Articles

Multi-Institutional Arrangements: Relationships Between Governing Boards and Hospital Chief Executive Officers

Jeffrey Alexander and Laura L. Morlock

This investigation focuses on the impact of multi-institutional arrangements on the role of governing boards in limiting or enhancing the managerial autonomy of individual hospitals. Data from a 1979 Special Survey by the American Hospital Association (N = 4213) are used to examine governing board–administrator relationships as a function of the degree of autonomy and scope of responsibility of the hospital governing board. It is hypothesized that governing boards responsible for multiple hospitals or for multiple nonhospital organizations and those boards accountable to a higher organizational authority will exercise more formal control over hospital chief executive officers (CEOs) than will boards of single or autonomous hospitals. The analysis assumes that formal control by the governing board over the management function of the individual hospital is exercised partly through soliciting or limiting participation by hospital administrators in key policy decisions and through the evaluation of administrative performance. Therefore, it is anticipated that hospitals governed by boards with multiple responsibilities as well as hospitals governed by boards accountable to a higher authority will be (1) less likely to have CEOs who are members of the governing board executive committee, (2) more likely to have annual performance reviews of the CEO by the governing board, and (3) more likely to have such reviews conducted according to preestablished criteria. Study results provide general support for the hypotheses with respect to hospital boards with multiple responsibilities: the data suggest that such boards do exercise greater control over hospital administrators and these effects do appear to be stronger for hospitals in the private sector. Hospitals governed by boards accountable to a higher authority, however, are more likely to have CEOs who are members of the governing board executive committee—a pattern in direct opposition to that hypothesized. Furthermore, these boards are no more likely to conduct annual CEO

Address correspondence and requests for reprints to Jeffrey Alexander, Ph.D., Senior Sociologist, Hospital Research and Educational Trust, American Hospital Association, 840 North Lake Shore Drive, Chicago, IL 60611. Laura L. Morlock, Ph.D. is Associate Professor at the Health Services Research and Development Center, The Johns Hopkins University, 624 North Broadway, Baltimore, MD 21205.

performance reviews than are boards with more autonomy. Boards accountable to higher authorities are more likely, however, to use preestablished criteria when such reviews are conducted. This general pattern is similar whether hospital boards are accountable to religious authorities, to investor-owned corporate boards, or to the boards of not-for-profit multi-institutional systems. A different pattern emerges, however, for boards accountable to a state, county, or local government authority. These boards are less likely than boards with more autonomy to have annual CEO performance reviews, less likely to use preestablished criteria when such reviews are conducted, and less likely to have CEO participation on the governing board executive committee.

INTRODUCTION

The increase in interorganizational relationships among hospitals represents a dramatic departure from the traditional notion of the free-standing and autonomous hospital. Health services research has paid relatively little attention, however, to the consequences of such organizational arrangements for the operation and governance of individual institutions. In response to this situation, Prybil and Starkweather called attention in 1976 to the potential change in hospital governance engendered by hospital participation in multiple unit systems. They cited the need for a careful review of the functions and authority that the boards delegate to management and medical staffs of hospitals [1]:

> A movement from single units to multiunit operations regardless of the organizational approach will affect many aspects of the institution including the role and functioning of the governing body and the responsibility of the CEO.

Our current investigation is concerned with the impact of hospital participation in formal, interorganizational arrangements on the role of governing boards in controlling the managerial activity of individual hospitals. Addressed in this article are the following research questions:

1. What are the effects of the degree of autonomy and scope of responsibility exercised by the hospital governing board on formal control relationships between the governing board and hospital administration?
2. To what extent are the effects of governing board autonomy and scope of responsibility explained by or contingent upon structural characteristics of the hospital? For example, do

public hospital boards exercise more control over their chief executive officers (CEOs) than private hospital boards?

This article is intended to contribute to a better understanding of the role of the hospital governing board in expanded organizational arrangements and to aid individual institutions in assessing possible tradeoffs between benefits received from multiple organizational affiliations and potential losses in managerial independence.

BACKGROUND

According to Kovner [2], hospitals are required by state government to designate a governing body as a condition of incorporation. This body has the responsibility to make hospital policy, evaluate hospital performance, establish corporate goals, provide for long range financial stability of the hospital, select and evaluate performance of the hospital CEO, and select and maintain a qualified medical staff [1, 2].

Despite these legal responsibilities, many have questioned whether governing boards have either the expertise or the influence necessary to regulate the internal operation of the hospital [2–7]. The literature has suggested, in fact, that governing boards, whose memberships are dominated typically by businessmen, bankers, lawyers, and other community influentials, serve more an external linkage or boundary-spanning function than an internal governance function [6–9]. Indeed, the environmental linkage or boundary-spanning argument has dominated the research literature on governing boards of hospitals and nonhospital organizations alike during the past decade [6, 10–12]. In general, however, such research has assumed the perspective of the single hospital board. Relatively little research exists that examines the role of the hospital governing board when multiple hospitals are linked administratively or operationally to each other or to other organizations [1, 13].

