledge of how to do things, how to accomplish human goals. (p.1110)

Technology, then, is ways to do things. Hence, it includes knowledge, skills, machines, and ways of thinking.

Machine technology is costly, and the price of any technology reflects development costs, including the failures. Maccoby (1980) was struck "by how many inventions were developed and never produced" (p. 11). He concluded that there are two factors which decide whether technology is produced or put on the shelf: (1) market influences and (2) the government's need to conduct war. Brooks (1980), however, has questioned the importance of the market as a factor in production. He pointed out that "the market really does not demand anything that does

not exist, and so the market really only begins to act after the technology exists (p. 12). Falkson and Leavitt (1982) corroborated this observation by Brooks when they noted that the study of capital equipment acquisition assumes that the equipment is available (p. 55).

Teaching hospitals are the initial market for new technology. Consequently, the market is small requiring that developmental costs have to be amortized over a small number of hospitals. The risks are also great because the testing for clinical efficacy is in the teaching hospitals.

The acquisition of new or improved technology is an issue of great import to hospitals in general because there is often not commensurate productivity improvement. Between 1967 and 1976, according to Whitted (1982), technology accounted for 48 percent of the increase in per diem patient hospital costs. As Dodson (1981) pointed out, "medical equipment technology is a small market. In 1979 there were 6,525 short stay hospitals in the United States (U. S. Public Health Service, 1981, p. 183) and thus, the manufacturers and developers of equipment technology must spread their research and development costs across this very small market" (p. 23). In addition, purchase price is only one aspect of the cost of technology. The installation of new technology often necessitates structural changes in hospital buildings, and, while reducing the demand for unskilled labor, it actually increases the demand for bright, highly skilled personnel (Hage, Aiken, & Marratt, 1980; Scott, 1972).

In view of the importance of technology, there is surprisingly little information on "the key factors entering the decision through which technologies become incorporated into the hospital" (Ritvo, 1978). Falkson and others contend that hospitals buy new equipment "for its own sake" (Bennett, 1977; Falkson & Leavitt, 1982; Rummage, 1981). However, Ritvo's (1978) study of ten hospitals in Michigan led him to conclude that old buildings and old staff are resistant to new technologies.

Considering the price and the development costs of technology, the influence of the age of buildings and staff on the adoption of innovative technologies and the limited hospital market, how then do hospitals decide which technology to acquire? Unfortunately there is often no test for effectiveness of new technology except in medical practice. There is some limited testing of machines. Although machines must be tested for patient safety before they are marketed, there is no effectiveness testing before purchase except that which is done in teaching hospitals before the technology is diffused throughout the health-care system. (Georgopoulos, 1982; Hannay, & McGinn, 1980; Helmer et al., 1982; "Agency Needed", 1982; Knowles, 1977; Luce, 1980).

McFarlan, McKinney and Plyburn (1983) discussing the assimilation of technology into an organization, identified four phases each of which poses its own challenge.

- Phase 1: Identification and initial investment
- Phase 2: Experimentation and learning
- Phase 3: Control
- Phase 4: Widespread technology transfer (pp. 148-149)

These phases follow progression within an organization from learning about technology to its widespread use throughout the organization.

Obviously, the adoption of high-cost technology poses social issues. Knowles' assessment of the status of technology in medicine is damning: "We have emphasized high-cost, hospital-based technologies to the neglect of other services where the benefits are much greater relative to costs incurred...." (Knowles, 1977, p. 2). An example of this problem is the use of high cost renal dialysis to keep patients with renal failure alive rather than funding research to find a cure for hypertension (high blood pressure), a major cause of renal failure.

Selection of technology by teaching hospitals is a major step because it sets the direction in which the hospital and its medical staff will operate for a long while. Addition of a new technology to the hospital builds expectations and creates jobs. It is incorporated into the mind-set of the physicians, and patients expect its use. Removing a technology from clinical practice is slow for all the above reasons. Moreover, hospitals may encourage use of existing technology to recover costs of the equipment. These costs are recovered through hospital charges.

The issue for teaching hospitals is that there is so much technology in such variety that choosing the effective capital equipment at the most reasonable price with the fewest accompanying cost requirements is extremely difficult. Some of this technology is new, some are improvements in existing equipment while some is add-on, thus creating

new capabilities. Which to buy? Whose assessment is reliable as to the need and the effectiveness? How does the organization absorb the many potential innovations if decisions to incorporate new technologies are improperly timed?

Innovation

Open-systems theory also provides a framework for understanding innovation in teaching hospitals. Hospitals import innovation from outside as inputs, produce innovations which are used internally, and then export innovation as output. The innovations that are imported from outside the organization may originate with other teaching hospitals or medical schools or they may come as by-product transfers, e.g., from the space program or computer improvements as a result of microprocessors. On the other hand, teaching hospitals are affiliated with medical schools which have research as one of their missions. Innovative approaches to medical care may be discovered and first implemented within the hospital affiliated with the medical school in which the new knowledge or technique is discovered. After the innovation is tested it is then exported to the external environment as an output.

Does this mean that teaching hospitals, in fact, provide state-of-the-art technology and medical care? Hospital decision processes are constantly confronted with innovations. The issue is whether the decision processes effectively cope with the opportunity of innovations from the environment.

Innovation in organizations tends to correspond to environmental changes (Georgopoulos, 1972; Hasenfeld & English, 1974). During the past half-century, the environment in this country has been conducive to bold innovations in health care. It is perhaps fortunate for patient safety that medicine is relatively resistant to change because of the need for new technologies to be proven thoroughly before they are introduced into general clinical practice. However, this conservative approach has resulted in duplicate technologies because of the resistance to replacing one technology with another. As old technologies persist, the costs increase because new "technologies require new housing, new technicians, new bureaucracies, and systems of organized labor" (Bennett, 1977, p. 274).

In the 1960s and 1970s, innovations were not much of a problem because there was a perception of unlimited resources. Katz, Kahn, and Adams (1980) made the observation that "bold acts of innovation ... are ... easier in a growing expanding economy than in a period of setting limits" (p. 359). The 1980s, however, have become an era of scarce resources; accordingly, both the government and the private sectors have begun efforts to restrict expenditures for health care. These restrictions on expenditures take the form of control over introduction of innovation into clinical use; control designed to influence where innovations occur and to influence their pervasiveness in the health-care industry.

All medical innovations have a beginning point from which subsequent diffusion throughout the health-care system occurs. Kimberly and Miles (1980), and Rapoport (1978) have proposed several hypotheses about the diffusion of innovation in the health-care industry. They argue 1) that innovation stems, in a large degree, from interhospital rivalry; 2) that in their own self-images hospitals are grouped, and the importation of new technology is determined by that technology possessed by the perceived peer group; 3) that demand influences innovation, 4) that the availability of capital determines the extent to which innovations, especially very expensive innovations, can be purchased; and 5) that big hospitals are the innovators before small hospitals.

Measurement of innovation in teaching hospitals through a survey is difficult since innovation is a subjective judgment in most cases. An innovation in a small 50-bed community hospital may be a discarded technology in a teaching hospital. Although this research includes only teaching hospitals, there may nevertheless be differences in the level of innovation among teaching hospitals, and what difference does ownership make in the importation of innovation? Does governance influence the process of innovation? Are primary teaching hospitals more innovative than affiliated teaching hospitals? If the primary hospital is the initial innovator, the decision to acquire capital equipment by one of these hospitals is the beginning of dispersion of the technology throughout the health-care system.

Public Policy

Public policy has increasingly influenced hospitals since 1965, when the Medicare Act (PL 89-97) was passed by Congress. According to Dodson (1981),

It is fair to say that as long as technology continues to represent substantial dollar expenditures in the health-care marketplace that government will continue to be interested and to exert controls to the extent possible. (p.22)

The government's basic interest in health care is based on its concern for people (Mechanic, 1978). Thus, recognizing that medicine serves a public good, government has used various means over the years to influence medical practice and hospital operations.

Initially, the government employed financial incentives to encourage certain responses by the hospital industry, e.g., care for the aged and the poor. During the Reagan administration, however, initiatives of government have created a diminution in government expenditures for health care. The concern to reduce government expenditures for health care arises from the belief that an expenditure of 10 percent of the gross national product for health care is more than the nation can afford. Consequently, government, as the largest purchaser of health care, moved to reduce public expenditures for health care.

The Reagan administration espoused competition among hospitals as a way to reduce health-care costs. It would appear that deregulation would be the method of encouraging competition. However, Young and Saltman (1983) said, "there is substantial evidence

suggesting that regulation will continue to play an important role in the affair of health care institutions" (p. 120). If teaching hospitals are to compete for patients, teaching costs, expensive technology, and high indigent-patient population will influence the internal decision process. How does the teaching hospital compete and survive? By adopting practices of community hospitals?

In 1982, John Alexander McMahan, President of the American Hospital Association, presented a paper at the Duke University Conference on competition. McMahan gave a partial history of developments in the health-care system which set directions for the health-care industry that eventually led to the current situation. The following is a partial list:

- 1935: Old Age and Survivors Insurance (Social Security)
- 1946: Hospital Survey and Construction Act (Hill-Burton, PL 79-725)
- 1965: Medicare/Medicaid (PL 89-97)
- 1966: Comprehensive Health Planning Act (PL 89-749)
- 1973: End of Hill-Burton Program
- 1975: Health Planning and Resources Development Act (PL 93-641)
- 1978: National Center for Health Care Technology and the National Council on Health Care Technology (PL 95-263)
- 1982: The Tax Equity and Fiscal Responsibility Act of 1982 (PL 97-248)
- 1983: Social Security Amendments (PL 98-21)

(For a comprehensive list see appendix D)

One common characteristic of these initiatives by government and industry is expanded access to health care. Expanded access resulted from the development of health insurance, which made health-care more affordable for more and more people during an era of unprecedented industrial growth. In 1946, the Hill-Burton Act (PL 79-725) provided funds that built hospitals in most towns across America, thus increasing access even more. Inevitably, some major imbalances in the location and size of health-care facilities and services resulted. Federal legislation responded to these imbalances by encouraging hospitals to plan on regional bases. Consequently, hospitals were no longer free to do their planning without regard to the existence of other hospitals and their services.

Once the problem of access was ameliorated, costs increasingly moved to the forefront as the major problem for health-care industry and for government. Accompanying the Medicare and Medicaid programs was an explosion in hospital utilization by the poor and the aged, which was paid for mainly by the government. As costs rose, legislation was passed by Congress which replaced voluntary programs with mandatory planning and enforcement measures. Under the new law (PL 93-641, 1975), hospitals that failed to meet the planning requirements were removed from participation in government payment programs. To some hospitals the loss of these funds might cause the hospital to fail, especially the inner-city hospitals which served the poor and the aged in higher ratios than the suburban hospitals.

The latest federal legislation, the Tax Equity and Fiscal Responsibility Act of 1982 (PL 97-248), has the most far-reaching initiatives for influencing health care since the Medicare/Medicaid Act of 1965 (PL 89-97). This legislation mandates that hospitals will be reimbursed prospectively. Prospective reimbursement in the health-care industry means that, at the beginning of each year, the hospital and the government will "agree" on a set rate to be paid during the coming year for services provided by the hospital for government-sponsored patients. The method mandated is a system of Diagnosis Related Groupings (DRGs). Using data in its files on patients treated in each hospital that provides medical care to Medicare/Medicaid patients, the federal government will determine the cost of caring for its patients in each hospital during a base year. These costs will be compiled for 467 discharge diagnoses. Using a formula yet to be established, the rates for each hospital will be determined. It does not matter then how many services the physician orders, the government will pay the established rate.

Discussion of the implications of this far-reaching change on hospital decision making is speculative. However, it is clear that physicians will have to order services carefully. Otherwise, the hospital will "go broke" providing services in excess of payment. There could be a specialization by hospitals as an effort to stop providing unprofitable services.

All of this speculation has special concern for teaching hospitals because they have been the traditional providers of tertiary care, indigent care, and effectiveness testing of technology prior to its export to the community hospital. Decision processes will now include another whole category of data covered by Diagnosis Related Groupings (DRGs).

This comes on top of the continuation of the Certificate of Need (CON) requirement which has controlled purchases of capital equipment. Hospitals are currently required to obtain approval from a Health Systems Agency for expenditures over \$300,000. This includes capital equipment and new services.

Government control of health care is increasing and the impact on decisions is not yet clear. Teaching hospitals surveyed indicated whether they had expansion programs during the researched period, i.e., 1977-1981. This is the period during which Certificates of Need became effective because there were sanctions to modify hospital behavior. Did expansion programs decrease?

Summary

This review has explored the capital equipment acquisition processes that relate to internal decision making, and resource allocation through planning and budgeting. Furthermore, it examined the external influences which are inputs to the teaching hospitals, i.e., technology, innovation, and public policy.

Teaching hospitals are complex organizations with at least three major power blocks to be satisfied through the decision processes by

planned participation through committee assignments or ad hoc coalition formation. Other professional groups, such as nurses, now striving for legitimate professional status, may be participants in the capital equipment decision processes. Nurses comprise the largest employee block within the hospital. What role do they play in the decision process as it focuses on acquiring capital equipment? Furthermore, what role do other professional groups such as pharmacists play?

If hospitals were ever free to operate with little external control (they have been regulated all along), that freedom is now diminishing because of congressional actions in the 1970s and 1980s. Furthermore, the private sector is now adopting some of the government's methods for controlling its health-care costs.

Consequently, hospital decision making in general, and capital equipment acquisition decisions in particular, will be made with eyes on a whole different set of factors. Additionally, there will be an increase in the use of ambulatory medical care as an alternative to inpatient care. Consequently, the cost of medical care may stabilize as a percentage of the gross national product, but because only the most acutely ill patients will be admitted as inpatients to hospitals, the demand for expensive diagnostic and therapeutic technology will grow. But payment systems are being designed to discourage this growth. The result will be a decrease in the number of hospitals from 6,525 in 1979 (U. S. Public Health Service, 1981, p. 18) to about 5,000 in the year 2,000. Closings and consolidations will create efficiencies, but as the population ages, the demand for more hospitals will increase.

CHAPTER III

METHODOLOGY

The total number of short term hospitals in the United States in 1979 was 6,525 (U.S. Public Health Service, 1981), about 6% of which are the 419 teaching hospitals in this study population. Since the purpose of this research was to study the decision processes used by teaching hospitals in acquisition of capital equipment, the study population included only members of the Council of Teaching Hospitals (COH). The Council of Teaching Hospitals is comprised of most hospitals affiliated with one of the 126 medical schools in the United States. Therefore, the population is reasonably representative of all teaching hospitals.

The project is a theoretically guided descriptive study--a method which examines the research population with the objective of drawing conclusions that will describe a larger population. "Descriptive research," according to Gay (1976, p. 123), "involves collection of data in order to . . . answer questions concerning the current status of the subject of the study. A descriptive study determines and reports the way things are" (p. 123). The data were collected by means of a survey.

The Research Population

Each of the 126 medical schools in the United States has a relationship with one or more hospitals that provide graduate medical education by which a graduate physician completes the practical aspects of general training or specialization. These hospitals are classified as primary teaching hospitals or affiliated teaching hospitals. Primary teaching hospitals are those that provide highly specialized sophisticated services by specialists, are closely affiliated with a medical school, and provide both undergraduate and graduate medical training. Affiliated teaching hospitals are hospitals that offer medical care at the primary, secondary, and tertiary levels, but also may have a relationship with one or more medical schools which use their facilities for graduate medical education. Affiliated teaching hospitals generally are less intense tertiary-care centers.

Not all teaching hospitals are members of the Council of Teaching Hospitals (COTH); however, the 419 that do belong represent most teaching hospitals and are found in 44 states, Puerto Rico, and the District of Columbia (Appendix C). COTH was established in 1965. Its stated purpose is "to provide representation and services related to the special needs, concerns and opportunities facing teaching hospitals in the United States" (COTH Directory, 1982, p. ii).

The council has two categories of membership:

teaching hospital membership and corresponding membership. Both membership categories require the applicant institution to have a documented affiliation agreement with a medical school accredited by the Liaison Committee on Medical Education and a letter recommending membership from the dean of the affiliated medical school. (COTH Directory, 1982, p. ii).

Membership in COTH

is limited to not-for-profit--IRS 501 (c) (3)--and publically-owned hospitals which sponsor, or significantly participate in, at least four approved, active residency programs. At least two of the residency programs must be in the following areas: Internal medicine, surgery, obstetrics-gynecology, pediatrics, family practice or psychiatry. . . .

The criteria set forth to obtain membership in the Council of Teaching Hospitals were established to provide a basis from which hospitals could organize and promote the hospital as an education institution. (COTH Directory, 1981, pp. ii and iii).

Appendix C shows the profile of these teaching hospitals by state and the number of medical schools by state. Only two states, Delaware and Maine, do not have a medical school. Two of the states represented have a teaching hospital but no medical school so these hospitals are affiliated with medical schools in other states. Three states have a medical school but no teaching hospital that is a member of the Council of Teaching Hospitals.

The Research Instrument

Since no existing questionnaire was suitable for the specific purpose of this research, a questionnaire was designed by the researcher and submitted to four persons for criticism: a colleague in the financial section of a major teaching hospital, two sociologists (with experience in questionnaire design), and a researcher with the Council of Teaching Hospitals.

As a pretest, the questionnaire was also given to the administrators of five teaching hospitals. The administrators were asked to complete it and to make suggestions for improving the wording of the questions and the design of the questionnaire. They were also asked to note any questions which were unclear. Their responses resulted in additional changes. The final questionnaire was then prepared for mailing.

The research instrument (see Appendix A) began with a definition of capital equipment, which was followed by a five-section questionnaire containing 267 variables. The questions in the first section were designed to obtain a general profile of the hospital. The second section dealt with ownership and governance of the hospital, the third, with the process for acquiring capital equipment. The fourth section asked for five years (1977-1981) of financial data (gross expense, capital equipment expense, gross assets and net assets, etc.), and the fifth requested a variety of data about

building programs and interorganizational financial arrangements (e.g., the medical school's contribution to the costs of patient care in the hospital, and the hospital's contribution for research by the medical school). A final question asked if the respondent wanted a copy of the results and provided a section for the name and address of the hospital. An address and due date were given for return of the questionnaire.

The Research Process

Each of the 419 hospitals surveyed was given a number, and the questionnaire mailed to that hospital was given the same number. Since confidentiality was important, the cover letter (Appendix B) assured the respondents that the data from each hospital would be kept confidential, that no hospital would be specifically identified in the summary of the data, and that the data would not be presented in such a way that readers could identify a hospital. The number of each questionnaire is in the computer data base, but the only key for identifying which hospital the number represents is in the researcher's possession.

On July 15, 1982, a package containing the questionnaire, cover letter, and a postage-paid envelope addressed to the researcher was mailed to the administrator of each hospital in the research population. It was requested that the completed questionnaire be returned to the researcher before August 31, 1982.

An unanticipated complication arose when some of the hospitals from California (with 32 teaching hospitals), Connecticut (with 14 teaching hospitals), Michigan (with 24 teaching hospitals), Pennsylvania (with 37 teaching hospitals), and New York City (with 27 teaching hospitals) - a total of 32% - returned the questionnaire with the notation that hospitals in those areas did not respond to questionnaires unless they were first sanctioned by the hospital association of their respective state or area. The hospital associations of California and Michigan (54 hospitals total) later sanctioned the questionnaire. The hospital association of the New York metropolitan area, however, ignored the letter requesting approval, and the Pennsylvania and Connecticut associations rejected the request (covering 80 hospitals or 19.1%), saying that the questionnaire was too time-consuming or that the data were already available.

In spite of these negative responses, another questionnaire was sent directly to the hospitals in Pennsylvania, Connecticut, and New York, with a letter asking them to make an exception and complete the unsanctioned questionnaire in the interest of increasing the body of knowledge concerning the acquisition of capital equipment by teaching hospitals. No Connecticut hospital responded, but seven Pennsylvania hospitals and 5 New York City hospitals did respond.

TABLE 3

Responses To Mailings
Of The Questionnaire

<u>Mailing</u>	<u>Number Mailed</u>	<u>Returned Completed</u>	<u>Returned Not Completed</u>	<u>Total Returned</u>	<u>Percentage Returned Completed</u>	<u>Percentage Returned Not Completed</u>	<u>Percentage Returned Total</u>
First	419	79	9	88	18.9%	2.1%	21.0%
Mailing To Hospital Whose Hospital Association Did Not Approve The Survey	80	12	1	13	15.0%	1.3%	16.3%
Follow-up	339	<u>32</u>	<u>11</u>	<u>43</u>	<u>9.4%</u>	<u>3.2%</u>	<u>12.7%</u>
Total		<u>123</u>	<u>21</u>	<u>144</u>	<u>29.4%</u>	<u>5.0%</u>	<u>34.4%</u>

Denominator is 419

Twenty-one hospitals returned the questionnaire without completing it, giving as their reason that they were too busy with reorganization or building projects to answer the questions. The questionnaires were mailed back to these hospitals, along with a letter asking that they complete all except Part IV, the section requiring the time-consuming collection of financial data. One responded. Table 3 provides a complete summary of the responses.

After the August 31, 1982 deadline had passed, a second questionnaire was sent to all the hospitals that had not responded, except those requiring the approval of their hospital associations. The second questionnaire was identical to the first, although it was printed on paper of a different color and the cover letter was different. These questionnaires were mailed on September 10, 1982 and September 30, 1982 was given as the deadline for returning them. Because the California Hospital Association was late in approving the questionnaire, the deadline for hospitals in that state was extended until October 10, 1982. Table 4 summarizes the responses to each mailing.

