Two Decades of Organizational Change in Health Care: What Have we Learned?

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Review

Two Decades of Organizational Change in Health Care: What Have We Learned?

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The 1980s and 1990s witnessed a substantial wave of organizational restructuring among hospitals and physicians, as health providers rethought their organizational roles given perceived market imperatives. Mergers, acquisitions, internal restructuring, and new interorganizational relationships occurred at a record pace. Matching this was a large wave of study and discourse among health services researchers, industry experts, and consultants to understand the causes and consequences of organizational change. In many cases, this literature provides mixed signals about what was accomplished through these organizational efforts. The purpose of this review is to synthesize this diverse literature. This review examines studies of horizontal consolidation and integration of hospitals, horizontal consolidation and integration of physician organizations, and integration and relationship development between physicians and hospitals. In all, around 100 studies were examined to assess what was learned through two decades of research on organizational change in health care.

Keywords: *organizational change; organizational restructuring; consolidation and integration*

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Throughout the 1980s and 1990s, hospital and physician organizations invested substantial time and financial resources in reorganizing themselves with the stated purposes of improving organizational efficiency, financial performance, long-term survival, community accountability, and patient outcomes. Hospitals merged with each other, developed an array of physician-organizational arrangements, dabbled in the development of provider-sponsored health maintenance organizations (HMOs), and formed a variety of multihospital health systems and networks. Physicians formed increasingly larger groups and independent practice associations (IPAs), sold their practices to health systems and networks and to practice management companies, and became involved in an array of physician-hospital joint ventures. While 1980 efforts focused on horizontal alignment, 1990 efforts included both horizontal and vertical relationships to develop the "organized delivery systems" envisioned by Shortell et al. (1993) to functionally align service delivery and increase provider fiscal and clinical accountability.

Much had been written about the merits of these strategies given the growth in managed care, the belief that capitated methods of payment would become the norm, and perceptions that horizontally and vertically integrated organizations would be better able to weather the storms of an uncertain environment (Advisory Board 1993; Burns and Thorpe 1993; Dowling 1995; Shortell, Gillies, and Anderson 1994). Some writers were so bold as to suggest that freestanding health organizations were nearing extinction (Cerne 1994). Others were skeptical, viewing these efforts as attempts to increase market power or to align physicians to fill empty hospital beds (Goldsmith 1994; Gaynor and Haas-Wilson 1999; Greenberg 1998). Matching the wave of organizational change was a wave of activity among researchers, industry experts, and consultants to analyze these changes.

If one were to select at random a set of health organizations and assess their success at restructuring, one would observe mixed results. Similarly, selecting a random set of research studies also could yield a mixed bag of findings. What are we to make of this literature? What does it tell us about two decades of organizational change in health care? Some writers have used the mixed nature of research findings to select those findings that support their a priori positions about the effectiveness of organizational change (cf. Herzlinger

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1997). The purpose of this article is to use a more organic approach in which we look across the diverse body of research on organizational change to identify patterns of consistency and inconsistency in study findings.

To accomplish this task, we developed a conceptual framework of organizational change that draws on the health management literature. This model focuses on the content, process, context, and outcomes of organizational change. We relate this organizing framework to a set of very diverse quantitative and qualitative studies to identify patterns of findings in prior research and reveal new insights on organizational change in health care. We begin by describing and documenting trends in organizational change in health care. We then discuss our conceptual framework and our process for identifying studies for this synthesis. Then we assess what we know and do not know based on two decades of study of organizational change in health care.

NEW CONTRIBUTION

Huber et al. (1993) defined organizational change as "change that involves differences in how an organization functions, who its members and leaders are, what form it takes, and how it allocates resources" (p. 216). Similarly, Van de Ven and Poole (1995) defined change as a difference in organizational form, quality, or state. Given the discussion of the last section, we are most interested in organizational changes that affected form, state, and function as health organizations changed from largely fragmented, autonomous entities to larger corporate forms that coordinated administrative functions and service delivery and accepted greater clinical and fiscal accountability. We view this as consistent with what Watzlawick, Weakland, and Fisch (1974) and Bateson (1972) deemed "second order change" involving radical, discontinuous change to the primary purpose of the organization. Shortell et al. (1993) discussed the nature of these second-order changes as hospital and physician organizations developed organized delivery systems, including a shift from piecemeal delivery of acute-care services to growing emphasis on primary and wellness care within a continuum of services, a shift from viewing services as revenue generating to cost creating, and a shift from the care of individuals to the care of defined populations.