THEORETICAL FRAMEWORK

The open systems theory of organizations suggests that the role of governing boards may change when interorganizational dependence is engendered by resource constraints in the environment. The organizational literature generally agrees that when support capacity is reduced in an organization's task environment, interdependent relationships

with other organizations will be sought as one possible strategy for obtaining alternative sources of support [7, 10, 14, 15].

Such an exchange not only has the potential benefit of increasing the resources available to single hospitals; it also may provide a stronger base for negotiating with key environmental elements such as third-party payers and regulators, as well as potentially reducing competition among hospitals within a geographic area. Cooperation and exchange with other hospitals and health-related organizations is viewed, therefore, as one strategy for reducing hospital dependence on an increasingly uncertain environment.

Growing numbers of hospitals are joining in various forms of these interorganizational relationships. Structurally, these may vary between loose collaborations involving shared services or joint purchasing agreements to more highly articulated and formalized arrangements such as multihospital systems or hospital mergers. Data from the American Hospital Association, for example, indicate that approximately 80 percent of all hospitals now share services and facilities with other institutions, and about a third of all hospitals are owned, leased, or managed under some form of multihospital system [16].

One important implication of such organizational strategies for hospitals is the cost of interorganizational arrangements for the independence of the individual institution and its key decision makers. The links that organizations develop to manage and monitor their environmental interdependencies may assume different forms (e.g., contracts, co-optation, coalescing), but all entail constraints on managerial decision making engendered by commitment to future, joint decision making [17].

Thompson [10], Pfeffer [6], and others suggest that the notion of an omnipotent leader in an organization (in this case, the hospital chief executive officer) is consistent only with a rational model approach for organizations, but does not hold when resources cannot be internally generated by the organization, and interdependent relations with other organizations must be established to acquire those resources [7]:

> Dyadic (and other inter-organizational) strategies, in the form of mergers, joint ventures, etc., may enable an organization to manage critical interdependencies but the sacrifice in autonomy occasionally brings with it substantial costs.

This investigation argues that hospitals in interorganizational arrangements obtain resources that they cannot generate internally by assuming an interdependent status with a number of hospital or nonhospital organizations. The benefits of such interdependence are

bought, in part, at the cost of increased formal control over individual hospitals in the system by a central authority or governing body.

A key premise in this argument is that governing boards of hospitals engaging in interorganizational relationships function differently than the boards of single hospitals. In the freestanding hospital, the governing board generally is involved with the operation of a set of services that supports the hospital and medical staff. The board's attention frequently is directed to facilities development, financial decisions, and other boundary-spanning activities, while hospital management is concerned primarily with day-to-day operations of the hospital.

While acknowledging the importance of the governing board as a bridge between the individual hospital and its environment, we submit that the boards of hospitals in multi-institutional arrangements often assume a much wider operational focus that incorporates the goals and policies of the system as a whole. In this capacity, these governing boards act as structural links in multi-institutional arrangements by integrating the priorities of individual hospitals with those of the system. The board's involvement with the programs and finances of any one hospital will, in part, relate to their effects on the system.

We expect, therefore, that relative to autonomous hospitals, governance activities of hospitals in multi-institutional arrangements will reflect a stronger system-level policy focus as well as more formal mechanisms to ensure that the performance of individual hospitals is consistent with the goals of the multi-institutional arrangement.

CONCEPTS, VARIABLES, AND HYPOTHESES

The primary independent variable in this investigation is hospital participation in a multi-institutional arrangement. Although a number of typologies of multi-institutional arrangements exist (see, for example, DeVries [18] and Reynolds and Stunden [19]), their classifications have limited utility for research because most are aggregations of large numbers of variables [20]. Productive research in the area of multi-institutional arrangements depends partly on the isolation of individual characteristics of systems and the identification of their consequences [21].

This study examines governing board–CEO relationships as a function of two such system characteristics: degree of autonomy and scope of responsibility of the hospital governing board. *Degree of autonomy* refers to whether a hospital's governing board is or is not accountable to a high authority, such as the headquarters of a not-for-profit

multi-hospital system, a state or local government, a religious organization, or the corporate headquarters of an investor-owned chain. *Scope of responsibility* refers to whether a hospital's board is or is not responsible for the governance of multiple hospitals or nonhospital organizations.