Data Analysis

Descriptive statistics were used to analyse the data that were collected. Glass and Stanley (1970) defined descriptive statistics as a method that ". . . involves the tabulating, depicting, and describing of collections of data. These data may be either

TABLE 4
SUMMARY OF USABLE RESPONSES:
BY MAILINGS

	<u>Response Number</u>	<u>Percentage</u>
First Mailing	79	64.2%
Special mailing to members of nonapproving hospital associations	12	9.8%
Follow-up mailing	<u>32</u>	<u>26.0%</u>
TOTAL USABLE RESPONSES	<u>123</u>	<u>100.0%</u>

TABLE 5
COMPARISON OF TOTAL POPULATION
TO RESPONDENT HOSPITALS

	1981		
N=()	<u>Total Population</u>	<u>Means Respondents</u>	<u>Difference</u>
Bed Complement	566 (418)	612 (123)	46
Housestaff	160	186	26
Total Expenses (In Thousands)	\$66,503 (405)	\$71,032 (109)	\$4,529

quantitative, . . . or qualitative . . .". They further explained the use of descriptive statistics when they said, "Large masses of data must generally undergo a process of summarization of reduction before they are interpretable by the human mind" (p. 2). With 267 data elements on the research instrument the data were too complex to interpret without summary and reduction. The statistical analyses were frequency distributions. Frequency distribution depiction of each data element portrays the teaching hospitals' responses by the following categories: first, each data element of the total population was represented; second, level of frequency of distribution depicted the segment populations (i.e., nonfederal hospitals, not-for-profit hospitals, and federal hospitals) within the total population. In order to understand the characteristics of the various types of hospitals within these three broad categories, frequency distributions were done for each type hospital of hospital (i.e., state, county, city, religious, independent not-for-profit).

As a benchmark for comparison of the respondent hospitals to the total population, means were determined for the bed complement, housestaff, and total expenses in 1981 (Table 5).

This comparison indicates that the non responding teaching hospitals were significantly smaller in all three categories compared. It cannot be concluded, however, that the hospitals that did not respond are weighted toward the primary or affiliated teaching

hospitals. It can be speculated, however, that with 50 primary teaching hospitals responding, and assuming one primary teaching hospital for each medical school (which is not completely accurate) there was a 39.7% response from the primary teaching hospitals and a 24% response by the affiliated teaching hospitals. The implication of these data is that the research measured a higher percentage of the hospitals which make the decisions that introduce technology into clinical practice.

CHAPTER IV

RESULTS

This chapter reports the results of the research data provided by 123 teaching hospitals from the total population of 419. All are members of the Council of Teaching Hospitals (COTH) of the Association of American Medical Colleges (AAMC). The response provided enough cases to be analyzed productively, but probably not enough to be sure that the conclusions drawn are representative of all teaching hospitals.

The chapter begins with a brief restatement of the problems and issues on which the research is based. Then a profile of the responding hospitals is presented, which depicts their ages, bed complement, and count of active physicians and housestaff. Because the hospital industry and government statisticians generally separate hospitals by ownership, these data are also arranged by ownership. Some data are also displayed according to governing body and medical school affiliation.

A major portion of the chapter analyzes the data as they relate to the major research questions stated in Chapter I. For clarity, the research questions are repeated. As each research question is discussed, data from the relevant questionnaire sections are reported and analyzed. Finally, the results are summarized.

The Problem

Health care costs have increased from 3.5% of the Gross National Product (GNP) in 1929 to 9.4% in 1980 (U. S. Public Health Service,

1981). These increases in percentage of GNP spent on health care relate to population increases, to inflation, and to intensity. Increases due to intensity are the result of the improved ability of hospitals to provide more and more sophisticated diagnostic and therapeutic services, mainly as the result of technological advances.

Technological advances and innovations have enhanced the ability of the medical profession to cure diseases previously considered incurable and to provide a normal life to patients formerly doomed to restrictions and pain. However, while technology has provided hope to the hopeless, it has given rise to complex ethical issues. Technology can provide the ability to keep patients "alive" by maintaining them by machines such as respirators, with only brain stem functions. When should American society allow "a dead person" to die? How much resource should a society allocate to maintain life for a hopelessly deformed baby who in previous generations would have died? When should a hospital acquire such machinery? How much of its resources should a hospital allocate to acquire state-of-the-art capital equipment? More directly relevant to this research, should enough procedures be projected annually to insure reasonable amortization of the costs before equipment is purchased?

These ethical issues cannot be considered apart from cost considerations. High technology is expensive to purchase and to maintain. The potential of unexpected crises in hospitals suggests a need to maintain redundant technology in the event that a critical equipment item (such as a heart-lung machine) might malfunction. Both resource allocation and quality of patient care relate to this redundancy issue.

Teaching hospitals are crucial sites for study because they are not just users of technology; they are also exporters of technology to the entire health care system. A decision to purchase a technological innovation in the teaching hospital has far broader consequences than in just one hospital. Teaching hospitals are the technology gatekeepers for the hospitals, the health care industry, and the nation. Thus, the data reported in this chapter, which attempt to identify the present decision processes for acquiring technology, bear on a crucial issue for the health care system. Before a better way to make capital equipment decisions is found, understanding the present decision processes is essential.

Profile of Respondent Hospitals

This section examines four basic characteristics of the respondent hospitals: age, bed complement (number of beds), number of active physicians, and number of housestaff (interns, residents, and fellows). The presence of a housestaff is the major distinguishing feature of a teaching hospital. In this and following sections the number reported is noted rather than the total sample size.

Kimberly et al. (1980) identified life cycles in organizations, indicating that organizations move through life cycles analogous to people's. The age of a hospital may be an indication of the hospital's success in adapting to its environment. Table 6 depicts the hospitals' ages.

TABLE 6

Year the Sample Hospitals
Were Organized

	<u>Nonfederal Government</u>	<u>Federal Government</u>	<u>Private Not-for-Profit</u>	<u>Total</u>
Mean	1928	1953	1905	1919
Range	1773-1979	1931-1977	1751-1981	1751-1981
SD	46.4	12.8	42.8	44.3
N	33	20	66	119

Private not-for-profit hospitals comprise the largest and the oldest group of hospitals in the sample. The federal-government hospitals, all under the Veterans Administration, are the newest. These data would indicate that many of these hospitals have a long history of successful adaptation, since they are over 60 years old, and two are older than the United States.

Table 7 describes the hospitals by bed complement. The number of beds in a hospital is a standard measurement of hospital size.

TABLE 7

Respondent Hospitals
Bed Complement

	<u>Nonfederal Government</u>	<u>Federal Government</u>	<u>Private Not-for-Profit</u>	<u>Total</u>
Mean	529	684	620	612
Range	154-1076	224-1548	117-1321	117-1548
SD	226.1	326.8	264.8	267.9
N	34	20	69	123

The wide variety of hospital sizes is clearly displayed by the range of bed complement. These are large hospitals. Their mean size in each category far exceeded the mean of all hospitals in that category. For

example, the mean size of the short-term hospitals in the United States is 168 beds; the mean of the sample is 612. The mean size of all federal government hospitals was 261 beds, compared to sample mean 684. Non-federal hospitals average 116 beds, while the sample mean 529, and for not-for-profit hospitals, the averages are 203 beds and 620 beds (U. S. Public Health Service, 1981).

A third important hospital characteristic is the number of active physicians (Table 8) and housestaff (Table 9).

TABLE 8

Number of Active Physicians
In Respondent Hospitals

	<u>Nonfederal Government</u>	<u>Federal Government</u>	<u>Private Not-for-Profit</u>	<u>Total</u>
Mean	363	150	447	373
Range	60-2000	46-7222	96-1630	46-2000
SD	366.7	146.9	292.9	311.9
N	29	20	62	111

The average hospital in the sample had 373 active physicians. There is a wide range; the smallest number of active physicians was 46 and the largest number was 2,000. These data and those in Table 7 show that in this sample, federal-government hospitals had both the largest bed complements and the smallest medical staffs. This is because 90% of the federal-government hospital sample are affiliated teaching hospitals, compared to only 32% of the nonfederal-government and 61% of the private not-for-profit hospitals. Affiliated hospitals provide more primary and secondary care, as opposed to primary teaching hospitals that principally provide tertiary care, and therefore have larger medical staffs.

TABLE 9

Number of Housestaff
In Respondent Hospitals

	<u>Nonfederal Government</u>	<u>Federal Government</u>	<u>Private Not-for-Profit</u>	<u>Total</u>
Mean	260	98	182	187
Range	70-700	39-160	10-700	10-700
SD	167.0	29.9	182.4	170.2
N	29	19	66	114

The smallest number of housestaff was 10 and 700 was the largest number. The average was 187. Housestaffs are also larger in the primary teaching hospitals. It might be tempting to draw the conclusion that federal hospitals are more efficient in their use of physicians because there are 7.0 beds per physician, compared to 3.4 beds per physician in the not-for-profit group, and 2.0 beds per physician in the nonfederal-government hospitals. However, factors other than bed complement such as a hospital's principal function--for example, a cancer center has a higher ratio than an obstetric hospital--influence the number of physicians and housestaff.

Ownership, Governance and Medical School Affiliation

Hospitals differ according to ownership, governance, and medical school affiliation. These three independent variables are used for analysis and display wherever appropriate. The purpose for this arrangement is to determine whether these independent variables make a difference in hospitals, and because they are standard categories in the health care industry and

government. Such an arrangement of these descriptive data facilitates comparison with other statistics, and it may show whether there are real differences in the various types of hospitals.

The ownership category describes who owns the hospital; the types are federal government, nonfederal government, and not-for-profit. Within the broad category of federal-government hospitals there are military hospitals (Army, Navy, Air Force), public health and Veterans Administration hospitals, and National Institutes of Health. However, only Veterans Administration hospitals responded to the questionnaire, and all references in this paper to federal-government hospitals will mean Veterans Administration hospitals.

A second category of hospitals is the nonfederal government hospitals. There is a variety of hospitals in this group. Some hospitals are owned by the state and may be part of a state university or a freestanding specialty hospital such as for psychiatry or rehabilitation. Funding of state hospitals usually comes from several sources including an appropriation from the legislature. The hospitals in this sample are short-term, acute-care hospitals that are probably funded by state appropriations, patient funds, insurance, Medicare, Medicaid, and other specialized government programs.

Another group of nonfederal government hospitals is the county and city hospitals that are chartered to be owned by a county, city, or combination of both. Some of these hospitals receive substantial allocations

of public funds for indigent medical care while others are required to operate as independent hospitals. The independently operated nonfederal hospitals are under an authority with autonomous authority to operate the hospital. Public accountability for the operation of these hospitals is through the appointment powers of the elected governing body which appoints members to the authority governing board.

A third group of hospitals is the not-for-profit category. Not-for-profit is an Internal Revenue Service designation that exempts certain organizations from income taxes because they serve the public good. Not-for-profit hospitals are in this group. Some states also exempt these hospitals from property taxes.

The not-for-profit hospitals are composed of two major groups of hospitals--religious and independent. Religious hospitals are owned by a religious body, e.g., Catholic, Jewish, or Baptist. The second group is independent of any specific identifiable group but essentially serves the same purposes.

Ownership does not fully explain the variations in hospitals. Another important independent variable is governance or control. Governance implies commitment, responsibility, responsibility of a constituency, work toward a goal, and the ability to act as well as establish policy (Jaeger, 1981, pp. vii-viii). In this dissertation governance means the board or group responsible for hospital policy and operations. Some hospitals operate under a single board whose sole roles is the hospital. This board may be self-perpetuating or it may be elected by an outside

body, e.g., the Baptist State Convention of North Carolina elects trustees of the North Carolina Baptist Hospital. A self-perpetuating body, on the other hand, elects its own membership under rules it establishes.

Another type of ownership is represented by the hospital that university boards of trustees operate as a department of the university. Other university hospitals are not independent departments under the university board, but are a department of the medical school responsible to the dean of the medical school.

An additional type is the hospital that is part of a chain of hospitals; its governance is by a board that is also responsible to an overall board that sets policies and approves budgets for all of the hospitals.

There are other varieties of governance but these illustrate the types and show some of the complexities of hospital governance.

A last major data configuration is to arrange the data by medical school affiliations--primary or affiliated. A primary teaching hospital is usually a hospital that is an integral part of the undergraduate and graduate medical education programs of the medical school; the clinical faculty and academic faculty are usually synonymous. The affiliated teaching hospital is usually a community or Veterans Administration hospital that has resident physicians working along with community physicians and faculty.

The medical school affiliation is an important factor in capital equipment decision, i.e., environment, research, and development. The presence of academic and clinical faculty, basic science faculty, undergraduates, and graduate students in the primary teaching hospital may

influence capital equipment decisions in ways that are different from the affiliated teaching hospitals that generally follow the primary teaching hospitals in their innovations.

Table 10 to 12 show the sample population broken down by ownership, governance, and medical school affiliation. The largest ownership group is the private not-for-profit hospitals; nonfederal government hospitals are next, and federal hospitals comprise the smallest group. Independent, not-for-profit hospitals are the largest group within the private hospital category. State-owned hospitals comprise the largest group of nonfederal-government hospitals. All federal hospitals in the group are Veterans Administration hospitals.

Of the entire sample population 51% are governed by a hospital board; other than the federal hospitals, the next largest number is governed by a university board. Multi-hospital systems are increasing in number and expanding in size. These data show that 19% of the respondent hospitals are part of a multi-hospital system.

Table 12 shows that 59 % of the hospitals are affiliated teaching hospitals. Affiliated teaching hospitals provide a wide variety of experiences to the housestaff in an environment similar to that which will be encountered once the houseofficer is in a community practice.

These categories were established and the subsequent arrangement of the data by ownership, governance and medical school affiliations were made because each of these independent variables influences the capital equipment acquisition decision process. A Veterans Administration

TABLE 10

A Profile of the Population
Percentages

N ()	<u>Government</u>		<u>Private</u>		<u>Government</u>		<u>Percentage</u>	
	<u>Nonfederal</u>		<u>Not-For-Profit</u>		<u>Federal</u>		<u>of Total</u>	
State	(20)	59%	(0)	0%	(0)	0%	(20)	16%
County	(8)	23%	(0)	0%	(0)	0%	(8)	7%
City	(3)	9%	(0)	0%	(0)	0%	(3)	2%
Authority	(2)	6%	(0)	0%	(0)	0%	(3)	2%
Religious	(0)	0%	(21)	31%	(0)	0%	(21)	17%
Independent (Not-for-Profit)	(0)	0%	(45)	65%	(0)	0%	(45)	37%
Other	(1)	3%	(3)	4%	(0)	0%	(3)	2%
Veterans Administration	(0)	0%	(0)	0%	(20)	100%	(20)	17%
	N = 34		N = 69		N = 20		N = 123	

TABLE 11

Teaching Hospitals Governing Board

<u>Board</u>	<u>Total</u>	<u>Nonfederal Government</u>	<u>Not-For-Profit</u>	<u>Federal Government</u>
Hospital Board	(63) 51%	(16) 47%	(47) 68%	(0) 0%
University Board	(16) 13%	(9) 26%	(7) 10%	(0) 0%
Multi-System:				
System Board	(5) 4%	(0) 0%	(2) 3%	(3) 15%
Hospital Board	(5) 4%	(0) 0%	(5) 7%	(0) 0%
Combined	(10) 8%	(2) 6%	(8) 12%	(0) 0%
Other	(24) 20%	(7) 21%	(0) 0%	(17) 85%
	N = (123)	N = (34)	N = (69)	N = 20

TABLE 12

Medical School Affiliation

	<u>Nonfederal</u>	<u>Not-For-Profit</u>	<u>Federal</u>	<u>Total</u>
N ()	N = 34	N = 68	N = 20	N = 123
Primary	(23) 68%	(26) 38%	(2) 10%	(50) 41%
Affiliated	(11) 32%	(42) 62%	(18) 90%	(73) 59%

hospital is directly affected by Congressional appropriations, whereas an independent not-for-profit hospital is affected but to a smaller degree and at a slower rate because regulations for Medicare and Medicaid must be written, commented on, and published before changes are made. Furthermore, the not-for-profit hospital serves patients whose care is not directly governed by Congress.

Also, a hospital owned and governed as a part of a chain may be less autonomous in its funding and in its decision-making processes. The board that is responsible for all of the hospitals within a chain may decide to approve fewer dollars in a particular hospital than would be approved if the hospital had an independent board. Moreover, a hospital governed by a state university board is funded at the discretion of the state legislative body and the university board which may allocate the funds appropriated by the legislature to other departments with higher perceived needs. Consequently, funds available for a particular hospital's capital equipment may be inadequate.

Medical schools' interest is to provide a quality medical education that encompasses the latest knowledge, techniques and equipment; state-of-the-art equipment is important to the medical school. It might be expected that the primary teaching hospital, with the most interaction and the greatest exposure to faculty and students, will be influenced by this relationship to maintain state-of-the-art technology. Primary teaching hospitals are probably most susceptible to the medical school's

influence and might spend a larger percentage of their budgets for technology than the affiliated teaching hospitals. Perhaps primary teaching hospitals' capital equipment also are considered state-of-the-art by more of the primary hospitals than affiliated hospitals.

The Capital Equipment Acquisition Decision Process

This section describes the capital equipment decision process by relating the data to the six research questions stated in Chapter I. The arrangement of this section follows the order of the research questions. For each research question, the data are generally presented in the order of the questionnaire items.

Question 1. How is the process of acquiring capital equipment affected by the following factors: (a) hospital ownership, (b) hospital governance, and (c) type of relationship with a medical school?

Question 2. Who participates in the process by which capital equipment is acquired? To what extent do the traditional centers of power in a hospital (trustees, administrators, and physicians) participate in the process?

As suggested in Chapter II, all hospitals have at least three major influence centers. Teaching hospitals have a fourth center of power, the medical school is included with its trustees, administration, and physicians. How is the process of acquiring capital equipment affected by the above four forces? Clearly, the first step is to request the equipment.

Tables 13-15 describe the data on which individuals request capital equipment. The questionnaire specifically listed possible positions who might make such request. Most of the positions--physician, administrator, housestaff, trustees--are evident. Others are less evident. A physician department chief is manager or co-manager of a department--e.g., radiology or laboratory. Managers are management levels below the administrator--such as associate administrators, directors of nurses. Supervisors, on the other hand, are the first line supervision--e.g., admitting supervisors or head nurses. "Other" refers to any other position, for example, a philanthropist.

Table 13 shows the positions that request capital equipment broken down by ownership. Of the 123 hospitals in the sample, 85% stated that physicians request capital equipment. Physician department chiefs were the second most likely to request equipment. The federal-government hospitals had the highest number with 95%. Of the not-for-profit group, 90% reported that managers requested equipment.

These variations are probably due to the relative power of physicians and administrative staff in the different types of ownership. In Veterans Administration hospitals, the source of funding is Congress and the budget is the method of requesting the funds. However, in the not-for-profit hospitals, funding is contingent on budgeting and strong measures to obtain payment for services. The manager probably is both a requestor of capital equipment because of the position power he occupies and he is also a channel for less powerful individuals to make requests. In the

TABLE 13

Positions That Typically
Request Capital Equipment

N ()	<u>Government Nonfederal</u>		<u>Private Not-For-Profit</u>		<u>Government Federal</u>		<u>Total</u>	
	(34)		(69)		(20)		(123)	
Physician	(28)	82%	(61)	88%	(16)	76%	(104)	85%
Physician Department Chief	(24)	71%	(58)	84%	(20)	95%	(101)	82%
Manager	(27)	79%	(62)	90%	(11)	52%	(100)	81%
Administrator	(24)	71%	(47)	68%	(10)	48%	(81)	66%
Supervisor	(21)	62%	(39)	57%	(15)	71%	(75)	61%
Employee	(5)	15%	(12)	17%	(6)	29%	(23)	19%
Housestaff	(4)	12%	(11)	16%	(4)	19%	(19)	15%
Other	(2)	6%	(4)	6%	(8)	38%	(13)	11%
Trustee	(1)	3%	(1)	1%	(0)	0%	(2)	2%

TABLE 14
Positions That Typically
Request Capital Equipment

	Multi-System Hospital											
	<u>Hospital Board</u>		<u>University Board</u>		<u>System Board</u>		<u>Hospital Board</u>		<u>System & Hospital Board</u>		<u>Other Type</u>	
N ()	(63)		(16)		(6)		(6)		(10)		(25)	
Employee	(15)	24%	(1)	6%	(2)	33%	(0)	0%	(0)	0%	(5)	20%
Supervisor	(36)	57%	(7)	44%	(3)	50%	(3)	50%	(8)	80%	(19)	76%
Manager	(54)	86%	(13)	81%	(5)	83%	(5)	83%	(10)	100%	(15)	60%
Administrator	(46)	73%	(11)	69%	(2)	33%	(3)	50%	(6)	60%	(15)	60%
Physician	(55)	87%	(14)	88%	(5)	83%	(6)	100%	(8)	80%	(4)	16%
Housestaff	(10)	16%	(3)	19%	(1)	17%	(0)	0%	(1)	10%	(4)	16%
Trustee	(2)	3%	(0)	0%	(0)	0%	(0)	0%	(0)	0%	(0)	0%
Physician Department Chief	(52)	83%	(11)	69%	(5)	83%	(5)	83%	(7)	70%	(23)	92%
Other	(5)	8%	(0)	0%	(1)	17%	(1)	17%	(0)	0%	(6)	24%

TABLE 15
 Positions That Typically
 Request Capital Equipment

N ()	Teaching Hospitals Primary		Teaching Hospitals Affiliate	
	(50)		(72)	
Employee	(11)	22%	(11)	15%
Supervisor	(31)	62%	(44)	61%
Manager	(42)	84%	(57)	79%
Administrator	(39)	78%	(41)	57%
Physician	(45)	90%	(58)	81%
Housestaff	(9)	18%	(10)	14%
Trustee	(1)	2%	(1)	1%
Physician Department Chief	(40)	80%	(60)	83%
Other	(3)	6%	(10)	14%

total sample managers were requestors in 81% and the supervisor in 61% of the hospitals. Clearly, three groupings of positions request capital equipment: first, there are the physicians and managers (85%); second, the administrator and supervisors (61%), top managers and first line managers; third, employees, housestaff, trustees and other ranging from 2% to 19%. Trustees are reported as requestors in only 2% of the hospitals.

There is no significant difference in the requestors when the data are arranged by governance and by medical school affiliation; all positions are the same relative percentage, except the administrator, when comparing the percentages of primary and affiliated teaching hospitals. In the primary teaching hospital, 78% reported that the administrator requested capital equipment while only 57% of the affiliated teaching hospitals reported the administrator as a requestor of capital equipment. In only 48% of the federal hospitals were administrators reported as requestors of capital equipment.

