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Market and Organizational Factors Associated with Teaching Hospital Participation in Strategic Hospital Alliances

James D. Bramble

SCHOOL OF ALLIED HEALTH PROFESSIONS
DEPARTMENT OF HEALTH ADMINISTRATION
VIRGINIA COMMONWEALTH UNIVERSITY

This is to certify that the dissertation prepared by James D. Bramble, *Market and Organizational Factors Associated with Teaching Hospital Participation in Strategic Hospital Alliances,* has been approved by his committee as satisfactory completion of the dissertation requirement for the degree of Doctor of Philosophy.

Committee:

[redacted]

Director of Dissertation
School of Allied Health Professions

[redacted]

Committee Member
School of Allied Health Professions

[redacted]

Committee Member
School of Allied Health Professions

[redacted]

Committee Member
School of Medicine

[redacted]

Dean, School of Allied Health Professions

[redacted]

Dean, School of Graduate Studies

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Market and Organizational Factors Associated with Teaching Hospital Participation in Strategic Hospital Alliances

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by

James D. Bramble

M.P.H., University of Oklahoma, 1993
B.S., University of Utah, 1991

Director: Roice D. Luke, Ph.D.
Professor
Department of Health Administration

Virginia Commonwealth University
Richmond, Virginia
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Abstract

MARKET AND ORGANIZATIONAL FACTORS ASSOCIATED WITH TEACHING HOSPITAL PARTICIPATION IN STRATEGIC HOSPITAL ALLIANCES

James D. Bramble, Ph.D.

Virginia Commonwealth University, 1998

Major Director: Roice D. Luke, Ph.D.

This research investigated market and organizational factors that influence the strategic decisions of teaching hospitals to participate in strategic hospital alliances (SHAs). It described the characteristics of both teaching hospitals and the health care environment in which they operate. This research also examines the association of these factors with the strategic position of teaching hospitals in terms of their dominance in the market or within their organizations.

The theoretical model used two concepts from institutional theory--coercive and normative pressures. It was argued that coercive pressures in the market facilitated the decision to participate in SHAs and gain market and Organizational dominant positions. Alternatively, normative organizational pressures were argued to hinder the process

of participating in SHAs and gaining market and organizational dominance.

An important finding of this research was that high levels of SHA penetration had a negative influence on all three dependent variables, SHA participation, market dominance, and organizational dominance. This finding suggests that as market consolidation advances, teaching hospitals may find it difficult to participate in SHAs or gain positions of dominance. In addition to the SHA penetration measure there were a number of other relationships of interest. SHA participation was related to the percent of large employers in the market and the teaching hospital's net revenue. Market dominance was related to the percent of large group practices and the percent of primary care physicians in the market as well as the profit status of the teaching hospital. Organizational dominance was related to the profit status and the administrative structure of the teaching hospital.

CHAPTER 1
Introduction

Teaching hospitals are an important part of America's health care system. In addition to their sophisticated technology and cutting edge research, they deliver a large percentage of health care services throughout the country (Iglehart, 1993). They also deliver a disproportionate share of charity and indigent care. Although only a small percentage of all short-term, non-federal acute care hospitals are classified as members of the Council of Teaching Hospitals and Health Systems, they represent approximately one fourth of all the beds and admissions across the country. However, in recent years, teaching hospitals have faced declining support for indigent care, decreasing demands for specialist physicians, and increasing clinical competition in their local markets (Luke & Bramble, 1996; Moy, Valente, Levin, Bhak, & Griner, 1996). Increasing competition for patients among hospitals has become especially important in light of hospital consolidation into fewer organizations and aggressive system to compete for managed care contracts (Luke & Olden, 1995). Thus one goal of this study is to examine how increasing competition

within their health care environments effect the nation's teaching hospitals.

Because of their organizational structures and history of serving as a necessary public good, rather than one of several competing private service providers, teaching hospitals face certain barriers as they attempt to respond to changes occurring in the health care industry. It has been noted that within consolidating markets, teaching hospitals may be inhibited in their attempts to make the rapid decisions necessary to effectively compete with other providers in the market (Rogers, Snyderman, & Rogers, 1994). This is in part due to the complex and inflexible structures that seem to be prevalent in most teaching hospitals (Thier, 1994). Additionally, many of them operate within the political arena and therefore face strict state requirements with respect to personnel and purchasing policies, constraints to acquire capital for investing in various partnering arrangements, and other political interferences (Iglehart, 1995). All of this handicaps the teaching hospital's ability to operate in markets where new interdependencies between hospitals, physicians, and third party payers are being created.

Many teaching hospitals face uncertain futures in the wake of developments that threaten their traditional ways of doing business. As market forces change the shape of America's health care system, teaching hospitals risk losing

their central role of providing valued complex and specialized services and becoming solely hospitals of last resort for the indigent and poor. For example, it has been noted that in many urban areas, teaching hospitals offer few services that are not available in other community hospitals or from physician specialists in private practice (Howard, 1994; Kralewski, Hart, Perlmutter, & Chou, 1995). Teaching hospitals must adapt the traditions of academic medicine to the new strategic choices and business challenges that are emerging. Thus, in a managed care environment, teaching hospitals may need to establish partnerships and other contractual arrangements with area health care providers to maintain reasonable patient flows and referrals of tertiary cases for teaching and research.

The strategic challenges facing teaching hospitals are daunting. It is likely that their responses will vary from one teaching hospital to the next, in part, due to differences in market and organizational structures.

This study focuses on the impact of changes in the health care market on the nation's teaching hospitals. Several questions are asked:

1. What organizational and market characteristics are associated with teaching hospital participation in hospital networks?
2. What organizational and market characteristics are associated with the strategic positions that teaching

hospitals have within their local markets and, if relevant, their hospital networks?

3. What organizational and market characteristics are associated with the organizational positions of teaching hospitals within their hospital networks?

To provide a context for this study, this research develops the importance of the nation's teaching hospitals and discuses the changes occurring across the health care industry. A theoretical framework and typology are developed for the purpose of clarifying the relationships that exist between teaching hospitals and their organizational and market positions in their local environments. Focusing on these relationships, a set of hypotheses are derived and analyzed. Finally, the results are presented and implications and suggestions for further research are discussed.

Teaching Hospitals

Defining Teaching Hospitals

For the purpose of this research, a designation consistent with that of the Association of American Medical Colleges' Council of Teaching Hospitals is used to broadly define America's teaching hospitals. Many hospitals demonstrate a commitment to the three missions of teaching hospitals; namely, medical education, clinical research, and

patient care, especially care of the poor and indigent (Ebert & Brown, 1983). But they differ in the degree to which they are involved in each of these missions. To define teaching hospitals, one must differentiate between hospitals that have a major commitment to these missions from those that do not. To do this, this research applies the current requirements of the Association of American Medical Colleges (AAMC) for membership in the Council of Teaching Hospitals and Health Systems (COTH).

Currently a member of COTH must, at a minimum, sponsor four approved residency programs. Two of these must include medicine, surgery, pediatrics, family practice, obstetrics/gynecology, or psychiatry. They must also have a documented affiliation agreement with a medical school (Association of American Medical Colleges, 1995).

Using the COTH definition allows us to distinguish between major teaching and non-teaching hospitals. Additionally, this definition identifies teaching hospitals according to their degree of commitment to academic medicine. Such distinctions have proven useful in identifying teaching and non-teaching hospitals over several decades (Lash & Dickler, 1993). Throughout the remainder of this study, hospitals that meet the above definitions are referred to as COTHs or teaching hospitals interchangeably. All other hospitals are referred to as community hospitals.

Organizational Structure of Teaching Hospitals

There are a number of issues to consider when viewing the organizational structure of teaching hospitals. Some of these include whether the teaching hospital is public or private and the degree to which the hospital is tied to the medical school and university. This section looks at both of these issues, discussing the latter first.

For those hospitals that meet the broad definition of a COTH, the AAMC identifies three subgroups: integrated hospitals; independent hospitals; and children's, specialty, or Veteran Affairs hospitals (Association of American Medical Colleges, 1995). Only the first two subgroups, integrated hospitals and independent hospitals are used in this study (see Appendix 1 & 2 for a list of hospitals in these groups). Integrated COTHs are made up of general, non-federal, acute care hospitals that are under common ownership with an accredited college of medicine or have the medical school's chairmen either serving as or appointing the hospital chiefs of service. Independent COTHs do not have common ownership, but have signed affiliations with accredited medical schools that fall short of common ownership. However, they do sponsor or significantly participate, as defined by the criteria for COTH membership, in graduate medical education. Both integrated and independent COTHs can either have private or public ownership.

Many teaching hospitals often must deal with multiple owners or owner-like groups who wish to influence operating decisions (Munson, Choi, & Allison, 1986). This is particularly evident in state university and publicly owned teaching hospitals. For example, much of the complex, regulated and inflexible organizational structures of teaching hospitals has evolved and is perpetuated from the role society expects them to play. Thus, COTHs may feel the influence of many different interest groups trying to ensure their needs are met.

Adding to the complexity of integrated COTHs are their governance structures. Traditionally there is a board of regents that oversees and governs both the academic and hospital units of the university (Choi, Allison, & Munson, 1985). This dual responsibility decreases the likelihood of timely responses to competition by other providers. Additionally, having to first receive state and/or university approval for the many critical as well as routine decisions that have to made further slows the responsiveness to competitive market changes (Choi, Allison, & Munson, 1985). This produces a cumbersome process that results in the loss of opportunities to strengthen, if not maintain, the teaching hospital's market position (Munson, Choi, & Allison, 1986).

The degree of interference to the decision-making processes may be related to the ownership of the teaching

hospital. Allison and Dalston (1982) point out several implications related to teaching hospital ownership. They reported that private teaching hospitals typically are larger and have larger budgets than do their universities. This creates a situation where the influence of private teaching hospitals over their universities is greater than that which public teaching hospitals have over their universities. For example, while private COTHs rely on patient care revenue and philantrophy, public COTHs receive state appropriations (Allison & Dalston, 1982; Choi, Allison, & Munson, 1985). Moreover, this appropriation rarely goes to the hospitals directly, but is allocated to the universities, which then allocate funds to the hospital or its various units; thus, greater power and influence is given to the states and universities.

Characteristics of Teaching Hospitals

Teaching hospitals evolved in the early twentieth century in response to changes in both medical education and the perceived needs for specialized care (Flexner, 1910; Ebert & Brown, 1983; Iglehart, 1993). The activities of teaching hospitals go far beyond those of other acute care general hospitals. Both COTHs and community hospitals are concerned with applying existing knowledge in the pursuit of patient care. However, COTHs have additional concerns, including responsibility for developing and assessing new technologies and drugs, educating and training society's

physicians, and caring for the poorest and sickest of patients (Kassirer, 1992).

Teaching hospitals are, in general, large facilities that have longer lengths of stays, higher expenses per admission, greater numbers of services, and more full-time equivalents per patient than non-teaching hospitals (see Table 1). They tend to be located within large urban markets with the larger metropolitan areas having be more than one COTH. Additionally, many are located in the inner cites and are thus plagued by the problems associated with these areas, such as violence and poverty (Iglehart, 1993). As noted in Table 1, many of these COTHs are located in the large eastern markets. Table 1 also shows that both integrated and independent COTHs represent approximately 10% of the general acute care hospitals and together they account for about 25% of hospital admissions. Thus, they are significant providers of patient care. Furthermore, the table shows that the costs of providing patient care are generally higher for COTHs than community hospitals (Epstein, 1995; Iglehart, 1993).

Many reasons for the differences noted above exist. A summary of some of these differences is shown in Table 2. In addition, teaching hospitals must cover much of the costs through patient care revenues, treat a higher patient mix (i.e., a greater number of complex cases), make heavier use of laboratory and other high priced technologies associated

with teaching, and see a greater number of non-paying patients (Ebert & Brown, 1983).

Much of the higher costs associated with COTHs may be attributed to their stance towards the use of new, and sometime still experimental, procedures. Teaching hospitals develop and test many new technologies and while these may be expensive and only marginally useful, especially in the short-term, their use may be essential to the academic advancement of COTH faculty members (Fox & Wasserman, 1993). Thus, incentives exist not only to have available but also to use all available technologies.

Table 1

Number of Inpatient Services and Geographical Distribution of COTHs and Community Hospitals

	Integrated COTHs	Independent COTHs	Community Hospitals
Number of hospitals	113	175	2,446
Percentage of total	4.1	6.4	89.5
Beds			
Total	71,083	95,095	554,015
Average	629	543	226
Percentage of total	10.0	13.0	77.0
Admissions			
Total	2,567,684	3,606,701	18,900,608
Average	22,723	20,609	7,727
Percentage of total	10.0	15.0	75.0
No. inpatients surgeries	991,649	1,124,304	7,461,572
Percentage of total	10.4	11.7	77.9
Average length of stay	7.46	7.03	6.08
Average no. of services	61	57	39
Region			
East	38	82	524
South	33	27	813
Midwest	28	46	567
West	14	20	542

Notes. Source 1994 AHA Annual Survey Data

Table 2

Summary of the Differences between COTH Members and Community Hospitals

COTHs	Community Hospitals
• Develop and assess new technology	• Prudent use of existing technology
• Apply innovative and experimental treatments	• Apply existing knowledge (i.e., practice guidelines)
• Heavy use of specialists	• Heavy use of primary care physicians
• Emphasis on tertiary care	• Emphasis on primary care
• Heavy use of inpatient care	• Heavy use outpatient care
• Extra costs due to resident patient care (i.e. training)	• Efficient patient care through the coordinated use of various health care professionals
• Autonomous faculty practice plans	• Coordinated physician practices

Teaching hospitals, in connection with medical schools also have a large commitment to research. Their research has led to dramatic advances in many areas such as gene therapy, immunology, and organ transplantation (Levey, 1995). Funding for much of this research comes from the National Institutes of Health (NIH) and the pharmaceutical and biotechnical industries (Ebert & Brown, 1983; Levey, 1995).

A number of federal and state policies have impacted COTHs throughout the years. For example, Medicare and Medicaid have allowed hospitals to receive at least some reimbursement for care provided to previously designated charity patients (Schramm, 1983). This has provided additional funds to teaching hospitals, making a positive difference in their financial viability (Ebert & Brown, 1983).

Industry Changes in the Health Care Environment

Despite the fact that public and political pressure for national health care reform has at least temporarily disappeared, the motivation for health care organizations to position themselves to survive within a continually changing market has not. Increases in public awareness and the threat of government reform have set in motion a frenzy of consolidation activity and other market responses including outright mergers, vertical integration, and the formation of

loose alliances between health care organizations. Consolidation has occurred at all levels of health care, including payer as well as provider organizations (Luke, Rossiter, Swisher, & Bramble, 1996; Zelman, 1996).

The changing markets in health care can be seen in conceptual terms. The key actors can be grouped according to whether they are customers, suppliers, or competing firms, all of which interact with one another (Dill, 1958; Emery & Trist, 1965, Pfeffer & Salancik, 1978; Starkweather & Cook, 1988). From a hospital's strategic viewpoint, the major rivals with which hospitals compete for customers and other critical resources are located mainly within their own market areas (Thorelli, 1986). The argument is often made that "health care is local" and thus should be examined at the local level (Luft et al., 1986; Luke, 1991).

Changes among health care providers produce countervailing responses among others within their respective markets, which in turn may stimulate further changes adding turbulence and uncertainty to the health care environment. In Denver, for example, a series of acquisitions and alliances has resulted in all 15 acute care general hospitals becoming aligned with other hospitals in four local health care systems or networks. Denver is not atypical of markets nationally where similar changes are occurring among hospitals, physician groups, and managed care organizations.

