

Briefs

Working Together? Organizational and Market Determinants of Collaboration Between Public Health and Medical Care Providers

ABSTRACT

Objectives. This study examines organizational characteristics and market conditions likely to influence collaborative relationships between public health agencies and community medical care providers.

Methods. Public health directors in 60 US counties were surveyed by telephone concerning their relationships with area community hospitals (n=263) and community health centers (n=85). Multivariate models were used to estimate the effects of organizational and market characteristics on collaboration.

Results. Collaboration was reported among 55% of the hospitals and 64% of the health centers. Certain forms of collaboration were more likely in markets characterized by higher HMO penetration and lower HMO competition.

Conclusions. Targeted efforts to facilitate collaboration may be required in settings where institutional and market incentives are lacking. (*Am J Public Health*. 2000;90:1913–1916)

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Public health organizations throughout the United States are challenged to expand and adapt their scope of activities to address new and evolving disease risks as well as persistent disparities in health.^{1,2} Increasingly, these challenges lead public health organizations to seek additional capacity and expertise through collaboration with other institutions.^{3,4} Collaboration potentially allows organizations to pool resources and skills in order to accomplish shared objectives that may not be attainable through individual action.⁵ Collaboration between public health and medical care providers has become a particularly attractive strategy for improving population health, given the mix of health-related skills and resources maintained by each type of organization.^{6–8}

Successful collaboration requires shared organizational objectives or at least compatible incentives.^{9,10} For this reason, opportunities for collaboration between public health and medical care providers are contingent on the underlying institutional missions and market conditions that influence provider behavior. This study explores 2 key hypotheses concerning collaboration incentives. One hypothesis suggests that because the primary obligation of privately owned and for-profit institutions is to generate private goods (e.g., financial returns) for shareholders, such institutions are less likely to participate in producing public goods such as public health activities.¹¹ Another hypothesis suggests that the growth of managed care within local health care markets strengthens the incentives for collaboration between medical care providers and public health agencies.^{12–16} This may occur if the prospective payment systems used by many managed care plans encourage providers to participate in public health initiatives that potentially improve health status and reduce the use of medical care in their patient populations. If such incentives exist, economic theory suggests that they should be stronger in markets where large shares of the population are enrolled in

managed care plans and small numbers of plans control the market.^{17,18}

This study explores the opportunities for collaboration by examining how organizational characteristics and market conditions relate to observed patterns of collaboration between public health agencies and medical care providers. We focus on public health agencies that are units of local government and on 2 types of medical care providers that are essential components of the health care safety net for underserved populations—community hospitals and community health centers.^{19,20}

Methods

This study analyzes cross-sectional data on the interorganizational relationships formed among local public health agencies, community hospitals, and community health centers operating in each of 60 geographically and demographically diverse US counties. The 60 counties are a nonrandom selection of public health jurisdictions in 15 states that were chosen for a longitudinal analysis of public health infrastructure and

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TABLE 1—Variables Used to Predict Hospital and Health Center Collaboration With Public Health Agencies

Variable	Mean	SD	Expected Effect on Collaboration
Model of hospital collaboration with public health agencies (n = 263)			
Hospital characteristics			
Government ownership ^a	0.208	0.407	+
For-profit ownership ^{a,b}	0.106	0.309	-
Teaching hospital ^a	0.398	0.490	-
Hospital share of total beds in county, %	1.90	14.02	+
Hospital has PHO for managed care contracting ^a	0.576	0.495	+
Public health agency characteristics			
Centralized unit of state agency ^a	0.178	0.383	-
Public health agency expenditures per capita, \$	65	102	-
Scope of services provided, % ^c	38.1	12.1	+
Market characteristics			
HMO penetration (% population enrolled in HMOs)	20.6	15.6	+
HMO competition (no. of HMOs operating in county)	8.53	4.35	-
Medicaid managed care program ^a	0.504	0.501	+
Population size (× 100 000)	6.70	7.11	+
% Population below poverty level	12.50	5.36	+
Rural county ^a	0.311	0.464	+
Population per physician in county (× 1000)	0.551	0.512	+
Population per hospital bed (× 1000)	0.63	3.20	+
Model of health center collaboration with public health agencies (n = 85)			
Health center characteristics			
Government ownership ^a	0.250	0.436	+
Receives Section 330 funding ^a	0.625	0.487	+
No. of counties served by health center	1.432	0.631	-
Public health agency characteristics			
Centralized unit of state agency ^a	0.168	0.376	-
Public health agency expenditures per capita, \$	68.6	96.2	-
Scope of services provided, % ^c	37.3	14.0	+
Market characteristics			
HMO penetration (% population enrolled in HMOs)	18.1	16.9	+
HMO competition (no. of HMOs operating in county)	7.60	4.43	-
Medicaid managed care program ^a	0.484	0.502	+
Population size (× 100 000)	4.72	5.85	+
% Population below poverty level	14.07	5.77	+
Rural county ^a	0.253	0.437	+
Population per physician in county (× 1000)	0.731	0.717	+