A request for capital equipment must ordinarily include certain supporting data such as price, whether new space or personnel will be required, and expected educational or patient care benefits. The hospitals were asked to indicate which they required to justify purchase of the request. Tables 16-18 show the results. Hospitals could indicate as many of the items as necessary to describe their justification process. Possible responses included price, additional space (new or renovated,

TABLE 16
Data Required To Support
Requests for Capital Equipment

N ()	<u>Government Nonfederal:</u>		<u>Private Not-For-Profit:</u>		<u>Government Federal:</u>		<u>Total:</u>	
	(34)		(69)		(20)		(123)	
Price	(34)	100%	(69)	100%	(20)	100%	(122)	100%
Additional Space Requirements	(27)	79%	(58)	84%	(20)	100%	(104)	85%
Additional Personnel	(25)	74%	(60)	87%	(20)	100%	(105)	84%
Projected Number Procedures	(25)	74%	(59)	86%	(12)	57%	(95)	77%
Expected Benefits	(28)	82%	(60)	87%	(20)	100%	(107)	87%
Additional Revenue	(26)	76%	(60)	87%	(1)	5%	(86)	70%
Other	(8)	24%	(16)	23%	(8)	38%	(32)	26%

(More than one may be indicated- all hospitals indicated at least one)

TABLE 17

Data Required to Support
Requests For Capital Equipment

	<u>Multi-System Hospital</u>										
	<u>Hospital Board</u>		<u>University Board</u>		<u>System Board</u>		<u>Hospital Board</u>		<u>System & Hospital Board</u>		<u>Other Type</u>
N ()	(63)		(16)		(6)		(6)		(10)		(25)
Price	(63)	100%	(16)	100%	(6)	100%	(6)	100%	(10)	100%	(24) 96%
Additional Space Requirements	(52)	83%	(13)	81%	(5)	83%	(6)	100%	(9)	90%	(22) 88%
Additional Personnel	(52)	83%	(14)	88%	(6)	100%	(5)	83%	(10)	100%	(21) 84%
Projected Number Procedures	(53)	84%	(11)	69%	(5)	83%	(4)	67%	(9)	90%	(15) 60%
Expected Benefits	(52)	83%	(14)	88%	(6)	100%	(5)	83%	(10)	100%	(22) 88%
Additional Revenue	(52)	83%	(12)	75%	(3)	50%	(4)	67%	(10)	100%	(7) 28%
Other	(15)	24%	(2)	13%	(2)	33%	(2)	33%	(3)	30%	(8) 32%

(More than one may be indicated - all hospitals indicated at least one).

TABLE 18
 Data Required To Support
 Requests For Capital Equipment:
 By Medical School
 Affiliation

N ()	<u>Teaching Hospitals Primary</u>		<u>Teaching Hospitals Affiliate</u>	
	(50)		(72)	
Price	(50)	100%	(72)	100%
Additional Space Requirements	(39)	78%	(64)	89%
Additional Personnel	(40)	80%	(64)	89%
Projected Number Procedures	(35)	70%	(59)	82%
Expected Benefits	(40)	80%	(66)	92%
Additional Revenue	(39)	78%	(46)	64%
Other	(15)	30%	(17)	24%

(More than one may be indicated—all hospitals indicated at least one).

additional personnel, projected number of procedures (does usage justify the cost?), expected benefits (lower cost, patient comfort, improved therapy, safety), additional revenue and any other.

Hospitals do not purchase equipment without knowing the price. The responses confirmed that statement, All of these hospitals reported that they require the price of the equipment as one element of justification. Unfortunately, the results do not indicate how pricing was accomplished or how carefully comparisons were made.

Although there was some concern expressed in the literature that hospitals are motivated by peer concerns, the second most frequently reported data was patient benefit. Additional space and additional personnel were third and fourth most frequently reported data required to justify purchase of capital equipment. Of the top four, three relate to cost. The other two responses relate to income from the new equipment. The priority order is evidently costs, patient care, and revenue.

Primary teaching hospitals are identical to affiliated hospitals in priority (Table 18). Affiliated teaching hospitals differ from primary teaching hospitals in the lowest number that require the requestor to project additional revenue, but this distortion results from the federal-government hospitals which have no concern about such charges because they are funded by Congress. On the other hand, affiliated hospitals are slightly more likely to require benefits data.

To refine the information obtained on how the decisions are made, the respondents were also asked to describe the methods used in

evaluating the requests. Tables 19 to 24 display the results of two questions. The first three tables are related to analytical method, and the last three (quantitative/objective, qualitative/subjective, objective/subjective) simply reflect the degree of objectivity or subjectivity in the process. The first explored how the analysis was done, and the last question asked for an opinion.

The largest percentage (67%) of the hospitals reported cost/benefit as their method of analysis of justifications for capital equipment purchases; patient care (36%) in a weak second highest percentage of the hospitals, with cost analysis (8%), education (4%) and other (2%) being insignificant in the analysis of requests. That education benefit was used in only 8% of the hospitals' analysis is surprising since these are teaching hospitals. It is congruent, however, with the hospital's primary patient care mission.

These percentages are not different when arranged by medical school affiliation. There are some variations in the percentage when the data are arranged by governance; however, these differences are within the multi-hospital system groups of hospitals. Of the hospitals under a system board, 33% said that cost analysis and education benefit were elements of their analyses. Other variations are evident in the multi-hospital group. Of the hospitals under both a system board and a hospital board, 80% reported cost/benefit analysis as their main method; 10% reported their analytical justification as

TABLE 19
 Characterization of Analytical Method Used
 To Justify Purchases of Capital Equipment
 By Ownership

	<u>Government Nonfederal</u>		<u>Private Not-For-Profit:</u>		<u>Government Federal:</u>		<u>Total:</u>	
N ()	(34)		(69)		(20)		(123)	
Cost Analysis	(4)	12%	(3)	4%	(2)	10%	(10)	8%
Patient Care Benefit	(10)	29%	(27)	39%	(8)	38%	(44)	36%
Cost/Benefit	(24)	71%	(46)	67%	(14)	67%	(82)	67%
Education	(1)	3%	(2)	3%	(1)	5%	(5)	4%
Other	(1)	3%	(2)	3%	(0)	0%	(3)	2%

(More than one may be indicated—all hospitals indicated at least one).

TABLE 20
 Characterization of Analytical Method Used
 To Justify Purchases of Capital Equipment
 By Governance

	<u>Multi-System Hospital</u>											
	<u>Hospital Board</u>		<u>University Board</u>		<u>System Board</u>		<u>Hospital Board</u>		<u>System & Hospital Board</u>		<u>Other Type</u>	
N ()	(63)		(16)		(6)		(6)		(10)		(25)	
Cost Analysis	(3)	5%	(3)	19%	(2)	33%	(0)	0%	(0)	0%	(2)	3%
Patient Care Benefit	(28)	44%	(4)	25%	(3)	50%	(1)	17%	(0)	0%	(10)	40%
Cost/Benefit	(41)	65%	(9)	56%	(5)	83%	(5)	83%	(8)	80%	(17)	68%
Education	(2)	3%	(0)	0%	(2)	33%	(0)	0%	(0)	0%	(1)	4%
Other	(1)	2%	(1)	6%	(0)	0%	(0)	0%	(1)	10%	(1)	4%

(More than one may be indicated—all hospitals indicated at least one).

TABLE 21
 Characterization of Analytical Method Used
 To Justify Purchases of Capital Equipment
 By Medical School Affiliation

N ()	<u>Primary Teaching Hospital</u>		<u>Affiliate Teaching Hospital</u>	
	(50)		(72)	
Cost Analysis	(5)	10%	(5)	7%
Patient Care Benefit	(21)	42%	(23)	32%
Cost/Benefit	(34)	68%	(49)	68%
Education	(2)	4%	(3)	4%
Other	(1)	2%	(2)	3%

(More than one item may be indicated—all hospitals indicated at least one).

TABLE 22
 Characterization of
 Analysis Methods

	<u>Government Nonfederal</u>		<u>Private Not-For-Profit:</u>		<u>Government Federal:</u>		<u>Total:</u>	
Quantative/Objective	(2)	6%	(4)	6%	(0)	0%	(6)	2%
Qualitative/Subjective	(5)	15%	(6)	9%	(1)	5%	(12)	11%
Quantative/Qualitative	(27)	79%	(59)	85%	(19)	95%	(103)	87%
	N=34		N=69		N=20		N=123	

TABLE 23
 Characterization of
 Analysis Methods

	<u>Multi-System Hospital</u>											
	<u>Hospital Board</u>		<u>University Board</u>		<u>System Board</u>		<u>Hospital Board</u>		<u>System & Hospital Board</u>		<u>Other Type</u>	
Quantitative/Objective	(4)	6%	(2)	12%	(0)	0%	(0)	0%	(1)	10%	(1)	4%
Quantitative/Subjective	(4)	6%	(4)	25%	(1)	17%	(0)	0%	(1)	10%	(2)	8%
Quantitative/Qualitative	(54)	88%	(10)	63%	(5)	83%	(5)	100%	(8)	80%	(21)	88%
N=	(62)	100%	(16)	100%	(6)	100%	(5)	100%	(10)	100%	(24)	100%

TABLE 24
 Characterization of
 Analysis Methods

	<u>Primary Teaching Hospital</u>		<u>Affiliate Teaching Hospital</u>	
Quantitative/Objective	(3)	6%	(3)	4%
Quantitative/Subjective	(5)	10%	(6)	8%
Quantitative/Qualitative	(42)	84%	(63)	88%
	N= (50)	100%	N= (72)	100%

one not specifically listed on the questionnaire. All hospitals in a system but also governed by a hospital board reported patient care and cost/benefit analyses only. Nevertheless, the largest percentage of the hospitals, irrespective of independent variable arrangement, use cost/benefit analyses; the second largest percentage of hospitals use patient care as a justification to purchase capital equipment. Educational benefit is not significant except in the hospitals under a system board.

The hospitals' opinions of their analysis methods were consistent with their reported analytical method: 87% characterized their methods as quantitative (objective)/qualitative (subjective). Objective methods were reported in only 2% of the hospitals; 11% said their analysis methods were subjective. The pattern of responses is consistent except for hospitals governed by a university board, and that inconsistency is that 25% of the hospitals said their methods were subjective, and 12% indicated their methods were objective.

In most hospitals, physicians and managers initiated requests for capital equipment. The data are submitted in some form with the request and they are analyzed both objectively and subjectively. Who then are the individuals who analyze and utilize these data to screen and cull the requests.

Tables 25 to 27 report the results. In order, not frequency, the hospitals that reported screeners listed the following; a) associate

TABLE 25
Positions That Typically
Screen Capital Equipment Requests:
By Ownership

N()	<u>Government Non-Federal</u>		<u>Private Not-For-Profit</u>		<u>Government Federal</u>		<u>Total</u>	
	(34)		(69)		(20)		(123)	
Administrator	(29)	85%	(59)	86%	(13)	62%	(100)	81%
Associate Administrator	(29)	85%	(56)	81%	(19)	90%	(103)	83%
Medical Director	(11)	32%	(27)	39%	(12)	57%	(50)	40%
Medical Department	(8)	24%	(16)	23%	(1)	5%	(25)	20%
Department Manager	(24)	71%	(51)	74%	(6)	29%	(82)	66%
Supervisor	(7)	21%	(15)	22%	(3)	14%	(26)	21%
Chief of Medical Specialty	(14)	41%	(32)	46%	(19)	90%	(63)	51%
Other	(8)	24%	(26)	38%	(6)	29%	(40)	32%

(Multiple responses were given)

TABLE 26
Positions That Typically
Screen Capital Equipment Requests:
By Governance

	<u>Multi-System Hospital</u>											
	<u>Hospital Board</u>		<u>University Board</u>		<u>System Board</u>		<u>Hospital Board</u>		<u>System & Hospital Board</u>		<u>Other Type</u>	
N ()	(63)		(16)		(6)		(6)		(10)		(25)	
Administrator	(52)	83%	(14)	88%	(5)	83%	(6)	100%	(8)	80%	(17)	68%
Associate Administrator	(52)	83%	(12)	75%	(5)	83%	(6)	100%	(9)	90%	(21)	84%
Medical Director	(22)	35%	(6)	38%	(4)	67%	(3)	50%	(4)	40%	(11)	44%
Medical Department	(17)	27%	(5)	31%	(1)	17%	(0)	0%	(9)	90%	(1)	4%
Department Manager	(46)	73%	(11)	69%	(4)	67%	(6)	100%	(1)	10%	(8)	32%
Supervisor	(16)	25%	(3)	19%	(2)	33%	(1)	17%	(2)	20%	(4)	16%
Chief of Medical Specialty	(33)	52%	(5)	31%	(3)	50%	(3)	50%	(2)	20%	(18)	72%
Other	(20)	32%	(4)	25%	(2)	33%	(2)	33%	(0)	0%	(9)	36%

(Multiple responses were given)

TABLE 27
 Positions That Typically
 Screen Capital Equipment Requests:
 By Medical School Affiliation

	<u>Teaching Hospitals</u> Primary		<u>Teaching Hospitals</u> Affiliate	
N ()	(50)		(72)	
Administrator	(42)	84%	(57)	79%
Associate Administrator	(42)	84%	(61)	85%
Medical Director	(15)	30%	(34)	47%
Medical Department Department Manager	(16)	32%	(9)	13%
Supervisor	(38)	76%	(44)	61%
Chief of Medical Specialty	(13)	26%	(13)	18%
Other	(24)	48%	(38)	53%
	(15)	30%	(24)	33%

(Multiple responses were given)

administrator, b) administrator, c) department managers, d) chief of medical specialty, e) medical director, f) other unspecified people, g) supervisors, and h) the medical department. (These are rankings and do not imply a hierarchial progression through which requests flow.)

The results in not-for-profit and nonfederal government hospitals are almost the same, but federal government hospitals differ in that the associate administrator and chiefs of medical departments screen requests for capital equipment in 90% of the hospitals. On the other hand, there is departmental screening in only 5% of the hospitals compared to 20% in the total sample.

These data indicate a preponderance of activity by the administrative structure in the screen compared to the request process when the physicians structure was predominant. There is more physician participation in the hospitals under a system board which showed that the medical director screened in 67% of the hospitals. Another significant difference is also in the multi-hospital-governed hospitals under a single hospital board. In all of these hospitals the department manager, associate administrator and administrator screen requests; none had departmental screening.

Arranging the responses according to medical school affiliation results in a pattern similar to the arrangement by ownership and governance except for two participants in the screen process. In 47% of the affiliated hospitals, the medical director screens requests for capital equipment compared to 30% in primary teaching hospitals.

Furthermore, there is more medical department screening in primary teaching hospitals which reported that 32% have department screening of requests compared to 13% in affiliated hospitals. Two factors influence these data. First, more affiliated hospitals are federal government hospitals and other data showed that in a larger number of hospitals with requests from the physician department chief. Second, the primary hospital with an amalgam of clinical and basic scientists are in a collegial relationship. Consequently, department participation is high.

The literature indicated a need for physician participation in the decision process. These data indicate a low level of participation by physicians, compared to their very high level of participation when requesting capital equipment.

Some hospitals have capital equipment committees and it is important to know who participates on such committees. The participants on the capital equipment committees are shown in tables 28 to 30. Associate administrators were on 49% of the committees; administrators, 36%; physicians, 32%; other unspecified persons, 19%; nurse, 17%; trustees, 10%; housestaff, 2% and citizens were not represented. Thus, the capital equipment committees were composed of two of the three centers of power (administrators and physicians). Trustees were on only 10% of the committees. Nurses were only on capital equipment committees in only 17% of the hospitals. It appears that capital

TABLE 28
Positions That Hold Membership
On Capital Equipment Committees:
By Ownership

	<u>Government Nonfederal:</u>		<u>Private Not-For-Profit:</u>		<u>Government Federal:</u>		<u>Total:</u>	
N ()	(34)		(69)		(20)		(123)	
Administrator	(9)	26%	(36)	52%	(0)	0%	(44)	36%
Associate Administrator	(11)	32%	(42)	61%	(8)	38%	(60)	49%
Physician	(5)	15%	(25)	36%	(9)	43%	(39)	32%
Trustee	(2)	6%	(10)	14%	(0)	0%	(12)	10%
Nurse	(3)	9%	(11)	16%	(7)	33%	(21)	17%
Housestaff	(1)	3%	(2)	3%	(0)	0%	(3)	2%
Citizen	(0)	0%	(0)	0%	(0)	0%	(0)	0%
Employee	(2)	6%	(2)	3%	(6)	29%	(10)	8%
Other	(3)	9%	(17)	25%	(3)	14%	(23)	19%

(Multiple responses given)

TABLE 29
Positions That Hold Membership
On Capital Equipment Committees:
By Governance

	<u>Multi-System Hospital</u>											
	<u>Hospital Board</u>		<u>University Board</u>		<u>System Board</u>		<u>Hospital Board</u>		<u>System & Hospital Board</u>		<u>Other Type</u>	
N ()	(63)		(16)		*(6)		(6)		(10)		(25)	
Administrator	(29)	46%	(5)	31%	(0)	0%	(4)	67%	(5)	50%	(2)	8%
Associate Administrator	(37)	59%	(3)	19%	(1)	17%	(5)	83%	(7)	70%	(7)	28%
Physician	(23)	37%	(3)	19%	(1)	17%	(1)	17%	(3)	30%	(7)	28%
Trustee	(1)	2%	(0)	0%	(0)	0%	(3)	50%	(2)	20%	(0)	0%
Nurse	(12)	19%	(1)	6%	(1)	17%	(2)	33%	(0)	0%	(5)	20%
Housestaff	(2)	3%	(1)	6%	(0)	0%	(0)	0%	(0)	0%	(5)	20%
Citizen	(0)	0%	(0)	0%	(0)	0%	(0)	0%	(0)	0%	(0)	0%
Employee	(3)	5%	(1)	6%	(1)	17%	(0)	0%	(0)	0%	(5)	20%
Other	(14)	22%	(1)	6%	(0)	0%	(3)	50%	(2)	20%	(3)	12%

(Multiple responses were given)

*Only one hospital responded

TABLE 30
 Positions That Hold Membership
 On Capital Equipment Committees:
 By Medical School
 Affiliation

	<u>Primary Teaching Hospital</u>		<u>Affiliate Teaching Hospital</u>	
N ()	(50)		(73)	
Administrator	(19)	38%	(24)	33%
Associate Administrator	(21)	42%	(39)	54%
Physician	(13)	26%	(25)	35%
Trustee	(4)	8%	(9)	12%
Nurse	(4)	8%	(17)	24%
Housestaff	(2)	4%	(1)	1%
Citizen	(0)	0%	(0)	0%
Employee	(3)	6%	(7)	10%
Other	(6)	12%	(17)	24%

(Multiple responses were given)

equipment committees were used as a method to include physicians at a high level in the decision-making process where they might influence the decision.

Table 28 and 29 show some differences in committee participants. Although the total sample shows that the administrator is on the capital equipment committee in 36% of the hospitals, the range among the major groups is revealing. In federal hospitals none had the administrator on the capital equipment committee; 26% of nonfederal hospitals had administrators on and 52% of the not-for-profit hospitals had the administrator on the capital equipment committee. A similar pattern is evident in physician participation: 15% of nonfederal, 36% of not-for-profit and 43% of federal-government hospitals had physicians on the committee.

The not-for-profit hospitals had wider participation on capital equipment committees than government hospitals. However, nurses were on 33% of the federal hospitals' but on only 9% of the nonfederal hospitals' committees. Nurses were on committees in 17% of the total sample. No hospitals had citizen involvement on their committees.

The significant variations in participation are related to nurses when the data are arranged by medical school affiliation. Nurses were on the capital equipment committee in 8% of the primary teaching hospitals, compared to 24% of the affiliated hospitals.

The data on participation in the capital equipment acquisition process shows physicians as requestors of capital equipment in the largest percentage of the hospitals. Physicians provide the directions for patient care and teach medical students. Their close association with the achievement of the basic goals of both the hospital and medical school places them in the strategic position to know the needs of patients and educational programs. The information usually required to justify the acquisition of equipment shows this physician influence. Cost/benefit analysis is both objective and subjective.

At the screening level physicians are less prominent. However, the data only shows screeners and does not indicate other activity designed to influence the screeners. It might be surmised though that physicians are active in the political arena to assure approval of their requests.

Question 3. Who gives final approval for acquisition of capital equipment? Theoretically, the administrator has the authority to allocate resources specifically provided by the trustees. However, in reality, the ultimate decision may actually have been made by the individual who selected the specific piece of equipment over other possibilities and the administrator may only ratify a decision. No attempt was made to test that possibility, but data were collected to determine who had the final say (Table 31).

TABLE 31

Final Decision Maker
By Ownership

	Government		Government		Private		Total	
	Nonfederal		Federal		Not-for-Profit			
Administrator	(21)	62%	(15)	75%	(25)	36%	(61)	50%
Committee	(11)	32%	(4)	20%	(42)	61%	(57)	46%
Chief of Medical Specialty	(2)	6%	(1)	5%	(2)	3%	(5)	4%
(N)	<u>(34)</u>	<u>100%</u>	<u>(20)</u>	<u>100%</u>	<u>(69)</u>	<u>100%</u>	<u>(123)</u>	<u>100%</u>

The administrator was reported as the final decision maker in only 50% of the hospitals. However, committee decisions are probably subject to administrative review. Capital equipment committees are the next most numerous decision makers, appearing as frequently (46%). Previously, it was pointed out that, in the makeup of committees, 36% of the hospitals included the administrator and 49% had associate administrators on their committees, so administrators may exert considerable power even when committees make the final decision. Physicians were represented on 32% of the committees and nurses on 17%.

These data raised other questions. It is not surprising that one half of the hospitals said their administrator was the final decision maker. He is in fact the person with responsibility regardless of who makes the selection. But, one half of the hospitals said a committee or a chief of medical service made the final decision. This is probably an effort to include various people in the process.

Some interesting differences occur when the data are reported by medical school affiliation (Table 32).