Among hospitals, one of the more important organizational forms to emerge in the local markets are strategically aligned hospital clusters. In a recent study, Luke and Olden (1995) found that within urban markets approximately 55% of community acute care general hospitals participated in local systems and networks. Luke, Olden and Bramble (1997) labeled these local systems and networks as strategic hospital alliances (SHAs), which are defined as:

> *two or more hospitals in a given market that come together to generate critical competitive advantages and pursue their collective survival in the market.*

Many SHAs thus represent loose affiliations among collaborating hospitals. Even many that join hospitals strategically through ownership leave in place preexisting management and governance structures resulting in high levels of interorganizational autonomy among local collaborators. Thus the formation of SHAs at the local level represents a significant change from the organizational hierarchies that typically are discussed in the literature (Astley & Brahm, 1989).

Many environmental forces may influence hospitals as they decide to participate in SHAs; however, as suggested by Luke and Olden (1995), the need to compete in the growing managed care environment may provide the primary rationale

for much of the recent interorganizational activity among hospitals.

Viewed as viable mechanisms for containing the rapidly rising costs of health care, managed care plans have proliferated in the last few years as more and more employers and other payers have sought to control their health care costs. These plans have integrated the financing and delivery of care through contracts with hospitals and other providers to provide services, capitated payment arrangements with employers that agree to purchase services only through the plan, and the management of utilization among plan members and participating providers. In return for assurances of patient flows, hospitals and other providers have agreed to perform selected covered services for predetermined, often discounted prices.

Overall, managed care penetration of local health care markets has increased rapidly in recent years (InterStudy, 1996). As managed care companies have entered markets and gained control over increased numbers of clients, hospitals have found themselves more dependent on managed care contracts for a steady flow of patients and revenues. Being able to secure contracts with managed care plans has become a primary strategic concern for hospitals. Thus, the threat of managed care penetration in the market, whether real or perceived, is assumed to be an important force driving hospitals to join together to gain power and improve their

ability to negotiate and obtain managed care contracts. In markets where there are large numbers of hospitals or, possibly more importantly, active SHAs, the threat of not obtaining managed care contracts is amplified.

In addition to rival hospitals and local systems and networks competing for managed care contracts, there are other important threats in the markets. For example, to the extent that primary care and multi-specialty physicians become viable partners for managed care companies, they serve as competitive threats to hospitals. Also, large businesses or business coalitions, to the extent they represent large numbers of employees and dependents, can have significant market power and negotiating presence in managed care contracting.

In sum, teaching hospitals operate in environments where hospitals are responding to growing managed care penetration and other factors by rapidly consolidating, resulting in fewer organizational entities within individual markets that compete for patients. How COTHs respond to this environment is significant as it may directly determine their ability to survive and thrive as an essential producer of health services, research, and medical education.

COTHs and a Changing Health Care Environment

Although its been said that America's teaching hospitals are the envy of the world (Kassirer, 1994), they are not shielded from the environmental pressures just

discussed. Furthermore, their envious status does not assure their ultimate survival. If COTHs fail to respond to the environmental changes, their fate may be analogous to that of the railroad industry. As Goldman (1995) pointed out, railroads once dominated industrial America, but lost their central role as technology and consumer tastes changed. This occurred because the railroad industry failed to position itself to take advantage of rapid changes in modes of transportation. Thus, the trucking and airline industries increasingly dominated freight and passenger transportation. The railroad industry did dot dissolve, but stagnated and lost its importance as technological and other changes significantly altered the transportation business. A similar fate may await America's teaching hospitals, as a consequence of the rapid changes occurring in the health care industry.

The hospital sector that was once based on solo hospitals competing with one another (Starr, 1982) is quickly becoming a sector dominated by highly competitive hospital systems and networks. These and other market pressures threaten the central role of teaching hospitals (Blumenthal & Meyer, 1993; Goldman, 1995; Kassirer, 1994; & Levey, 1995). While COTHs may have thought themselves impervious to these market changes, it has become increasingly clear that they must adapt or risk being greatly diminished as health care players (Iglehart, 1994).

It has been suggested that the importance COTHs place on training specialists over generalists, adopting the latest and most expensive technologies, and cultivating their tertiary and quaternary care versus primary care is in direct opposition to the direction in which health care reform and market restructuring is headed (Anderson, Steinberg, & Heyssel, 1994).

Teaching hospitals must find ways to continue their threefold mission (i.e., patient care, clinical research, and medical education) in a price sensitive market (Howard, 1994). While education and research are the primary concerns of the medical schools, patient care is the primary mission of the teaching hospitals (Heyssel, 1984; Lash & Dickler, 1993). However, their mission of patient care is in jeopardy. A number of other providers are threatening to take market share away from teaching hospitals by offering lower prices and easier access through new and different points of sale (Heyssel, 1984; Hurley & Thompson, 1993). Teaching hospitals must compete against the other hospitals in their local market for managed care contracts. However, according to Kassirer (1994), it is the extra costs associated with teaching and training physicians that result in teaching hospitals costing 30% to 40% more than non-teaching hospitals. Because of the extra expense of these additional responsibilities, COTHs have a difficult time

competing on a price basis with other community hospitals (Howard, 1994; Munson, Choi, & Allison, 1986).

Teaching hospitals often have very large physician groups associated with them. Some of the difficulty of competing for managed care contracts may be magnified due to problems associated with these physician groups, commonly referred to as faculty practice plans. Many faculty plans are organized by departments and then by sub-specialty with each operating independently (Fox & Wasserman, 1993). According to Fox and Wasserman, this puts COTHs and their faculty at a disadvantage in competing for comprehensive contracts from managed care organizations seeking coordinated services.

As managed care penetration and competition continues to increase, COTHs may find themselves being used less and less by managed care organizations (Allison & Dalston, 1982). This will result in fewer admissions and procedures, as well as fewer referrals to hospital-based specialists. A shrinking patient and revenue base that results in a reduction in physician reimbursement may drive medical faculty out of teaching hospitals (Goldman, 1995; Weiland, Malone, Bay, & Garren, 1995). The erosion of the teaching hospitals' faculty could negatively impact the quality of medical education.

An additional concern for COTHs, as managed care organizations control a greater number of patients, is a

real threat of financial insolvency (Rogers, Snyderman, & Rogers, 1994). As market forces continue to move in the direction of controlling costs and price competition, the ability of COTHs to cross-subsidize their education and research missions will decrease (Anderson, Steinberg, & Heyssel, 1994). Anderson and others point out that the funding of medical education is heavily dependent on the revenues from patient care; thus, anything that effects those revenues directly effects the financial ability of COTHs to perform their other functions. Teaching hospitals use revenue from patient services to cross-subsidize both the medical school's education and clinical research (Anderson, Steinberg, & Heyssel, 1994; Iglehart, 1993). This was made possible because third party payers were willing to pay the higher prices associated with patient services provided by COTHs (Anderson, Steinberg, & Heyssel, 1994; Iglehart, 1993). To compete, COTHs will have to improve efficiencies and, in particular, control admissions and lengths of stay.

Teaching hospitals also face the continual threat of decreases in the current level of indirect medical education (IME) payments they receive. For example, in one recent health care reform proposal, it was proposed to cut Medicare IME adjustments from 7.7% to 3% by 1997 (Japsen, 1994). Japsen reported that for one teaching hospital, the University of Minnesota Health System this change would

result in a loss of approximately $4 million and other COTHs may lose more.

Significance of the Study

Despite the failure of health care reform in the early 1990s, there has continued to be a profound shift in the purchasing, financing, and delivery of health care. Managed care companies and other third party payers concerned with escalating costs are increasingly channeling patients to selected network partners, integrated delivery systems, or other provider groupings that are capable of managing the care and costs of the health services they provide to defined populations. In response, numerous relationships between hospitals and other health care providers are forming in order for them to compete for patients. This market evolution, though at various stages across markets (Nauert, 1995), is occurring throughout the country and COTHs are unable to escape the pressure to reorganize and strategically align with other providers.

Teaching hospitals are an important part of America's health care system. As previously discussed, in addition to their sophisticated technology and cutting edge research, they deliver a large percentage of health care service in the United States. As the training grounds for future physicians, centers for research, and major providers of

health care services, understanding how organizational and market factors impacting COTHs is of great significance.

Facing erosion of their patient base, COTHs have begun to explore ways to compete against forming and established integrated systems. Creating multi-organizational integrated systems can take several shapes. To compete in the future and maintain their threefold mission, COTHs will need to restructure their institutions. They need to lower costs, assume risk, find new locations for training physicians with an emphasis on primary care, and be properly aligned to assure access to managed care contracts (Hagland, 1996; Nauret, 1995; & Snyderman, 1997).

Teaching hospitals are currently either joining some type of provider network, building their own networks, or approaching the markets in other ways (Iglehart, 1995). COTHs not considering any of these options may possibly be suffering from paralysis and placing their fates in the hands of others.

This research sets out to advance our understanding of how COTHs relate to their local environments. In the next chapter, it is argued that COTHs are influenced by a variety of environmental and institutional forces. Both of these forces are expected to influence the structural characteristics and ability of teaching hospitals to change or adapt to their environments. Insights gained by studying the market behaviors of COTHs should be of value to both

policy makers and hospital executives as they guide teaching hospitals through the turbulent health care environment.

CHAPTER 2

Theoretical Foundation

Hospitals like other organizations are affected by the environments in which they operate. In the 1980s and through the beginning of the 1990s the overall health care environment experienced an increase in political and public pressure to contain cost, cover the uninsured, and improve the quality of the care provided (Blumenthal & Meyer, 1993; Howard, 1994). These pressures created a great deal of uncertainty and turbulence as providers attempted to conform to and meet these requirements.

Since the beginning of the 1990s two phenomena occurred that increased the market pressure felt by COTHs (Lash & Dickler, 1993; Pallarito, 1995) as well as by other community hospitals (Gilles, Shortell, Anderson, & Morgan, 1995). Both the threat of major governmental health care reform and increases in managed care penetration across the nation together have stimulated hospitals to combine into various forms of interorganizational relationships[1]. Despite the collapse of governmental health care reform, increases

[1] This conclusion is based upon a careful reading of the popular health care literature (e.g., see Scott, 1995) and numerous phone interviews.

in managed care penetration has continued and the surge of hospital mergers and network formations did not slow (Lutz, 1995). Growth in managed care continues to be a force to which hospitals must adapt (Neville, 1995; Pallarito, 1995).

As noted in Chapter 1, hospitals have responded to environmental threats by joining together at the local level (Luke, Ozcan, & Begun, 1990), despite a history of working independently and resisting collaboration (Starr, 1982). The dynamic growth of hospitals working together in both formal and less formal arrangements changed a once cottage industry populated by thousands of individual, freestanding, and largely not-for-profit hospitals to a "crazy" quilt of systems, alliances, and networks (Shortell, 1988, p. 177). Increasingly, hospitals found themselves operating within an interdependent health care environment consisting of multiple interorganizational relationships.

Chapter 1 also argued that teaching hospitals are a major part of our country's health system, with their ability to provide patient care, research, and training for future physicians. Thus, we must attempt to better understand their position and strategic response to the ever-changing health care environment. This chapter examines some of the theoretical and conceptual issues surrounding the response of both COTHs and community hospitals to their changing environments by creating not only

interorganizational, but also, more specifically, integrated relationships.

Organizations and Institutional Environments

Among several organizational perspectives, one in particular--institutional theory--is well suited for the studying uniqueness of teaching hospitals. This perspective emphasizes that organizations operate in open systems (Scott, 1992) and, thus, are strongly influenced by their external environments. Organizational choice and action, within this perspective, is seen to be limited by a variety of external pressures (Meyer, Scott, & Deal, 1883) to which organizations must respond in order to survive (Meyer & Rowan, 1977). A main concern is that organizations respond adequately to the environment's expectations of them (Mohr, 1992). Thus, organizations attempt to mirror environmental expectations regardless of whether or not they believe the prescribed practice will actually work within their own organizations (DiMaggio & Powell, 1983). Such a compulsive need to conform to rules, regulations, and the norms of others helps the organizations to attain their goals and objectives. More importantly, it helps them increase or assure their legitimacy, thus, increasing their chances not only for success, but also for survival (Galaskiewicz & Wasserman, 1989).

The institutional perspective further suggests that the environment constrains organizations either technically or institutionally (Meyer & Scott, 1983). Technical constraints relate to markets in which products or services are exchanged. In technical environments organizations are required to manage, control, and coordinate effectively their work processes, while buffering those processes from disturbances in the environment. In this type of environment, organizations are primarily concerned with achieving appropriate outcomes.

Alternatively, organizations that are within institutional environments are preoccupied with ensuring correct and appropriate structures and processes to pursue their goals and objectives (Alexander & D'Aunno, 1994; Alexander & Scott, 1984; Meyer & Rowan, 1977). Institutional constraints consist of elaborate rules and regulations to which organizations must conform if they want to receive support and attain legitimacy (DiMaggio & Powell, 1983; Fennell, 1980; Zucker, 1983). From an institutional perspective, legitimacy is a condition that reflects support for the organization as well as conformity to relevant rules or laws (Scott, 1995). It reflects the degree of support an organization receives from significant others, both political and cultural (Meyer & Scott, 1983). In changing environments, it may be the case that organizations are confronted by many and sometimes conflicting authority

figures or entities (i.e., significant individuals or organizations in the market). Organizations facing this situation may find it difficult to act because of such conflicting demands (Meyer & Scott, 1983). Conformity to one set of demands is easily done at the peril of not responding to the important demands of others, and thereby losing their support.

All organizations face, to some degree, both technical and institutional environments (Alexander & Scott, 1984). However, hospital organizations find themselves in unique, often conflicting situations of operating in environments where both technical and institutional components have strong influences on them. Health care is one of the most regulated industries within the United States economy.

Providers face considerable technical constraints (Scott, 1992). The many innovations in medical treatments and the emphasis on cost control as well as efficiency all increase technical pressures experienced by hospital organizations (Fennell & Alexander, 1987). Alternatively, hospitals face institutional pressures from a number of sources that include not only the state and health care professions, but interest groups, public opinion, even, managed care organizations (Scott, 1987). This duality of technical and institutional pressures can produce significant conflicts for hospitals (Alexander & D'Aunno,

1990), especially for teaching hospitals that face strong institutional constraints.

If applied to hospitals, institutional theory would suggest that to survive hospitals would need to conform and adhere to the external rules and norms of both technical and institutional environments (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Thus, if it is the environmentally accepted view that hospitals must join networks rather than to operate independently to contain costs, be more efficient, and provide quality care, then hospitals will likely seek and develop relationships with one another.

The concept that captures this phenomenon is that of isomorphism. Isomorphism represents a constraining process in which organizations are pressured to resemble others within populations of organizations facing similar environmental threats. Three types of isomorphism have been identified. They are coercive, normative, and mimetic (DiMaggio & Powell, 1983). All of them can be seen to influence organizations to change in order to become more like others in their environments and to increase their perceived legitimacy and chances for survival.

Coercive isomorphism occurs when external pressures from one or more organizations begin increasingly to shape and change other organizations in the environment. Organizations can influence others to adopt certain practices through the exercise of authority or by inducing

them using rewards and other incentives (Scott, 1987). A study by DiMaggio (1983) provides an example of how organizations can be influenced by others to adopt certain structures. In this study, he showed that the centralization of funding sources by the National Endowment of the Arts created an environment in which interactions between those organizations in the art field increased. As these organizations positioned themselves to compete for the same resources, isomorphic forces, including coercive pressures, resulted in their developing similar internal organizational structures.

In health care, critical resources are being controlled and to some degree centralized by managed care organizations. As managed care organizations increase their market presence, COTHs and others become more and more dependent on them for resources, especially contracts for providing patient care to their enrollees. Managed care plans may opt not to support COTHs, unless they are part of larger networks that have greater geographic coverage than would be available for COTHs standing alone and, appear to be more capable of providing efficient and effective patient care. This could result in COTHs being coerced into forming organizational alignments that they may not otherwise have been willing to considered. Other market pressures emanating from large businesses, business coalitions, large physician groups, and rival hospitals and strategic hospital alliances

are likely to contribute to the coercive pressures COTHs feel as they consider their response to the changing markets.