Note. PHO = physician hospital organization.

^aDichotomous variable taking on values of either 0 or 1.

^bOmitted category: private nonprofit ownership = 68.6%.

^cBased on index of 81 public health services identified by Miller et al.²¹

performance on the basis of their geographic, demographic, and structural diversity.²¹ Data on interorganizational relationships were obtained through structured telephone interviews conducted with the director of the local public health agency in each county during the summer of 1995. Directors were asked to identify all the hospitals and community health centers operating within their agency's jurisdiction and to indicate the type and nature of any formal (contractual) or informal relationship maintained with each organization. Data from a variety of secondary sources were subsequently matched with the interview data, including hospital characteristics,²² community health center characteristics,²³ county-level sociodemographic characteristics,²⁴ and county-level HMO market characteristics.²⁵

Separate multivariate models were used to model collaboration with hospitals and with

health centers. Logistic regression was used to model the effects of organizational and market characteristics on the probability of collaboration. Multinomial logit estimation was used to model the effects of these variables on the choice between formal (contractual) collaboration and informal collaboration, relative to the base category of no collaboration.²⁶ The explanatory variables of interest in each model were hospital or health center ownership type (government owned, private nonprofit, or private for-profit for hospitals) and managed care market structure (percentage of population enrolled in HMOs and number of competing HMOs). The models control for a variety of other organizational and community characteristics (Table 1). Heteroscedasticity-robust standard errors and confidence intervals were computed to account for hospital and health center clustering within the 60 study counties.^{27,28}

Results

More than half of the hospitals operating in the 60 study jurisdictions maintained some form of collaboration with the local public health agency (Table 2). Fewer than 40% of these relationships were formalized by contract. Most collaborative relationships involved patient referral agreements (66% of relationships), while a sizeable minority of relationships involved the joint delivery of personal health services (31%), the joint administration of population-based programs (29%), or the joint assessment of community health needs (11%). By comparison, nearly two thirds of the community health centers (64%) maintained some form of collaboration with the local public health agency. Two thirds of these relationships were formalized by contract, and 76% involved patient referral agreements. Collaborative activities for other purposes were less common.

TABLE 2—Participation of Community Hospitals and Community Health Centers in Collaborative Relationships With Local Public Health Agencies