TABLE 32

Final Decision Maker
By Medical School Affiliation

	<u>Primary</u>		<u>Affiliated</u>	
Committee	(20)	40%	(40)	56%
Administrator	(29)	58%	(29)	40%
Chief of Medical Department	(1)	2%	(3)	4%
(N)	<u>(50)</u>	<u>100%</u>	<u>(72)</u>	<u>100%</u>

According to these data, the administrator in 58% of the primary teaching hospitals makes the final decision, compared to 40% of the affiliated teaching hospitals. Chiefs of medical departments make decisions in only a few of the hospitals. Consequently, in reality final decisions are made by either the administrator or a committee. This is congruent with the Nackle and Wesbury (1978) model discussed in (Chapter II) of how hospitals allocate resources--- approach, and the leader approach. In any event, the committees are composed mainly of administrators and physicians, with some hospitals including others. The real power of the committees remains questionable, especially if the ultimate responsibility is the administrator's anyway.

An inconclusive analysis of financial data collected by the survey was done to determine the correlation between final decision maker and the level of expenditures for capital equipment. The analysis suggested that there was a higher level of expenditure for capital equipment as a percentage of total expenditures in those hospitals in which the administrator made the final decision. The sample is too small to have much confidence in this finding, but it does suggest the possibility of

smaller allocations (cost-wise) when the committee is the final decision maker. More research is necessary on this issue.

At least three possible purposes are served by these committees: 1) cost control as was suggested by the inconclusive analysis just reported, 2) better decisions resulting from analyses from several perspectives such as financial or medical, and 3) broad participation with enhanced satisfaction.

Question 4. Do primary teaching hospitals rate their equipment as state-of-the art more frequently than affiliated teaching hospitals?

This does not appear to be the case. Tab 33 shows the results of the survey. Perhaps the data would appear more conclusive had the hospitals been restricted to a single reply. However, by allowing the possibility of multiple answers, some conclusions may be drawn from these data: 1) overall, hospitals essentially consider their equipment state-of-the-art or acceptable; 2) the sum of all responses was 87 by primary hospitals and 108 by affiliated hospitals for a grand total of 195 responses by 123 hospitals. Hospitals could indicate more than one characteristic. The ratio of each characteristic was calculated as an attempt to determine pent-up demand, e.g., the ratio of 79% of the primary hospitals' responses were state-of-the-art (38%) and acceptable (41%). This might imply the 21% of the primary hospitals are dissatisfied and would probably change their situation and acquire more or new equipment if they could. Moreover, 86% was the ratio of

TABLE 33
 Respondents' Rating of
 Present Capital Equipment

N=50	<u>Primary</u>			<u>Affiliated</u>		
	<u>N</u>	<u>Percentage of Hospitals Per Classification.</u>	<u>Ratio of Responses</u>	<u>N-72 N</u>	<u>Percentage of Hospitals Per Classification</u>	<u>Ratio of Responses</u>
Acceptable	(36)	72%	41%	(38)	53%	35%
State-of-Art	(33)	66%	38%	(55)	76%	51%
Inadequate Quantity	(6)	12%	7%	(5)	7%	5%
Obsolete	(5)	10%	6%	(7)	10%	6%
Worn Out	(5)	10%	6%	(3)	4%	3%
Embarrassing	<u>(2)</u>	<u>4%</u>	<u>2%</u>	<u>(0)</u>	<u>0%</u>	<u>0%</u>
Total Response	<u>87</u>		<u>100%</u>	<u>108</u>		<u>100%</u>

*Hospitals could check as many items as appropriate

affiliated teaching hospitals that rated their capital equipment state-of-the-art (51%), or as acceptable (35%). Using the assumption that the other 14% represents pent-up demand, there should be less demand for more or new capital equipment in affiliated teaching hospitals than in primary teaching hospitals -- 7 percentage points difference. This latter picture would be more meaningful, however, if it were taken over a period of time to establish trends.

The above data show that fewer primary hospitals perceive their equipment as state-of-the-art than the affiliated hospitals do. Only 66% of the primary teaching hospitals considered their capital equipment state-of-the-art, compared to 76% of the affiliated teaching hospitals; the other categories of quantity, obsolescence, and wear show parallel differences. However, 4% of the primary hospitals said they had equipment that was embarrassing, while no affiliated hospitals chose this response.

The satisfaction of these hospitals with their capital equipment also varied slightly (Table 34).

TABLE 34

Teaching Hospitals'
Level of Satisfaction
With Their Capital Equipment

	N=50	Primary	N=72	Affiliated
Highly		(17) 33%	(29) 40%	
Moderately		(33) 67%	(42) 59%	
Not-at-All		(0) 0%	(1) 1%	
		<u>(50)</u> 100%	<u>(72)</u> 100%	

Fewer primary hospitals (33%) were highly satisfied with their capital equipment than affiliated hospitals (40%). But, 67% of the primary teaching hospitals were moderately satisfied, and no primary hospital was dissatisfied; one affiliated hospital was. The conclusion is that almost all of these hospitals are at least moderately satisfied with the status of their equipment.

The conclusion is that primary teaching hospitals, as a ratio, do not rate their capital equipment as state-of-the-art as frequently as affiliated teaching hospitals do. However, when combined with the moderately satisfied category, the satisfaction level in primary teaching hospitals was higher. This is probably because it is in the primary teaching hospital that state-of-the-art is developed and tested and put into clinical use. It then flows to the affiliated teaching hospitals. Another reason for the high degree of moderate satisfaction in primary hospitals is the presence of a larger body of faculty, medical students, and houseofficers in primary teaching hospitals than are generally found in affiliated teaching hospitals. Consequently, the cutting edge of medical knowledge present in the education environment either causes the opinions to be more critical and thus more reluctant to admit state-of-the-art, or there is simply a higher level of expectation in the primary teaching hospitals.

Question 5. Are teaching hospitals planning for their future by funding depreciation expenses and investing their depreciation funds?

Depreciation is a method used to spread the costs of durable, expensive equipment over several years. Funding depreciation charges the expense of the equipment to the users and accumulates the money for replacement when the equipment must be replaced.

Some hospitals, however, fund depreciation; i.e., they charge the expense to present users, but they do not invest those funds for future replacement. Consequently, there may be a future problem with finding the funds when the equipment is to be replaced. If the need for replacement is due to obsolescence, the hospital may have to continue to use it, thus lagging behind current technology. On the other hand, if the equipment is not functioning there is a crisis if funds are not available for replacement. Depreciation then is crucial for the future of some hospitals. So it could be surmised that hospitals that do not invest their depreciation funds are analagous to those people the Hebrew prophet Amos accused of eating all the calves out of their herds and the lambs out of their flocks (Amos 6:4). Thus, to meet a present need there will be no resources for long-term needs.

Table 35 shows the results of the survey on depreciation. Federal hospitals are dependent on Congressional appropriation each year for funding and do not have a need to fund depreciation. However, some hospitals in the other two ownership categories also do fund depreciation. One limitation of this data is the unknown number of nonfederal-government hospitals which also do not fund depreciation because they are dependent on government appropriation for equipment. However, this should not

TABLE 35
 Status of Depreciation
 Funding and Investment

<u>N ()</u>	<u>Sample Total</u>	<u>Number Funding Depreciation</u>		<u>Number Investing Depreciation</u>		<u>Mean Year Began Funding Depreciation</u>
<u>Ownership</u>						
Non-Federal	34	(16)	47%	(13)	38%	1974
Not-For-Profit	69	(54)	78%	(47)	68%	1973
Federal	<u>20</u>	<u>(0)</u>	<u>0%</u>	<u>(0)</u>	<u>0%</u>	<u>-</u>
Total	<u>123</u>	(70)	56%	(60)	50%	1973
<u>Governance</u>						
Hospital Board	(61)	(48)	76%	(42)	67%	1974
University Board	15	(7)	44%	(5)	31%	1973
Multi-Hospital System Board	(6)	(3)	50%	(3)	50%	
Multi-Hospital Hospital Board	(6)	(3)	50%	(2)	33%	1974
Multi-Hospital System and Hospital Boards	(10)	(8)	80%	(8)	80%	1974
Other	<u>(25)</u>	(2)	8%	(2)	8%	
	<u>123</u>					
<u>Medical School Affiliation</u>						
Primary	(50)	(28)	56%	(26)	52%	1974
Affiliate	<u>(73)</u>	(40)	52%	(34)	47%	1974
	<u>123</u>					

(Some hospitals did not indicate this practice)

distort the conclusion because the real issue is whether the hospitals are investing the funds for the future; and, if only half of the non-federal-government hospitals fund depreciation, the question is how many of those invest the funds.

In the nonfederal-government group, 47% fund their depreciation but only 38% invest their depreciation funds for future needs. That is, 19% of these hospitals use their depreciation funds for current operations. On the other hand, 78% of the not-for-profit hospitals fund their depreciation, and 68% invest those funds; 13% of the not-for-profit hospitals that fund depreciation do not invest those funds.

Hospitals in a multi-hospital system and under two boards had the highest number (80%) funding depreciation and all of them invest the funds. The second largest number of hospitals funding depreciation are those governed by a single board. Of that group 76% funded depreciation; 12% of these hospitals do not invest their funds. Hospitals governed by a university board showed that 44% fund depreciation; 30% of these university-governed hospitals that fund depreciation do not invest their depreciation funds for future use.

A different pattern develops when those hospitals are displayed by medical school affiliation. Of the primary teaching hospitals, 56% fund their depreciation and 52% invest their funds; thus 93% of those that fund depreciation invest funds. A smaller number (52%) of affiliated teaching hospitals fund their depreciation and 47% invest the funds.

The Hill-Burton legislation funded the construction of hospitals from 1946-1973. To ascertain any relationship between the demise of Hill-Burton funds and the practice of depreciation the hospitals were asked in which year they began funding depreciation. The mean year was 1973.6; almost half of the hospitals that fund depreciation began to do so in the same year that the Hill-Burton funds ended.

The results of these data show two problems. First, not all of the hospitals that can fund depreciation are doing so. Second, those hospitals that do fund depreciation and are not investing those funds for future replacement of capital equipment must have a source of funds (government allocation, philanthropy, or endowment) or they will face a serious crises. They will have to finance the replacement equipment through debt, become obsolete and eventually close, or become a part of a chain which has greater capital resources.

Question 6. Have legislative efforts to control capital expenditures retarded hospital expansion programs over the past five years?

Public policy favored expansion of hospital construction and utilization until a major change occurred with the passage of the Health Planning and Resources Development Act (PL 93-641) in 1974. This legislation mandated hospital planning on a regional basis and provided penalties for noncompliance to the planning requirements. Hospitals that expanded, established new programs, or purchased equipment that cost more than a threshold amount without Health Systems Agency (HSA) approval could not be reimbursed for services provided to Medicare, Medicaid, and other government patients.

The financial data collected by this survey reflected activity during the 1977-1981 period, beginning three years after this legislation. Unfortunately the response rate to questions asking for the financial data was lower than the overall response rate probably because of the inconvenience involved in collecting it. Table 36 shows the number and percentage of hospitals that responded to these items.

TABLE 36

Number and Percentage of Teaching Hospitals
That Provided Financial Data

(N=123)	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Number Responded	75	80	84	90	109
Percentage of Total Responses	61%	65%	68%	73%	89%

The level of responses increases as the age of the data diminishes and is probably a reflection of the amount of work involved in collecting data.

Table 37 is data from a related question and shows the number and percentage of hospitals (displayed by ownership, governance, and medical school affiliation) that had expansion programs during the five-year period studied (1977-1981). Since the purpose of regional planning was to control growth and reduce expenditures for buildings and equipment, this is one measure of the effectiveness of the planning process as administered by the Health Systems Agencies (HSAs) established by the Health Planning and Resources Development Act (PL 36-641) in 1975 .

TABLE 37
Percentage of Responding Hospitals With Expansion Programs
1977-1981

N ()	<u>TOTAL</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Non-Federal	(N= 34)	(12) 35%	(14) 41%	(15) 44%	(14) 41%	(15) 44%
Not-For-Profit	(N= 19)	(24) 35%	(29) 42%	(25) 36%	(24) 35%	(25) 36%
Federal	(N= 20)	(7) 33%	(7) 33%	(8) 38%	(8) 38%	(9) 43%
Total	(N=123)	(42) 34%	(50) 41%	(48) 39%	(45) 37%	(48) 39%
<u>Governance *</u>						
Hospital Board	(N= 63)	(23) 37%	(28) 44%	(27) 43%	(27) 43%	(25) 40%
University Board	(N= 16)	(5) 31%	(6) 38%	(5) 31%	(4) 25%	(6) 38%
Multi-Hospital System Board	(N= 6)	(6) 100%	(1) 17%	(1) 17%	(0) 0%	(0) 0%
Multi-Hospital Hospital Board	(N= 6)	(2) 33%	(2) 33%	(2) 33%	(0) 0%	(2) 33%
Multi-Hospital System and Hospital Board	(N= 10)	(4) 40%	(4) 40%	(3) 30%	(2) 20%	(4) 40%
Other	(N= 25)	(10) 40%	(11) 44%	(12) 48%	(12) 48%	(11) 44%
<u>Medical School Affiliation</u>						
Primary	(N= 50)	(18) 36%	(19) 38%	(21) 42%	(21) 42%	(19) 38%
Affiliate	(N= 73)	(24) 33%	(31) 43%	(26) 36%	(24) 33%	(29) 40%

*Some hospitals indicated more than one type

Hospitals reporting expansion programs increased from 37% in 1977 to 39% in 1981. The range was 34% to 41%. Expansion programs increased from 35% of the responding nonfederal-government hospitals in 1977 to 44% in 1981, (range: 35% to 44%); not-for-profit, 35% in 1977 to 36% in 1981 (range: 35% to 42%); federal, 33% in 1977 to 43% in 1981 (range: 33% to 43%). Expansions in the total sample were 34% in 1977 and 39% in 1981 (range: 34% to 41%). Federal-government hospitals were the largest group with increases in the percentage of hospitals with expansion programs during this period; the next largest range group with expansion programs was the nonfederal-government hospitals.

Analysis of these data by governance shows similar patterns: hospital board: 37% in 1977 to 40% in 1981 (range: 37% to 44%); university-governed: 31% in 1977 to 38% in 1981 (range: 31% to 38%); multi-hospital systemboard: 100% in 1977 to 0% in 1981 (range: 0% to 100%); multi-hospital hospital board: 33% in 1977 to 33% in 1981; multi-hospital system and hospital board, 40% in 1977 to 40% in 1981 (range: 20% to 40%) and other governance, 40% in 1977 to 44% in 1981 (range: 40% to 48%).

As would be expected the same pattern exists when the data are broken down by primary and affiliated teaching hospitals. Primary teaching hospitals' expansion programs were 36% in 1977 to 38% in 1981

(range: 36% - 42%); affiliated teaching hospitals went from 33% in 1977 to 40% in 1981 (range: 33% to 43%).

These data indicate that there has been no decrease in expansion programs during this period. The mean percentage of hospitals with expansion programs is higher for both primary (39%) and affiliated (37%) teaching hospitals than in the base year of 1977. Consequently, it could be surmised from these data that efforts to decrease hospital expansion projects have failed.

A more direct approach to determining the effect of public policy involved computing the level of expenditures for capital equipment in dollars and as a percentage of total expenditures. Tables 38 to 40 show results of this analysis. The response rate on the 1977 data was inadequate and these data were omitted leaving only four years' financial data. Table 38 shows total expenditures and capital equipment expenditures for the four-year period. There is a difference in the number of hospitals that provided the gross operating expenses and the capital equipment expense.

Except for the nonfederal-government hospitals, the increase in capital equipment expenditures from 1978 to 1981 was less than the increase in total expenditures (Table 39). Federal hospitals actually showed a 51% decrease in capital equipment expenditures--probably due to federal budget cuts. Capital equipment expenditures have increased faster in nonfederal-government hospitals than total expenditures, while the opposite is the case in not-for-profit hospitals.

TABLE 38
Gross Operating Expenses and Capital Expenses: By Ownership

N ()	\$ in Thousands			
All Data = Means				
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
<u>Non-Federal</u>				
Gross Operational Expenses	\$50,341 (23)	\$56,893 (25)	\$63,855 (28)	\$73,470 (29)
Capital Equipment Expenses	2,286 (22)	2,389 (24)	2,428 (27)	3,565 (28)
% Capital Equipment	4.6%	4.4%	3.8%	4.6%
<u>Not-For-Profit</u>				
Gross Operational Expenses	\$47,456 (44)	\$53,716 (44)	\$62,044 (47)	\$74,006 (49)
Capital Equipment Expenses	3,027 (34)	2,840 (43)	6,953 (46)	3,942 (48)
% Capital Equipment	7.4%	6.3%	12.2%	5.2%
<u>Federal</u>				
Gross Operational Expenses	\$40,022 (13)	\$43,913 (13)	\$46,598 (15)	\$53,410 (16)
Capital Equipment Expenses	1,696 (13)	1,413 (15)	1,324 (14)	828 (15)
% Capital Equipment	4.7%	3.6%	3.6%	1.7%
<u>Total</u>				
Gross Operational Expenses	\$47,078 (80)	\$52,911 (84)	\$60,346 (90)	\$71,032 (109)
Capital Equipment Expenses	2,590 (77)	2,447 (82)	4,651 (87)	3,355 (89)
% Capital Equipment	6.1%	5.2%	8.2%	4.5%

TABLE 39
 Changes in Expenditures
 1978-1981: By Ownership

<u>Increase (Decrease)</u>	<u>Nonfederal</u>		<u>Federal</u>		<u>Not-for-Profit</u>		<u>Total</u>	
	<u>Amount</u>	<u>Percentage</u>	<u>Amount</u>	<u>Percentage</u>	<u>Amount</u>	<u>Percentage</u>	<u>Amount</u>	<u>Percentage</u>
Total	\$23,129	46%	\$13,388	33%	\$26,550	56%	\$23,954	51%
Capital Equipment	\$ 1,279	56%	(\$ 868)	(51%)	\$ 915	30%	\$ 765	30%

(\$ in thousands)

TABLE 40
 Changes in Expenditures
 1978-1981: By Governance

	<u>Hospital Board</u>		<u>University Board</u>		<u>Multi-Hospital System</u>		<u>Hospital</u>		<u>Both</u>	
Total Expenditures	\$24,209	49%	\$42,538	67%	\$18,321	39%	\$23,480	48%	\$27,276	49%
Capital Equipment	\$ 1,307	52%	\$ 1,711	65%	\$ 218	25%	(\$ 88)	(3%)	\$ 1,318	30%

(\$ in thousands)

Table 40 displays the same data broken down by governance. Except for hospitals with hospital board governance, all other types had a lower rate of increase in capital equipment expenditures than in total expenditures. Multi-hospital systems with a single hospital board actually had a decrease in capital equipment expenditures.

One other breakdown is by primary and affiliated teaching hospitals. Tables 41 and 42 displays 4 years of data (1978-1981).

TABLE 41

Changes in Expenditures
1978-1981: By Medical
School Affiliation

<u>Increase (Decrease)</u>	<u>Primary</u>		<u>Affiliated</u>	
	<u>Amount</u>	<u>Percentage</u>	<u>Amount</u>	<u>Percentage</u>
Total Expenditures	\$30,609	53%	\$19,609	47%
Capital Equipment (\$ in thousands)				

The array of data (Table 43) is significant in that it shows a 94% increase in capital equipment expenditures in primary teaching hospitals compared to a 53% increase in overall expenditures during the four years. Affiliated teaching hospitals show no growth during the period, but this group is influenced by the decrease in expenditures in federal government hospitals.

These data corroborate the earlier data on expansion programs which show no appreciable change in expenditures as a result of public policy. The only exception is the federal-government hospitals, which are not influenced by public planning policy but are at the direct mercy of Congressional appropriations.

TABLE 42
 Gross Operating Expenses and Capital Equipment Expenses:
 By Medical School Affiliations

N ()

All Data = Means

\$ In Thousands

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
<u>Primary</u>				
Gross Operational Expenses	\$57,353 (28)	\$64,394 (30)	\$75,009 (32)	\$87,962 (34)
Capital Equipment Expenses	2,147 (27)	2,207 (30)	3,274 (32)	4,170 (34)
% Capital Equipment	4.1%	4.53%	4.40%	5.62%
<u>Affiliate</u>				
Gross Operational Expenses	\$41,826 (51)	\$46,840 (53)	\$52,524 (57)	\$61,435 (57)
Capital Equipment Expenses	2,876 (49)	2,384 (51)	5,458 (54)	2,872 (54)
% Capital Equipment	5.16%	5.00%	3.53%	3.05%

Another question explored whether the hospitals were generally satisfied with their decision process for the acquisition of capital equipment. Table 43 shows the results.

TABLE 43

Satisfaction With Capital
Equipment Acquisition Process

<u>Nonfederal</u>	<u>Federal</u>	<u>Not-For-Profit</u>	<u>Total</u>
(25) 73%	(20) 100%	(63) 91%	(108) 80%
N = 34	N = 20	N = 69	N = 123

Although there is concern about hospital costs in both the private and public sectors, and capital equipment undergirds many of these costs, these hospitals are satisfied with their processes. This high level of satisfaction does not appear to indicate much interest in voluntary change in the capital equipment acquisition processes.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research was to study the decision process for acquisition of equipment in teaching hospitals. While several aspects (e.g., financial analysis, or human interaction, or power struggle) were discussed, a specific thorough analysis of a single aspect was not intended. Chapter IV described the results of the collected data. This chapter states the conclusions and some recommendations for additional study.

Conclusions

1. Teaching hospitals have in their capital equipment acquisition decision process wide but not equal participation at all stages of the process. Physicians' participation, for example, varies from high when requisitioning capital equipment to low in the final decision.
2. The three traditional hospital power structures and their roles are still intact in teaching hospitals. Administrators and physicians are prominent participants in decision making in capital equipment acquisition. Except for a small percentage of hospitals, trustees did not participate in the detail process of making decisions about capital equipment.
3. Although objective analytical methods are available to assist in decision-making, teaching hospitals use a combination cost/benefit analytical process to make decisions. Processes are mainly patient-oriented.