A second type of isomorphism--normative--represents the norms of professionalism as well as the industry that are brought to bear upon organizations. Normative pressures emphasize rules that introduce a prescriptive and obligatory dimension into organizations (Scott, 1995). Thus, normative pressures influence how organizations are to run. In one study, evidence was found that schools became more similar over time (Meyer, Scott, Strang, & Creighton, 1988). The authors argued that many of the changes were a result of changes in the framework of school policies that hold classrooms in place. They pointed out that classrooms around the country are held together by normative pressures such as the organizational roles, policies, and procedures that dominate the educational culture. According to Scott (1995), norms define not only the goals and objectives of an organization, but how they are to be accomplished.

Professional norms include normative pressures brought about by accrediting bodies such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). More specifically, however, there are organizational norms unique to COTH hospitals. Teaching hospitals must conform to the rules that certifying organizations require for residency programs. Where COTHs are aligned with universities or state

governments, normative pressures may come in the form of bureaucracies that regulate and control the structuring and conduct of administrative activities (i.e., policies and procedures). Furthermore, COTHs have normative pressures that arise from their role of hospitals of last resort which society and other community hospitals expect of them. Regardless of the sources of normative pressures, COTHs as a result, have developed organizational structures that may make rapid responses to market changes difficult.

The third type of isomorphism--mimetic--occurs when organizations attempt to change in order to model themselves after others in the market because they are unsure of what to do. They do this because of their desire to establish or maintain their perceived legitimacy. Thus, in the case of teaching hospitals, they may seek to establish relationships with other hospitals solely because others have already formed such relationships. Being the only stand-alone hospital in the market may give the impression that a hospital provides substandard care, is poorly run, or lacks strategic vision. Thus, to create a more favorable perception, hospitals may alter their behavior and participate in alliances with other hospitals.

Two isomorphic forces are selected for discussion. Coercive and normative pressures are active forces that impose constraints on teaching hospitals that need to be addressed. COTHs exist in an open environment and must

interact with others; thus, are susceptible to both of these forces. Mimetic influences result from a failure to know how to respond to the market environment. That is, health care organizations may observe the market forces and feel the need to respond, but simply are not sure how; thus, they engage in mimetic behavior. In health care, there is a long history of independence and autonomy among health care providers (Starr, 1982), and it is unlikely hospitals will deviate from this without being persuaded in some way by market or organizational factors (see Pfeffer & Salancik, 1978). Thus, mimetic isomorphism may be seen to be the product of the other two sets of forces. Therefore, for the purpose of this study, only coercive and normative pressures are analyzed. Figure 1 presents the theoretical model used in this study. In sum, both coercive and normative pressures are associated with the strategic responses that teaching hospitals make in response to changes occurring within their health care markets.

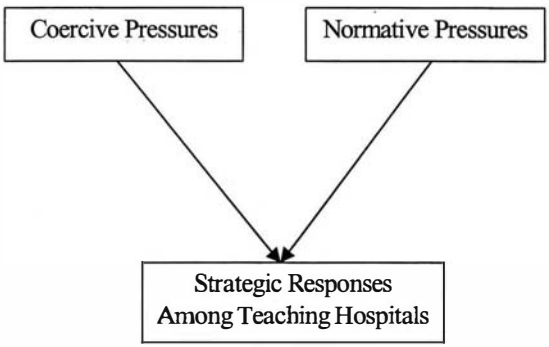

Figure 1. Theoretical Conceptualization of Isomorphic Pressures.

Teaching Hospitals in an Institutional Environment

As mentioned earlier, health care, in general, is a heavily regulated industry; however, COTHs may face even greater social, cultural, and governmental pressures. This is because many COTHs are controlled by the state and, according to Scott (1992), the state represents one of the more significant institutional structures in the modern world. Being controlled by the state results in COTHs having to operate in both health care markets and the political arenas. Many COTHs must deal with strict requirements in terms of personnel and purchasing issues, restrictions on the acquisition of capital, and other unnecessary and burdensome political interference (Iglehart, 1995). This has led to the conclusion that COTHs, as a whole, are inordinately complex, inflexible structures that are, as a result, slow to act (Thier, 1994). For example, before the University of Colorado Hospital at Denver cut its legal and financial ties with the state it reported facing a number of operational constraints, such as:

- its administrative functions were under the jurisdiction of state bureaucracy;
- it was required to use the state purchasing system;
- it was not allowed to enter into joint ventures with other hospitals;

- its ability to borrow money was precluded by the state, and when money was found, the state used it to cover shortfalls in their own operations (Johnson, 1990).

In sum, COTHs operate in an environment that is bureaucratically influenced and often outside their immediate control, all of which makes timely responses to growing environmental pressures difficult.

Weber (1968) argued that bureaucracy was such an efficient and powerful means of managing that, once established, the momentum of bureaucracy was irreversible. Over the long run, rational decisions are made that tend to construct an environment that constrains the organization's ability to change in later years (DiMaggio & Powell, 1983). Strategic choices are both selected within and constrained by the institutional framework of the organization (Peng & Heath, 1996). Organizations are constrained to actions that are acceptable and supportable by both the external (i.e., market) and internal (i.e., hospital) institutional environments (Aldrich & Fiol, 1994).

Indeed, these added institutional constraints contribute to COTHs being strategically challenged. This situation may inhibit COTHs from obtaining the needed resources from their environment and make the requisite organizational and other strategic responses to sustain and enhance their organizational survival. Among the many

strategic responses available to COTHs, one that is of great importance in the restructuring health care environment is the formation of strategic relationships with other organizations. This response, however, is especially challenging to COTHs because it requires that they be able to make major and difficult decisions dealing with organizational structure, the reallocation of administrative power, and, possibly even, the restructuring of clinical production processes. Decisions such as these are difficult given the institutional structures within which COTHs operate.

The following sections discuss further the concept and formation of interorganizational relationships as a strategic response to the changing health care environment.

The Use of Interorganizational Relationships

From a resource dependency perspective, all organizations fall short of having access to all of the resources needed to meet fully their objectives. They thus engage in behaviors designed to assure access to those resources over time (Pfeffer & Salancik, 1978). Organizations are not autonomous entities (Johnson & Mattson, 1982), but are dependent upon other organizations that supply the resources central to their survival (Alexander & Morrisey, 1989; Pfeffer & Salancik, 1978). This

forces organizations to enter into exchanges with one another to acquire the needed resources they inherently lack. Levin and White (1961) argued that these exchanges provide the framework for understanding the relationship between organizations. Since organizations operate within the context of their environments (Oliver, 1990), their performance and perhaps even their survival may depend on the exchanges and linkages they have with other organizations.

The need for obtaining certain resources necessary for success and survival puts organizations in a position where they must begin to establish interorganizational linkages (Aldrich, 1979). Interorganizational relationships become a mechanism by which a stable flow of needed resources are acquired and ensured. Resources for hospitals include patients, technology, personnel, clinical expertise, capital, and favorable regulations, to name a few.

Despite relying on the environment for necessary resources, organizations strongly desire to remain independent and autonomous (Pfeffer & Salancik, 1978). Thus, it is only reluctantly that organizations give up some independence and autonomy to enter into interorganizational relationships. Combining the institutional and resource dependency perspectives, organizations may feel coercive or normative pressures to align with others in the market in order to gain and secure needed resources. However,

organizations can be expected to weigh the advantages gained through partnering against reductions in independence that may result from entering into interorganizational relationships (Provan, 1988).

There are a number of needs for which organizations may be willing to forgo some autonomy and independence (Alter & Hage, 1993; Starkweather, 1981). Alter and Hage identified the need for expertise and financial resources. Obtaining expertise allows organizations to gain opportunities to respond more quickly to environmental changes, manage uncertainty, and enter new markets. Additionally, organizations may seek interorganizational relationships to acquire a means for distribution, access technology, diversify into new businesses, achieve economies of scale, or overcome regulatory barriers (Lorange & Roos, 1993). With respect to hospitals, Starkweather suggested that they might combine to enhance their survival in markets in which there is excess capacity in beds or services.

A number of possible advantages exist for forming interorganizational relationships. For one, they offer a vehicle for retaining some autonomy and independence. If managed correctly, interorganizational relationships can increase the power of participating organizations and even reduce their dependence on other organizations (Pfeffer & Salancik, 1978). Furthermore, interorganizational relationships help to stabilize economic activities through

the use of favorable, interdependent, and mutually supportive activities among participants (Powell, 1990). By collaborating with others, organizations experience accelerated learning that helps them overcome or avoid threats in the environment while helping them to take advantage of opportunities. This consequence has been termed adaptive efficiency; which includes, the advantages of speed, flexibility, and quality gained through network membership (Alter & Hage, 1993). In a health care environment that has been characterized as turbulent, interorganizational relationships should increase the level of organizational stability by reducing, controlling, preventing, or predicting uncertainties associated with the environment (Longest, 1980; Pennings, 1981).

Emergence of the Strategic Hospital Alliance

Interorganizational relationships come in many forms and are known by as many names. The spectrums of interorganizational arrangements includes loosely to tightly structured partnerships; arm's length bargaining to total integration; or spot market transactions to the internalization of markets (Thorelli, 1986). Along these spectra, Lewis (1990) identified three interorganizational relationships; they are acquisitions, strategic alliances, and arm's length transactions. An acquisition gives buyers

full control over acquired organizations. This usually involves organizations that are in closely related businesses. When organizations are not closely related, acquisition may not be the best strategy. This may be especially true for COTHs, given their extended missions as compared to other community hospitals. Acquisition of teaching hospitals by for-profit companies might expand or consolidate their missions beyond acceptable levels, thus, compromising the missions of the teaching hospitals. This disparity in missions could lead to the adoption of alternative interorganizational strategies that fall short of complete acquisition, which could offer greater latitude for accommodating mission incompatibilities.

A second form of interorganizational relationships discussed by Lewis (1990) is the arm's length transaction, which represents one of the more common methods used by organizations to obtain needed resources. Arm's length transactions may be based on standing relationships with other organizations; however, there is no sharing of risk. Any resources being obtained in this manner are dependent on both what suppliers are willing to provide and the terms of established agreements. Using arm's length transactions may result in relationships that are inflexible and possibly discontinuous; thus, creating a high degree of dependency and uncertainty for the organizations involved. In a

turbulent and uncertain environment this may be quite costly to the success of the organization.

Strategic alliances can overcome the difficulties and negative effects of the prior two interorganizational arrangements. Strategic alliances allow the organizations to be relatively free to exchange resources in their pursuit of joint growth (Powell, 1990). In contrast to acquisitions, strategic alliances allow organizations to combine only those functions each organization needs to provide competitive strength. This can be a vital strategy in an institutionalized environment where a formal transfer of ownership may be difficult (Peng & Heath, 1996). Strategic alliances allow organizations to mix the resources needed to meet both individual and mutual goals and objectives. Additionally, strategic alliances allow organizations to share the risks, maintain more control, and create an environment conducive for mutual ongoing adjustments between involved organizations, thus, gaining far more resources and greater competitive advantage than would be possible using arm's length transactions.

Interorganizational relationships, such as strategic alliances, have emerged in many industries as major organizational approaches to gaining competitive advantage over rivals in the market (Lorange & Roos, 1993). The interorganizational relationship is the mechanism for collective organizational actions, which are continually

shaped and restructured by the organizations involved (Ring & Van de Ven, 1994). Strategic alliances are one form of interorganizational relationships that can range from informal arrangements found between contractors and sub-contractors to more formal arrangements such as the joint ventures found throughout the computer industry (Dess, Rasheed, McLaughin, & Priem, 1995; Kanter, 1994). These networks are characterized by flexibility, decentralized control, and lateral ties that allow information to flow across formal boundaries (Ring & Van de Ven, 1994). The inherent downside to these relationships is an inability to take decisive strategic actions due to the absence of empowered centralized decision-making structures.

SHAs as Interorganizational Arrangements in Health Care

In health care, strategic alliances bring rival hospitals together to gain collectively a competitive advantage over others and enhance their ability to survive as well as thrive within the marketplace. As previously defined in Chapter 1, these hospital alignments are known as strategic hospital alliances (SHAs), specifically:

> *two or more hospitals in a given market that come together to generate critical competitive advantages and pursue their collective survival in the market.* (Luke, Olden, & Bramble, 1997)

Thus, SHAs, as defined here, include the full range of strategic interorganizational relationships ranging from full ownership to loose network arrangements. Luke and Olden (1995) found that by the middle of 1995 over 55% of urban acute care hospitals and 60% of patient days were controlled by SHAs. More important than the number of hospitals belonging to SHAs may be the degree to which SHAs dominate their markets. It has been found that in some markets, SHAs have become dominant players, collectively controlling over 70% of the patient days (Luke, Rossiter, Swisher, & Bramble, 1995).

Many reasons exist as to why organizations should come together to form interorganizational relationships such as strategic alliances. In health care, there are unique and specific reasons that precipitate their formation (Luke, Olden, & Bramble, 1997). As discussed earlier, foremost is the threat of managed care in the market. As hospitals combine with others to form SHAs they collectively increase their geographic presence; thus, they offer greater spatial coverage, thereby increasing their leverages in negotiations for manage care contracts. Joining together at the local level also allows organizations to develop health care products that enhance their positions in the markets. For example, in Houston, Memorial Healthcare System and the Sisters of Charity have formed a SHA to develop outpatient clinics and insurance products [such as, fully insured

health maintenance organization (HMO), preferred provider organization (PPO), point of service (POS) and self insurance products] as well as run a medical service organization (MSO) for physicians. The alliance not only covers the Houston market, but also extends to over 30 other counties in Texas.

Additionally, joining together also provides hospitals with the countervailing power needed to offset the dominance of managed care companies. By joining SHAs, hospitals find themselves in better positions to become system builders and leaders rather than watching other groups such as managed care companies or physician groups take the lead in system formation (Luke, Olden, & Bramble, 1997).

Clearly, COTHs need to participate in the restructuring that is taking place in the hospital industry. Unfortunately, we know little about the extent of their participation or what the determinants of their participation might be.

This research examines the interorganizational relationships of COTHs in relation to their local health care market structures. Resources in the market play a substantial role in influencing the strategic behavior of COTHs. In addition, the institutionalized environment in which COTHs operate further influences their behaviors.

As indicated earlier, patients are one resource that COTHs must secure in order to survive and continue their

threefold mission. Securing patients, especially those with insurance or the ability to pay, is necessary for their financial viability. Thus, to increase the certainty of a constant patient flow, COTHs may be willing to relinquish some autonomy and independence and partner with others in the market. Aligning with others is affected by both the coercive and normative influences within the market as well as their own institutionalized environment. One question is whether market environments exert enough pressure on the COTHs for them to overcome the constraints of their institutionalized environments and seek membership in SHAs?

Another question has to do with the ability of COTHs to control the SHAs, once they enter into multiorganizational relationships. Put another way, will COTHs become dominant players in their alliances, or will they become non-dominant members, or simply opt to go it alone? To explore the strategic role of COTHs in their markets the next section develops a typology that builds on those important questions regarding the strategic roles of COTHs.

COTH Typology

As COTHs enter various forms of strategic interrelationships, it becomes increasingly important to identify the particular types of relationships. Typologies are used for many reasons and usually for a specific

purpose. In this study, a typology is needed to both classify patterns of COTH participation in SHAs and to facilitate the analysis of those patterns.

Joining a SHA creates a number of interorganizational relationships between participating organizations, thus raising issues regarding power and strategic decision making. Alexander and Morlock (1994) suggest that an important source of power is having control over the resources subsumed within the structural framework. In multiorganizational arrangements such as those involving SHAs, control over both strategic and operational decisions will vary across the participating members. Dominant partners, to the extent they exist, can be expected to make or control most of the important operating and strategic decisions for their group. Within SHAs, a dominant member might even attempt to manage the other members as if they were wholly owned subsidiaries (Killing, 1983). The degree of dominance enjoyed by COTHs within SHAs is a critical concept to analyze when examining COTH relationships and thus is an integral part of the typology developed here.