There have been a number of review articles that have focused on this type of organizational change in health care. Lee and Alexander (1999) examined strategic decisions by hospitals in implementing major organizational changes. Snail and Robinson (1998) examined a broader array of organizational change efforts but largely focused on the merits and shortcomings of each study's empirical approach. Early reviews by Ermann and Gabel (1984) and Shortell (1988) focused on studies of multihospital systems, and Getzen

(1984) and Pauly (1996) reviewed research on physician group formation. The major new contributions of our literature synthesis include an assessment of organizational change efforts involving both hospitals and physicians and the use of an organizing conceptual framework as a means to draw links across diverse studies. Furthermore, our review is the first, to our knowledge, to bring together both quantitative and qualitative research to assess organizational change. The latter research has grown in prevalence in recent years and can be quite revealing about the process of organizational change. Thus, this qualitative research yields complementary insights to traditional quantitative studies, which typically focus on factors motivating organizational change and the outcomes of change.

ORGANIZATIONAL CHANGE IN HEALTH CARE DURING THE 1980s AND 1990s

Our literature synthesis covers three types of organizational change: (1) horizontal consolidation and integration of hospitals, (2) horizontal consolidation and integration of physicians, and (3) vertical integration between physicians and hospitals. Together, these encompass most of the relevant organizational restructuring efforts undertaken by physicians and hospitals during the 1980s and 1990s.[1] The discussion below describes key trends in these areas.

The 1980s and 1990s witnessed rapid growth in horizontal hospital relationships. Between 1989 and 1996, 190 full asset mergers occurred in which two or more separately licensed hospitals consolidated under one owner and one license (Bazzoli et al. 2002). Hospitals also formed numerous health networks and systems. Health networks are multihospital delivery entities in which affiliated hospitals retain their individual ownership and licenses but are tied together through alliances or contractual affiliations to achieve mutually agreed upon objectives. Health systems are multihospital arrangements in which affiliated hospitals are owned and operated by a single parent organization. Health systems differ from full asset mergers in that system hospitals retain separate licenses. In addition, systems often allow decentralized decision-making so that their hospitals can respond to local community needs (Lee, Alexander, and Bazzoli 2003; Alexander, Lee, and Bazzoli 2003). In 1994, 56.2% of U.S. hospitals belonged to a health network or system; by 2000, this grew to 72.1% (American Hospital Association 2002).

Horizontal consolidation and integration of physicians occurred primarily through three types of organizations: group practices, IPAs, and physician practice management companies (PPMCs). Through the 1980s and early 1990s, the number of group practices grew substantially, but this growth then slowed. In 1980, there were about 11,000 group practices, and this number

grew to approximately 19,500 in 1995 but only to 19,800 by 1997 (Havlicek 1999). In 1997, nearly 32% of physicians practiced in group practices and generally, these groups were small in size, with about 50% having three to nine physicians (Havlicek 1999). IPAs represent an alternative to group practices in which some of the benefits of group affiliation—namely, centralized administrative functions, contract negotiations, and contract oversight—are present but physicians have greater autonomy over their individual practices. Identifying an exact count of IPAs and their affiliated physicians is difficult due to the flexibility of forming and dissolving these organizations. PPMCs experienced dramatic growth in the mid-1990s (Burns 1997; Conrad et al. 1999; Robinson 1998), followed by even more dramatic decline and dissolution of these organizations in the late 1990s (Reinhardt 2000).

Hospitals and physicians also linked together in a variety of new organizational arrangements throughout this period to better integrate service delivery and financing. The American Hospital Association (AHA) tracked seven different forms of these organizations since 1994. These arrangements ranged from loose contractual arrangements between independent physician organizations and hospital organizations to tight ownership-based models in which hospital organizations owned physician practices and paid physicians on a salary basis. The most frequently reported physician-hospital arrangement was a Physician Hospital Organization (PHO), which was defined by AHA as a joint venture between a hospital and physicians to operate clinics or hold insurer contracts. AHA (2002) reported that 27.6% of hospitals had PHOs in 1994, and this percentage grew to 33.2% in 1996 but then declined to 26.4% by 2000. Other types of physician arrangements had similar patterns of growth through 1996 or 1997 and then declined through 2000. Bazzoli et al. (2001) also found similar patterns of initial increase and then subsequent decline in these arrangements for hospital-led health networks and systems.

Although these various physician-hospital arrangements vary in structure and legal form, they shared two common objectives: (1) to provide a platform for physician-hospital integration and collaboration and (2) to acquire capitated contracts for affiliated physicians and hospitals (Advisory Board 1993; Ernst and Young 1995). For the second objective, hospital-led organizations competed with physician-led organizations to serve as intermediary organizations for capitated physicians. Gold, Hurley, and Lake (2001) found an even split between provider-based intermediaries that were physician led, such as IPAs, and those that were hospital led, such as PHOs, in 1999. Given reduced use of capitated contracting by HMOs, both physician-led and hospital-led organizations of this type have declined in prevalence across the United States (Lesser and Ginsburg 2000).