The dependent variable in the investigation is the exercise of formal control by the hospital governing board over the chief executive officer (CEO) of the hospital. For purposes of analysis, two dimensions of control are considered. The first dimension concerns the presence or absence of structural mechanisms, such as CEO membership on the governing board executive committee, that permit *formal participation by the CEO in key institutional policy decisions.* Johnson [22] and Sloan and Becker [23] have noted the key role of the governing board executive committee in hospital decision-making. The executive committee often acts as a de facto board, meeting more frequently than the board as a whole and wielding considerable influence over the board through its recommendations. CEO membership on the executive committee is thus considered a means to influence board decisions through access to key board members in a more manageable working group. CEO participation in hospital policy decisions at this level is particularly important in terms of influencing and shaping strategic planning for the hospital [24, 25]. Exclusion of the CEO from the executive committee suggests a less influential role for hospital administration and requires the CEO to deal directly with a larger and more variable group of board members [26].

The second dimension of control concerns the presence or absence of structural mechanisms that potentially increase board control over administrative activities through the *formalization of the process of administrative accountability* to the board. Structural mechanisms considered include whether there is an annual performance review of the CEO by the governing board, and if annual reviews are conducted, whether such reviews utilize preestablished criteria. The evaluation of CEO performance by the governing board is considered a primary mechanism to ensure that administrative behavior is consistent with the policies and goals of the governing board [22, 24, 27, 28]. In addition to formalizing accountability, CEO performance evaluation serves to make clear the functional responsibilities of the CEO and distinguishes these responsibilities from those of the board [27].

It is assumed that excluding the hospital CEO from formal participation in key policy decisions and the presence of formal, standardized evaluation mechanisms for hospital CEOs are indicative of tighter

control by the governing board over the activities of the individual hospital and its administrative leadership. We therefore predict that:

1. Hospital governing boards responsible for multiple organizations will exercise more formalized control over hospital chief executive officers (CEOs) than will boards of single or autonomous hospitals.
2. Hospital governing boards responsible to a higher authority will exercise more formalized control over hospital chief executive officers (CEOs) than will boards of single or autonomous hospitals.

HOSPITAL STRUCTURE AND INTERACTIVE EFFECTS

Although the authority characteristics of hospital governing boards represent the primary independent variables of the investigation, we anticipate that other characteristics of the hospital may bear on the control relationships between governing boards and hospital CEOs. The investigation incorporates two such hospital variables—size and ownership—to control for alternative explanations of the hypothesized relationships and to examine possible interaction effects between governing board characteristics and hospital characteristics.

Size is assessed in a dichotomous fashion according to whether the hospital operates fewer than or more than 200 beds. It is expected that the complexities associated with larger hospitals will result in more formalized mechanisms of control between governing boards and hospital CEOs [29-31]. The positive relationship between size and formalized control, however, is likely to hold primarily in the area of administrative accountability. As suggested by Rosenkrantz [32], larger hospitals are more likely to have CEOs participate in hospital policy decisions in order to increase implementation of policy decisions, minimize division between the board and hospital management, and increase the prestige and visibility of hospital management. Thus, relative to smaller hospitals, it is expected that boards of larger hospitals are more likely to exercise administrative accountability over CEOs and less likely to subject CEOs to policy decision restrictions.

We expect that formal control by governing boards over hospital CEOs will also vary by hospital ownership status. Hospital ownership status is defined as the social sector responsible for establishing policy concerning overall operation of the hospital. For purposes of this inves-

tigation, we consider two ownership categories: public and private. Public ownership encompasses state, county, municipal, and hospital district hospitals; private ownership includes church-operated, other not-for-profit, and investor-owned hospitals.

In contrast to private-sector hospitals, public hospitals are often administered as government agencies with a mandate to provide medical care without strict regard to cost. Public hospitals are thus likely to provide a disproportionate share of expensive, poorly reimbursed services (e.g., burn care, neonatal intensive care) to their patient populations [33]. This public mandate and political decision-making produce severe constraints on the CEOs of such hospitals that restrict their ability to operate or plan with the same degree of autonomy as their counterparts in the private sector [33]. Because these constraints often mitigate against "rational" management and effective response to environmental change, we expect formal accountability for CEO administrative performance to be relatively less frequent in public hospitals than in private hospitals.

Further, most boards of public hospitals are both structurally and functionally different than the boards of other nonprofit and proprietary hospitals. Trustees of public hospital boards are typically elected by public ballot or appointed by other public bodies or officials. These boards frequently have highly restricted powers over hospital policy, particularly in capital acquisition and monitoring hospital performance [34]. These constraints are likely to render the CEO of a public hospital less effective and/or instrumental in policy decisions of the governing board. Thus, we expect CEOs of public hospitals to be members of governing board executive committees less frequently than CEOs of private hospitals.

A summary of the major concepts, with their dimensions and proposed indicators, is contained in Table 1.