To identify the COTH's relationship to its SHA and differentiate between COTHs that enjoy power positions from those that do not, the concept of *organizational dominance* will be used in the typology. In their previous work, Luke, Olden and Bramble (1997), identified both dominant and

diffuse SHA structures, which reflected the degree to which power was centered in a single alliance member or distributed relatively equally among the partners. It is important to note that dominance is not necessarily tied to ownership. In fact an organization can dominate without being in a major stake holder position, such as in 50-50 partnerships (Killing, 1983). However, it is the power of a single hospital or of a local hospital system relative to other SHA members that, in this typology, is used to determine positions of dominance.

Dominant SHA partners, either single or multi-ownership are identified as those that control the majority of beds within their SHAs. Hospitals or systems that control 70% or more of their SHA's beds are defined to be dominant players. Therefore, at one end of the spectrum of dominance, COTHs that stand-alone or are with a local cluster of the same system (i.e., common ownership hospitals) would, by definition, be classified as dominant, as fully controlling. At the other end, those with two or more partners, none of which is in a controlling position, by virtue of its relative size within its SHA, are classified as diffuse.

Going beyond the organizational relationship among SHA members, the relationship of the SHA and its hospitals to the market must also be considered. Again dominance and the power to influence are key.

By definition, SHAs exist to provide participating organizations a competitive advantage over rivals in their markets. In order to differentiate the degree of competitive advantage gained by participating in SHAs, COTHs are also distinguished by their positions of *market dominance*. To the extent that SHAs are dominant players in their respective markets, the participating hospitals, including COTHS, could be assumed to share in the collective's dominant position. Alternatively, there also may be markets where stand alone COTHs may be in positions of market dominance. Thus, the typology distinguishes market dominance for both unaligned and aligned (in which case dominance is measured for the SHA) COTHs.

One determinant of market dominance is the ability to influence consumer choice (Stewart, 1996), which can be measured by the share of the market controlled by individual players (free-standing hospitals and/or SHAs) within the market. The percentage of patient days provides one measure of market share and will be adapted for use in this study. In many markets the top four firms (either stand alone hospitals of SHAs) control 75% of the market; thus, a hospital or SHA that has a market share of 20% would be a dominant player in its market.

The two concepts, *organizational dominance* and *market dominance*, are combined to form two dimensions in the

typology (see Figure 2). This classification distinguishes the degree to which COTHs exert power within their organizations as well as their markets, either as stand-alone teaching hospitals or within strategic alliances. By definition, stand-alone COTHs will have high organizational dominance, but may or may not enjoy dominant market positions.

Two additional terms are added to Figure 2 to help classify the degree of organizational and market dominance that COTHs enjoy. COTHs high on market dominance dimension are labeled strategic while COTHs with high organizational dominance are labeled dominant. These terms capture the ability of COTHs and their SHAs to be major strategic players in their markets as well as have an influential dominant role in the decision-making processes of their SHAs.

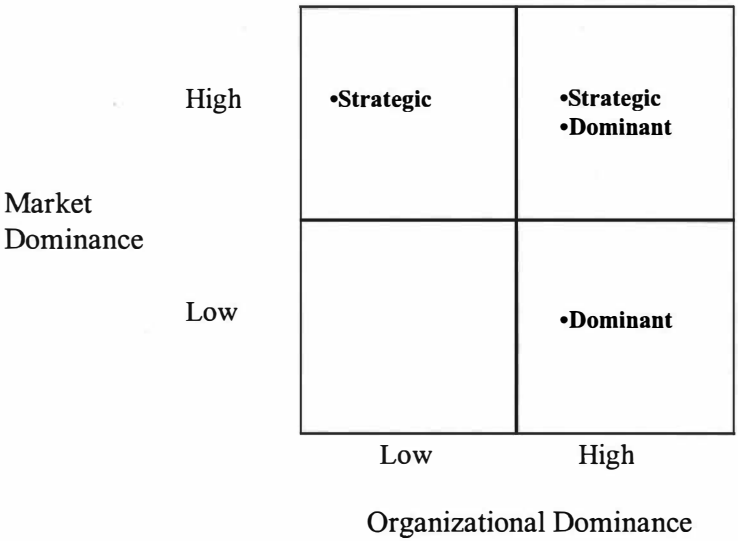

Figure 2. Typology of the Organizational and Market Position of Teaching Hospitals

The cell labeled both strategic and dominant (see Figure 2) represents COTHs (or their local systems) that are organizationally dominant as well as dominate their markets. COTHs in this cell are assumed to provide or control not only tertiary services in their markets, but a significant range of primary care services as well. From the perspective of organizational dominance, teaching hospitals in this cell would be assumed to be either free-standing or to dominate the SHAs of which they are members. For example, two COTHs--Hartford Hospital and the University of Connecticut Hospital--have aligned with one another in the Hartford MSA. The partnership falls short of common ownership; however, Hartford hospital controls 78% of the bed capacity and thus considered organizationally dominant. Additionally, the Hartford/University of Connecticut SHA provides over 41% of the patient days in the Hartford market. The SHA is thus considered a dominant strategic player in the MSA and therefore Hartford University is also considered dominate its market as well as its partners.

In general, it is expected that stand-alone COTHs are likely to be highly "strategic" in markets characterized by smaller populations, simply by virtue of the small number of competitors that are found in the smaller markets. For example, in Charlottesville, the University of Virginia Medical Center is a stand-alone hospital and one of only two hospitals in the market. Its size and capability to offer a

multitude of services to a market with little competition creates an environment where the COTH is able to become not only a dominant player, but provide a wide range of services to the local population.

Staying with organizationally dominant COTHs, the cell in Figure 2 labeled dominant illustrates situations where COTHs are organizationally dominant, but they (or their SHA) are not major players in their markets. COTHs in this category may again be either stand-alone hospitals or SHA members. Hermann Hospital in Houston's Texas Medical Center is an example of a stand-alone COTH that does not have a high degree of market presence. Hermann is an isolated hospital that unlike the University of Virginia is located in a large market and must compete with not only a number of community hospitals, but also a number of other large teaching facilities. Interestingly, Hermann's position could change as it is now exploring a strategic alliance with a major community hospital SHA in the Houston area named the Memorial Health System. Should this occur, the new alignment would likely be classified as strategic, but Hermann might no longer be classified as dominant.

Where competition is greater, stand-alone COTHs may need to join SHAs (or create their own) in order to gain market share, let alone dominate their markets. An example of a SHA member in this category is Georgia Baptist Medical Center. Though the Georgia Baptist Medical Center is the

dominant hospital of the SHA, the SHA fails to be a major player in the Atlanta market. The SHA accounts for 6.1% of the patient days in the market and, thus, is not considered to be market dominant.

Teaching hospitals that have a low degree of organizational dominance, but are in SHAs that are dominant players in the marketplace are illustrated in the cell labeled strategic. Since, by definition, stand-alone COTHs are organizationally dominant, only COTHs that are members of SHAs would be found in this cell. COTHs in this cell are likely to be team players serving as referral or specialty hospitals for their respective alliances. For example, in Tampa Bay, Florida, Tampa General, a COTH hospital, is in an SHA that is controlled by Columbia. Indeed, Tampa General is the only hospital in the alliance that is not owned by Columbia and it represents only about 20% of the SHA's total bed capacity. Being the only large teaching facility in the alliance, Tampa General likely serves the tertiary and specialty needs of the SHA's community hospitals. Together with Tampa General, the Colombia-controlled SHA enjoys a strong market position, capturing 45% of the patient days in the market. Thus, though Tampa General is not organizationally dominant, it does have, through its participation in its SHA, a strong strategic market position.

The final cell characterizes COTHs that are neither organizationally dominant nor do they have strategic market positions. Again, only COTHs that are members of SHAs are considered. Northwestern Memorial Hospital in Chicago is a typical example of a COTH that falls into the "non-strategic/non-dominant" category. Northwestern is part of a seven hospital SHA and controls only 23% of the SHA's beds. Additionally the SHA provides only about 14% of the patient days in the market. This and all the other examples discussed in this section are summarized in Figure 3.

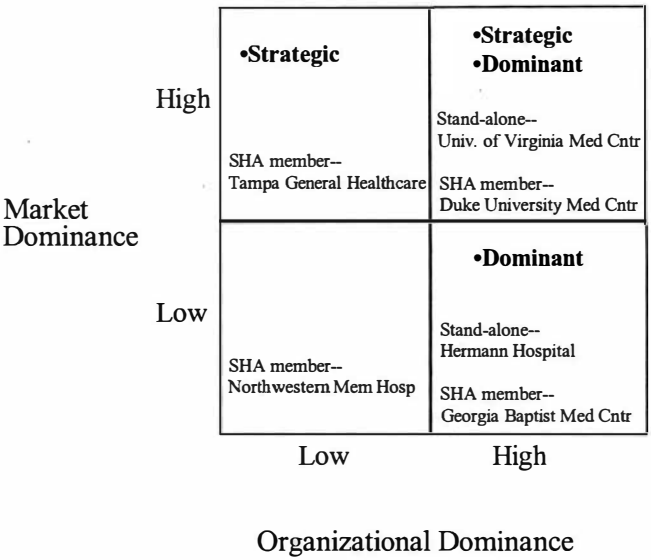

Figure 3. Illustration of Teaching Hospitals Typology

Development of Hypotheses

Six hypotheses are developed and tested in this study. The first two address the influence of coercive market pressures and normative organizational pressures on teaching hospital participation in SHAs. The last four hypotheses are concerned with the typology. Specifically the market and organizational dominance strategies explained in the typology section. Again the influence of coercive market pressures and normative organizational pressures are examined in relation to COTH market and organizational dominance, respectively.

The Influence of Coercive Pressures

It has been reported that, on average, COTH hospitals operate in highly consolidated and rivalrous markets (Luke & Bramble, 1996). In addition, managed care, large businesses, and business coalitions are often present in these markets, all of which affect the competitive decisions of the COTHs. These factors represent some of the coercive pressures facing COTH hospitals.

Membership of teaching hospitals in SHAs is, in part, dependent on the structures of the markets. Combining institutional and resource dependency theory, a COTH will only forfeit some of its autonomy to join a SHA if there is sufficient coercive pressure such that the COTH's viability is threatened. In markets where coercive forces (e.g.,

for essential resources, COTHs may feel it necessary to participate in hospital alliances in order to assure access to needed resources. Additionally, COTHs may align with other hospitals to increase stability and gain power over their rivals, while at the same time buffering themselves against the effects of external coercive forces within their markets. In sum, the coercive pressures in the marketplace are likely to be positively related to COTHs participating in SHAs.

The Influence of Normative Pressures

COTHs are also subjected to normative pressures that emanate from their internal organizational structures. In all organizations, much organizational behavior is dictated and specified by standard operating procedures, such as rules, conventions, and routines (March & Olsen, 1989). In the case of COTHs, these rules pressure them to conform to organizational norms as they interact in their market environments. Many normative rules are often regarded as restrictive, imposing varying degrees of constraint on organizational behavior (Scott, 1995). Academic medical centers owned or operated by the state government have been described as having insurmountable obstacles with regard to operating in the health care environment of the 1990s (Montague, 1993). For example, in a feasibility study concerning the privatization of Virginia's teaching hospitals it was concluded that, Virginia's teaching

hospitals are not adapt to the rapidly shifting health care environment because of the system of regulatory restraints in which they are forced to operate (Sgro, 1995). The more COTHs are controlled by the state or university, the harder it becomes for them to participate in strategic arrangements and align with other hospitals. To become more efficient and secure needed resources through interorganizational arrangements, it is clear that COTHs must overcome these obstacles (Blumenthal & Meyer, 1993). By breaking loose from state restrictions COTH hospitals may better positions themselves to become more competitive and flexible in their attempts to secure the resources needed for the COTH's viability (Johnson, 1993). Thus, the normative pressures that result from the COTHs organizational structures are likely to have a negative influence on the likelihood that COTHs will participate in SHAs.

In sum, teaching hospitals face two opposing forces as they contemplate participation in SHAs. While coercive pressures brought about by the market may influence COTHs to join SHAs, the normative pressures of their organizational structures act as barriers opposing their affiliation with others. Thus,

H_1: COTH participation in SHAs is expected to be positively associated with the level of coercive pressure in the market.

H_2: COTH participation in SHAs is expected to be negatively associated with the level of normative pressures within their organizations.

Organizational and Market Dominance

SHAs are formed for the specific purpose of generating competitive advantages and ensuring collective survival. The challenge for COTHs is to choose SHAs that will help them obtain a market dominant position and continue to fulfill their missions. While COTHs in markets with strong coercive forces are likely to participate in SHAs and seek out the most prosperous relationships, their associated normative pressures within their organizational structures make them, at times, less than ideal partners.

As discussed previously, organizational dominance is critical to teaching hospitals as they consider partnering with others. Since organizations wish to maintain their autonomy and independence (Pfeffer & Salancik, 1978), COTHs would be expected to prefer participation in SHAs in which they would be in dominant positions and retain much of their autonomy and independence. However, choosing the perfect partner is not always feasible. In many cases, markets have already experienced much consolidation that limits the number of available potential partners. Also the

organizational structures of COTHs may inhibit partner choice as well as the type of arrangements that are possible or the speed at which negotiations take place.

Both coercive and normative pressures that teaching hospitals face effect their choices of potential partners. Thus, the ability of COTHs to improve their market position and control their organization (i.e., SHA) is related to the coercive market and normative organizational pressures that exist. Thus, the following hypotheses are proposed:

H_3: COTH market dominance, as a stand-alone or via a SHA, is positively associated with the level of coercive pressures in the market.

H_4: COTH market dominance, as a stand-alone or via a SHA, is negatively associated with the level of normative pressures in the market.

H_5: COTH organizational dominance, in SHAs, is positively associated with the level of coercive pressures within its organization structure.

H_6: COTH organizational dominance, in SHAs, is negatively associated with the level of normative pressures within its organization structure.

Figure 1 is revisited and further refined in Figure 4 to represent the six hypotheses proposed in this research. This representation shows the influence of both coercive market and normative organizational forces.

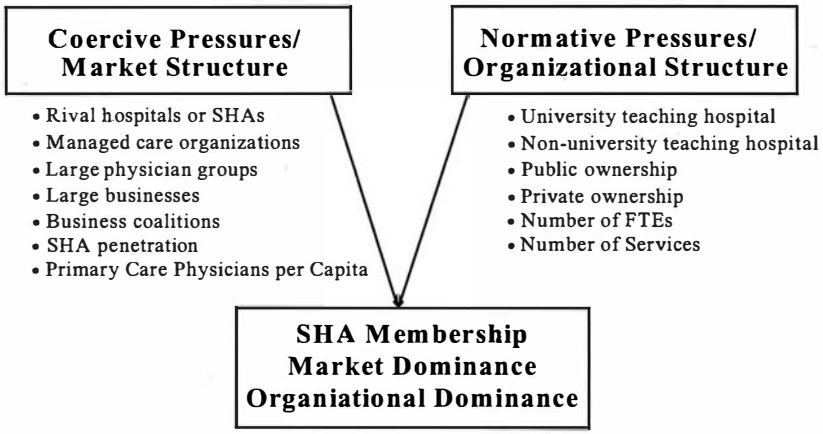

Figure 4. Conceptual Model of Teaching Hospital Participation in SHAs and their Market and Organizational Dominance

Some of the specific factors (discussed in the proceeding chapter) that are thought to represent these forces are also presented in Figure 4.

In the chapters that follow the methods used for testing these hypotheses, the results and the implications of the findings are discussed.

CHAPTER 3

Methodology

This chapter describes the research design and the variables used to test the hypotheses presented in the preceding chapter. The description of how the variables were measured along with their sources are presented. Finally the research design and the statistical procedures used to test the hypotheses are explained.

Variable Sources and Measurement

Variables for the study were chosen based on face validity, theoretical relevance, and support in the literature. Consistent with other studies (see Alexander & Morrisey, 1989; Fennell, 1980), this method of variable selection allows for interpretation of the specific variables as correlates of COTH participation in SHAs. Data were gathered from various sources to create a unique database of local hospital networks and systems.