4. The chief administrator in most of the hospitals was the final decision maker; moreover, administrators serve on almost half of the capital equipment committees in the remainder of the hospitals. It may be concluded then that the decisions on most capital equipment committees are probably administrators' decisions also.

5. Teaching hospitals considered their capital equipment acceptable or state-of-the-art. Fewer primary teaching hospitals rated their equipment state-of-the-art than affiliated teaching hospitals did. Perhaps the high concentration of faculty teachers, researchers, and clinicians in primary teaching hospitals which are on the "cutting edge" of medicine had higher expectations of their capital equipment.

6. Government policy had not reduced the percentage of teaching hospitals' spending for capital equipment during the five years studied. Although some variation occurred in the percentage of these hospitals with expansion programs, the expansion rate each year ranged between 35 and 40%. Efforts to reduce expansion significantly did not appear to have succeeded, although government mandated planning was in effect.

7. Nurses were not formally involved in the capital equipment acquisition decision process. Nurses comprise the largest "professional" block of employees in hospitals and provide nearly all patient care other than diagnostic and some therapeutic services. Yet, most of these hospitals did not have nurses in the capital equipment decision process.

8. The same capital equipment acquisition process was used to make decisions about equipment for medical purposes and other hospital purposes.

9. Hospitals were satisfied with the processes and are probably not inclined to voluntarily make changes in them.

10. A significant number of teaching hospitals (12% of the private not-for-profit, and 19% of the nonfederal government) which fund depreciation are not investing their depreciation funds for future capital equipment replacement. This indicates a probable capital crisis in the future as buildings age and capital equipment becomes obsolescent or worn-out. With government funding gone, the only recourse for these hospitals is philanthropy, debt, or entry into a for-profit chain.

Recommendations for Further Research

1. Some of the analyses seemed to suggest a possible correlation between type governance and percentage of expenditures for capital equipment. Private, not-for-profit, board-governed, primary teaching hospitals in this sample spent a larger percentage for capital equipment than university-governed hospitals. However, the sample was too small to conclude that it was governance instead of some other variable that influenced the level of expenditures for capital equipment. More study using a large population is needed to determine whether these data were representative.

2. Another issue worthy of further research is whether the final decision maker affects the percentage spent for capital equipment.

These data, based on a small sample, showed a higher percentage of expenditures for capital equipment when the administrator made the decision than when the capital equipment committee made the decision. Other variables may be influencing these data. Additional research might establish whether there can be better control of capital equipment expenditures depending on who makes the decision.

3. Through planning agencies public policy has been directed at controlling technology in hospitals. These agencies' goals are to influence the distribution of expensive technology in both location and quantity. Except for federal-government hospitals, these data indicated that there has been no significant change in the number of teaching hospitals that had capital expansion or renovation projects during the five years studied. If these data are correct, it would seem that government policy to restrict capital equipment purchases has had no impact on teaching hospitals, but has there been an impact on nonteaching hospitals? Has government policy been successful in stopping the dispersion of some expensive technology throughout the health-care industry by approving its acquisition by teaching hospitals and denying acquisition authority to nonteaching hospitals?

4. The nursing "profession" has struggled to gain power and recognition as a profession. As a profession nursing hopes to gain control over patient care and other decisions related to nurses and hospitals. From this study, it appears that nursing has been unsuccessful in making inroads into significant participation in the capital

equipment decision process. Are nurses excluded from the decision process that affects them and their patients, as these data show, or does nursing wield influence through other channels not explored in this study?

5. Respondent hospitals indicated that most of them do have programs to test effectiveness of equipment prior to purchase. The literature, however, indicated programs test for safety, but not for effectiveness. Do teaching hospitals have the programs to test for clinical effectiveness prior to purchase of capital equipment? Is effectiveness actually tested, but in a research mode, prior to implementation into clinical practice?

6. Ethical considerations are prevalent in the practice of medicine, and this research in an indirect way explored some ethical issues. But, ethical issues in medicine require extensive research. The perception that resources were infinite created expansions in health care, but the present attitude is that resources are limited. How will limited resources create ethical problems? What are the implications for technological innovation? In short, how can medicine reconcile the ethical dilemma of not being able to do all that is possible to do for patients?

The study's purpose was to describe the decision processes of capital equipment acquisition in teaching hospitals. These conclusions described those aspects of the process that represent just these hospitals.

Technology, represented in this research as capital equipment, enables the health care system to provide diagnostic and therapeutic services which promise a better quality of life. However, in addition to enhancing quality of life, medical advances enable the medical profession to extend existence beyond "life", i.e., a comatose patient with only brain stem functions supported by machines. When are those machines turned off? When should they not be connected?

In addition to the ethical questions, another crucial question is how much of national resources can be spent battling a lost cause?

Capital equipment decisions are basic to these issues because the abilities to enhance and/or extend life are rooted in medical technology. Capital equipment decisions impact the health care industry's ability to restore quality life, maintain the "living dead" and the consumption of national and personal resources. The decision makers are powerful people. Understanding how these decisions are made and who makes them is essential if any impact is to be made that will control medical costs. This research was done to gain some understanding of how the capital equipment acquisition process is performed. Perhaps better decisions will result.

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APPENDIX A
THE RESEARCH INSTRUMENT

QUESTIONNAIRE
Capital Equipment Acquisition
July, 1982

Capital equipment is defined as new or replacement capitalized equipment and the facilities renovation necessary to install, maintain, and operate the equipment. Purchase price is the total dollar amount paid over an extended period. Include the purchase price and/or estimated total cost of leased equipment.

I. List some data about your hospital.

- A. Year hospital opened (1)
- B. Current number of beds (2)
- C. Current number of active physicians (3)
- D. Current number of housestaff (4)
- E. Current number of clinical departments with residency training programs (5)

II. Hospital ownership/governance (Check the appropriate spaces.)

A. Which type ownership describes your hospital?

1. Medical Hospitals

A. Government (nonfederal)

State (6) County (7) City (8)
 City/County (9) Hospital district or authority (10)

B. Nongovernment (not-for-profit)

Religious (11) Multi-hospital system (12)
 Independent not-for-profit (13) Other (14)

C. Investor owned (for-profit)

Individual (15) Partnership (16)
 Corporation (17) Multi-hospital system (18)

D. Government (federal)

Military (19) VA (20) Other (21) (Specify)

2. Osteopathic Hospitals

A. Not-for-profit

Religious (22) Independent not-for-profit (23) Other (24)
 (Specify)

B. Investor owned

Individual for-profit (25) Partnership for-profit (26)
 Other (27) (Specify)

B. Describe your governing body with one of the following:

1. Hospital board (28)
2. University board (29)
3. Multi-system
 - A. System board (30)
 - B. Hospital board (31)
 - C. Both A and B above (32)
4. Other (33) (Specify)

C. Which best describes your medical school relationship?

1. Primary teaching hospital (34)
2. Affiliated teaching hospital (35)
3. Other (36) (Specify)

-2-

III. Capital equipment acquisition process

A. Do you have a process to evaluate the effectiveness of new technology prior to purchase? Yes (37) _____ No (38) _____

B. Process

1. Who typically requests equipment? (Check all that apply)

- A. Employee (39) _____ B. Supervisor (40) _____
 C. Manager (41) _____ D. Administrator (42) _____
 E. Physician (43) _____ F. Housestaff (44) _____
 G. Trustee (45) _____ H. Medical Department Chief (46) _____
 I. Other (47) _____

If other in I above, please specify. (47A) _____
 (47B) _____
 (47C) _____

2. Which of the following must screen requests before the decision is made to purchase? (Check all that apply.)

- A. Administrator (48) _____ B. Associate Administrator (49) _____
 C. Medical director (50) _____ D. Medical department (51) _____
 E. Department manager (52) _____ F. Supervisor (53) _____
 G. Chief of service (54) _____ H. Other (55) _____

3. Is there an appeal process if the request is rejected at any level?

- Yes (56) _____ No (57) _____
 If yes, is the appeal process formal?
 Yes (58) _____ No (59) _____

4. What data are required on the requisition to review for budget or purchase? Check all that apply.

- A. Price (60) _____ B. Space (61) _____
 C. Additional staff (62) _____ D. Number of procedures (63) _____
 E. Benefits (64) _____ F. Increased revenue (65) _____
 G. Other (66) _____ (Specify) _____

5. Are specific capital equipment items budgeted?

- Yes (67) _____ No (68) _____
 If yes, for what period is the budget?
 Year (69) _____ Other (70) _____

6. Who makes the final decision about whether to include an item in the capital budget?

- A. Committee (71) _____ B. Equipment specialist (72) _____
 C. Medical staff (73) _____ D. Chief of services (74) _____
 E. Administrator (75) _____ F. Other (75) _____ (Specify) _____

7. If the answer to 6 above is committee, check all who are members of the committee.

- A. Administrator (77) _____
 B. Associate administrators (78) _____
 C. Physician (79) _____
 D. Trustee (80) _____
 E. Nurse (81) _____
 F. Housestaff (82) _____
 G. Citizen (83) _____
 H. Employee (84) _____
 I. Other (85) _____

-3-

8. Does the same process apply to medical and non-medical equipment?
Yes (86) _____ No (87) _____
9. Is the capital equipment budget an appropriations budget? (Appropriations meaning an authorization to purchase during the year with no additional review beyond budget review.)
Yes (88) _____ No (89) _____
10. Is substitution of equipment during the year permitted?
Yes (90) _____ No (91) _____
11. Is there a contingency budget for unanticipated requests?
Yes (92) _____ No (93) _____
If yes, what % is contingency of total capital budget? (94) _____ %
12. Which decision process best describes the majority of your analysis?
Check only one.
A. Cost analysis (95) _____
B. Patient care benefit (96) _____
C. Cost/benefit analysis (97) _____
D. Education benefit (98) _____
E. Other (99) _____ (Specify) _____
13. Would you characterize the process as: (Check only one.)
A. Mainly quantitative and highly objective (100) _____
B. Mainly subjective, or by qualitative considerations (101) _____
C. Mixture of both quantitative and qualitative review, neither being the constantly dominant (102) _____
14. How satisfied are you with the process?
Highly (103) _____ Moderately (104) _____ Not at all (105) _____
15. Is management, nursing, and physician participation adequate?
Yes (106) _____ No (107) _____
16. If the answer to 15 above is no, how would you change participation?
A. More physicians (108) _____
B. More hospital administrators (109) _____
C. More Nurses (110) _____
D. Fewer physicians (111) _____
E. Fewer hospital administrators (112) _____
F. Fewer nurses (113) _____
G. Same personnel but changed process (114) _____
17. Check as many statements as best describes the status of the equipment at your hospital.
A. Obsolete (115) _____
B. State-of-the-Art (116) _____
C. Acceptable (117) _____
D. Worn out (118) _____
E. Embarrassing (119) _____
F. Inadequate quantity (120) _____

-4-

IV. Financial History

All dollar amounts should be expressed in thousands.

A. Hospital financial history

Fiscal year	1981	1980	1979	1978	1977
1. Total Actual Expense (121)	(122)	(123)	(124)	(125)	
2. Capital Equipment Expense					
a. Purchase					
(1) New	(126)	(127)	(128)	(129)	(130)
(2) Replacement	(131)	(132)	(133)	(134)	(135)
b. Lease					
(1) New	(136)	(137)	(138)	(139)	(140)
(2) Replacement	(141)	(142)	(143)	(144)	(145)
c. Total	(146)	(147)	(148)	(149)	(150)
3. Percent Capital Equipment of total expense budget	(151)	(152)	(153)	(154)	(155)
4. Physical Assets at end-of-year. Include values of major leased equipment.					
	1981	1980	1979	1978	1977
			GROSS		
(1). Buildings and Building services Equipment	(156)	(157)	(158)	(159)	(160)
(2). Fixed & Mobile Equipment	(161)	(162)	(163)	(164)	(165)
(3). Total	(166)	(167)	(168)	(169)	(170)
			NET		
(1). Buildings & Building Services Equipment	(171)	(172)	(173)	(174)	(175)
(2). Fixed & Movable Equipment	(176)	(177)	(178)	(179)	(180)
(3). Total	(181)	(182)	(183)	(184)	(185)
5. Sources of Capital Budget Funds. List dollar amount by funds. (Fill in only those which apply - Should agree with IV 2C)					
	1981	1980	1979	1978	1977
a. Current Operations (net income)	(186)	(187)	(188)	(189)	(190)
b. Funded Depreciation	(191)	(192)	(193)	(194)	(195)
c. Long term debt	(196)	(197)	(198)	(199)	(200)
d. Leases	(201)	(202)	(203)	(204)	(205)
e. Grants	(206)	(207)	(208)	(209)	(210)
f. Government Budget (i.e., State, County)	(211)	(212)	(213)	(214)	(215)
g. Other	(216)	(217)	(218)	(219)	(220)
h. Total Capital Expenditures	(221)	(222)	(223)	(224)	(225)

-5-

- B. During the period, 1977 - 81, did your hospital equip new or expanded facilities?
 Yes (226) _____ No (227) _____
1. Check years(s) of expansion(s) or major renovation(s)
 1977 (228) _____ 1978 (229) _____ 1979 (230) _____ 1980 (231) _____ 1981 (232) _____
2. What was the cost of equipment purchased to equip new facility? (233) _____
 (234) _____ (235) _____
3. Was this cost included in the capital equipment budget for that year as shown in question IV A 2 on page 3 of this questionnaire.
 Yes (236) _____ No (237) _____
- C. Is depreciation funded?
 Yes (238) _____ No (239) _____
- D. If yes, list year depreciation funding began?
 (240) _____
- E. Is funded depreciation invested for future years?
 Yes (241) _____ No (242) _____
- F. Does the medical school purchase any equipment for hospital patient care?
 Yes (243) _____ No (244) _____
1. If yes, list amount spent each year.
 (245) 1977 \$ _____ (246) 1978 \$ _____
 (247) 1979 \$ _____ (248) 1980 \$ _____ (249) 1981 \$ _____
2. If yes is the answer in F, 1, were grants the source of these funds?
 All (250) _____ Some (251) _____ None (252) _____
3. Was this amount included in the capital equipment budget for that year as shown in question IV A 2 on page 3 of this questionnaire?
 Yes (253) _____ No (254) _____
- G. Does your hospital capital expense include research equipment for medical school use?
 Yes (255) _____ No (256) _____
1. If yes, list amount expense for research included in expense for: 1977 (257) _____
 1978 (258) \$ _____ 1979 (259) \$ _____ 1980 (260) \$ _____ 1981 (261) \$ _____
2. Is research equipment funded from patient services income?
 Yes (262) _____ No (263) _____
- V. Do you have written procedures for capital equipment acquisitions?
 Yes (264) _____ No (265) _____

-6-

Note: Do you want a copy of the summarized results?

Yes (266) _____ No (267) _____

If yes, please complete below.

Name _____

Hospital _____

Street _____

City/State _____

Zip _____

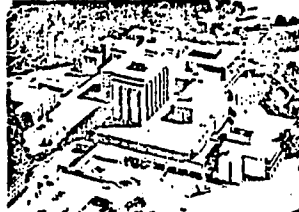
Please return by ~~August 31, 1982~~ ^{SEPT. 30, 1982} to:

Gerald N. Hewitt, CMA
Vice President
North Carolina Baptist Hospital
Winston-Salem, NC 27103
(919) 748-4954

APPENDIX B
CORRESPONDENCE

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NORTH CAROLINA
BAPTIST HOSPITALS, Inc.



300 SOUTH HAWTHORNE ROAD, WINSTON-SALEM, NORTH CAROLINA 27103

June 15, 1982

Mr. Jim Bentley
Council on Teaching Hospitals
One Dupont Circle, N. W.
Washington, D. C. 20036

Dear Jim:

Here is a copy of the questionnaire I discussed with you which I plan to send to COTH membership as my doctoral dissertation research. We discussed the possibility of your endorsement or at least a note in your newsletter to the membership telling them the questionnaire is being sent and encouraging participation.

You were going to discuss the matter with Dr. Knapp. I appreciate your consideration of this request. Hospitals need information and process in this area. Maybe this will be helpful. However, a high response rate will improve the result and your assistance will improve the response.

Thank you.

Sincerely,

Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:mw

enc.

AAMC association of american
medical colleges

June 28, 1982

RECEIVED
JUN 28 1982
PATIENT FINANCIAL SERVICES

Mr. Gerald Hewitt
Vice President, Patient Financial Service
North Carolina Baptist Hospitals
300 South Hawthorne Road
Winston-Salem, North Carolina 27103


Dear Jerry:

Upon returning from vacation, I discussed your request for a COTH endorsement of your questionnaire on capital financing with Dick Knapp. As I had indicated in our telephone conversation, the large number of medical school faculty and hospital staff requests for study endorsements has led to a general policy of not endorsing studies. Consequently, while we cannot formally endorse or advocate your study, we will inform anyone contacting us of the legitimacy of the study and encourage them to complete the questionnaire.

I have reviewed your questionnaire carefully and believe you'll get much useful information. I do have a few suggested changes to offer for your consideration. Please call me at your convenience (202) 828-0493.

Best wishes as you proceed.

Sincerely,


James D. Bentley, Ph.D.
Associate Director
Department of Teaching Hospitals

JDB/am
encl.



THE CONNECTICUT HOSPITAL ASSOCIATION

July 27, 1982

Mr. Gerald N. Hewitt
Vice President, Patient Financial Services
North Carolina Baptist Hospitals, Inc.
300 South Hawthorne Road
Winston-Salem, North Carolina 27103

SURVEY # 215 North Carolina Baptist Hospitals, Inc. QUESTIONNAIRE-CAPITAL EQUIPMENT ACQUISITION

Dear Mr. Hewitt:

The Council on Data of the Connecticut Hospital Association provides for its member institutions a mechanism by which surveys are reviewed in order to help hospitals contain costs and to prevent legally confidential information from being disclosed. The Council's endorsement, however, does not preclude individual hospitals from reviewing surveys through their own committees. The Council has received your survey from one or more of our members who have requested that we review it prior to its completion. The Council has taken the following action(s):

- needs additional information (Please complete and return the enclosed "Survey Information Sheet" by ... or we will have no choice but not to endorse your survey.)
has endorsed the survey.
will remain neutral on the survey, leaving it to the individual hospital as to response.
cannot endorse your survey due to reasons not limited to the items checked below:
[X] lack of reimbursement to the hospitals.
[X] failure to respond to the CHA Survey Information Sheet.
[X] cost of completion outweighs apparent benefits.
technical problems.
data not available in hospital.
serves proprietary/marketing purpose.
requests confidential patient information without legal authority
[X] duplication of existing data.
other

[X] Additional Comments. No sign of endorsement by AHA.

The above action has been communicated to all Connecticut hospitals.

Sincerely,

John T. Lynch (handwritten signature)

John T. Lynch
Associate Vice President, Data Applications

CC: Chief Executive Officer, Type I Member Institutions

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AUG 2 1982

PATIENT FINANCIAL SERVICES

August 10, 1982

Mr. John T. Lynch
Associate Vice President, Data Applications
The Connecticut Hospital Association
Post Office Box 90
Wallingford, Connecticut 06492-0090

Dear Mr. Lynch:

I received your July 27 letter concerning the questionnaire I had sent to all teaching hospitals in Connecticut. The questionnaire was sent to all members of the Council on Teaching Hospital of the American Association of Medical Colleges. There were about 425 questionnaires sent to these hospitals. I would like to request a reconsideration by your Association so the Connecticut hospitals would respond to my questionnaire.

When I mailed the questionnaires I was not aware of your and other associations' requirements that they be endorsed by your Association before the hospitals would respond. I suppose ignorance is no excuse, but in my conversations with the Council on Teaching Hospitals the subject of approvals did not come up. However, I did ask for the Councils on Teaching Hospitals to endorse the survey and although there was interest in the results, the policy is that they do not endorse survey.

In your letter to me you listed four things as reasons why they survey could not be endorsed. Although the survey does have beneficial effects for hospitals in this era of limited resources as we try to allocate these resources for capital equipment, it is a doctoral dissertation project. I estimate it would take no more than an hour for the administrator or designee and the chief financial officer or designee to complete this questionnaire. The financial data is in the external auditor's reports for the hospitals and should not be difficult to obtain. Since it is of such a short time and is not a funded project, I have not made any provision to pay the hospitals for the hour they would use to respond. However, I would give them a lot of gratitude for their participation. I don't think the cost of this project exceeds the benefit when we consider the government's attitude toward hospitals and their purchasing of technology. Additionally, the questionnaire was rejected because it was duplication of existing data. I have searched the literature and have not found the process used by hospitals to make these decisions. The financial data may be available in summary form but it has no relevance to the decision process which is being studied in this research. The questions being asked are is there an optimum expenditure level based on ownership, management, or other factors within a hospital. Is there a better method for allocating these resources depending on ownership or whether the administrator or committee makes the decision about expenditure. In my review of the literature I have not been find this data. However, data is available as to the year hospitals opened and some of the initial data that was requested.

-2-

The comment that it is not endorsed by the American Hospital Association is correct. But, I would hope that the benefit of the reporting of this information to the hospitals who participate as well as recording it as basic research and subsequent publication of articles would certainly be beneficial to the hospitals and would outweigh the approximately one hour it would take to complete the form.

With this information, I ask that you reconsider your decision of July 27 and endorse this questionnaire so it can be completed by the Connecticut hospitals.

Thank you very much.

Sincerely,

Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:mw

**THE CONNECTICUT HOSPITAL ASSOCIATION**

August 25, 1982

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AUG 30 1982
PATIENT FINANCIAL SERVICES

Mr. Gerald N. Hewitt
Vice President
Patient Financial Services
North Carolina Baptist Hospitals, Inc.
300 South Hawthorne Road
Winston-Salem, NC 27103

Dear Mr. Hewitt:

With the hundreds of questionnaires that bombard Connecticut hospitals each year, Connecticut hospitals have chosen our survey review process in order to reduce this burden.

Even with the additional information supplied in your August 10 letter, your survey does not meet the criteria established by the CHA Council on Data.

Sincerely,

A handwritten signature in cursive script that reads "John T. Lynch".