SAMPLE AND DATA

Data for the investigation were obtained from a mailed survey of hospital governing boards conducted by the American Hospital Association in 1979. The survey was sent to the universe of 5,815 community (nonfederal, short-term) hospitals in the United States. Responses were received from 4,411 hospitals, representing 76 percent of the survey universe.[1] Tests for possible response bias were conducted using annual survey data from the American Hospital Association. Compari-

Table 1: Concepts, Dimensions, and Indicators

Concept	*Dimension*	*Indicator*
Governing board authority	Degree of autonomy	Governing board accountable to a higher authority (0 = no) high autonomy (1 = yes) low autonomy
	Scope of responsibility	Governing board responsible for multiple hospitals (0 = no) (1 = yes)
		Governing board responsible for nonhospital organizations (0 = no) (1 = yes)
Governing board control over hospital administration	Chief Executive Officer (CEO) participation in policy decisions	CEO membership on governing board executive committee (0 = no) (1 = yes)
	Formalization of administrative accountability	Annual performance review of CEO by governing board (0 = no) (1 = yes)
		Performance review conducted according to preestablished criteria (0 = no) (1 = yes)
Hospital size		<200 beds ≥ 200 beds
Hospital ownership		0 = public 1 = private

sons between the group of hospitals responding to the survey and the universe of all community hospitals revealed no significant differences between these two groups in terms of hospital size, regional location, or ownership (see Table 2).

Results from the survey of hospitals (Table 3) indicate that 439 hospitals in the sample (9 percent) were governed by boards responsible for a multiple number of hospitals. Five percent of the sample (N = 234) were governed by boards responsible for other non-health care institutions, such as schools and churches. Of the hospital sample, 37 percent (N = 1,585) were governed by boards accountable to a higher board or organizational authority. Higher authorities were most often a unit of state, county, or local government (41 percent); the board of a corporation (18 percent); the board of a not-for-profit, multi-institutional system (6 percent); or the board of a university or college (2 percent).

ANALYSIS

Data in the investigation were analyzed in two steps. Cross-tabulation was first employed to assess zero-order relationships between the primary independent variables and the three dependent variables. Multivariate and interaction effects were then analyzed using multiple logistic regression (MLR), a technique that estimates the relative odds that a governing board exercises formalized control over the hospital CEO, given various combinations of independent variables [35]. MLR was chosen as an appropriate analytic technique because of the dichotomous nature of the dependent variables and the lack of multivariate normality among the dummy independent variables.

For each of the three dependent variables, maximum likelihood estimation was used to estimate a model that specifies the logit of the odds of a governing board exercising formalized control over hospital CEOs to a linear function of the independent variables.

The logit technique is comparable in form to ordinary least-squares regression except that the dependent variable is dichotomous and coefficients are interpreted as the logit of the odds of an event occurring given the combination of independent variables specified in the equation. For each dependent variable, a backwards selection method was used to determine the most parsimonious model. Further discussion of the use of this technique can be found in Anderson [36], Siegel and Greenhouse [37], and Vitaliano [38].

Table 2: Comparison of Hospital Sample and Universe Characteristics: Ownership, Bed-Size and Region

	Nonfederal, Short-Term Hospitals	
	% *Universe*	% *Sample*
	(n = 5,815)	*(n = 4,213)*
Ownership		
Government, nonfederal		
12 State	1.6	0.8
13 County	13.2	12.9
14 City	5.4	5.2
15 City/County	1.1	1.0
16 Hospital district/Authority	10.2	10.6
Nongovernment, not-for-profit		
21 Church-operated	12.7	14.0
23 Other not-for-profit	44.0	48.4
Investor-owned (for profit)		
31 Individual	0.3	0.1
32 Partnership	0.1	0.6
33 Corporation	10.7	6.4
	100%	100%
Bed-size		
1 - 6 to 24 beds	4.5	3.6
2 - 25 to 49 beds	18.7	16.6
3 - 50 to 99 beds	24.7	24.2
4 - 100 to 199 beds	23.7	24.0
5 - 200 to 299 beds	12.4	13.0
6 - 300 to 399 beds	6.7	7.4
7 - 400 to 499 beds	4.3	4.9
8 - 500 beds or more	5.4	5.9
	100%	100%
AHA Region code		
0 - US Asso. Areas	1.0	0.4
1 - New England	4.4	5.0
2 - Middle Atlantic	10.7	11.3
3 - South Atlantic	13.4	14.1
4 - East North Central	15.7	18.2
5 - East South Central	8.1	5.4
6 - West North Central	13.8	15.1
7 - West South Central	14.2	12.4
8 - Mountain	6.2	6.5
9 - Pacific	12.5	11.5
	100%	100%

Table 3: Sample Characteristics (N = 4,411)

Board responsible for nonhospital organizations	*CEO on governing board executive committee*
yes = 234 (5.3%) no = 4,177 (94.7%)	yes = 1,991 (49.5%) no = 2,031 (50.5%)
Board responsible for multiple hospitals	*Annual performance review for CEO*
yes = 439 (9.96%) no = 3,972 (90.04%)	yes = 2,701 (65.7%) no = 1,710 (34.3%)
Board responsible to higher authority	*CEO performance review by preestablished criteria*
yes = 1,610 (36.5%) no = 2,804 (63.5%)	yes = 1,256 (46.5%) no = 1,445 (53.5%)
Hospital size	
< 200 beds = 2,902 (65.8%) ≥ 200 beds = 1,509 (34.2%)	
Hospital control status	
Public (state, county, local govt.) = 986 (23%) Private (not-for-profit, investor-owned) = 3,256 (77%)	