Database Description and Data Sources

The data for this study come primarily from a unique database created by the Williamson Institute at Virginia

Commonwealth University. Using data from the American Hospitals Association's (AHA) annual survey as a foundation, faculty at the Williamson Institute have, since 1989, continually monitored and updated national data on multi-hospital system membership, local hospital systems, and strategic hospital alliances. Data on hospital interorganizational relationships are collected and validated in a multiple step process. This process includes: scanning the popular literature (e.g. Modern Healthcare); phone calls to informed persons in the market; and monitoring other sources such as press releases, collegial networks, and Internet sites of health care organizations (see Miller et al., 1996).

Using this database overcomes a number of limitations in the AHA survey data. First, many merged hospitals report themselves as one organization, but may indeed have two or more hospitals in various locations. For example, in Durham, North Carolina, Wake Medical Center is reported as one entity, but has four hospitals distributed throughout the metropolitan area. A second limitation in the AHA survey data is the facts that many multi-hospital systems do not report themselves as such and thus go unidentified. A third shortcoming of AHA survey data is the inherent lag time in reporting hospital system information. This problem is amplified given the rapid changes occurring in the health care environment. A final shortcoming is that while

hospitals are combining into many different combinations, the AHA survey data fails to adequately identify and report interorganizational arrangements that fall short of full ownership.

Data are also drawn from other sources to enhance the Williamson Institute's data on local hospital systems and networks. Data used to measure market structure variables come from InterStudy, National Business Coalition on Health (NBCH), Dun and Bradstreet, the Medical Group Management Association (MGMA), and the Area Resource File (ARF). Data measuring the organizational characteristics of COTHs come from the AHA Annual Survey and the AAMC data on teaching hospitals. The combinations of these data sources provide useful information to measure the influence of market and organizational factors on COTH participation in SHAs.

Dependent Variables

In the first two hypotheses, the dependent variable is measured by COTH participation in SHAs. This measure is a dichotomous variable indicating either a yes or no with respect to whether the COTH participates in an SHA. As discussed previously SHA membership was obtained from the Williamson Institute database.

To test the next two hypotheses, the dependent variable is measured by whether COTHs have a position of dominance,

either within their SHAs (i.e., organizational dominance) or in the marketplace (i.e., market dominance). In each case, a dichotomous variable is used. Dominating a SHA organization was defined earlier as the COTH having control of at least 70% of the SHA's bed capacity. Thus by definition, a stand-alone teaching hospitals are considered organizationally dominant. Having a market dominant position is measured by the teaching hospital or its SHA controlling at least 20% of the market's patient days. Data used to measure both of these variables comes from the sources discussed earlier in this chapter.

Independent Variables

The independent variables chosen for this study measure the market and organizational characteristics that are expected to affect the participation of COTHs in SHAs as well as their positions of market and organizational dominance.

Defining the Market

Many of the independent variables are measured at the market level. The market for this study is defined as the metropolitan statistical area (MSA) in which the hospitals are located. Using an MSA definition assumes that the market boundaries of an individual hospital, system, or strategic network conform to the geographic boundaries of the MSA.

Clearly, there are hospital markets that span beyond MSA boundaries as well as natural (e.g., rivers) and man-made boundaries (e.g., interstates) that divide an MSA into distinct markets. Nevertheless, the MSA definition of hospital markets has been used in prior research (see Fennell, 1980; Luke, 1992; Luke, Olden, & Bramble, 1997). Additionally, this market definition has been found to be the most likely to capture the greatest number of hospital competitors and rivals as well as the critical market resources needed by COTHs (Olden, 1994). It has also been argued that SHAs sometime form to compete across MSAs (Clement et al., 1997). Nevertheless, the MSAs in which they are located reflect the areas in which the SHAs most directly intend to compete for managed care contracts. For these reasons, the MSA specification of the market is used for this study. Metropolitan statistical areas are defined as contiguous socioeconomic counties or areas that have at least one city or area with a population of at least 50,000 and a total population of at least 100,000 (U.S. Department of Commerce, 1990).

The following section explains the data sources and the specific measurement of the variables used in the study.

Measures of Coercive Market Pressures

Market variables of interest are intended to capture sources of coercive pressures that impact COTHs. Thus, measures from providers and buyers of health care services

are used. These variables are summarized in Table 3. Variables on the buyer side measure the degree of managed care penetration across markets as well as the presence of large employers and business coalitions in the market. Those on the provider side represent the amount of hospital competition in the market as measured by the number of rival hospitals and SHAs, the number of large physician group practices, and the number of primary care physicians per capita. Also on the provider side, are measures of SHA penetration across markets. These measures represent coercive market forces that are hypothesized to influence both the delivery of health care services and the organizational structures of SHAs within their local health care markets.

Providers of health care services represent rivals to teaching hospitals. Greater numbers of rival health care organizations in the market lead to greater uncertainty (Alexander & Morrisey, 1989). This uncertainty is a result of competition among hospitals, SHAs, and large physician groups for managed care contracts and the threat of loosing vital resources to competitors in the market. Recall that aligning with others is one method for reducing uncertainty (Pfeffer & Salancik, 1978). Thus, as more health care organizations compete for managed care contracts and, to the extent hospitals are forming SHAs, it is likely that COTHs will feel coercive pressure to affiliate. Furthermore, as

managed care penetration increases, coercion to affiliate may come from the fear of being left out of managed care contracts or being forced to accept heavy discounts for health care services. Both consequences result in a loss of vital patient revenues. By aligning with others and becoming more like their counterparts, COTHs may be able to gain more power over market rivals and managed care firms. This allows the COTH to compete more effectively for managed care contracts and needed patient revenues. Thus, a positive relationship is expected between the number of providers (rival hospitals, SHAs, or large physician groups) in the market and COTH participation in SHAs.

Buyer side measures include the percentage of the population in HMOs, the percentage of the population employed in large companies (greater than 1,000 employees), and the presence of business coalitions in the market. All of these measures are indicators of the market power and negotiating presence of HMOs and employers. For example, local employers combining into community-based organizations are able to amass the size and power necessary to attempt to manage the cost and quality of health care (Cronin, 1994). It has been argued that large businesses and business coalitions with sufficient leverage, in terms of size, have had an impact on health care costs (Luke et al., 1995). In deed, employers both individually and through business coalitions are forcing unprecedented changes in the payment

and delivery of health care (Appleby, 1995). As employers and managed care organizations gain more power in the market they are likely to exert more pressure on hospitals to provide care at lower costs as they manage the health of their communities. Teaching hospitals may feel coerced into seeking affiliations to make themselves more attractive to buyers of health care services. Thus, as previously argued, they are more likely to participate in SHAs to maintain their patient bases, secure managed care contracts, and compete in the markets.

Table 3

Variables Measuring Market Pressure

Variable	Measure	Data Source
Managed care penetration	Percent of market population enrolled in managed care plans	1995 InterStudy
Large employers	Percent of employees in MSA in businesses wither greater than 1,000 employees	1995 Dun & Bradstreet
Business coalitions	1 if one or more business coalitions operate in the market; 0 if no coalition	1996 NBCH
Rival hospitals	Number of non-federal, general acute care hospitals in the market.	1995, 1996 Williamson Institute Database
SHA penetration	The percent of patient days in the market controlled by hospitals in SHAs	1995, 1996 Williamson Institute Database

Table 3 (cont'd)
Variables Measuring Market Pressure

Variable	Measure	Data Source
Percent physicians in large groups	Number of physicians in groups of 20 or more physicians / Number of physicians in the MSA	1996 MGMA Data
Percent primary care physicians	Number of primary care physicians in the MSA/Total number of physicians in the MSA	1995 ARF Data

Notes. NBCH = National Business Coalition for Health
MGMA = Medical Group Management Association
ARF = Area Resource File

Measures of Normative Organizational Pressures

Organizational characteristics that capture and measure the level of normative organizational pressures that COTHs face include ownership, the administrative structure, and the complexity of the facility. The variables that measure these characteristics are listed in Table 4. In general, as discussed in Chapter 2, normative pressures resulting from the organizational characteristics of COTHs are expected to be negatively associated with teaching hospitals participating in SHAs. Variables measuring the level of normative pressure COTHs face along with their anticipated effects on SHA participation are explained below.

For-profit and not-for-profit teaching hospitals are examined in this study. Different ownership types have different needs, resources, missions and objectives (Choi, Allison, & Munson, 1985). All of which effect their willingness and capability to join or become members of SHAs. COTHs with not-for-profit ownership status, as previously argued, have more policies and procedures to which they must adhere than do those of other ownership types. Not-for-profit teaching hospitals have greater normative pressures of caring for the indigent populations than do their for-profit counterparts (Anderson, Steinberg, & Heyssel, 1994). Thus, it is expected they will be less

Table 4

Variables Measuring the Organizational Structure

Variable	Measure	Data Source
Ownership	Private, public or other non-profit, and Catholic	1995 COTH
Administrative structure	1 if common ownership with the college of medicine and 0 if a free-standing teaching hospital	1995 COTH
FTEs per beds	Number of full time equivalents divided by staffed beds	1995 AHA
Case Mix	An index the measures the degree of severity of the hospital's patients	1995 HCFA
Net patient revenue	A measure of patient volume, total patient revenue is the total of inpatient and outpatient revenues	1995 HCFA
Number of services	Total number of medical services offered by the hospital	1995 AHA

Notes. COTH = Membership Directory of the Council of Teaching Hospitals

likely to be members of SHAs, especially SHAs with for-profit members.

The administrative structure variables measure the degree to which COTHs are tied to the state or university. Those that are integrated with university or state agency are more likely to feel those normative pressures argued earlier that prevent them from affiliating with others in the markets. Independent COTHs are not part of the state or university, and thus do not have to overcome the additional hurdle of state or university constraints, as do their integrated counterparts. Therefore, it is expected that integrated COTHs will affiliate less than will independent COTHs.

Other factors may also affect the normative pressures felt by COTHs. Some of these stem from the size and scope of the hospitals. As the size and scope increase, the hospital administrative structures are likely to become more complex. This leads to many more normative policies and procedures that COTHs may have to follow. To capture the complexity related to the size and scope of teaching hospitals, the following variables are used in this study: full-time equivalents (FTEs) per bed, case mix, and service mix.

It is difficult to predict the influence of these variables. Although they offer many advantages to SHAs, they also act as barriers to SHA participation. For example, though hospitals join SHAs to increase their service

capacity, the number of services COTHs offer may inhibit other hospitals from aligning with them. Unless COTHs are willing to consolidate services with potential partners or train their residents at those locations, the many services they offer may be duplicative of SHA partners. Additionally, because of their teaching missions, COTHs often provide services that are not profitable, which again, may make COTHs less than attractive as partners. Similar arguments can be made for the bed size and the number of FTEs. Greater numbers of FTEs per bed may be associated with more severely ill patient populations, thus making COTHs more problematic as partners. It should be noted that since this study only looks at COTHs and all COTHs have similar organizational structures, the effects of some of these factors might be hard to identify.

Independent Control Variables

There are a number of sociodemographic factors that could be associated with COTHs (Luft et al., 1986). For example, in an earlier study on multi-hospital affiliation, Fennell and Alexander (1987) controlled for region as well as ownership and size. As discussed earlier, the latter two are already to be included as variables. In this study five sociodemographic factors are controlled in the analyses (see Table 5). These variables include the region in which the COTH is located, the size of the market, and the income, minority, and elderly characteristics of the market.

Table 5

Independent Control Variables

Variable	Measure	Data Source
Region	1=West; 2=Midwest; 3=South East is the reference	1995 ARF
MSA population	Population of the MSA	1995 ARF
Income	Log of per capita income	1995 ARF
Minority	Percent minority population in the MSA	1995 HCFA
Elderly	Percent aged population in the MSA	1995 AHA

Notes. ARF = Area Resource File

HCFA = Health Care Financing Administration Minimum Cost Data

AHA = American Hospital Association Annual Survey of Hospitals

Analysis

This research will examine a group of hospitals designated as teaching hospitals using the definition specified in Chapter 1. Excluded from this are COTHs located in rural areas or outside the United States. Furthermore, only non-federal general acute care COTHs are included in this study. This excludes Veteran Affairs hospitals and specialty facilities such as children's hospitals that might have COTH designations. The analyses presented in this section test the hypotheses outlined in Chapter 2.

The first analysis examines the correlates of SHA participation and tests hypotheses 1 and 2. This cross-sectional analysis uses logistic regression to test the correlates of COTH participation in SHAs. The coefficients of the independent variables are analyzed and interpreted for any significant and directional effects on SHA participation, using the following model:

$$SHA = f(MS, OC)$$

where: MS = market structure, and
OC = organizational characteristics

Results of this and all other analyses are presented in Chapter 4. It is anticipated that coercive market forces will be positively correlated while the normative

organizational forces are negatively correlated with SHA participation.

The second and third analyses tests hypotheses 3 and 4 as well as hypotheses 5 and 6, respectively. Two different regressions are estimated to examine cross-sectionally the market and organizational dominance of COTHs. One regression tests the correlates of market dominance and the other, organizational dominance. In analyzing organizational dominance, only COTHs that are part of SHAs are tested, since the focus is on the position of the COTHs relative to their SHA partners. As before, logistic regression is used in both analyses to test the correlates of the strategic role of COTHs. The two models tested are:

$$MD = f(MS, OC) \text{ and}$$
$$OD = f(MS, OC)$$

where: MD = organizational dominance
OD = market dominance
MS = market structure, and.
OC = organizational characteristics

Logistic Regression

Logistic regression is considered the standard method for conducting multivariate analyses of dichotomous variables (Hosmer & Lemeshow, 1989). When working with dichotomous dependent variables, such as SHA membership, logistic regression overcomes selected problems associated

with linear regression. Though linear regression works well with independent dichotomous variables, problems emerge when dependent variables are dichotomous. Linear regression produces bimodal distributions that lead to unreliable standard errors and estimators. Logistic regression produces consistent estimators regardless of how the dependent variables are distributed (Clearly & Angel, 1984).

Multivariate models allow the relationships between explanatory and dependent variables to be examined. Individual effects are determined within the model and are adjusted to account for the effects of the other independent variables. The measurement of the strength of association (i.e., the odds ratio) relative to the other covariates is also available for each logistic regression analysis.

The next Chapter explains the results of the analyses. Descriptive statistics and regression analyses are provided to aid in understanding the formation of SHAs and the role that COTHs play in this relatively new, but important organizational phenomenon.

CHAPTER 4

Results

Results of the data analysis used to test the proposed hypotheses in the preceding chapter are presented below. All three regression analyses are presented as well as a descriptive, frequency, and correlation statistics. The findings presented in this chapter are then discussed in Chapter 5.

Descriptive and Correlation Analysis

Means, standard deviations, maximum and minimum values were examined to determine if any distributional problems existed within the data. Descriptive statistics of the continuous variables are shown in Table 6 while frequency statistics are presented in Table 7 for the categorical variables. No serious problems were identified.

The categorical variables in the study were examined to assure that all possible responses were represented for each dichotomous response of the dependent variables (Hosmer & Lemeshow, 1989).

Table 6

Means and Standard Deviations for Continuous Variables (n= 274)

Variable	Mean	Std. Dev.
Percent managed care penetration	0.22	0.12
Percent large employers+	0.09	0.04
Rival hospitals per 1,000 population+	0.01	0.003
Percent SHA penetration+	0.66	0.24
Percent large group practices+	0.21	0.16
Primary Care Physician per Capita+	0.32	0.03
Number of FTEs per Bed*	2.54	1.17
Case Mix*	1.63	0.21
Net Patient Revenue*	11,734	6,222
Number of Services*	59.0	9.55
Per capita income+	20,326	3,228
Percent minority+	0.21	0.10
Percent elderly+	0.12	0.02

Notes. + Variables measured at the MSA level

* Variables measured at the hospital level

Table 7

Frequency of Categorical Variables (n=274)

Variable	Category	Frequency	Percent
SHA member	Yes	182	0.66
	No	92	0.34
Organizational dominance	Yes	119	0.43
	No	155	0.57
Market dominance	Yes	157	0.57
	No	117	0.43
Administrative structure	Independent	166	0.60
	Integrated	108	0.40
Ownership	Non-profit	251	0.92
	For-profit	23	0.08
Business coalition	Yes	188	0.69
	No	86	0.31
Region	East	113	0.41
	South	57	0.21
	Midwest	71	0.26
	West	33	0.12

Notes. All variables measured at the hospital level except the business coalition variable.