John T. Lynch

JTL/bab



Harper-Grace Hospitals
Harper Hospital Division

August 2, 1982

Mr. Gerald N. Hewitt
Vice President/Patient Financial Services
North Carolina Baptist Hospitals, Inc.
300 South Hawthorne Road
Winston-Salem, NC 27103

Dear Mr. Hewitt:

Enclosed is the questionnaire you recently sent us. In accordance with the policy adopted by the Greater Detroit Area Hospital Council, this hospital will not respond to your questionnaire unless it is approved by that organization.

We are, therefore, returning your inquiry. May we suggest that you bring this matter to the attention of

Greater Detroit Area Hospital Council, Inc.
1900 Book Building, Detroit, Michigan 48226
Telephone: (313) 963-4990

Sincerely,

Sandra L. Ruczynski
Sandra L. Ruczynski
Administrative Secretary

/s/r
Enc.

RECEIVED
AUG 10 1982
PATIENT FINANCIAL SERVICES

July 28, 1982

RECEIVED

JUL 29 1982

PATIENT FINANCIAL SERVICES



Greater
Detroit
Area
Hospital
Council INC

1900 Book Building
Detroit, Michigan 48226
313/963-4990

Mr. Gerald Hewitt
North Carolina Baptist Hospital
Winston-Salem, N.C., 27103

Dear Mr. Hewitt,

The Questionnaire Review Subcommittee of the Greater Detroit Area Hospital Council (GDAH) was formed in response to the increasing volume of questionnaires and requests for information directed at hospitals. Our Committee will review questionnaires voluntarily referred to us by our membership or the surveyors themselves and recommend whether or not they should be endorsed. The final decision to participate remains the hospital's responsibility. The GDAH review is advisory and does not constitute a legal opinion.

As a first step in this review, we ask each surveyor to complete the attached survey in order to determine whether the request meets previously determined criteria. These are outlined in the enclosed "Guidelines and Procedures for the Approval of Requests for Information and Questionnaires by the Greater Detroit Area Hospital Council". When we receive your response, your questionnaire will be scheduled for review by the Questionnaire Review Subcommittee at their regular monthly meeting. If we do not receive a response within three weeks, the Committee will automatically recommend a negative decision.

In addition to your response, we would appreciate any supplemental materials that would describe the background of the investigator, the study design and the sampling technique.

Please let me know if I can be of further assistance.

Sincerely,

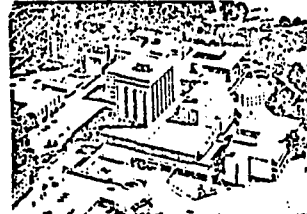
Joseph J. Reilly
Assistant Director of Research

JJR/rdc
attachments

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300 SOUTH HAWTHORNE ROAD, WINSTON-SALEM, NORTH CAROLINA 27103

August 3, 1982

Mr. Joseph J. Reilly
Assistant Director of Research
Greater Detroit Area Hospital Council, Inc.
1900 Book Building
Detroit, Michigan 48226

Dear Mr. Reilly:

I am enclosing the questionnaire your council requires before hospitals in your area will respond to the questionnaire I sent out.

On the questionnaire you asked for the names of the hospitals in your council which are included in the survey. I do not know your membership, but the Michigan hospitals to which I sent a survey form are: Providence Hospital, Southfield; St. Joseph Mercy Hospital, Pontiac; V.A., Allen Park; V.A., Medical Center, Ann Arbor; St. Joseph Mercy Hospital, Ann Arbor; University Hospital, Ann Arbor; Oakwood Hospital, Dearborn; Wayne County General Hospital, Westland; Harper Grace Hospitals, Detroit; The Harper Hospital Division, Detroit; Children's Hospital of Michigan, Detroit; Hutzel Hospital, Detroit; Detroit Receiving Hospital, Detroit; Henry Ford Hospital, Detroit; Grace Hospital Division, Detroit; Mount Carmel Mercy Hospital, Detroit; Sinai Hospital of Detroit, St. John Hospital, Detroit; Hurley Medical Center, Flint; Edward W. Sparrow Hospital-Lansing; St. Mary's Hospital, Grand Rapid; Butterworth Hospital, Grand Rapids and Blodgett Memorial Medical Center, Grand Rapids - 23 Michigan hospitals.

Your questionnaire asks for data about the researcher, in this instance that is me. I am a professional hospital administrator with 17.5 years in the hospital field. I am combining a doctoral dissertation research project with a perceived need with the goal that the data will identify

-2-

current decision making processes related to capital equipment acquisition. Maybe hospitals are doing an effective job of allocating resources for capital equipment. The process will provide a look at the current practices. Furthermore, I hope to develop a model which will enhance the process of resource allocation.

I hope your council will approve this questionnaire. It will make my research of less quality if the Michigan hospitals are not represented in the data.

Thank you.

Sincerely,

Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:nw

August 23, 1982



**Greater
Detroit
Area
Hospital
Council** INC.

1900 Book Building
Detroit, Michigan 48226
313/963-4990

Mr. Gerald N. Hewitt
Vice President
North Carolina Baptist Hospitals
300 South Hawthorne Road
Winston-Salem, N.C., 27103

Dear Mr. Hewitt,

This is to inform you that at its August 19th meeting, the Council's Data Management Committee endorsed hospital participation in the Capital Equipment Acquisition Questionnaire.

The Committee felt your survey instrument and your doctoral research would benefit by including a request for the hospital's protocol for the capital budgeting process.

The area hospitals will be notified of this decision by memo and newsletter. Please let me know if you have any questions about this action.

Sincerely,

Joseph J. Reilly
Assistant Director of Research

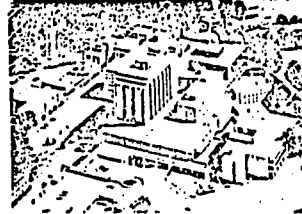
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300 SOUTH HAWTHORNE ROAD, WINSTON-SALEM, NORTH CAROLINA 27103

August 25, 1982

Mr. Joseph J. Reilly
Assistant Director of Research
Greater Detroit Area Hospital Council, Inc.
1900 Book Building
Detroit, Michigan 48226

Dear Mr. Reilly,

Thank you very much for your Associate's endorsement of my doctoral research questionnaire.

I appreciate the suggestion on obtaining the hospital's protocol for the capital budgeting process. I had originally included that in the questionnaire, but was advised by my faculty advisor to delete it. Additionally, when I validated my questionnaire with several hospitals, only one responded to that request. I will in my letter to your member hospitals ask for this information as an addition to the questionnaire. I agree with this suggestion and will followed through with it.

Again, I want to thank you for your assistance in this and will share with you the data once it is compiled.

Sincerely,

Gerald N. Hewitt
Vice President
Patient Financial Services

GHN:mw

August 25, 1982

Dear

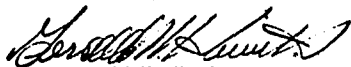
On July 15, 1982 I mailed a research questionnaire to you. This questionnaire is seeking information about your capital equipment acquisition process. Several of you indicated that I needed the approval of the the Greater Detroit Area Hospital Council before your hospitals would response to the questionnaire. I was unaware of this requirement at the time, but have followed through with the Hospital Council and have their approval for the questionnaire.

I am attaching a letter to me from Mr. Joseph Reilly indicating that this questionnaire has been approved by your Council.

I will appreciate your completing the questionnaire. In case you did not keep the original, I am sending along another copy of the questionnaire and have extended the response time until September 15, 1982. I would also appreciate a copy of your written capital budget procedures.

I appreciate your willingness to participate in this research project. Having been involved in hospital administration for over twenty years, it seems to me that this is a timely area for research in this era of limited resources.

Sincerely,



Gerald N. Hewitt
Vice President
Patient Financial Services

CNH:mv

enc.

July 27, 1982

Ms. Stefanie Steel
Greater New York Hospital Association
61 West 62nd Street
New York, New York 10023

Dear Miss Steel:

I am doing a doctoral dissertation on "The Decision Process Related to Capital Equipment Acquisition in Teaching Hospitals". The population being studied is the member hospitals of the Council of Teaching Hospitals of the American Association of Medical Colleges. I mailed the questionnaire on July 15, 1982. I have been told by some of your member hospitals that you must approve questionnaires before they will respond.

I have enclosed a copy of the questionnaire for your review and approval. I am looking for the decision processes and hope to relate the various processes to a result. The doctoral dissertation is the immediate goal. However, results will be shared with respondees who request them. Additionally, I will write articles on the subject.

I will appreciate your approval as soon as possible.

Thank you.

Sincerely,

Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:mw

enc.



**Hospital Association
of New York State**

at the Center for Health Initiatives
INCORPORATED 15 COMPUTER DRIVE WEST ALBANY, NEW YORK 12205 • (518) 458-7940

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August 4, 1982

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AUG 9 1982

PATIENT FINANCIAL SERVICES

Mr. Gerald N. Hewitt
Vice President
Patient Financial Services
North Carolina Baptist Hospitals, Inc.
300 South Hawthorne Road
Winston-Salem, North Carolina 27103

Dear Mr. Hewitt:

This is in response to your letter of July 27.

Our Association does not have a formal policy of endorsing or not endorsing questionnaires which are sent to hospitals although the Greater New York Hospital Association does. It is that organization to which some hospitals may have meant to refer.

On frequent occasion, we are asked to formally endorse surveys; these are generally limited to organizational projects such as HHS, Blue Cross, JCAH, etc. We do not, as a matter of course, act on individual requests.

In short, we would neither approve nor disapprove your questionnaire. It is up to the facility to respond or not.

Sincerely,

George B. Allen

George B. Allen
President



California Hospital Association
 1023 12th Street Sacramento, CA 95814

916/443-7401

August 4, 1982

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 AUG 9 1982
 PATIENT FINANCIAL SERVICES

Gerald N. Hewitt
 Vice President
 Patient Financial Services
 North Carolina Baptist Hospitals, Inc.
 300 South Hawthorne Road
 Winston-Salem, North Carolina 27103

Dear Mr. Hewitt:

The California Hospital Association and four hospital councils review all surveys that are sent to California hospitals as a membership service. I am, therefore, enclosing a list of questions for you to complete so we may be able to review your survey. Please be as brief as possible when answering the questions. We will forward your responses and the survey onto the four councils and then inform you of our decision.

We hope this cooperative effort will result in a better survey response for you.

Sincerely,

A handwritten signature in cursive script that reads "Larkin Morse".

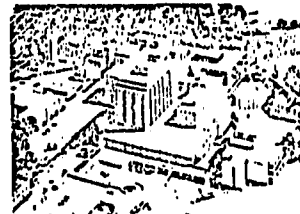
Larkin E. Morse
 Policy Analyst

LEM:jvw

Enclosure

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300 SOUTH HAWTHORNE ROAD, WINSTON-SALEM, NORTH CAROLINA 27103

August 9, 1982

Ms. Larkin E. Morse
Policy Analyst
California Hospital Association
1023 12th Street
Sacramento, California 95814

Dear Ms. Morse:

I am enclosing the survey evaluation form you sent to me with your letter of August 4, 1982 regarding the questionnaire I sent to you. I will appreciate your considering my request for endorsement of my questionnaire which I have already mailed.

The hospitals being surveyed, as you will see on the survey you sent to me, are the California hospitals which have membership in the Council on Teaching Hospitals of the American Association of Medical Colleges.

Thank you for your consideration of this request.

Sincerely,

Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:mw

enc.

Legislation Affecting Hospitals Awaits Action By The Governor

The Legislature acted on much more than Medi-Cal and hospital contracting this year; CHA actively supported, opposed or sought to amend hundreds of bills affecting hospitals. Among CHA-supported measures passed late in the session and still awaiting the Governor's action: AB 643, by Assemblyman Howard Berman, D-Los Angeles, which exempts non-patient related projects from Certificate of Need requirements and allows acute psychiatric, chemical dependency and rehabilitation hospitals to add, under specified conditions, the lesser of 10 beds or 10 percent of licensed beds without CON; AB 3498, by Assemblyman Curtis Tucker, D-Inglewood, which sets up an automated eligibility verification system for Medi-Cal, which for a fee will be available to hospitals; SB 1429, by Senator Alfred Alquist, D-San Jose, which raises the limit on revenue bonds issued by the California Health Facilities Authority for non-profit hospital projects by \$767 million; and SB 1978, by Senator Rose Ann Vuich, D-Dinuba, which revises hospital district law on qualifications of board members, disposal of surplus property, borrowing money and bidding out contracts.

CHA also worked to amend or defeat proposals harmful to hospitals. Despite CHA opposition, Assemblyman Tucker's AB 1287, which would establish a certification program for respiratory and inhalation therapists, reached the Governor's desk. CHA has urged a veto because of, among other things, the additional costs it would generate. Others on the Governor's desk to which CHA withdrew opposition after they were amended: AB 1805, by Assemblyman Gerald Felando, R-Torrance, which would have required health personnel to report suspected abuse of elderly persons on penalty of a misdemeanor violation, was amended to create a voluntary reporting system and require a study of the problem; and AB 3172, by Assemblywoman Maxine Waters, D-Los Angeles, which would have required a training program for emergency room personnel who examine and treat rape victims, was amended to create an advisory committee to develop and distribute a guide to examination and interviewing techniques of victims of sexual assault.

The Governor has signed a bill on hazardous waste, SB 1402, by Senator John Doolittle, R-Sacramento. The bill was opposed by CHA in its original form, which would have required hospitals to dispose of all infectious waste by incineration or sterilization. The bill was amended to redefine infectious waste and, more precisely, require the state Department of Health Services to adopt appropriate regulations, and CHA took a neutral position.

CHFC Asks Hospitals For Their Views On How To Present Discharge Abstract Data

In a letter scheduled to go out to hospitals next week, the California Health Facilities Commission is asking for suggestions on how to make as useful as possible the discharge abstract data being collected from hospitals. The mailing includes a series of proposed tables, summarizing information for individual hospitals and for categories of patients. Hospitals are urged to review the material carefully, and send their comments to the CHFC.

CHA And The Hospital Councils Okay Two Surveys, But Do Not Endorse A Third

CHA and the four Hospital Councils have endorsed two surveys. One is a survey by the National Highway Traffic Safety Administration of traffic accidents in Los Angeles County; hospitals are being asked for medical records on specified accident victims. The objective is to prevent potential traffic problems. The second survey, by a North Carolina hospital financial vice president, deals with the decision-making process by teaching hospitals in acquiring capital equipment; 32 California hospitals are being contacted. A third survey was not endorsed: It is a questionnaire on public relations attitudes sent to 250 hospitals by a master's degree candidate at California State University, Fresno.



CHA NEWS (USPS 099-182) Published weekly by the
California Hospital Association, 1023 17th St., Sacramento, CA 95814
(916) 443-7401 CHA members \$10 per year, non-members \$15
Second-class postage paid at Sacramento, CA
POSTMASTER: Send address changes to CHA, 1023
12th St., Sacramento, CA 95814 9/17/82

RECEIVED

SEP 24 1982

PATIENT FINANCIAL SERVICES



Survey Review

Published by HAP's Department of Health Data Services

Route To:

August 9, 1982

Gerald N. Hewitt
 North Carolina Baptist Hospitals, Inc.
 300 South Hawthorne Road
 Winston-Salem, NC 27103

Dear Mr. Hewitt:

The Hospital Association of Pennsylvania's (HAP) Survey Review Group has reviewed your survey on Capital Equipment Acquisition. The decision, to suggest that hospitals do not complete this survey, was published in the July 23, 1982 issue of the "Survey Review". It remains the prerogative of individual institutions to determine the final disposition of any survey received; however, member institutions are urged to follow HAP's recommendation. Please see Attachment A for additional comments.

In order to expedite future research efforts of your organization, we will be happy to review and make suggestions on drafts of your survey instruments before you mail it to our member institutions.

We look forward to working with you in the future.

Sincerely,

Tama J. Dinkel
 Tama J. Dinkel
 Staff Specialist
 Health Data Services

TJD:llh

attachment

Survey Review
Attachment A

The Hospital Association of Pennsylvania's Survey Review Group has recommended that hospitals do not complete this survey for the following reasons:

- The financial data being requested appears to be more extensive than necessary.
- A portion of the information is available through the American Hospital Association.

July 26, 1982

Ms. Tama J. Dinkel
Staff Associate
Health Data Services
Post Office Box 608
Camp Hill, Pennsylvania 17011

Dear Ms. Dinkel:

I am enclosing the data sheet your association requires for endorsing research. Had I know of the procedure I would have requested approval before mailing the research instrument.

This data is not only important to my doctoral dissertation, it is important for hospitals in this era of limited resources. I hope, as a practitioner of hospital administration, to contribute to the process of allocating capital equipment dollars for maximum effectiveness.

Sincerely,

Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:dw

enc.



July 20, 1982

RECEIVED
 JUL 20 1982
 PATIENT FINANCIAL SERVICES

Gerald N. Hewitt
 North Carolina Baptist Hospitals, Inc.
 300 S. Hawthorne Road
 Winston-Salem, NC 27103

Dear Mr. Hewitt:

The Hospital Association of Pennsylvania (HAP) has adopted a policy on behalf of its members which establishes a process whereby requests for data made to member hospitals are screened by HAP staff. In accordance with this policy, it remains the prerogative of individual institutions to determine the final disposition of any survey received; however, member institutions are urged to evaluate their decision in relation to the Association's recommended position.

Your survey has been submitted to the HAP survey review group for its recommendation. As part of its review procedures, HAP requires that the attached survey review information form be completed to assist in the evaluation of your survey. The completed form should be returned to HAP within ten (10) days in order for your survey to be considered for review. A set of the HAP survey review policies, criteria and procedures is enclosed for your information.

Thank you for your cooperation.

Sincerely,

Tama J. Dinkel
 Tama J. Dinkel
 Staff Associate
 Health Data Services

TJD/11h
 enclosures

**THE
HOSPITAL
ASSOCIATION
OF PENNSYLVANIA**

July 20, 1982

RECEIVED
JUL 20 1982
PATIENT FINANCIAL SERVICES

Gerald N. Hewitt
North Carolina Baptist Hospitals, Inc.
300 S. Hawthorne Road
Winston-Salem, NC 27103

Dear Mr. Hewitt:

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Your survey has been submitted to the HAP survey review group for its recommendation. As part of its review procedures, HAP requires that the attached survey review information form be completed to assist in the evaluation of your survey. The completed form should be returned to HAP within ten (10) days in order for your survey to be considered for review. A set of the HAP survey review policies, criteria and procedures is enclosed for your information.

Thank you for your cooperation.

Sincerely,

Tama J. Dinkel
Tama J. Dinkel
Staff Associate
Health Data Services

TJD/11h
enclosures

July 15, 1982

Dear Administrator:

I want to ask a favor, one which could result in information that will be useful to hospitals. The information I request has its most immediate application to my doctoral dissertation research. But the research is practical and timely for hospitals during an era of shrinking resources.

The research examines the decision making process used in teaching hospitals for making capital equipment expenditures. Knowledge gained from this work could prove useful to hospitals which seek an improved process for capital equipment allocations.

Most of the data can be provided simply by putting a check mark in the appropriate space, which ought not to take much of your valuable time. One section, however, involves financial data and will take some additional time. But the information requested is available in hospitals' external audit reports.

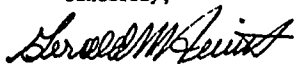
The information you provide will be confidential. You can see that the questionnaire sent to you is numbered, which is for control purposes only. No other use will be made of the numbers to track data.

Your hospital will remain anonymous even if you chose to have a data summary sent to you. Information and statistics will be reported only in ways that will not allow identification of hospitals.

I know that we get tired of surveys, yet I still ask your cooperation. The questionnaire should not take more than 30 to 60 minutes to complete. And a large number of completed questionnaires are essential to the validity of this work. A self-addressed, stamped envelope is enclosed for you to return the completed questionnaire to me.

Thank you for your willingness to assist me through the sharing of your information.

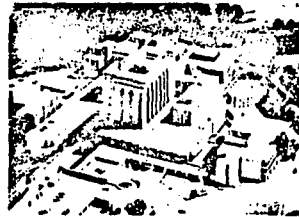
Sincerely,



Gerald N. Hewitt
Vice President
Patient Financial Services

a medical center ministering with skill and understanding

NORTH CAROLINA
BAPTIST HOSPITALS, Inc.



300 SOUTH HAWTHORNE ROAD, WINSTON-SALEM, NORTH CAROLINA 27103

August 22, 1982

Dear


Basic research into the practical events of hospital administration is uncommon, and more uncommon is for the research to be done by a practitioner. Nevertheless, I am a practitioner with 21.5 years hospital experience and I do have the opportunity to do basic research at the present time. My research interest is the decision process used by teaching hospitals for allocation of resources for capital equipment. This is a crucial issue because capital equipment can be very expensive, i.e., NMR at \$1.5 million, not considering operational expenses. Furthermore, capital equipment purchases may commit your hospital to a new direction in patient care with the corollary expense for scarce technical personnel. Moreover, we are in an era of fixed, if not shrinking, resources. The prudent allocation of resources, therefore, is very important.

I need your help if my research is to be meaningful. Your hospital association has recommended that you not respond to my questionnaire which was mailed to you on July 15, 1982. Your hospital association is doing the duty you asked it to do. Nevertheless, I am asking you to act independently on this occasion and respond to the questionnaire. Your information will make the data more meaningful and, hopefully, the results will improve our knowledge and performance in our administrative responsibilities.

-2-

Just in case you have discarded the first questionnaire, I am enclosing another copy. Also the date for reply has been extended to September 15, 1982. I realize your response will cost your institution some employee time and I wish I could pay for it. However, the results will hopefully provide a generous return for the hospital industry.

Sincerely,



Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:mw

enc.

September 8, 1982

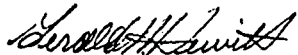
Dear Administrator,

I mailed to you a questionnaire, on July 15, 1982, requesting that your hospital complete it. As I pointed out, the immediate purpose of this questionnaire is research for a doctoral dissertation. However, the main purpose of selecting this topic (capital equipment purchase decision processes in teaching hospitals) was to determine the practice of teaching hospitals, and to share this data with the participating hospitals. The hope is that this data, after analyses, will benefit hospitals as we seek better ways to allocate economic resources for capital equipment.