RESULTS

ZERO-ORDER EFFECTS

The zero-order relationships between governing board characteristics and CEO control and accountability variables are presented in Table 4. Hypotheses regarding reduced CEO participation in policy decisions and increased CEO accountability through formal evaluation received consistent, preliminary support in those hospitals whose boards are responsible for multiple hospitals or nonhospital organizations. Differences between hospitals with boards having multiple organizational responsibility and single organizational responsibility were particularly striking for CEO membership on board executive committees and CEO evaluation by preestablished criteria.

However, initial support was mixed for the hypothesis relating board accountability to higher authority and increased formal control over hospital CEOs. Consistent with our predictions, CEO performance evaluations by preestablished criteria were more common among hospitals whose boards were responsible to higher authority (56 percent) relative to hospitals with other board structures (43 percent). No

Table 4: CEO Control and Accountability Variables by Hospital Governing Board Variables (Percentage of Hospitals Giving a "Yes" Response)[*N*]

Governing Board Variables		*CEO Member of Executive Committee*	*Annual CEO Performance Review*	*CEO Performance Review by Preestablished Criteria*
Board responsible for multiple hospitals	Yes	32% (299)	76% (338)	61% (156)
		‡	†	‡
	No	53% (2,769)	65% (3,138)	47% (2,029)
Board responsible for nonhospitals	Yes	30% (149)	74% (175)	76% (129)
		†	*	†
	No	52% (2,919)	65% (3,301)	46% (2,150)
Board responsible to higher authority	Yes	58% (1,048)	67% (1,295)	56% (863)
		‡	n.s.	‡
	No	47% (2,020)	65% (2,181)	43% (1,422)

*$p < .05$.
†$p < .001$.
‡$p < .0001$.
Level of significance based on Chi-square test of independence.

differences between these groups were found, however, for annual performance evaluation for hospital CEOs. Further, contrary to our prediction, hospitals whose boards are accountable to higher authority had significantly higher CEO participation on board executive committees (58 percent) than hospitals with independent boards (47 percent).

MULTIVARIATE ANALYSIS

Table 5 presents coefficients of variables included in the most parsimonious MLR model for each of the three dependent variables, along with *D*- and Chi-square statistics for each model.[2] The discussion of Table 5 first considers the coefficients of significant main effects for the

Table 5: MLE Coefficients for Significant Main and Interaction Effects

	Dependent Variables		
	CEO Not on Board Executive Committee	*Annual Performance Review*	*Performance Review by Preestablished Criteria*
Independent Variables	*B (Std Error)*	*B (Std Error)*	*B (Std Error)*
Responsibility for nonhospital organizations	.563 (.199)	n.s.	n.s.
Responsibility for multiple hospitals	n.s.	n.s.	.862 (.363)
Responsibility to higher authority	-.580 (.085)	n.s.	n.s.
Hospital size	-.603 (.083)	.396 (.087)	n.s.
Hospital ownership	-.848 (.099)	.329 (.083)	n.s.
Multiple hosp × ownership	.990 (.150)	.472 (.169)	n.s.
Nonhosp × size	n.s.	-.889 (.341)	n.s.
Nonhosp × ownership	n.s.	.864 (.305)	1.552 (.255)
Higher authority × ownership	n.s.	n.s.	.694 (.105)
	constant = -.973 D = .08 model = 24.96 with 5 *df*	constant = .257 D = .08 model = 33.50 with 5 *df*	constant = .375 D = .04 model = 98.93 with 3 *df*

All coefficients significant at p = .05.

three models, followed by a discussion of the interaction effects across dependent variables.

No main effects were common to all three dependent variables, although all governing board authority and hospital variables exercised main effects on at least one dependent variable. Further, all governing

board authority characteristics interacted with hospital characteristics to affect governing board control over hospital CEOs.

In general, measures of governing board scope of responsibility affected control over hospital CEOs in the predicted direction. Governing board responsibility for nonhospital organizations increased the likelihood that the CEO would not serve on the board executive committee, while governing board responsibility for multiple hospitals increased the odds that the CEO would receive a performance review according to preestablished criteria. Although scope of responsibility was not significant additively in predicting whether or not CEOs received an annual performance review, both of these variables interacted with hospital characteristics to affect annual performance reviews for CEOs.