Correlation coefficients were examined for the independent continuous variables to detect potential multicollinearity. Multicollinearity exists when two independent variables are highly correlated. This could lead to overlooking a potential influential variable because its effect may be absorbed by other correlated variables. The population variable was found to be highly correlated (0.97) with the number of general acute care hospitals in the market. Weaker correlations were found between the population and per capita income as well as the percent minority in the market, 0.51 and 0.50 respectively. A third high correlation was found between the number of hospitals and the percent of minority population (0.50). Based upon these findings, variables measuring the population and the number of hospitals in the market were deleted from all of the analyses. Since the market's size and number of rival hospitals in the market are conceptually important factors in developing a partnering strategy, a new variable--number of hospital per 1,000--was created to measure the existence of rival hospitals adjusting for the market's size. Correlation analysis with this new variable showed no correlations exceeding $r = 0.50$.

Data transformations were performed on three independent variables. To minimize the presence of non-normal distributions in the variables (Mendenhall & Sincich, 1993). Specifically, net revenue was log-adjusted and both

SHA penetration and managed care penetration were changed to nominal variables based on their quartile values.

The lowest level of SHA penetration (Q1) were markets that had less than 55% of the patient days controlled by SHAs. The next two levels of SHA penetration (Q2 and Q3) were 1) markets with at least 55% and less than 74%, and 2) markets with at least 74% and less than 79% of the patient days under the control of SHA hospitals. The highest level of SHA penetration (Q4) were markets that had 79% or more or the market's patient days controlled by hospitals participating in SHAs.

The lowest level of HMO penetration (Q1) were markets that had less than 15% of the market's population in participating in HMOs. The next two levels of HMO penetration (Q2 and Q3) were 1) markets with at least 15% and less than 19%, and 2) markets with at least 19% and less than 28% of the population enrolled in managed care plans. The highest level of HMO penetration (Q4) were markets that had 28% or more or the market's population enrolled in HMOs.

Analysis 1: COTH Participation in SHAs

The first analysis tested the first two hypotheses, namely whether coercive market pressures are positively and normative organizational pressures negatively correlated and

with COTH participation in SHAs. Data were available for a total of 274 teaching hospitals included in this analysis.

Logistic regression was used to model the data and identify significant relationships. Recall that the dependent variable of interest in the first analysis was COTH participation in SHAs. A variable where the probability of the Chi-square tests statistic was less than 0.05 were considered to be significantly associated with the dependent variable. The parameter estimates, the standard error, and statistical significance for all the variables in the model are presented in Table 8.

There were three significant explanatory variables in the model measuring SHA participation. Two of the significant variables represent coercive market forces that COTHs face in the environment. The significant market variables included the percentage of large employers in the market, and the percentage of total patient days in the market controlled by SHAs, measured by SHA penetration.

The first variable, percent of large employers, was shown to have a positive relationship with SHA participation, which is consistent with the hypothesized relationship for a coercive variable. Reasons for this and the other findings presented in this Chapter are discussed detail in the next Chapter.

Table 8

Logistic Parameter Estimates of Teaching Hospital Participation in Strategic Hospital Alliances (n=274)

	Estimate		SE
Coercive Market Measures			
Business coalition	-0.020		0.203
Percent managed care penetration			
Highest to Lowest (Q4 to Q1)	-0.202		0.346
2nd highest to Lowest (Q3 to Q1)	-0.225		0.379
3rd highest to Lowest (Q2 to Q1)	-0.029		0.335
Percent large employers	13.997	*	6.330
Rival hospitals per 1,000 pop.	-13.793		58.091
Percent SHA penetration			
Highest to Lowest (Q4 to Q1)	-2.273		0.436
2nd highest to Lowest (Q3 to Q1)	-0.395	***	0.365
3rd highest to Lowest (Q2 to Q1)	0.570		0.350
Large group practices	1.819		1.449
Primary care physician per capita	-6.309		7.421
Normative Organizational Measures			
Ownership	0.460		0.304
Administrative structure	-0.124		0.199
Number of FTEs per bed	0.081		0.156
Case mix	-0.644		0.919
Net patient revenue	-0.927	*	0.457
Number of services	-0.003		0.022

Table 8 (cont'd)

Logistic Parameter Estimates of Teaching Hospital Participation in Strategic Hospital Alliances (n=274)

	Estimate		SE
Control Measures			
Income	0.0001		0.0001
Region			
West to Northeast	1.162		0.442
South to Northeast	0.493	**	0.452
Midwest to Northeast	-0.602		0.434
Minority	-0.986		2.249
Elderly	7.856		10.505
Intercept	7.011		4.961
R^2 = 0.299			

Notes. Q1, Q2, Q3, Q4 = 1st, 2nd, 3rd and 4th quartiles

*** significant at p<0.001

** significant at p<0.005

* significant at p<0.05

The effect of the other significant coercive variable was contrary to what was expected-- finding of a negative relationship between high levels of SHA penetration (measured as a nominal variable by quartiles of penetration) and SHA participation. Though not significant, the analysis showed that lower SHA penetration was positively associated with SHA participation. Looking at only the significant relationship, it would appear that as SHA penetration increases, it becomes less likely that COTHs become members of SHAs. One possible implication of this finding is that when SHA penetration reaches high levels it may be too late for COTHs to find partners.

The third significant explanatory variable was on the normative side-- the organizational measure, net revenue (a measure of the COTH's inpatient and outpatient volume). Results show a significant negative relationship with SHA participation. As hypothesized, increases in net revenues are expected to have a negative relationship with COTH participation in SHAs.

None of the other independent explanatory variables were significantly related to SHA participation. However, one of the control variables was significant. COTHs in the West were found to be more likely to participate in SHAs as compared to COTHs in the Northeast.

These findings thus provide only limited support for the first two hypotheses that COTH participation in SHAs is

positively associated with coercive pressures and negatively associated with normative pressures.

Analysis 2: Market Dominance of COTHs

In the second analysis, the two hypotheses that address the market position of COTHs are examined, specifically, that coercive market pressures are positively and normative pressures within the organization are negatively associated with COTH market dominance. Again, logistic regression was used and the parameter estimates were examined for significance and direction. As shown on Table 9, there were four significant explanatory variables.

Three market variables, the percent of primary care physicians, the proportions of physicians in large groups, and the level of SHA penetration in the market were all significantly associated with COTH market dominance. Contrary to what was expected the percent of primary care physicians were negatively associated with COTH market dominance. Alternatively, the percentage of physicians in large group practices was positively associated with COTH SHAs having a market dominant position. The SHA penetration variable showed the same pattern as in the first analysis with the notable exception that all levels of SHA penetration were significant. Low and medium levels of SHA penetration were positively related to SHA membership while

high levels had a negative relationship. Thus, as the proportion of patient days within markets that are controlled by SHAs increases, COTHs or their SHAs are less likely to hold dominant positions within their markets.

The other two significant variables are organizational variables that measure normative pressures within the SHA. The ownership variable showed that compared with other not-for-profit COTHs, there was a positive relationship between for-profit COTHs and a position of market dominance. Thus, as expected, not-for-profit COTHs and their SHAs are less likely to be in positions of market dominance than are their for-profit counterparts. The second significant organizational variable was the administrative structure variable that measured whether the COTH was independent or integrated with the medical school. Though not (Q4 to "strictly" significant ($p = 0.057$), it was found that integrated COTHs were negatively associated with a market dominant position for the COTH or its SHA. Both of these results were expected since not-for profit COTHs and COTHs owned by the medical schools have additional organizational complexities than COTHs that are separate from the medical school, state regulations, or other restrictions associated with a not-for-profit status.

Table 9

Logistic Parameter Estimates of Teaching Hospital Market Dominance (n = 274)

	Estimate		SE
Coercive Market Measures			
Business coalition	-0.295		0.209
Percent managed care penetration			
Highest to Lowest (Q4 to Q1)	-0.548		0.353
2nd highest to Lowest (Q3 to Q1)	0.005		0.353
3rd highest to Lowest (Q2 to Q1)	0.223		0.334
Percent large employers	-10.300		6.186
Rival hospitals per 1,000 pop.	-58.762		62.610
Percent SHA penetration			
Highest to Lowest (Q4 to Q1)	-1.445	***	0.364
2nd highest to Lowest (Q3 to Q1)	1.091	**	0.362
3rd highest to Lowest (Q2 to Q1)	1.290	***	0.384
Large group practices	3.474	*	1.460
Primary care physician per capita	-27.446	**	8.717
Normative Organizational Measures			
Ownership	1.022	**	0.346
Administrative structure	-0.368		0.194
Number of FTEs per bed	0.019		0.168
Case mix	-1.641		0.946
Net patient revenue+	-0.689		0.454
Number of services	-0.041		0.022

Table 9 (cont'd)

Logistic Parameter Estimates of Teaching Hospital Market Dominance (n = 274)

	Estimate		SE
Control Measures			
Income	0.0002		0.0001
Region			
West to Northeast	-0.213		0.419
South to Northeast	-1.116	*	0.522
Midwest to Northeast	0.605		0.406
Minority	6.450	**	2.286
Elderly	-9.935		9.666
Intercept	17.834	***	5.410
R^2 = 0.343			

Notes. Q1, Q2, Q3, Q4 = 1st, 2nd, 3rd and 4th quartiles

*** significant at p<0.001

** significant at p<0.005

* significant at p<0.05

In sum, the significant market variables provide mixed support for hypothesis three. While low levels of SHA penetration and the percent of physicians in large groups was positively associated with COTH market dominance, the percentage of primary care physicians had an inverse relationship. However, the two significant organizational variables, not-for-profit and an integrated administrative structure, were both, as expected, negatively related to dominant market positions. Thus, this analysis provided support for hypothesis four.

Analysis 3: Organizational Dominance of COTHs

The third analysis examined the last two hypotheses that, for teaching hospitals in an SHA, coercive market pressures would be positively and normative organizational pressures, negatively associated with an organizational dominant position for COTHs within their respective SHAs. For this analysis, only COTHs that were part of SHAs were included (n = 182). Three explanatory variables were significant in the model (see Table 10), namely COTH's ownership, COTH administrative structure and the SHA penetration in the market.

Table 10

Logistic Parameter Estimates of Teaching Hospital Organizational Dominance in Strategic Hospital Alliances (n=182)

	Estimate		SE
Coercive Market Measures			
Business coalition	0.189		0.334
Percent managed care penetration			
Highest to Lowest (Q4 to Q1)	-0.277		0.590
2nd highest to Lowest (Q3 to Q1)	0.629		0.635
3rd highest to Lowest (Q2 to Q1)	-0.747		0.541
Percent large employers	0.486		11.534
Rival hospitals per 1,000 pop.	-33.310		-110.348
Percent SHA penetration			
Highest to Lowest (Q4 to Q1)	-1.412	*	0.591
2nd highest to Lowest (Q3 to Q1)	0.907		0.767
3rd highest to Lowest (Q2 to Q1)	0.176		0.630
Large group practices	2.324		2.699
Primary Care physician per capita	-11.406		11.695
Normative Organizational Measures			
Ownership	1.326	*	0.662
Administrative structure	1.047	**	0.320
Number of FTEs per bed	0.898		0.478
Case mix	2.789		1.773
Net patient revenue*	-0.971		0.759
Number of services	-0.026		0.036

Table 10 (cont'd)

Logistic Parameter Estimates of Teaching Hospital Organizational Dominance in Strategic Hospital Alliances (n=182)

	Estimate		Std. Error
Control Measures			
Income	0.0001		0.0002
Region			
West to Northeast	0.340		0.863
South to Northeast	-1.068	*	0.734
Midwest to Northeast	1.447		0.699
Minority	1.389		4.044
Elderly	10.60		15.945
Intercept	7.153		7.810
R^2 = 0.268			

Notes. Q1, Q2, Q3, Q4 = 1st, 2nd, 3rd and 4th quartiles

** significant at p<0.005

* significant at p<0.05

The only significant coercive market pressure measure was the variable SHA penetration. Once again, this variable showed the same effect as the previous analyses. Only the highest level of SHA penetration was found to be significant. The effect of high levels of SHA penetration was negative, while lower levels, though not significant, had a positive effect.

For-profit COTHs were found to have a significant relationship with COTHs having organizationally dominant positions in their SHAs. Also, compared to integrated COTHs, independent teaching hospitals were significantly associated with having organizationally dominant positions in their SHAs. This supports the hypothesis that greater normative pressure consistent with not-for-profit status and integrated administrative structures is associated with COTH hospitals having weaker positions within their SHAs.

This analysis provided no support for the hypothesis that coercive pressures in the market were related to organizational dominance. However, the two organizational variables supported the hypothesis that there is an association between normative pressures and organizational dominance.

CHAPTER 5

Discussion and Conclusions

The purpose of this study was to examine the relationship between market and organizational factors in the health care environment and the strategic positions of the nation's teaching hospitals. These hospitals have an important role in not only providing patient care, but training future physicians and conducting research. They are also, in many cases, the safety net for people without insurance. It is thus imperative to understand how rapid changes in the health care environment are impacting teaching hospitals.

Three questions were specifically asked regarding teaching hospitals and the changing environment:

1. What organizational and market characteristics are associated with teaching hospitals participating in hospital networks?
2. What organizational and market characteristics are associated with the strategic positions that teaching hospitals have achieved within their local markets?

3. What organizational and market characteristics are associated with the organizational positions of teaching hospitals within their strategic hospital alliances?

To examine these questions, six hypotheses were developed and analyzed.

This chapter uses the results presented in the preceding chapter to evaluate the hypotheses and research questions. A summary of the three analyses is presented in Table 11. The table shows the direction of association for each of the significant variables along with the hypothesized direction of those variables. This chapter examines these findings within and across the three analyses. Conclusions are derived regarding the influences of both coercive and normative pressures on COTHs with regard to their participation in SHAs as well as their market and organizational positions. The chapter also describes the limitations of the study as well as implications and conclusions that can be drawn. Suggestions for further research are then presented.

Table 11

Summary of Significant Explanatory Variables and their Relationships with the Dependent Variables

Variable	Hypothesized Relationship	Findings SHA	MD	OD
Not-for-profit Ownership	-		-	-
Integrated COTHs	-		-[1]	-
SHA Penetration				
Q1 to Q4	+	-	-	-
Q2 to Q4	+		+	
Q3 to Q4	+		+	
Managed Care Penetration				
Q1 to Q4	+			
Q2 to Q4	+			
Q3 to Q4	+			
Percent Large Employers	+	+		
Net Revenue	-	-		
No. of Hospital Services	-		-	
Large group practices	+		+	
% Primary Care Physicians	+		-	

Notes. SHA = Strategic Hospital Alliance

MD = Market Dominance

OD = Organizational Dominance

1 = p-value = 0.057

Influence on SHA Participation

To answer the first question, the analyses examined the first and second hypotheses that coercive market pressures would be positively related and normative organizational pressures negatively related to COTH participation in SHAs. Two market variables were found to be significant: SHA penetration (negative) and the proportion of large employers in the market (positive).

The significant parameter estimate for the employer variable suggests that larger employers may exert strong coercive pressures on COTHs. Large employers thus appear to have the ability to influence how health care services within their markets are structured and delivered, more particularly for this study, the degree to which COTHs participate in SHAs.