Estimate	Hospitals	Health Centers
	Proportion, %	
Structural characteristics of collaboration	(n=263)	(n=85)
No collaboration	44.9	36.5
Formal (contractual) collaboration	21.3	42.4
Informal collaboration	33.8	21.2
Functional characteristics of collaboration (not mutually exclusive) ^a	(n=145)	(n=54)
On patient referral arrangements	65.5	75.9
On personal health services delivery	31.0	46.3
On population-based programs	29.0	24.1
On community health needs assessment	11.0	20.4
Organizational and market correlates of collaboration ^b	Odds Ratio (95% CI) ^c	
Government ownership ^d	2.8 (1.2, 6.6)**	1.2 (0.2, 7.8)
For-profit ownership ^d	0.3 (0.2, 0.8)***	N/A
HMO penetration	1.5 (0.8, 2.6)	2.0 (1.1, 3.9)**
HMO competition	0.80 (0.7, 0.9)***	0.9 (0.7, 1.0)*
Organizational and market correlates of formal collaboration ^b	Relative Risk Ratios (95% CI) ^e	
Government ownership ^c	6.7 (2.1, 20.1)***	4.2 (0.4, 43.2)
For-profit ownership ^c	0.2 (0.0, 1.0)**	N/A
HMO penetration	1.8 (1.0, 3.1)**	3.1 (1.4, 6.5)***
HMO competition	0.8 (0.7, 1.0)**	0.8 (0.6, 1.0)*
Organizational and market correlates of informal collaboration ^b		
Government ownership ^d	1.4 (0.5, 4.0)	0.1 (0.0, 2.0)
For-profit ownership ^d	0.5 (0.2, 1.0)*	N/A
HMO penetration	1.2 (0.6, 2.4)	1.2 (0.5, 2.8)
HMO competition	0.8 (0.6, 0.9)***	0.8 (0.6, 1.0)**

Note. CI = confidence interval; N/A = not applicable.

^aProportions are calculated only for organizations reporting some type of collaboration.

^bEstimates are adjusted for the set of control variables listed in Table 1.

^cObtained by logistic regression

^dRelative to nonprofit ownership.

^eObtained by multinomial logit regression

* $P < .10$; ** $P < .05$; *** $P < .01$.

Estimates from the hospital logistic regression model indicated that, after the effects of other organizational and market characteristics had been controlled for, hospital ownership was a strong and significant predictor of collaboration with public health agencies (Table 2). Public hospitals were more than twice as likely as private nonprofit hospitals to engage in collaborative relationships ($P = .02$), while for-profit hospitals were less than half as likely as nonprofit hospitals to collaborate ($P = .01$). Only 1 of the 2 managed care market variables, HMO market competition, was significantly associated with collaboration in the logistic regression model. As hypothesized, HMO competition was negatively associated with the likelihood of collaboration ($P < .01$).

Estimates from the multinomial logit model indicated that hospital ownership characteristics and managed care market conditions were more predictive of formal (contractual) collaborative relationships than of informal relationships (Table 2). Public hospitals were significantly more likely than pri-

vate nonprofit hospitals to contract with public health agencies ($P < .01$), and for-profit hospitals were significantly less likely than nonprofit hospitals to do so ($P = .04$). Both HMO penetration and HMO competition were strong predictors of contractual collaboration ($P = .05$). By comparison, none of the ownership variables and only 1 of the managed care market variables were significantly associated with the likelihood of informal collaboration (Table 2).

The health center models did not reveal a significant association between ownership and the likelihood of collaboration, after control for other organizational and market characteristics (Table 2). Collaboration was more likely to occur in markets with higher HMO penetration ($P = .04$) and markets with lower HMO competition ($P = .06$), although this last association was not significant at the 5% level. Consistent with the hospital model, results indicated that HMO market penetration was more predictive of formal (contractual) collaboration than of informal collaboration (Table 2).

Discussion

This analysis finds some support for the hypothesis that ownership characteristics and managed care market conditions influence the incentives for collaboration between public health agencies and community medical care providers. Results suggest that collaborative activity may increase as managed care plans gain market share and consolidate through mergers, acquisitions, and failures. At the same time, movement toward for-profit ownership structures among community hospitals may have a dampening effect on public health collaboration. Although not representative of all US communities and limited to the 1995 time period, these findings offer insight about the opportunities and challenges likely to be encountered in developing collaborative relationships within the evolving health care system. Targeted efforts to facilitate collaboration may be required in settings where institutional and market incentives are lacking. □

Contributors

P.K. Halverson led the conceptualization of the study design and interpretation of results, and participated in drafting and revising the manuscript. G.P. Mays participated in specifying the study design, designed and implemented the statistical tests and modeling, participated in interpreting the results, and drafted and revised the manuscript. A.D. Kaluzny participated in interpreting the results and in drafting and revising the manuscript.

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