Governing-board autonomy, as measured by governing-board accountability to higher authority, exhibited only one significant main effect on governing-board control over hospital CEOs. Contrary to our prediction, however, this variable decreased the likelihood that a hospital CEO would not serve on the executive committee of the governing board.[3]

The two hospital characteristics, size and ownership, exhibited a similar pattern of main effects for both CEO membership on the executive board and annual performance review for the CEO. Increasing hospital size decreased the likelihood that a CEO was not serving on the executive board. However, the effects of size reversed from negative to positive when annual performance review became the dependent variable.

Similarly, boards of private hospitals relative to public hospitals were less likely not to have the hospital CEOs on the board executive committee while they were more likely to conduct annual performance reviews of their CEOs. It was found that boards of large, private hospitals may distinguish between policy and managerial control in their dealings with hospital CEOs, formally encouraging CEO participation in policymaking while maintaining formal accountability over managerial activity. Conversely, findings suggest that smaller hospitals and public hospitals did not provide a structure for CEO participation in policy decisions nor were they likely to have formal mechanisms for managerial control through evaluation.

In general, then, findings provided partial support for the main effects hypotheses regarding governing boards' scope of responsibility and control over hospital CEOs. However, they did not support, and in fact contradicted, our hypothesis of a negative relationship between governing board autonomy and board control over hospital CEOs.

The presence of significant interactions between governing board authority characteristics and hospital characteristics in each of the three models suggests a much more complex and conditional relationship between governing board authority and formalized control over hospital CEOs.

Each dependent variable was predicted by at least one interaction term. Two interaction terms were common to two dependent variables while two others predicted only one dependent variable. The interaction of governing board responsibility for multiple hospitals and hospital ownership increased the odds that the CEO was not a member of the executive committee—and the likelihood of a CEO annual performance evaluation by the board. The interaction of the governing board responsibility for nonhospital organizations and hospital ownership increased the odds of an annual performance review for the CEO and review by preestablished criteria.

The odds of annual performance review for the CEO were decreased by the interaction of nonhospital responsibility with hospital size, while the presence of governing board responsibility to higher authority and private control status interacted to increase the odds of performance review by preestablished criteria.

The substantive interpretation of these interaction terms was assessed by examining the comparative, relative odds of each combination of significant independent variables[4] (Tables 6–8).

The significant, positive interaction between board responsibility for multiple hospitals and ownership is displayed in Table 6. Differences in the relative odds indicated that CEO participation in governing board executive committees was less frequent in hospitals with boards responsible for multiple hospitals only under conditions of private hospital ownership. No differences in CEO participation in governing board executive committees were evidenced between multiple hospital boards and single hospital boards in the public sector. This pattern, which held for both large and small hospitals, also held for whether or not hospital boards are responsible to a higher authority or responsible for nonhospital organizations.

Interaction effects also applied when annual performance reviews for hospital CEOs was the dependent variable (Table 7). The positive interaction between board responsibility for multiple hospitals and hospital ownership suggests that for privately controlled hospitals, odds of CEO annual performance review were greater for hospitals with boards responsible for multiple hospitals than for boards with only single hospital responsibilities. No differences in probability were observed between multiple hospital boards and single hospital boards

Table 6: Relative Odds* of CEO Membership on Governing Board Executive Committee for Every Combination of Significant Independent Variable

		Board Responsible to Higher Authority		*Board Not Responsible to Higher Authority*	
		Public	*Private*	*Public*	*Private*
Responsible for nonhospital(s)	large	1.864	1.605	1.039	0.920
	small	1.016	0.881	0.570	0.491
Board Responsible for Multiple Hospitals					
	large	3.868	2.170	2.044	1.578
Responsible only for hospital(s)					
	small	1.798	4.554	1.00	0.859
	large	1.864	4.363	1.039	2.437
Responsible for nonhospital(s)					
	small	1.016	2.379	0.570	1.329
Board Responsible for Single Hospital					
	large	3.268	7.628	2.044	4.273
Responsible only for hospital(s)					
	small	1.798	4.183	1.00	2.331

*Baseline for relative odds is combination of: responsible for hospital only, responsible to higher authority, small size, and public ownership.

in the public sector. This interactive pattern was similar to the previous analysis of CEO participation on board executive committees.

The pattern of relative odds suggests the following interpretation for the negative coefficient of the interaction between board responsibility for nonhospitals and hospital size. For smaller hospitals, governing board responsibility for nonhospitals displayed higher likelihood of CEO annual performance reviews relative to hospitals with boards responsible for single hospitals. Larger hospitals with boards responsible for nonhospitals experienced slightly lower chances of a CEO annual performance review relative to larger hospitals with boards responsible for single hospitals.