The second significant variable, SHA penetration, had a negative effect, contrary to expectations, when comparing the highest (> 0.79) to the lowest (< 0.55) levels of SHA penetration. This suggests that as SHA hospitals control more and more of the total patient days within their markets, teaching hospitals may find it increasingly difficult to form or become members of SHAs. The validity of this explanation would be increased were one to assume that teaching hospitals are relatively slower in reacting to

market changes and, more particularly, in forming or participating in SHAs. Therefore, in those markets in which SHA formation is relatively more advanced compared to markets which may, at this point, have limited SHA formation, teaching hospitals may find it difficult to find partners or to identify compatible local systems to join.

Alternatively, the finding for SHA penetration could be the result of a missing third variable -- market size. Since SHA penetration tends to be higher in larger markets, the finding could mean that COTHs located in larger markets (where SHA penetration is also higher) are less likely to be members of SHAs. It could be, for example, that in the larger markets COTHs are more likely to remain niche players, consistent with their tertiary and quaternary care roles. It is reasonable to assume that niche positions can be sustained in the larger markets, given the relatively greater numbers of referring hospitals and, overall, greater demand for specialized and complex services in those markets. Therefore, COTHs that are located in large markets may be less likely, compared to those in smaller markets, to assume leadership roles in forming local systems, preferring, instead, to seek referrals from the forming local systems and leaving to community hospitals the leadership role in forming systems.

One organizational variable was found to be significant. As expected, net patient revenue was negatively related to COTH participation in SHAs. In this study, larger revenues were assumed to reflect higher patient volumes, which was considered to be an indicator of complexity or normative pressures. This finding could suggest that COTHs with higher net patient revenue may have less need to relinquish autonomy and join SHAs, given the stability they attain from large patient volumes and overall greater financial solvency. By itself, however, this finding only minimally supports the second hypothesis. More evidence would be needed to support the finding of the effects of normative pressures on COTH hospital participation in SHAs.

Influence on COTH Market Dominance

Three significant market variables were found in the second analysis, providing support for hypotheses three and four. One of the significant coercive variables was the percentage of physicians in large physician groups (groups with 20 or more physicians). Higher levels of physician participation in large group practices indicates greater levels of consolidation within physician markets, which is likely to be associated with higher levels of rivalry and aggressiveness within physician markets (Alexander,

Morrisey, & Shortell, 1986). The presence of physician markets tends also to be positively associated with managed care penetration, even, possibly, facilitating the development of managed care within markets. All of this is hypothesized to drive COTHs to participate in ever-stronger (larger and more dominant) SHAs. It may also be necessary for COTHs to join SHAs in order to assure access to referrals from other large primary care and specialty physician groups within their markets.

Finally, it should be noted that a tautology could be partly responsible for this finding. Many COTHs have very large physician groups associated with them, which fact would contribute directly to higher percentages of physicians participating in large physician groups (the independent variable in this case) and, by extension, account for some of the observed positive association between market dominance and the physician group variable.

The second finding was that the ratio of primary care physicians was significantly and negatively related to COTHs or their SHAs having dominant market positions, a finding that was contrary to expectations. On the one hand, this finding could suggest that relatively greater numbers of primary care physicians to specialists could enhance the referral bases for COTHs, thereby improving their economic climate. Under such circumstances, COTHs could have less

need to evolve into dominating positions (in part, through the formation of SHAs) within their markets in order to survive. If true, this explanation suggests that originally we may have interpreted the primary care variable incorrectly to represent a negative coercive effect, when it may actually have a positive effect. This is indicative of a general difficulty in forming hypotheses using physician variables. Physicians often play multiple and sometimes conflicting roles within markets. They can be both "friends" (referral sources) to COTHs as well as "foes" (competitors) to them.

The third significant coercive market variable is SHA penetration. The analysis found that as SHA penetration grew, COTHs or their SHAs were less likely to have market dominant positions. A positive relationship was found for the two lower levels of SHA penetration while at the highest level of SHA penetration a negative relationship was found. As before, this could be due to the challenge COTHs have in moving quickly to join SHAs, even SHAs that dominate their markets. Given the constraints they face relative to other, more nimble and aggressive hospitals, COTHs and their SHAs may simply be overwhelmed by these other market players. They would be even more challenged in markets that are relatively more advanced in terms of SHA formation.

On the organizational side, the analysis showed that for-profit COTHs were significantly more likely to be in market dominant positions, by comparison to not-for-profit COTHs. Not-for-profit COTHs may be somewhat more constrained in choosing partners and expanding generally. Such COTHs generally have more complicated organizational structures, stronger and more limiting missions, and less access to the capital needed for system formation (Heysell, 1984; Munson, Choi, & Allison, 1986). This could result in their forming SHAs that achieve less dominant market positions. Put another way, for-profit COTHs may enjoy more freedom (i.e., less normative constraints) in seeking partners that will enhance their positions in the markets.

Though not fully significant ($p = 0.057$), the effect of the administrative structure variable is worth noting. For reasons similar to those identified above, the finding suggests integrated COTHs may be less able to achieve positions of market dominance than are their independent counterparts. Integrated COTHs, by definition, face higher levels of normative constraints, since for them the medical schools and the hospitals share ownership. These complicated interrelationships could interfere with the ability of integrated COTHs to make the decisions and strategic choices necessary for them to achieve positions of market dominance.

Influence on Organizational Dominance

The third analysis found one coercive market variable and two normative organizational variables to be significant. The coercive market variable, the percent of SHA penetration in the market, was inversely related to COTH organizational dominance. Thus, in markets with higher levels of SHA penetration, COTHs were less likely to have achieved positions of dominance within their SHAs. (Recall, that organizational dominance was measured as the percent of the SHA that the COTH controlled through its ownership of participating hospitals.) As in the analysis of COTH participation in SHAs, this finding is consistent with the explanation of a third variable -- market size. In this case, it may be that in the larger markets (where there is also higher SHA penetration, overall), those COTHs that do participate in SHAs are likely to be associated with larger and greater numbers of hospital partners than would be the case for COTHs located in smaller markets. The former COTHs would therefore represent relatively lesser percentages of their SHA's total patient days and thus be organizationally less dominant within their SHAs.

Two organizational variables -- ownership and administrative structure -- were found to be significant in this analysis. Both had the expected relationship to COTH

organizational dominance. Compared to for-profits, not-for-profit COTHs were less likely to dominate their SHAs. This may be due, again, to a lack of freedom in choosing partners or to maneuver quickly in the marketplace. Thus, instead of forming SHAs by acquisition and merger, not-for-profit COTHs are more likely to join existing SHAs and through looser structural arrangements. As a result, these COTHs could end up in less dominant organizational positions.

The administrative structure variable indicates that integrated COTHs were less likely than independent COTHs to dominate their SHAs. To the extent that COTHs not owned by their medical schools have greater independence and more efficient decision-making processes, they are more likely to engage in mergers, acquisitions, and expansions, all of which lead to control over the hospitals that make up their SHAs. Integrated COTHs, on the other hand, because of constrained decision-making capacities, may be more likely to join as partners in the more loosely structured SHA forms. They would thus be measured in this study as having less dominant positions within their SHAs.

Findings across Analyses

First, it was interesting that the SHA penetration variable was significant and negative in all three analyses,

contrary to expectations. High levels of SHA penetration were negatively associated with SHA participation, market dominance, and organizational dominance. In those markets in which SHAs have evolved and captured greater market shares, teaching hospitals appear less likely to be a part of the existing SHAs or find themselves in positions of either market or organizational dominance.

As suggested above, teaching hospitals, being slower than their community hospital counterparts in engaging in strategic alignments, may lose opportunities to pick or join with desirable partners, especially in those markets in which consolidation activity is more advanced. The children's game of musical chairs provides a good analogy here: When the "music" stops will the slower responding COTHs be left without a "chair"?

Significant geographical differences were found in the three analyses. With regard to SHA penetration, COTHs in the West were more likely to be part of SHAs than were those in the Northeast. COTHs in the South and Midwest were more likely to have positions of market and organizational dominance, respectively. Teaching hospitals in the West seem to be partnering with others, but without necessarily gaining positions of market or organizational dominance. Alternatively, COTHs in the South appear to achieve a degree

of market dominance. In the Midwest, COTHs participating in SHAs are more likely to dominate their SHAs.

Though the hypotheses in this research did not focus on regional differences among COTHs, several potential explanations for these differences are offered. First, Western markets have historically experienced greater activity in terms of hospital consolidation and restructuring. Thus, COTHs are likely to seek SHA participation to keep pace with market changes and remain competitive. In the other regions COTHs may not feel the same urgency to partner and thus be able to seek partnerships that afford them positions of either market or organizational dominance.

Overall, regional variations reflect the effects of a number of factors, such as HMO penetration, SHA penetration, physician grouping, and business coalition formation. More investigation is clearly needed to identify what might be behind the effect of region on the strategic behaviors of COTHs.

Study Limitations

There are some inherent limitations in this study that may impact the findings. The limitations can be grouped into two categories -- measurement and design.

With respect to measurement, there could be inaccuracies in the specification of SHAs. Some SHAs, though officially announced in the trade press, may not as yet have come to fruition or, in the end, the announced combinations may not have been realized. This could lead to overestimating the number of SHAs. Alternatively, some SHAs may have been overlooked and not recorded as such. Nevertheless, given the general lack of information on SHAs, the Williamson Institute database would appear to be the most comprehensive and up-to-date of those currently available for research.

Another limitation is that some SHAs have existed for many years. Thus for these, their formation would not be directly related to the market variables. This is truer for the more tightly configured SHAs. The looser types have only been forming in the past three to four years.

Another limitation of measurement has to do with the assumption that market and organizational dominance .can be measured using aggregate patient days. Such a measure captures a size dimension of dominance, but overlooks other legal, financial, and structural factors that are likely to be related to organizational dominance. On the other hand, the relative size captures more directly the probable organizational power that one partner may have relative to

other partners within the SHA, which it was the purpose of this measure as used in this study.

Then there is the limitation that there are other variables that represent coercive and normative pressures that, because of unavailability of data, were not included in this study. For example, the percent of physicians on the teaching hospital's board might be an important indicator of normative influence. Better measures of normative organizational pressures could possibly produce more significant findings and lead more directly to specific organizational implications.

Also, a number of market variables were not measured that could be important. For example, the presence of strong IPAs, PPOs or other loosely structured network arrangements involving either physicians or hospitals could have been associated with COTH strategic behaviors in their local markets. Further, this study was, by design, only concerned with existing players in the markets (i.e., SHAs, physician groups, etc.). Given the rapid pace of change, it is possible that many decisions have been driven by the anticipation of consolidations, mergers, entrance of competitors, penetration of managed care firms, etc, as much as by the actual market responses.

A related limitation is the lack of lagged variables, which could, in some cases, capture more directly, the

pressures experienced by COTHs at the time they engaged in the strategic behaviors captured in the dependent variables examined in this study. COTH participation in SHAs, for example, could be more related to HMO penetration in the late 1980s or very early 1990s than to penetration that occurred at the more recent date HMO penetration was measured in this study. Also, there is the possibility of endogenous and tautological relationships in the data, which use of lagged measures could have helped to minimize. Both HMO penetration and COTH participation in SHAs may not be independent, but rather related to other third factors changing in the markets. And COTH participation in SHAs could be tautologically related to the SHA penetration variable measured at the MSA level. It is interesting that the relationship between these two variables was negative in all three analyses, just the opposite of what would be expected were the tautology to have had an effect.

The above limitations are also partly related to the cross-sectional design adopted for use in this study. Given the dynamic nature of the variables being studied, it might have been better had a time-series design been utilized. With the cross-sectional design, it was only possible to draw causal inferences from the observed associations between the variables. A longitudinal analysis may have facilitated a more direct assessment of causal

relationships. Unfortunately data were unavailable for conducting time-series analyses.

Finally, the study was limited to non-federal urban acute care teaching hospitals. There are a number of other teaching hospitals that were not included in the study, including children's, specialty, and VA hospitals. Thus the results of the study can only be generalized to the population of acute care teaching hospitals in MSAs.

Implications

The study provides mixed evidence that both coercive and normative pressures affect the strategic responses (e.g., participation in SHAs) of teaching hospitals. As a result, the findings provide only qualified support for the use of institutional theory in the study of the strategic behaviors of COTHs. There were no consistent patterns of significant findings to reinforce support for the hypotheses that coercive pressures were positively associated and normative pressures negatively associate with SHA participation, market dominance, or organizational dominance. As discussed in the limitation section, it may be that the variables used in the study did not fully capture coercive and normative pressures. Nonetheless, only limited evidence was found to show that coercive and normative

pressures, as general categories of influences, are associated with COTHs participating in SHAs.

One could ask, if coercive market pressures or normative organizational pressures are not associated with SHA participation, why are COTHs sacrificing valued autonomy to join SHAs? Given the limited support for the hypotheses that coercive and normative pressures are associated with the strategic response of teaching hospitals to the changing environment, a case can be made for mimetic isomorphism. Recall that a third institutional theory variable -- mimetic isomorphism -- occurs when organizations attempt to model themselves after other similar organizations. That is, COTHs may simply be participating in SHAs because other COTHs and community hospitals are doing so. SHA participation may be based more on a need to obtain any perceived legitimacy associated with SHA membership.

Mimetic isomorphism often happens because organizations are unsure of how to react to the markets. In turbulent and uncertain environments, mimetic isomorphic pressures may influence organizations more than coercive or normative forces. During the rapid changes in health care many organizations may simply have not been sure of the best strategic responses. They thus may have tended to mimic others in order to establish or maintain perceived legitimacy or to increase their chances for both survival

and success (Galaskiewicz & Wasserman, 1989). However this study did not attempt to find evidence in support the hypothesis that mimetic pressures were associated with COTHs participating in SHAs.

In sum this study only partially supports the use of institutional theory to explain the reasons for COTH participation in SHAs. In future studies, either different theoretical frameworks or refined measures of coercive and normative pressures may need to be tested to advance our understanding of COTHs and their strategic decisions. Meanwhile there were a number of individual findings that have significant implications.

The findings for the SHA penetration variable suggest that the timing of strategic decisions may be crucial. The negative relationship indicates that failure to act in a timely manner may result in COTHs being left out of the consolidation activity. Thus those that fail to build multiorganizational relationships could be placed in jeopardy of losing patient revenues to increasingly powerful rivals.

Another important finding is the significant relationships of the ownership and administrative structure of teaching hospitals with market and organizational positions. The negative relationships reinforces what would otherwise be expected -- that teaching hospitals may need to

reorganize themselves to assure that they are properly responsive to market changes. Independent COTHs are more likely to have the ability to secure workable and competitively desirable interorganizational arrangements. As implied from the SHA penetration analysis, waiting or taking too long to react may result in passing up important consolidation opportunities. Being able to seek partners early could allow for more and possibly better partner options. Choosing the right partners is important in terms of both gaining market dominance and being able to influence the strategic and operational decisions of the SHAs themselves. For the COTHs in particular it is important in order to maintain sufficient independence and autonomy in fulfilling their important missions.

Teaching hospitals face conflicting forces as they attempt to operate in their changing health care environments. Like their community hospital counterparts, COTHs face a number of coercive pressures to change the way they operate. However, in addition, teaching hospitals face a number of normative pressures to maintain their missions of training, teaching and patient care, including serving as a hospital of last resort. The normative pressures to maintain these missions are likely a result of the expectations that society, politicians, and other health care organizations place on them. The inherent conflicts

among these groups need to be managed by policy makers and hospitals executives. Failure to do this successfully could be very detrimental to many of the nation's teaching hospitals as they struggle to survive in these most turbulent of times. It is in this environment that teaching hospitals must strategically choose how to best react within their health care markets to maximize their positions of market and organizational dominance. Choosing the right partners, for example, could result in significant gains in terms of the COTHs ability to control their environments (see Figure 2).