I have not received a questionnaire from your hospital and would certainly like to have one. So, I am enclosing another copy with the request that you reconsider and response to my questionnaire this time.

Thank you very much for your assistance in this project.

Sincerely,



Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:mw

enc.

September 16, 1982

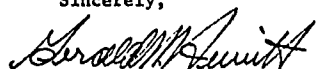
Dear Administrator:

On July 15, 1982 I sent you a questionnaire which is surveying the Capital Equipment Acquisition Process in Teaching Hospitals. Several California hospitals notified me that the California Hospital Association must endorse surveys and questionnaires before the hospitals will respond. I certainly think that is a reasonable rule, and I requested endorsement. The California Hospital Association has endorsed the attached questionnaire.

The attached questionnaire is numbered for control purposes only. Individual hospital data will be confidential. As I indicated in my first letter, the immediate purpose of the research is my doctoral dissertation, but I believe the data will be valuable to all hospitals as we allocate our resources in this era in which we now officially recognize that resources are limited. The response date has been extended to October 10, 1982.

Thank you for your cooperation.

Sincerely,


Gerald N. Hewitt
Vice President
Patient Financial Services

GNH:mw

enc.

APPENDIX C
RESPONSE DATA PROFILED BY STATE

Table A
A PROFILE OF THE POPULATION BY STATE AND BY
MEDICAL SCHOOL AFFILIATION AND MEDICAL SCHOOL

<u>STATE</u>	<u>MEDICAL SCHOOL</u>	<u>TEACHING HOSPITALS WITH COTH MEMBERSHIP</u>	<u>RESPONSE</u>
Alabama	2	4	3
Arizona	1	6	1
Arkansas	1	2	0
California	8	32	6
Colorado	1	3	2
Connecticut	2	14	0
Delaware	0	1	1
District of Columbia	3	6	2
Florida	3	8	3
Georgia	3	7	3
Hawaii	1	1	1
Illinois	7	24	5
Indiana	1	5	1
Iowa	1	4	1
Kansas	1	3	1
Kentucky	2	5	2
Louisiana	3	6	0
Maine	0	1	1
Maryland	3	9	3
Massachusetts	4	21	4
Michigan	3	24	13
Minnesota	3	6	2
Mississippi	1	2	1
Missouri	4	12	4
Nebraska	2	3	0
Nevada	1	0	0
New Hampshire	1	1	0
New Jersey	2	13	6
New Mexico	1	2	1
New York	12	56	9
North Carolina	4	7	7
North Dakota	1	0	0
Ohio	6	25	7
Oklahoma	2	3	0
Oregon	1	3	0
Pennsylvania	7	37	7
Puerto Rico	3	3	0
Rhode Island	1	6	2
South Carolina	2	3	0
South Dakota	1	0	0

Table A
A PROFILE OF THE POPULATION BY STATE AND BY
MEDICAL SCHOOL AFFILIATION AND MEDICAL SCHOOL

- Continued -

<u>STATE</u>	<u>MEDICAL SCHOOL</u>	<u>TEACHING HOSPITALS WITH COH MEMBERSHIP</u>	<u>RESPONSE</u>
Tennessee	4	7	1
Texas	7	16	9
Utah	1	2	2
Vermont	1	2	2
Virginia	3	6	3
Washington	1	6	2
West Virginia	2	3	2
Wisconsin	<u>2</u>	<u>10</u>	<u>3</u>
	<u>126</u>	<u>419</u>	<u>123</u>

Table B.
TEACHING HOSPITALS BY OWNERSHIP

RESPONSES BY STATE

<u>STATE</u>	<u>NON-FEDERAL GOVERNMENT</u>	<u>NOT-FOR-PROFIT</u>	<u>FEDERAL GOVERNMENT (VA)</u>	<u>TOTAL</u>
Alabama	2	0	1	3
Arizona	0	1	0	1
California	2	2	2	6
Colorado	1	0	1	2
Delaware	0	1	0	1
District of Columbia	0	1	1	2
Florida	1	1	1	3
Georgia	1	2	0	3
Hawaii	0	1	0	1
Illinois	0	5	0	5
Indiana	0	1	0	1
Iowa	1	0	0	1
Kansas	0	1	0	1
Kentucky	0	0	2	2
Maine	0	1	0	1
Maryland	2	0	1	3
Massachusetts	1	3	0	4
Michigan	2	10	1	13
Minnesota	1	1	0	2
Mississippi	0	0	1	1
Missouri	1	4	0	4
New Jersey	1	4	1	6
New Mexico	0	0	1	1
New York	2	6	1	9
North Carolina	4	2	1	7
Ohio	1	5	1	7
Pennsylvania	0	7	0	7
Rhode Island	1	1	0	2
Tennessee	0	0	1	1
Texas	3	4	2	9
Utah	1	1	0	2
Vermont	0	1	1	2
Virginia	1	2	0	3
Washington	2	0	0	2
West Virginia	1	1	0	2
Wisconsin	<u>2</u>	<u>0</u>	<u>1</u>	<u>3</u>
Total	<u>34</u>	<u>70</u>	<u>21</u>	<u>123</u>

Table C
TEACHING HOSPITALS BY GOVERNANCE

RESPONSES BY STATE

STATE	HOSPITAL BOARD	UNIVERSITY BOARD	MULTI-SYSTEM SYSTEM BOARD	MULTI-SYSTEM HOSPITAL BOARD ONLY	MULTI-SYSTEM SYSTEM AND HOSPITAL BOARD	OTHER TYPE GOVERNMENT
Alabama	0	2	0	0	0	1
Arizona	1	0	0	0	0	0
California	2	0	0	1	0	3
Colorado	0	1	0	0	0	1
Delaware	1	0	0	0	0	0
District of Columbia	0	1	1	0	0	0
Florida	2	0	0	1	0	0
Georgia	1	1	0	0	0	1
Hawaii	1	0	0	0	0	0
Illinois	4	0	1	1	0	0
Indiana	1	0	0	0	0	0
Iowa	0	0	0	0	0	1
Kansas	1	0	0	0	0	0
Kentucky	0	0	1	0	0	1
Maine	1	0	0	0	0	0
Maryland	1	0	0	0	1	1
Massachusetts	4	0	0	0	0	0
Michigan	5	1	0	1	1	2
Minnesota	2	0	0	0	0	0
Mississippi	0	0	0	0	0	1
Missouri	3	1	0	0	0	0
New Jersey	4	0	0	0	0	2
New Mexico	0	0	0	0	0	1
New York	4	2	1	1	0	2
North Carolina	4	1	0	0	1	1

Table C
TEACHING HOSPITALS BY GOVERNANCE

RESPONSES BY STATE

- Continued -

STATE	HOSPITAL BOARD	UNIVERSITY BOARD	MULTI-SYSTEM SYSTEM BOARD	MULTI-SYSTEM HOSPITAL BOARD ONLY	MULTI-SYSTEM SYSTEM AND HOSPITAL BOARD	OTHER TYPE GOVERNMENT
Ohio	5	0	0	0	1	1
Pennsylvania	5	1	0	0	2	0
Rhode Island	1	0	0	0	0	0
Tennessee	0	0	0	0	0	1
Texas	5	2	1	0	0	1
Utah	1	0	0	1	0	0
Vermont	1	0	0	0	0	1
Virginia	0	1	1	0	1	0
Washington	2	0	0	0	0	0
West Virginia	1	1	0	0	0	0
Wisconsin	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>
Total	<u>63</u>	<u>16</u>	<u>6</u>	<u>6</u>	<u>10</u>	<u>25</u>

*Three hospitals indicated two types.

Table D
MEDICAL SCHOOL AFFILIATION

RESPONSES BY STATE

<u>STATE</u>	<u>PRIMARY TEACHING HOSPITAL</u>	<u>AFFILIATED TEACHING HOSPITAL</u>	<u>TOTAL</u>
Alabama	2	1	3
Arizona	1	0	1
California	2	4	6
Colorado	2	0	2
Delaware	0	1	1
District of Columbia	1	1	0
Florida	1	2	3
Georgia	1	2	3
Hawaii	0	1	1
Illinois	2	4	6
Indiana	0	1	1
Iowa	1	0	1
Kansas	0	1	1
Kentucky	0	2	2
Maine	0	1	1
Maryland	0	3	3
Massachusetts	3	1	4
Michigan	4	9	13
Minnesota	2	0	2
Mississippi	0	1	1
Missouri	1	3	4
New Jersey	2	3	5
New Mexico	0	1	1
New York	6	3	9
North Carolina	5	2	7
Ohio	1	6	7
Pennsylvania	2	5	7
Rhode Island	0	1	1
Tennessee	0	1	1
Texas	4	5	9
Utah	1	1	2
Vermont	1	1	2
Virginia	2	1	3
Washington	1	1	2
West Virginia	1	1	2
Wisconsin	<u>1</u>	<u>2</u>	<u>3</u>
Total	<u>50</u>	<u>72</u>	<u>122*</u>

*One hospital did not indicate affiliation.

APPENDIX D

A CHRONOLOGY OF MAJOR HEALTH
LEGISLATION - 1776-1976
(U. S. DEPARTMENT OF HEALTH, EDUCATION
AND WELFARE - DHEW PUB. NO. (HRA) 76-616) PP. 195-211

Health in America: 1776-1976



U.S. Department of Health, Education, and Welfare

U.S. PUBLIC HEALTH SERVICE
Health Resources Administration

DHEW Pub. No. (HRA) 76-616

A Chronology of Major Health Legislation

According to Article I, Section 8, of the U.S. Constitution, "The Congress shall have power To . . . provide for the common defense and general welfare of the United States" and "To regulate commerce with foreign nations, and among the several States, and with the Indian tribes." Ever since 1789, when the Constitution became effective, Congress has enacted (and Presidents have signed into law) a great deal of legislation in support of the health of Americans under both the "General Welfare Clause" and the "Commerce Clause" of Section 8.

The following list of laws is by no means complete; but it should serve to illustrate how a national policy on public health has evolved over the years through legislation, influenced by science, the growth of the Nation on this continent, the increased complexity of the relationship between commerce and health, and the emergence in this century of the "politics of health." Invaluable assistance was received from the legislative offices of many Federal agencies, the staffs of the several health committees of the Congress, and the Office of the Federal Register of the National Archives and Records Service. From a mountain of possible citations we made the final choices. We accept full responsibility for any errors or omissions and promise that these will be corrected in time for the Tricentennial printing.

The Numbering System

In addition to the substance of health legislation, the numbering system of all legislation evolved during the past two centuries. Beginning on June 1, 1789, and continuing through December 14, 1901, Congress enacted public and private laws that were published as "chapters" in numbered volumes of "statutes" (*U.S. Statutes at Large*). The customary citation, however, was the page number of the statute volume, even though several chapters may

have appeared on a page. Thus, the Vaccination Act proposed by President Jefferson was commonly referred to as "2 Stat. 806"—it appeared on page 806 of the second volume of statutes enacted by Congress. However, that specific law was officially Chapter 37, passed during the Second Session of the Twelfth Congress. In the list below, numbers 1. through 12. are presented to show the Congress, the Session of that Congress, and the Chapter designation for each law. Thus, "2 Stat. 806" has been translated to be 12 (II)-37 for clarity, although it is not yet accepted by legal scholars.

During the first decade of this century, Congress separated the public laws and private laws, gave each category its own numbering system, but maintained the chapter designations, also. As before, the numbering began anew with the opening of each Session of the Congress. Hence, the Food and Drugs Act of 1906 was known as "Public, No. 384." But there could be more than one of these "Public, No.'s" with each Session. This changed somewhat during the Second Session of the 60th Congress; all the "Public, No.'s" were put into continuous sequence—but the chaptering started all over again with each Session.

In 1941, at the opening of the First Session of the 77th Congress, the designation "Public Law" was employed. The chaptering system was also employed, but began to fall into disuse. With the First Session of the 85th Congress, in January of 1957, Congress finally dropped the chapter designations altogether, maintained the "Public Law" title, and continued numbering each enacted statute in sequence regardless of Session. And to really clarify and simplify the designation, Congress also placed the number of that particular sitting of the Congress as a prefix. Hence the Air Quality Act is identified below as Public Law 90-148 (or PL 90-148), the 148th piece of legislation enacted by the Congress and signed by the President during the sitting of the 90th Congress. (The actual number of the law is assigned by the Office of the Federal Register of the National Archives and Register Service, upon notification that the President has indeed signed it.)

The citations below are, therefore, consistent: each one identifies the Congress and the law, as it came up for passage. Legal authorities do not use this system, so the reader is cautioned against rooting about in law libraries with our citations as his or her only beginning point. It is, nevertheless, a rational system, for which we offer no apology at all:

Year	Citation	Title	Summary of Purpose
1794	3 (I)-61	<i>Act of June 9, 1794</i>	Authorized appointment of a health officer for the Port of Baltimore, Md.
1796	4 (I)-31	<i>Act Relative to Quarantine</i>	Directed Revenue officers to execute health and quarantine regulations at U.S. ports of entry.
1798	5 (II)-77	<i>Act for the Relief of Sick & Disabled Seamen</i>	Imposed 20c tax on seamen's wages to provide funds for their health care.
1799	5 (III)-12	<i>Act Respecting Quarantine and Health Laws</i>	Placed supervision of maritime quarantine in Treasury Dept.; authorized assistance to States for their quarantine laws.
1811	11 (III)-26	<i>Act Establishing Navy Hospitals and a Hospital Fund</i>	Created fund to build naval hospitals.
1813	12 (II)-37	<i>Act to Encourage Vaccination</i>	Effort by Pres. Jefferson to encourage vaccination, especially against cowpox; created post of Vaccination Agent, with (limited) free mailing privileges.
1818	15 (I)-61	<i>Act Regulating the Staff of the Army</i>	Created a Medical Department under a Surgeon General.
1847	29 (II)-8	<i>Act to Raise Additional Military Force</i>	Gave military rank to Army medical officers.
1848	30 (I)-70	<i>Import Drugs Act</i>	The first Federal statute to insure the quality of drugs.
1862	37 (II)-166	<i>Act to Grant Pensions</i>	Provided compensation for all U.S. veterans (their dependents and survivors) for service-connected injuries, disabilities, or death; established principle of medical care and hospitalization.
1863	37 (III)-111	<i>Act to Incorporate the National Academy of Sciences</i>	Provided the Federal Government with an official yet independent advisor on questions of science and technology.
1866	39 (I)-21	<i>Disabled Volunteer Soldiers Act</i>	Authorized a National Asylum (later called a "Home") for disabled veterans of Civil War.
1870	41 (II)-169	<i>Act to Reorganize the Marine Hospital Service</i>	Authorized the Secretary of the Treasury to create the Office of Supervising Surgeon, Marine Hospital Service (forerunner of the Surgeon General, USPHS).

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1878	45 (II)-66	<i>Act to Enforce Quarantine on Vessels and Vehicles</i>	Created a "national quarantine system" to supervise efforts to control epidemic diseases.
1879	45 (III)-202	<i>Act to Establish a National Board of Health</i>	Created, for a four-year period, a Board to cooperate with State and local boards of health on "all matters affecting the public health."
1887	49 (II)-311	<i>Act to Establish a Hospital Corps</i>	Formal establishment of career opportunities for enlisted personnel in the Army Medical Dept.
1889	50 (II)-19	<i>Act to Regulate Appointments in the Marine Hospital Service</i>	Created the Commissioned Corps of the Marine Hospital Service; appointed by President, approved by Senate.
1890	51 (I)-51	<i>Act to Prevent Interstate Spread of Disease</i>	Gave the Marine Hospital Service interstate quarantine authority.
1891	51 (II)-555	<i>Animal Inspection Act</i>	Required inspection of animals for diseases before slaughter and subsequent export or interstate shipment.
1899	55 (III)-425	<i>Rivers and Harbors Act ("Refuse Act")</i>	Prohibited the dumping of wastes into navigable waters without a permit from the Corps of Engineers.
1901	56 (II)-192	<i>Army Reorganization Act</i>	Established the Nurse Corps ("female") as a permanent part of the Army's Medical Department.
1902	57 (I)-236	<i>Reorganization Act</i>	Changed name to Public Health and Marine Hospital Service with six divisions (including research at the Hygienic Laboratory).
1902	57 (I)-244	<i>Biologics Control Act</i>	Ordered the licensing and regulation of interstate sales of serums, vaccines, etc., for use in humans.
1906	59 (I)-382	<i>Agriculture Department Appropriations</i>	Called for regular inspection of meat-packing plants to combat unsanitary conditions (separated out as Meat Inspection Act of 1907).
1906	59 (I)-384	<i>Food and Drugs Act</i>	Prohibited interstate commerce in misbranded and adulterated foods, drinks, and drugs.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1910	61 (II)-152	<i>Insecticide Act</i>	Prohibited the interstate transport of adulterated or misbranded insecticides.
1912	62-116	<i>Act to Establish a Children's Bureau</i>	First effort to establish maternal and child health care programs at the Federal level.
1912	62-265	<i>Reorganization Act</i>	Changed name to Public Health Service and authorized field investigations and studies.
1912	62-301	<i>The Sherley Amendment</i>	Prohibited the labeling of medicines with false and misleading therapeutic claims.
1914	62-223	<i>Harrison Narcotics Act</i>	Established Federal controls over narcotics users and suppliers, including physicians and hospitals.
1917	65-90	<i>War Risk Insurance Act</i>	Authorized money compensation, insurance, vocational rehabilitation, and medical and hospital care for WW I veterans.
1919	65-193	<i>Army Appropriations Act</i>	Designed to control venereal disease in the Army; also created a PHS Division of Venereal Disease.
1921	67-47	<i>The Sweet Act</i>	Established the Veterans Bureau as an independent agency with control of hospitals and outpatient services for veterans.
1921	67-97	<i>Sheppard-Towner Act</i>	Established the Board of Maternal and Infant Hygiene; led to strengthened Federal and State child health programs.
1924	68-238	<i>Oil Pollution Act</i>	Prohibited the dumping of oil into navigable waters except in dire emergencies, etc.
1926	69-254	<i>Air Commerce Act</i>	Extended quarantine regulations for travelers arriving in the United States by air.
1929	70-672	<i>Narcotics Act of 1929</i>	Authorized "narcotic farms" for addicts (later built at Lexington, Ky., and Fort Worth, Texas) and set up a Narcotics Division in PHS to administer them, and do other related work.
1930	71-251	<i>Act to Establish a National Institute of Health</i>	Reorganized the original Marine Hospital Service Hygienic Laboratory into the National Institute of Health.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1930	71-357	<i>Bureau of Narcotics Act</i>	Created a separate Bureau of Narcotics within the Treasury Dept.; changed PHS Narcotics Division to Division of Mental Hygiene.
1930	71-536	<i>Veterans Affairs Consolidation Act</i>	Created the Veterans Administration by consolidating the Veterans Bureau, Pension Bureau, and National Home for Disabled Volunteer Soldiers.
1935	74-241	<i>Social Security Act</i>	Provided for the first time grants-in-aid to States for such public health activities as maternal and child care, aid to crippled children, blind persons, the aged, and other health-impaired persons.
1936	74-846	<i>Walsh-Healy Act</i>	Authorized Federal regulation of industrial safety in companies doing business with the government.
1937	75-244	<i>National Cancer Institute Act</i>	Established National Cancer Institute to coordinate research related to cancer.
1938	75-540	<i>LaFollette-Bulwinkle (VD Control Act)</i>	Provided grants-in-aid to States and other authorities to investigate and control venereal disease.
1938	75-717	<i>Federal Food, Drug, and Cosmetic Act</i>	Extended Federal authority to act against adulterated and misbranded food, drug, and cosmetic products.
1939	76-19	<i>Reorganization Act of 1939</i>	Transferred the PHS from Treasury to a new Federal Security Agency.
1941	77-146	<i>The Nurse Training Act</i>	Supported schools of nursing to increase their enrollments and help strengthen their facilities.
1941	77-366	<i>Insulin Certification Amendment of FD&C Act</i>	Required pre-marketing batch certification of insulin drugs.
1943	78-38	<i>Act to Provide for the Appointment of Female Physicians and Surgeons in the Army.</i>	Gave women and men equal rank, pay, allowances, and privileges in the Army Medical Corps.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1943	78-74	<i>Nurse Training Act</i>	Provided initial funding for the Nurse Cadet Corps in the Public Health Service.
1944	78-410	<i>Public Health Service Act</i>	Consolidated all PHS authorities into a single statute (42 USC).
1945	79-139	<i>Antibiotic Certification Amendment</i>	Required pre-marketing batch certification of penicillin (other antibiotics added in later amendments).
1946	79-293	<i>Medical and Surgical Act</i>	Established a Dept. of Medicine and Surgery in VA; removed it from Civil Service control; authorized medical student residencies in VA hospitals.
1946	79-396	<i>National School Lunch Act</i>	Authorized a national school lunch program.
1946	79-487	<i>National Mental Health Act</i>	Authorized major Federal support for mental health research, diagnosis, prevention, and treatment; changed PHS Division of Mental Health to National Institute of Mental Health; established State grants-in-aid for mental health.
1946	79-725	<i>Hospital Survey and Construction Act</i>	The Hill-Burton Act to support surveys, plans, and new facilities.
1947	80-36	<i>Women's Medical Specialist Corps</i>	Established a permanent Nursing Corps in the Army and Navy; permitted dietitians and physical therapists to join a Specialist Corps.
1947	80-104	<i>Federal Insecticide, Fungicide, and Rodenticide Act</i>	Required all pesticides to be registered prior to sale and be properly labeled for use.
1948	80-655	<i>National Heart Act</i>	Authorized aid for research, training, and other programs related to heart disease; established the National Heart Institute; acknowledged a plural NIH.
1948	80-755	<i>National Dental Research Act</i>	Authorized aid for research on dental diseases and conditions; established a National Institute of Dental Research at NIH.
1948	80-845	<i>Water Pollution Control Act</i>	Authorized PHS to help States develop water pollution control programs and to aid in the planning of sewage treatment plants.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1949	81-380	<i>Hospital Survey and Construction Amendments</i>	Increased Federal financial assistance to promote effective development and utilization of hospital services and facilities.
1949	81-439	<i>Agricultural Act of 1949</i>	Authorized donations of commodities acquired under price support programs for school lunch and for feeding the needy.
1950	81-507	<i>Act to Establish a National Science Foundation</i>	Set up an autonomous NSF and strengthened the concept of Federal support for university-based research in physical, medical, and social sciences.
1950	81-692	<i>National Research Institutes Act</i>	Expanded the National Institutes of Health to include research and training relating to arthritis, rheumatism, multiple sclerosis, cerebral palsy, epilepsy, polio, blindness, leprosy, and other diseases.
1951	82-215	<i>Durham-Humphrey Amendments</i>	Established category of prescription drugs, requiring labeling and medical supervision, as separate from nonprescription drugs.
1954	83-482	<i>Medical Facilities Survey and Construction Act</i>	Extended aid to chronic hospitals, rehabilitation facilities, and nursing homes.
1954	83-568	<i>Act to Transfer Indian Health Responsibility to the Public Health Service</i>	Placed responsibility for maintenance and operation of Indian health facilities in PHS rather than Bureau of Indian Affairs.
1955	84-159	<i>Air Pollution Control Act</i>	Provided aid to States, regions, and localities for research and control programs to protect air quality.
1955	84-182	<i>Mental Health Study Act</i>	Authorized grants to nongovernmental organizations for partial support of a national study and reevaluation of the human and economic problems of mental illness.
1955	84-377	<i>Polio Vaccination Assistance Act</i>	Provided assistance to State vaccination programs.
1956	84-569	<i>Dependents Medical Care Act</i>	Set up program of primarily inpatient medical care for dependents of military personnel (CHAMPUS).