Finally, Table 7 presents the interaction between board responsibility for nonhospitals and hospital ownership. CEOs of private hospi-

Table 7: Relative Odds* of CEO Annual Performance Review for Every Combination of Significant Independent Variable

			Public	*Private*
	Responsible for nonhospital(s)	large	0.979	3.233
		small	1.0	3.166
Board Responsible for Multiple Hospitals				
		large	1.481	3.318
	Responsible only for hospital(s)			
		small	1.0	2.223
		large	0.979	2.003
	Responsible for nonhospital(s)			
		small	1.0	3.429
Board Responsible for Single Hospital				
		large	1.481	2.018
	Responsible only for hospital(s)			
		small	1.0	1.411

*Baseline for relative odds is combination of small size, public ownership, single hospital responsibility, responsibility only for hospital(s).

tals with boards responsible for nonhospitals were more likely to receive annual performance reviews than CEOs of private hospitals with boards responsible for single hospitals. However, this pattern is reversed when public hospitals are considered. CEOs of public hospitals with boards responsible for nonhospitals were slightly less likely to receive annual performance reviews than their counterparts in hospitals with boards responsible only for single hospitals.

Table 8 illustrates the two interactions that predict CEO annual performance review by preestablished criteria. The positive interaction between nonhospital responsibility of governing boards and ownership suggests again that the effects of board responsibility for nonhospitals on performance review by preestablished criteria were conditioned by the ownership of the hospital. A sharp decrease in the odds ratios were noted when boards with responsibility for nonhospitals are compared to other boards. As with previous interactions, however, this difference occurred only for private hospitals.

The interaction of board responsibility to higher authority and

Table 8: Relative Odds* of CEO Annual Performance Review by Preestablished Criteria for Every Combination of Significant Independent Variable

	Board Responsible to Higher Authority		*Board Not Responsible to Higher Authority*	
	public	*private*	*public*	*private*
Responsible for non-hospital(s)	2.43	22.72	2.43	12.02
Board Responsible for Multiple Hospitals				
Responsible only for hospital(s)	2.43	4.88	2.43	2.43
Responsible for non-hospital(s)	1.0	9.70	1.0	1.20
Board Responsible for Single Hospitals				
Responsible only for hospital(s)	1.0	2.06	1.0	1.0

*Baseline for relative odds is combination of public ownership, small size, single hospital responsibility.

hospital ownership status revealed a similar pattern. Boards that were responsible to higher authority appeared more likely to conduct annual performance reviews by preestablished criteria than boards that were not, but only in the private sector. No odds differences were observed between public hospitals whose boards were responsible to higher authority and those whose boards were not.

With the exception of the negative relationship that board responsibility to higher authority had on the presence of a CEO on the executive committee, the variables in the fitted models had the predicted effects on a board's formal control over hospital CEOs. It is notable, however, that these effects of governing board authority were often obtained through their interaction with hospital characteristics. Ownership of the hospital was particularly important in these interactions. In general, the predicted relations between governing board authority and board control over hospital CEOs held for private hospitals but not for public hospitals.

It is also evident that each dependent variable was predicted by different combinations of governing board authority, hospital, and

interaction variables. For example, size and private ownership were negatively related to lack of CEO participation on board executive committees but positively related to CEO annual performance review.

SUMMARY AND DISCUSSION

The focus of this investigation has been the impact of multi-institutional arrangements on the role of governing boards in limiting or enhancing managerial control over individual hospitals. Data from a 1979 Special Survey by the American Hospital Association (N = 4213) were used to examine the effects of the degree of autonomy and scope of responsibility exercised by the hospital governing board on relationships between the governing board and the hospital administration. It was hypothesized that governing boards responsible for multiple hospitals or nonhospital organizations and governing boards accountable to higher organizational authorities will exercise more control over hospital chief executive officers (CEOs) than will boards of single or autonomous hospitals.

The analysis assumed that control by the governing board over the management function of the individual hospital was exercised partly through soliciting or limiting participation by hospital administrators in key policy decisions, as well as through the evaluation of administrative performance. Therefore, it was anticipated that hospitals governed by boards with multiple responsibilities and hospitals governed by boards accountable to a higher organizational authority would be less likely to have CEOs who are members of the governing board executive committee, more likely to have annual performance reviews of the CEO by the governing board, and more likely to have such reviews conducted according to preestablished criteria.

Study results provided general support for the hypotheses with respect to hospital boards with multiple responsibilities: the data suggested that such boards do exercise greater control over hospital administrators and that these effects appeared to be stronger for hospitals in the private sector. Hospitals governed by boards accountable to a higher authority, however, were more likely to have CEOs who are members of the governing board executive committee—a pattern in the direction opposite to that hypothesized. Furthermore, these boards were no more likely to conduct annual CEO performance reviews than were boards with more autonomy; hospital boards accountable to higher authority in the private sector were more likely, however, to use preestablished criteria when such reviews are conducted. Further anal-

ysis of the data indicated that this pattern is, in general, similar whether hospital boards are accountable to religious authorities, to investor-owned corporate boards, or to the boards of not-for-profit, multi-institutional systems. It is not clear from the data available, however, whether CEO membership on the executive committee of these governing boards with more limited autonomy represents greater participation by the hospital administration in key policy decision-making; or, alternatively, whether boards in these situations are more likely to be responsible for a relatively narrow range of operational decisions in which CEO participation is highly desirable.