More and more states are beginning to encouraging managed care and provider-sponsored organizations to meet stiff, comprehensive requirements to care for their Medicaid enrollees (see Morrisey, 1997). Additionally, Medicare managed care plans are rapidly expanding and Congress is looking for qualified provider-sponsored organizations (Polzer, 1997). If teaching hospital executives and policy makers hope to assure the continued involvement of their hospitals with Medicare and Medicaid enrollees, they will need to reduce the normative constraints the COTHs uniquely face. By limiting the factors that inhibit COTHs, these essential provider organizations will likely be free to react from positions of strength and in a timely manner to their increasingly consolidating and competitive markets.

Suggestions for Further Research

This study offers insights into market and organizational factors that influence the participation of COTHs in SHA organizations. As health care markets continue to evolve and fewer hospital organizations form, there will continue to be a need for research to better understand how COTHs can and will relate to their markets. Future research should improve upon the design of this study and investigate additional issues related to COTHs and their environments.

A longitudinal design could certainly improve the analysis of COTH strategic behaviors, assuming, of course, that adequate data can be obtained for this purpose. Additionally, improvements should be made in the measurement of coercive and normative pressures. Such measures should capture organizational characteristics that are perhaps more important to COTHs than to any of their likely market rivals. Better measures of hospital board and administrative structures and the constraints of the medical school, university, and state are especially needed.

A critical question related to this study that needs to be investigated is how COTHs that participate in SHAs actually evolve in practice. Historically, teaching hospitals have enjoyed many affiliations, mostly to enhance their teaching missions. They have done this by assuring

referrals and opportunities for interns and residents to practice. Now, however, COTHs are forming strategic affiliations to help them compete for managed care contracts and to enhance survival in the market. Whether these involve very different partners is uncertain. Also uncertain is the effect the new strategic arrangements might have on older, but essential teaching affiliations. No doubt the two forms of interorganizational arrangements involve very different levels of organizational commitment and compromise. Future research should compare the relationships involved in the more purely clinical affiliations as compared to the strategic partnerships. It would be important to determine how COTHs integrate and coordinate their services with clinical versus more strategic partners and how these arrangements might differ for physician groups, hospitals, insurers, and others.

Finally, it would be important to examine how the strategic responses of COTHs affect their patient care, teaching, and research missions as well as their financial, quality, and other performance dimensions. An argument has been made that COTHs must adapt and change with the health care environment to continue fulfilling their missions. But does one necessarily lead to the other? Thus, as COTHs respond to market forces, it would be important to determine if they are indeed solidifying and enhancing their survival

in a turbulent environment, while fulfilling their vital missions.

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Appendix 1

Independent COTH Members

State	MSA	Hospital Name
AL	Birmingham	Birmingham Baptist Medical Cntr
		Carraway Methodist Medical Cntr
AZ	Phoenix	Good Samaritan Reg Med Cntr
		Maricopa Medical Center
		St. Joseph's Hosp & Med Cntr
	Tucson	Tucson Medical Center
CA	Bakersfield	Kern Medical Center
	Fresno	Valley Medical Center of Fresno
	Los Angeles-Long Beach	Long Beach Memorial Med Cntr
		Cedars-Sinai Medical Center
		Hospital of The Good Samaritan
		Lac-King-Drew Medical Center
		Huntington Memorial Hospital
	San Diego	Green Hospital--Scripps Clinic
	San Francisco	California Pacific Medical Cntr
		St. Mary's Hospital & Med Cntr
	San Jose	Santa Clara Valley Medical Cntr
CO	Denver	Presbyterian-St. Luke's Med Cntr

Appendix 1 (cont'd)

State	MSA	Hospital Name
CN	Bridgeport-Milford	Bridgeport Hospital
		St. Vincent's Medical Center
		Danbury Hospital
		Norwalk Hospital
		Stamford Hospital
	Hartford	Hartford Hospital
		St. Francis Hospital & Med Cntr
		New Britain General Hospital
	New Haven-Meriden	Hospital of Saint Raphael
		St. Mary's Hospital
DC	Washington	Washington Hospital Center
DE	Wilmington	Medical Center of Delaware
FL	Jacksonville	St. Luke's Hospital
		University Medical Center
	Miami-Hialeah	Mount Sinai Medical Center
	Orlando	Orlando Regional Medical Center
GA	Atlanta	Georgia Baptist Medical Center
	Macon	Medical Center of Cent Georgia
	Savannah	Memorial Medical Center
HI	Honolulu	Queen's Medical Center
IL	Chicago	MacNeal Hospital
		Cook County Hospital

Appendix 1 (cont'd)

State	MSA	Hospital Name
		Illinois Masonic Medical Cntr
		Mercy Hospital & Medical Cntr
		Michael Reese Hosp & Med Cntr
		Mount Sinai Hospital Med Cntr
		Evanston Hospital
		Lutheran General Hospital
	Springfield	Memorial Medical Center
		St. John's Hospital
IN	Indianapolis	Methodist Hospital of Indiana
LA	Baton	Baton Rouge General Med Cntr
		Earl K Long Medical Center
	New Orleans	Ochsner Foundation Hospital
		Touro Infirmary
ME	Portland	Maine Medical Center
MD	Baltimore	Franklin Square Hospital Cntr
		Greater Baltimore Medical Cntr
		Johns Hopkins Bayview Med Cntr
		Sinai Hospital of Baltimore
	Washington	Holy Cross Hospital
MA	Boston	Faulkner Hospital
		New England Deaconess Hospital
		St. Elizabeth's Medical Center

Appendix 1 (cont'd)

State	MSA	Hospital Name
		Mount Auburn Hospital
	Pittsfield	Berkshire Medical Center
	Springfield	Baystate Medical Center
	Worcester	Medical Center of Central Mass
		Saint Vincent Hospital
MI	Ann Arbor	Catherine Mcauley Health Syst
	Detroit	Oakwood Hospital
		Detroit Receiving Hospital
		Henry Ford Hospital
		Hutzel Hospital
		Sinai Hospital
		St. John Hospital & Med Cntr
		William Beaumont Hospital
		Providence Hospital
	Flint	Hurley Medical Center
		Mclaren Regional Medical Cntr
	Grand Rapids	Blodgett Memorial Medical Cntr
		Butterworth Hospital
	Lansing	Ingham General
MN	Minneapolis-St. Paul	Hennepin County Medical Center
		St. Paul-Ramsey Medical Center
MO	Kansas City	St. Luke's Hospital

Appendix 1 (cont'd)

State	MSA	Hospital Name
	St. Louis	Jewish Hospital of St. Louis
		St. John's Mercy Medical Cntr
NV	Las Vegas	University Medical Center
NJ	Bergen-Passaic	Hackensack Medical Center
		St. Joseph's Hosp & Med Cntr
	Monmouth-Ocean	Monmouth Medical Center
		Jersey Shore Medical Center
	Newark	Saint Barnabas Medical Center
		Morristown Memorial Hospital
		Newark Beth Israel Med Cntr
		Overlook Hospital
	Philadelphia	Cooper Hospital-Univ. Med Cntr
NM	Albuquerque	University Hospital
NY	Binghamton	Binghamton General Hospital
	Buffalo	Millard Fillmore Hospitals
	Nassau-Suffolk	Nassau County Medical Center
		North Shore University Hosp
		Winthrop-University Hospital
	New York	Bronx Municipal Hospital Cntr
		Bronx-Lebanon Hospital Center
		Our Lady of Mercy Medical Cntr
		Brookdale Hospital Med Cntr

Appendix 1 (cont'd)

State	MSA	Hospital Name
		Brooklyn Hospital Center
		Long Island College Hospital
		Maimonides Medical Center
		New York Methodist Hospital
		Elmhurst Hospital Center
		New York Hospital Med Cnter
		Catholic Medical Center
		Long Island Jewish Med Cntr
		New Rochelle Hospital Med Cntr
		Beth Israel Medical Center
		Cabrini Medical Center
		Harlem Hospital Center
		Lenox Hill Hospital
		Metropolitan Hospital Center
		St. Luke's-Roosevelt Hosp Cntr
		St. Vincent's Hosp & Med Cntr
	Rochester	Genesee Hospital
		Rochester General Hospital
NC	Charlotte	Carolinas Medical Center
	Greensboro	Moses H Cone Memorial Hospital
OH	Akron	Summa Health System
	Cincinnati	Good Samaritan Hospital

Appendix 1 (cont'd)

State	MSA	Hospital Name
	Cleveland	Cleveland Clinic Hospital
		Mt. Sinai Medical Center
		Saint Luke's Medical Center
	Columbus	Grant Medical Center
		Riverside Methodist Hospitals
	Dayton-Springfield	Miami Valley Hospital
		Kettering Medical Center
	Toledo	The Toledo Hospital
	Youngstown-Warren	St. Elizabeth Hosp Med Cntr
		Western Reserve System-North
		Western Reserve System-South
		Youngstown Osteopathic Hosp
OK	Tulsa	Saint Francis Hospital
OR	Portland	Providence Medical Center
PA	Allentown-Bethlehem	Lehigh Valley Hospital
	Erie	Hamot Medical Center
	Philadelphia	Mercy Health Corporation
		Albert Einstein Medical Cntr
		Episcopal Hospital
		Frankford Hospital
		Germantown Hospital & Med Cntr
		Graduate Hospital

Appendix 1 (cont'd)

State	MSA	Hospital Name
		Pennsylvania Hospital
		Crozer-Chester Medical Center
	Pittsburgh	Latrobe Area Hospital
		Mercy Hospital of Pittsburgh
		Shadyside Hospital
		St. Francis Medical Center
		Western Pennsylvania Hospital
	York	York Hospital
RI	Providence	Memorial Hosp of Rhode Island
		Miriam Hospital
		Roger William's Medical Center
SC	Anderson	Anderson Area Medical Center
	Columbia	Richland Memorial Hospital
	Greenville-Spartanburg	Greenville Memorial Hospital
TX	Dallas	Baylor University Medical Cntr
		Methodist Medical Center
		St. Paul Medical Center
	Houston	St. Luke's Episcopal Hospital
	San Antonio	Bexar County Hospital District
VA	Norfolk-Virginia Beach	Sentara Norfolk General Hosp
	Washington	Fairfax Hospital

Appendix 1 (cont'd)

State	MSA	Hospital Name
WV	Charleston	Charleston Area Medical Center
	Huntington-Ashland	Cabell Huntington Hospital
WI	Milwaukee	Sinai Samaritan Medical Center
		St. Luke's Medical Center

Appendix 2

Integrated COTH Members

State	MSA	Hospital Name
AL	Birmingham	Univ. of Alabama Hospital
	Mobile	Univ. of South Alabama Med Cntr
AZ	Tucson	Univ. Medical Center
AR	Littlerock	Univ. Hospital of Arkansas
CA	Anaheim	UC-Irvine Medical Center
	Los Angeles	LAC-USC Medical Center
		UCLA Medical Center
	Riverside	Loma Linda Univ. Medical Center
	Sacramento	UC-Davis Medical Center
	San Diego	UCSD Medical Center
	San Francisco	UCSF Medical center
	San Jose	Stanford Univ. Hospital
CO	Denver	Univ. Hospital
CN	Hartford	Univ. of Connecticut Health Cntr
	Newhaven-Meriden	Yale-New Haven Hospital
DC	Washington	George Washington Univ. Hospital
		Georgetown Univ. Hospital
		Howard Univ. Hospital
FL	Gainesville	Shands Hospital

Appendix 2 (cont'd)

State	MSA	Hospital Name
	Miami-Hialeah	Jackson Memorial Hospital
	Tampa-St. Petersburg	Tampa General Healthcare
GA	Atlanta	Crawford Long Hosp--Emory Univ.
		Emory Univ. Hospital
		Grady Memorial Hospital
	Augusta	Medical College of Georgia Hosp
IL	Chicago	Northwestern Memorial Hospital
		Rush-Presbyterian - St.Luke's Hosp
		Univ. of Chicago Hospitals
		Univ. of Illinois Hospital
		Loyola Univ. Medical Center
IN	Indianapolis	Indiana Univ. Medical Center
		William N Wishard Memorial Hosp
IA	Iowa City	Univ. of Iowa Hospitals
KS	Kansas City	Univ. of Kansas Hospital
KN	Lexington-Fayette	Univ. of Kentucky Hospital
	Louisville	Univ. of Louisville Hospital
LA	New Orleans	Med Cntr of Louisiana at New Orl
		Tulane Univ. Hospital
	Shreveport	LSU Medical Center-Univ. Hosp
MD	Baltimore	Johns Hopkins Hospital
		Univ. of Maryl& Medical System

Appendix 2 (cont'd)

State	MSA	Hospital Name
MA	Boston	Beth Israel Hospital
		Boston Univ. Medical Center
		Brigham & Women's Hospital
		Massachusetts General Hospital
		New England Medical Center
	Worcester	Univ. of Massachusetts Med Cntr
MI	Ann Arbor	Univ. of Michigan Hospitals
	Detroit	Grace Hospital
		Harper Hospital
MN	Minneapolis-St. Paul	Univ. of Minnesota Hospital
	Rochester	Saint Mary's Hosp of Rochester
MS	Jackson	Univ. Hospitals & Clinics
MO	Columbia	Univ. & Children's Hospital
	Kansas City	Truman Medical Center-West
	St. Louis	Barnes Hospital
		St. Louis Univ. Hospital
NE	Omaha	Saint Joseph Hospital
		Univ. of Nebraska Medical Center
NJ	Middlesex-Somerset	Robert Wood Johnson Univ. Hosp
	Newark	Univ. Hospital
NY	Albany-Schenectady	Albany Medical Center Hospital
	Buffalo	Buffalo General Hospital

Appendix 2 (cont'd)

State	MSA	Hospital Name
	Nassau-Suffolk	University Hospital
	New York	Montefiore Medical Center
		Univ. Hosp of Brooklyn-Suny Cntr
		Bellevue Hospital Center
		Mount Sinai Medical Center
		New York Univ. Medical Center
		Presbyterian Hosp--City of New York
		Society of the New York Hospital
		Westchester County Medical Cntr
	Rochester	Strong Memorial Hosp Rochester Univ.
	Syracuse	Univ. Hospital-Suny Hlth Sci Cntr
NC	Greensboro	North Carolina Baptist Hospital
	Raleigh-Durham	Univ. of North Carolina Hosp
		Duke Univ. Medical Center
OH	Cincinnati	Univ. of Cincinnati Hospital
	Cleveland	Cuyahoga County Hospitals
		Univ. Hospitals of Cleveland
	Columbus	Ohio State Univ. Medical Center
	Toledo	Medical College of Ohio Hospital
OK	Oklahoma City	Univ. Hospitals
OR	Portland	Univ. Hospital
PA	Harrisburg	Penn State Univ. Hospital

Appendix 2 (cont'd)

State	MSA	Hospital Name
	Philadelphia	Hahnemann Univ. Hospital
		Hospital of the Univ. of PA
		Medical College Hospitals
		Temple Univ. Hospital
		Thomas Jefferson Univ. Hospital
	Pittsburgh	Allegheny General Hospital
		Presbyterian Univ. Hospital
RI	Providence-Fallriver	Rhode Isl& Hospital
SC	Charleston	MUSC Medical Center
TN	Memphis	Regional Med Cntr At Memphis
	Nashville	Hubbard Hosp--Meharry Med College
		Vanderbilt Univ. Hospital
TX	Dallas	Dallas County Hospital District
		Zale Lipshy Univ. Hospital
	Galveston-Texas	Univ. of Texas Med Branch Hosp
	Houston	Harris County Hospital District
		Hermann Hospital
		Methodist Health Care System
	Killeen-Temple	Scott & White Memorial Hospital
UT	Salt Lake City-Ogden	Univ. of Utah Hospital
VT	Burlington	Med Cntr Hospital of Vermont

Appendix 2 (cont'd)

State	MSA	Hospital Name
VA	Charlottesville	Univ. of Virginia Medical Center
	Richmond-Petersburg	Medical College of Virginia Hosp
WA	Seattle	Harborview Medical Center
		Univ. of Washington Med Cntr
WI	Madison	Univ. of Wisconsin Hospital
	Milwaukee	Froedtert Memorial Lutheran Hosp
		John L. Doyne Hospital

Vita