CONCEPTUAL MODEL OF ORGANIZATIONAL CHANGE

Our model of organizational change builds on management research that has developed frameworks that integrate and associate various theories of organizational change. Barnett and Carroll (1995), for example, developed a framework that connected strategic adaptation theories, which suggest that organizations adapt their structures and internal processes in response to technological and market pressures, with selection theories, which suggest that organizations cannot easily change and face substantial risks when they do.[2] Barnett and Carroll's model focused on two alternative states of the world. State A is the current organizational form that a firm occupies, and State B represents an alternative organizational form that the firm aspires to be. Both States A and B can be described based on their organizational content, namely, their structures, relationships, operational processes and routines, approaches for organizing work, information and production technologies, organizational capabilities, and product offerings.

Barnett and Carroll (1995) identified two major dimensions relevant to organizational change: (1) the *content of change*, which relates to differences in the content of a State A organization along the dimensions noted above relative to the content associated with a State B firm and (2) the *process of change*, which focuses on how change occurs, including the speed of change, the necessary sequence of activities, supporting internal changes, and obstacles confronted. This conceptualization of the process of change is consistent with Van de Ven and Poole (1995), who focused on the dynamic nature of the change process. Armenakis and Bedeian (1999) further elaborated on the content and process of change dimensions and developed two additional dimensions that Barnett and Carroll considered only implicitly. Specifically, Armenakis and Bedeian defined the *content of change* as the substance of organizational change, focusing on changes in strategic orientation, organizational structure, and organization-environmental fit. They defined *the process of change* as the set of actions undertaken by an organization during the enactment of an intended change. In addition, they defined *the context of change* as the forces or conditions existing in an organization's internal and external environments that influence change and *the outcomes of change* as the criteria used to assess the success of change. Taken together, these studies suggest that much can be learned about organizational change by considering the context, content, process, and outcomes of change.

To develop an organizing framework for studying organizational change, one needs to relate these four dimensions to each other. Barnett and Carroll (1995) provided a starting point in their model that links content and process

change to study organizational failure. In their case, they viewed the content of State A as involving some inherent risk of failure for a firm given the context in which it operated. Similarly, alternative State B had its own associated content and risk of failure. As an organization transitioned from State A to B, this added new risks given the uncertainties of the change process. This latter risk in conjunction with the risk of failure associated with States A and B ultimately would determine the organization's chances of survival.

To relate their model to health care, an alternative outcome of organizational change needs to be considered because existing research suggests that failure for health organizations is uncommon (Bazzoli and Andes 1995; Bazzoli and Cleverley 1994; Duffy and Friedman 1993). As such, we focus on the converse of failure and look instead at the value that an organization creates given the content associated with States A and B. In keeping with current developments in the strategic management literature, we define value more broadly than Porter (1985), who viewed it as the amount consumers were willing to pay for a good. Clarkson (1995) discussed value in relation to an organization's multiple stakeholders, including capital suppliers, employees, customers, suppliers, and public stakeholders. For our purposes, we define value to include efficiency and financial performance because these are important to shareholders of for-profit health organizations and also to managers and trustees of nonprofit health firms. Value also encompasses the benefits derived by consumers in the marketplace, including access to care, cost-effectiveness, quality, and satisfaction. Other players in the market could derive value from organizational change, including physicians who may receive better administrative service or financial support as their affiliated hospitals undertake certain changes or health plans that are better able to transfer risk to a restructured health organization. We believe that a broad definition of value is important for our organizing framework because the expectations of researchers, consultants, and the industry about the value that would result from organizational change of the 1980s and 1990s were very expansive.

Following Alexander and Morrisey (1988a) and Bazzoli, Manheim, and Waters (2003), we conceptualize value as a dynamic rather than static concept. Namely, value can be derived over many periods, not just the period immediately following a major change. For simplicity, we refer to this stream of value as the net present value (NPV) associated with State A or B, in which the content of these organizational forms generates a particular stream of value over time for different stakeholders.