A different pattern emerged for boards accountable to a state, county, or local government authority. Such boards were less likely than hospital boards accountable to other types of higher authorities to have annual CEO performance reviews, less likely to use preestablished criteria when such reviews were conducted, and less likely to have CEO participation on the governing-board executive committee.

In sum, three important conclusions can be reached from the analyses of the data. These conclusions relate respectively to the effects of governing-board scope of responsibility, governing-board autonomy, and hospital characteristics as they affect governing board control over hospital CEOs. Hospital participation in multihospital arrangements is related positively to increased formal control by governing boards over hospital CEOs when (1) hospital governing boards have a broad scope of responsibility—that is, when they are responsible for multiple organizations; and (2) hospitals are under private rather than public ownership.

Governing-board autonomy did not affect formal control over hospital CEOs in the predicted direction. Contrary to our hypothesis, in fact, absence of responsibility to higher authority was associated with reduced participation by CEOs on governing-board executive committees relative to hospitals whose boards are responsible to higher authority. Further, governing-board autonomy was unrelated to formal evaluations of CEOs and related to performance review by preestablished criteria only interactively with hospital ownership.

Finally, hospital characteristics such as size and ownership exercised both significant main and interaction effects on governing-board control over CEOs.

SUGGESTIONS FOR FUTURE RESEARCH

While this investigation suggests a consistent relationship between governing-board authority characteristics and formal control over hos-

pital CEOs, findings should be weighed in light of several limitations of the data. First, data were available to assess only the structural characteristics of governing boards and formal control over hospital CEOs. No data were available on control content or on the processes by which governing boards act to affect managerial autonomy. For example, the data provided no insight into which operational areas are most affected by governing-board control over the CEO. Similarly, the data did not permit an assessment of whether the evaluations conducted by the boards are largely pro forma or whether they are backed by strong sanctions, either from the board or from the institution to which the board is accountable. Knowledge of the content of evaluation criteria applied by the board would lend much to our understanding of their effect on CEO behavior and decision-making.

Similarly, more in-depth analysis is required to assess the nature of CEO participation in governing-board activities in multi-institutional arrangements. It may be the case, for example, that limited CEO participation in governing-board activities simply implies that governing boards delegate a considerable amount of authority to the CEO for making operational and policy decisions. The content of this process clearly demands to be addressed in more detail than was possible in this investigation.

These suggestions for research are directly relevant to hospitals that are considering participation in an interorganizational arrangement if they are to assess fully the benefits and costs associated with such participation. Because of the cross-sectional nature of the data, the causal direction between governance structure and CEO and hospital autonomy could not clearly be established here. Longitudinal analysis is critical to answering whether control of individual hospitals can actually be attributed to participation in interorganizational relationships and to the governing board structure in such arrangements. Limitations of the present data prevent an effective ruling out of possible alternative explanations for this relationship.

Finally, additional research is needed to test the assumptions made in this article regarding the reasons for hospital participation in interorganizational arrangements. It is likely that such reasons may vary considerably, and the proposed argument of resource constraints and environmental pressures may be conditioned by such factors as size, ownership, and religious affiliation. Systematic analysis of these conditions and the organizational forms they produce must be conducted before this area of research can be made useful to administrators of hospitals and multi-institutional systems.

ACKNOWLEDGMENTS

The authors wish to thank the American Hospital Association for supplying the data for this investigation and for the considerable assistance they provided in the preparation of this manuscript. Particular thanks are due Heidi Hunter for her role in the data analysis and Merrilee Gerew and Karen Engel for their editorial support.

NOTES

1. Due to problems with missing data, 198 hospitals were omitted from the analysis.
2. The D statistic is comparable to R-square in ordinary least-squares regression. It is computed by:

$$D(n - p)/(1 - D) = \text{model Chi-square}$$

   When p equals the number of variables in the model, and n equals the number of observations.
3. Because the term "higher authority" can encompass a wide range of relationships, type of authority was employed as an additional control in analyzing the hypotheses. Comparisons were made among government, not-for-profit multi-institutional system, religious and investor-owned authorities for purposes of the analysis. Those hospitals responsible to higher religious authorities, not-for-profit multihospital system boards, and investor-owned corporate boards had more participation by CEOs on executive councils than hospitals under other governing board structures. The same boards are more likely to evaluate CEOs by preestablished criteria. The exception is hospitals responsible to an investor-owned corporation: these institutions are less likely to have annual performance reviews for the CEO and less likely to evaluate by prespecified criteria if such reviews are conducted.
4. Odds for each combination of independent variables were computed as the ratio of:

$$\frac{\text{probability that formal control over CEO is present}}{\text{probability that formal control over CEO is not present}}$$

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