Year	Citation	Title	Summary of Purpose
1956	84-652	<i>National Health Survey Act</i>	Provided for a continuing survey and special studies of sickness and disability in the U.S.
1956	84-660	<i>Water Pollution Control Act</i>	Established water pollution control programs on interstate waterways; expanded research and aid to States for sewage treatment.
1956	84-835	<i>Health Research Facilities Act</i>	Aided construction of research facilities.
1956	84-911	<i>Health Amendments</i>	Increased mental health staff and skills.
1956	84-941	<i>National Library of Medicine Act</i>	Transferred responsibility for the library to the Public Health Service.
1957	85-151	<i>Indian Health Assistance Act</i>	Provided for construction of health facilities for Indians.
1957	85-172	<i>Poultry Products Inspection Act</i>	First Federal effort at mandatory inspection of poultry products (similar to efforts in meat inspection).
1958	85-340	<i>Social Security Amendments</i>	Provided States with minimum maternal and child health grants and extended authority to Guam.
1958	85-929	<i>Food Additive Amendments to the FD&C Act</i>	Required pre-marketing clearance for new food additives; established a GRAS (generally recognized as safe) category; prohibited the approval of any additive "found to induce cancer in man or animal" (the so-called "Delaney clause").
1959	86-382	<i>Federal Employees Health Benefits Act</i>	Authorized program of prepaid health insurance for employees of Federal Executive and Legislative Branches.
1960	86-610	<i>International Health Research Act</i>	Provided for international cooperation in research, research training, and planning.
1960	86-613	<i>Federal Hazardous Substances Labeling Act</i>	Required prominent label warning on hazardous household or workplace chemical products.
1960	86-778	<i>Social Security Amendments (Kerr-Mills)</i>	Authorized grants to States for medical assistance for the aged.
1961	87-395	<i>Community Health Services and Facilities Act</i>	To improve community facilities and services for aged and others.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1962	87-692	<i>Assistance to Migratory Workers Act</i>	Authorized Federal aid for clinics serving migratory agricultural workers and families.
1962	87-781	<i>Kefauver-Harris Drug Amendments</i>	Required improved manufacturing practices, better reporting, the assurance of efficacy as well as safety, and strengthened regulation in the drug industry.
1962	87-838	<i>National Institutes of Child Health and Human Development and General Medical Sciences Act</i>	Established an Institute to coordinate and expand research into childhood diseases and human growth and a second Institute of General Medical Sciences to coordinate inter-Institute research and handle "all other" diseases.
1962	87-868	<i>Vaccination Assistance Act</i>	Aided programs that attacked whooping cough, polio, diphtheria, and tetanus.
1963	88-129	<i>Health Professions Educational Assistance Act</i>	Aided training of physicians, dentists, public health personnel, and others.
1963	88-156	<i>Maternal and Child Health and Mental Retardation Planning Amendments</i>	Initiated program of comprehensive maternity and infant care and mental retardation prevention.
1963	88-164	<i>Mental Retardation Facilities and Community Mental Health Centers Construction Act</i>	Provided aid for the construction of these facilities and centers; became the basic law for mental health centers' staffing, programming, etc.
1963	88-206	<i>Clean Air Act</i>	Authorized direct grants to States and local governments for air pollution control; established Federal enforcement in interstate air pollution; directed major research efforts into motor vehicle exhaust, removal of sulfur from fuel, and the development of air quality criteria.
1964	88-352	<i>Civil Rights Act</i>	Title VI provided that "no person in the United States shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1964	88-525	<i>Food Stamp Act</i>	Authorized food stamp program for low-income persons to buy nutritious food for balanced diet.
1964	88-581	<i>Nurse Training Act</i>	Provided special Federal effort for training professional nursing personnel.
1965	89-74	<i>Drug Abuse Control Amendments</i>	Established enforcement procedures to control depressants, stimulants, and hallucinogens.
1965	89-92	<i>Federal Cigarette Labeling and Advertising Act</i>	Informed the public of health hazards of cigarette smoking.
1965	89-97	<i>Social Security Amendments</i>	Established health insurance for aged and grants to States for medical assistance programs (Medicare and Medicaid).
1965	89-239	<i>Heart Disease, Cancer, and Stroke Amend- ments</i>	Established Region Medical Programs for research training and sharing of new knowledge in heart disease, cancer, and stroke.
1965	89-272	<i>Clean Air Act Amendments</i>	Directed Federal regulation of motor vehicle exhaust (Title I); established program of Federal research and grants-in-aid in solid waste disposal (Title II).
1965	89-290	<i>Health Professions Educational Assis- tance Amendments</i>	Aided schools of medicine, osteopathy, and dentistry; provided scholarships and loans; and aided construction.
1966	89-563	<i>National Traffic and Motor Ve- hicle Safety Act</i>	Provided for a coordinated national safety program and established safety standards for motor vehicles in interstate commerce.
1966	89-614	<i>Amendments to CHAMPUS (Military De- pendents Act)</i>	Broadened eligibility to CHAMPUS and extended benefits beyond inpatient care.
1966	89-642	<i>Child Nutrition Act</i>	Established Federal program of research and support for child nutrition; authorized school breakfast program.
1966	89-749	<i>Comprehensive Health Planning and Public Health Services Amend- ments</i>	Promoted health planning and improved public health services; authorized broad research, demonstration, and training programs in Federal-State-local partnership.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1966	89-751	<i>Allied Health Professions Personnel Act</i>	Initial effort to support the training of allied health workers; also provided student loans for health professionals.
1966	89-753	<i>Clean Water Restoration Act</i>	Expanded, strengthened, and centralized water pollution programs in the Department of the Interior; new efforts in sewage treatment, purification, ecology.
1966	89-785	<i>VA Assistance Act</i>	Permitted the VA to share, rather than replicate, specialized medical resources of other Federal, State, and local agencies.
1966	89-793	<i>Narcotic Addict Rehabilitation Act</i>	Authorized programs to deal more effectively with narcotic addiction as a public health issue.
1967	90-148	<i>Air Quality Act</i>	Established program of criteria and standards development and enforcement to control air pollution; set up air quality regions; overall strengthening of the Federal role.
1967	90-174	<i>Partnership for Health Amendments</i>	Expanded health planning and services; broadened health services research and demonstrations; and improved clinical laboratories.
1967	90-201	<i>Wholesale Meat Act</i>	Amended, updated, and expanded Meat Inspection Act of 1907; brought all meat plants in intra- as well as interstate commerce under control.
1967	90-222	<i>Economic Opportunity Amendments</i>	Authorized grants for Comprehensive Health Services and other programs for the poor.
1967	90-248	<i>Social Security Amendments</i>	Consolidated maternal and child health authorities, extended grants for family planning and dental health.
1968	90-407	<i>Amendments to NSF Act of 1950</i>	Expanded the authorities of the National Science Foundation to include major support of applied research in the sciences.
1968	90-411	<i>Aircraft Noise Abatement Act</i>	Amended Federal Aviation Act: first government effort to deal with health hazards of noise.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1968	90-456	<i>Lister Hill National Center for Biomedical Communications Designation</i>	Designated the title for a national center for biomedical communications within the National Library of Medicine, NIH.
1968	90-490	<i>Health Manpower Act</i>	Authorized formula institutional grants for training all health professionals; added pharmacy and veterinary medicine.
1968	90-492	<i>Wholesome Poultry Products Act</i>	Amended, updated, and expanded the 1957 Poultry Act to make poultry inspection similar to updated Meat Inspection program.
1968	90-574	<i>Health Services Amendment</i>	Extended grants for RMP's and migrant health services; provided treatment facilities for alcoholics and narcotic addicts.
1968	90-602	<i>Radiation Control for Health and Safety Act</i>	Authorized setting of safe performance standards for electronic products such as x-ray machines, television sets, microwave ovens, etc.; established procedures for enforcement.
1969	91-173	<i>Federal Coal Mine Health and Safety Act</i>	Protected the health and safety of coal miners.
1969	91-190	<i>National Environmental Policy Act</i>	Stated the concern of Congress for preserving the environment and to "stimulate the health and welfare of man"; created the Council on Environmental Quality to advise the President; required environmental impact statements before major Federal actions.
1970	91-211	<i>Community Mental Health Centers Amendments</i>	Extended grants for community mental health centers and facilities for alcoholics and narcotic addicts and established programs for children's mental health.
1970	91-222	<i>Public Health Cigarette Smoking Act</i>	Banned cigarette advertising from radio and television.
1970	91-512	<i>Resource Recovery Act</i>	Shifted emphasis from solid waste disposal to overall problems of control, recovery, and recycling of wastes.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1970	91-513	<i>Comprehensive Drug Abuse Prevention and Control Act</i>	Increased aid for research; strengthened prevention, treatment, rehabilitation programs.
1970	91-517	<i>Developmental Disabilities Services and Facilities Construction Amendments</i>	Assisted States to develop and implement plans for provision of comprehensive services to persons affected by mental retardation and other developmental disabilities.
1970	91-519	<i>Health Training Improvement Act</i>	Provided expanded aid to all allied health professions.
1970	91-572	<i>Family Planning Services and Population Research Act</i>	Expanded and coordinated services and research activities.
1970	91-596	<i>Occupational Safety and Health Act</i>	Provided Federal program of standard-setting and enforcement to assure safe and healthful conditions in the workplace.
1970	91-604	<i>Clean Air Act Amendments</i>	Strengthened and expanded air pollution control activities; placed broad regulatory responsibility in new Environmental Protection Agency, in operation as of December 2, 1970.
1970	91-616	<i>Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act</i>	Established National Institute on Alcohol Abuse and Alcoholism; provided a comprehensive aid program to States and localities.
1970	91-623	<i>Emergency Health Personnel Act</i>	Provided assistance to health manpower shortage areas through a new National Health Service Corps.
1971	91-695	<i>Lead-Based Paint Poisoning Prevention Act</i>	Authorized Federal help to communities wishing to eliminate the causes of lead-based paint poisoning.
1971	92-157	<i>Comprehensive Health Manpower Training Act</i>	Expanded and strengthened Federal programs for the development of health manpower.
1971	92-158	<i>Nurse Training Act</i>	Expanded and strengthened Federal efforts specifically directed toward nurse training.
1971	92-218	<i>National Cancer Act</i>	Expanded national effort against cancer.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1972	92-294	<i>National Sickle Cell Anemia Control Act</i>	Provided for control of and research into sickle cell anemia.
1972	92-303	<i>Amendments to Federal Coal Mine H&S Act</i>	Provided benefits and other assistance for coal miners suffering from black lung diseases.
1972	92-414	<i>National Cooley's Anemia Control Act</i>	Provided assistance for programs of diagnosis, prevention, and treatment.
1972	92-423	<i>National Heart, Blood Vessel, Lung, and Blood Act</i>	Enlarged the National Heart and Lung Institute and authorized broad studies in blood management.
1972	92-426	<i>Uniformed Services Health Professions Revitalization Act</i>	Established a Uniformed Services University of the Health Sciences and an Armed Forces Health Professions Scholarship Program.
1972	92-433	<i>National School Lunch and Child Nutrition Amendments</i>	Added funds to support nutritious diets for pregnant and lactating women and for infants and children (the "WIC" program).
1972	92-500	<i>Federal Water Pollution Control Amendments</i>	Totally revised Federal water program; shifted efforts from the preservation of available water quality to the improvement of quality through technology; set as a goal the elimination of pollutant discharges from all navigable waters.
1972	92-513	<i>Motor Vehicle Information and Cost Savings Act</i>	Established diagnostic and demonstration projects to reduce auto-related safety and health hazards.
1972	92-516	<i>Federal Environmental Pesticide Control Act</i>	Expanded and strengthened provisions on product registration, labeling, environmental protection, registration of manufacturers, and national monitoring of pesticide residues in water and food.
1972	92-541	<i>VA Medical School Assistance and Health Manpower Training Act</i>	Authorized VA to help establish 8 State medical schools and provide grant support to existing medical schools.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1972	92-573	<i>Consumer Product Safety Act</i>	Created the Consumer Product Safety Commission; transferred enforcement of Hazardous Substances, Flammable Fabrics, Poison Prevention Packaging Acts to CPSC; expanded and strengthened Federal effort in safety and prevention.
1972	92-574	<i>Noise Control Act</i>	Authorized broad Federal program to coordinate noise research and control activities, establish standards, and improve public information.
1972	92-603	<i>Social Security Amendments</i>	Extended health insurance benefits to the disabled and to end-stage renal disease patients; established Professional Standards Review Organization program; and expanded research and demonstrations of financing mechanisms.
1972	93-154	<i>Emergency Medical Services Systems Act</i>	Provided aid to States and localities to establish coordinated, cost-effective areawide EMS systems.
1973	93-222	<i>Health Maintenance Organization Act</i>	Assisted in the establishment and expansion of HMOs.
1974	93-247	<i>Child Abuse Prevention and Treatment Act</i>	Created a National Center on Child Abuse and Neglect; authorized research and demonstration grants to States and other public and private agencies.
1974	93-270	<i>Sudden Infant Death Syndrome Act</i>	Provided assistance for research, training, and extensive public education concerning SIDS.
1974	93-281	<i>Narcotic Addict Treatment Act</i>	Provided for registration of practitioners.
1974	93-286	<i>Research on Aging Act</i>	Established National Institute on Aging within the NIH.
1974	93-319	<i>Energy Supply and Coordination Act</i>	Directed the National Institute of Environmental Health Sciences to study the effects of chronic exposure to sulfur oxides.
1974	93-348	<i>National Research Act</i>	Established research training awards and the National Commission for the Protection of Human Subjects.

<i>Year</i>	<i>Citation</i>	<i>Title</i>	<i>Summary of Purpose</i>
1974	93-352	<i>National Cancer Amendments</i>	Improved the national cancer program and established a Bio-medical Research Panel.
1974	93-353	<i>Health Services Research, Health Statistics, and Medical Libraries Act</i>	Revised and expanded health statistics and services research programs; established a National Center for each one; expanded aid to non-Federal medical libraries.
1974	93-354	<i>National Diabetes Mellitus Research and Education Act</i>	Expanded diabetes research and public education programs.
1974	93-523	<i>Safe Drinking Water Act</i>	Requires EPA to set national drinking water standards and to aid States and localities in enforcement.
1974	93-640	<i>National Arthritis Act</i>	Established National Commission on Arthritis and coordinated arthritis programs in NIH.
1975	93-641	<i>National Health Planning and Resources Development Act</i>	Authorized major Federal reorganization of health planning programs, including Hill-Burton; set up national designation of local Health Services Areas and governing agencies.
1975	94-63	<i>Health Revenue Sharing and Nurse Training Act</i>	Established National Center for Prevention and Control of Rape; revised and extended National Health Service Corps, Community Mental Health Centers, migrant health, family planning, and other programs; strengthened the nurse training program.
1975	94-103	<i>Developmentally Disabled Assistance and Bill of Rights Act</i>	Expanded national effort and protected rights of the developmentally disabled.
1976	94-295	<i>Medical Device Amendments to FD&C Act</i>	Authorized broad FDA regulatory power over medical devices; required premarket approval for new devices (similar to procedure for new drugs); interstate commerce is presumed for all devices to be seized as violative (<i>i.e.</i> , intrastate protection is superceded).

APPENDIX E

SUMMARY OF RESULTS: A PROFILE
OF THE TOTAL POPULATION

Table E
 Capital Equipment Acquisition Processes
 In Coth Member Hospitals:
 A Summary Of The Results

A Profile Of The
 Total Population:

Summary Of Results

Population 419	Number Responded	123	Response Rate	29.4%
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(Mean)

Year Organized	1919	Number of Beds	612
Active Physicians	373	Housestaff	187

Percentage By Ownership

Non-Federal Government:

State Owned	16.3%	County	6.5%	City	2.4%
City/County	.8%	District or Authority	2.4%		

Not-For-Profit:

Religious	16.3%	Multi-Hospital System	13.0%
Independent	32.5%	Other	2.4%

Federal Government:

Veterans Administration 17.1%

Osteopathic:

Religious .8%

Percentage By Governance

Hospital Board	51.2%	University Board	13.0%
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Multi-Hospital System:

System Board	4.9%	Hospital Board	4.9%
System Board and Hospital Board	8.1%	Other	20.3%

Table E continued
Percentage By
Medical School Affiliation

Primary Teaching Hospital 40.7%
 Affiliated Teaching Hospital 58.5%

Capital Equipment Acquisition Process:
 Hospitals With Effectiveness Evaluation Process 79.7%

Positions Who Typically Request Capital Equipment:

Employee	18.7%	Supervisor	61.0%
Manager	81.3%	Administrator	65.9%
Physician	84.6%	Housestaff	15.4%
Trustees	1.6%	Medical Department Chief	82.1%
Other	10.6%		

Positions That Screen Requests For Capital Equipment:

Administrator	81.3%	Associate Administrator	83.7%
Medical Director	40.7%	Medical Department	20.3%
Department Manager	66.7%	Supervisor	21.1%
Chief of Specialty	51.2%	Other	32.5%

Hospitals With an Appeal Process: 76.4%
 Formal Appeal Process: 15.4%

Data Required To Support And To Justify
 Acquisition Of Capital Equipment:

Price	99.2%	Additional Space	84.6%
Additional Staff	85.4%	Number of Procedures	77.2%
Benefits	87.0%	Increased Revenue	69.9%
Other	26.0%		

Hospitals That Budget Specific Capital Equipment Items: 91.1%
 Budget For One Year 76.4% Longer 23.6%

Table E continued

Final Decision Maker:

Committee	48.8%	Equipment Specialist	1.6%
Medical Staff	0%	Chief of Specialty	3.3%
Administrator	52.8%	Other	9.8%

Positions Serving On Capital Equipment Committee:

Administrator	35.8%	Associate Administrator	48.8%
Physician	31.7%	Trustee	9.8%
Nurse	17.1%	Housestaff	2.4%
Citizen	0%	Employee	8.1%
Other	18.7%		

Hospitals With Same Process For All Types Of Capital Equipment: 99.2%

Hospitals With Capital Equipment Appropriations Budget: 32.8%

Description Of Analyses In Decision Process:

Cost Analysis	8.1%	Patient Care Benefit	35.8%
Cost/Benefit Analysis	66.7%	Education Benefit	4.1%
Other	2.4%		

Characterization Of Analytical Process:

Mainly Quantitative And Highly Objective	4.9%
Mainly Subjective, Or By Qualitative Consideration	9.8%
Mixture Of Objective and Subjective	83.7%

Level Of Satisfaction With The Capital Equipment Acquisition Process:

Highly Satisfied	35.0%
Moderably Satisfied	60.2%
Not-At-All	.8%

Hospitals That Indicated Adequate Management, Nursing, And Physician Participation: 87.8%

Changes The Dissatisfied Hospitals Would Make:

More Physicians	4.1%	More Administration	2.4%
More Nurses	1.6%	Fewer Physicians	.8%
Some Personnel but Change The Process	8.9%		

Table E continued

Hospitals That Equipped New Or Expanded Facilities During The
Five Year Period, 1977-1981: 66.7%

Percentage of Hospitals With Expansion Or Renovation Programs During
The Five Year Period: 1977- 34% 1978- 40.7% 1979- 39.0%
1980- 36.6% 1981- 39.0%

Percentage Of Hospitals That Fund Depreciation: 56.1%
Percentage Of Hospitals That Invest Funded Depreciation: 49.6%
Mean Year Hospitals Began Funding Depreciation: 1974

Hospitals That Receive Support From The Medical School For
Patient Care Capital Equipment: 8.1%

Hospitals That Purchase Research Equipment For The Medical School: 7.3%

Hospitals With Written Procedures For Acquiring Capital Equipment: 83.7%

Summary of Financial Data

\$ In Thousands

	1981	1980	1979	1978	1977
Total Expense	\$71,032	\$60,346	\$52,911	\$47,078	\$49,954
Capital Equipment Expense	3,355	4,651	2,447	2,590	2,018
Percentage	4.7%	7.7%	4.6%	5.5%	4.0%
Gross Assets	\$68,625	\$58,409	\$49,892	\$44,984	\$38,881
Net Assets	<u>44,667</u>	<u>41,623</u>	<u>35,230</u>	<u>29,441</u>	<u>26,026</u>
Depreciation	\$23,958	\$16,786	\$14,662	\$15,543	\$12,855
% Depreciation	34.9%	28.7%	29.4%	34.6%	33.1%

Note: All Data Are Means

Gerald N. Hewitt
February 17, 1983
North Carolina Baptist Hospital