The process of change necessarily involves costs—both financial and psychological—to organizations and their stakeholders that detract from the value associated with States A and B. As with the concept of value, we take a

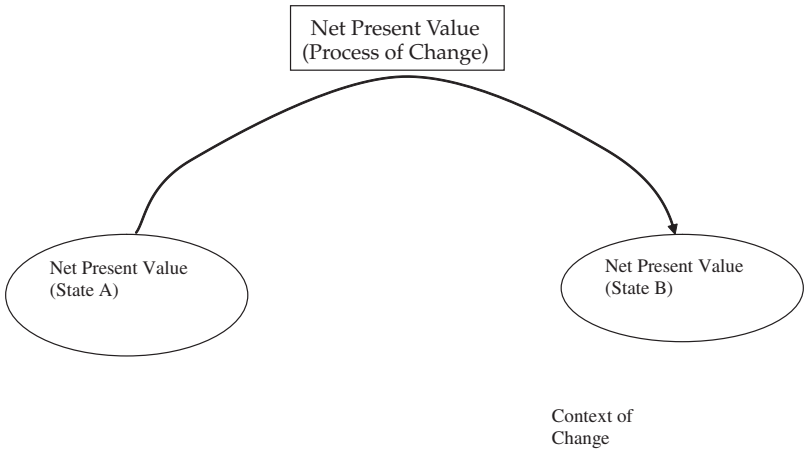

FIGURE 1 Model of Health Organizational Change with One Alternative State B

broad perspective on costs given existing literature, which focuses not only on the potential monetary costs of implementing change but also the toll on organizations as they respond to challenges and potential resistance. The process of major organizational change requires an array of actions to implement the intended change as well as the sequencing and ordering of these actions over time. For simplicity, one can conceptualize this as an NPV of costs that accrue over time through the change from State A to B.

Figure 1 relates the key concepts of organizational change developed above. As noted above, the NPV of States A and B represents the value streams that result based on the content of these respective types of organizations. The process of change is represented by the loop from State A and B and is summarized based on the NPV of the costs of change. The area that surrounds the two possible states and the process of change represents the environment or context in which organizations operate and in which change occurs. This context undoubtedly will affect the content of change and the process of change. Finally, the outcomes of change relate to the net value derived through organizational change, namely, the difference in the NPV between State B and State A less the NPV of costs associated with the process of change.[3] We expect that a health organization will voluntarily undertake organizational change if the expected outcome of change, namely, the net value derived, is greater than zero.[4]

From our perspective, Figure 1 provides a comprehensive organizing framework that encompasses the elements of the context, content, process, and outcomes of change. No one study of organizational change in health care has attempted to systematically and completely assess all these elements simultaneously. Rather, existing qualitative and quantitative studies seek to illuminate certain aspects embedded in this framework. For example, studies may examine differences in the relative benefits of a State A firm (e.g., an independent hospital) compared with a State B firm (e.g., a merged hospital or multihospital system) and how these benefits vary based on the changing context of health care (e.g., the growth of managed care). Other studies focus on the process of organizational change, either in terms of the set of actions and internal restructuring that took place as organizations embarked on becoming State B firms or in relation to the timing and sequencing of actions over time. Finally, other studies focus on the outcomes of organizational change—did the transition from a State A to State B actually result in improved efficiency, higher market share, more satisfied consumers, and so on? Overall, the research of the past 20 years can be viewed as pieces of a complex, multidimensional puzzle for which Figure 1 provides a general, two-dimensional overview.

The objective of our synthesis is to assess the fit of these diverse puzzle pieces to reveal what insights they provide on the causes and consequences of organizational change. In addition, we identify areas where pieces may be lacking or conflicting, thus necessitating the need for additional study. We categorized studies based on whether they examined the relative benefit of change, the process of change, or the outcomes of change because these categories reflected major themes, especially in relation to Figure 1.

METHODS FOR IDENTIFYING AND CATEGORIZING RELEVANT STUDIES

To identify studies relevant to our literature synthesis, we began by conducting Internet searches through the National Library of Medicine's Medline service. Keywords used in our search included *organizational restructuring*, *hospital mergers and systems*, *physician groups and independent practice associations*, *physician-hospital relationships*, and *physician-hospital organizations*. Focusing on publication dates of 1980 or later, we identified 150 articles through Medline. We added 30 articles and books to this group based on our knowledge of the field and review of the reference sections of the initially identified articles. Recognizing the long lag between conducting research and publication, we also reviewed abstract lists from AcademyHealth (formerly the Academy for Health Services Research and Health Policy) from 1995

onward and obtained lists of forthcoming articles and working papers from funding agencies and foundations that support research on organizational change in health care.[5] This yielded 10 additional articles, working papers, and monographs.

From this group, we eliminated a large number of articles that were published in trade and business magazines (i.e., *Modern Healthcare* and *Hospitals and Health Networks*). These articles generally represented news reporting (e.g., announcing the merger of Hospitals A and B). Alternatively, they reported the opinions of individuals about the merits or shortcoming of certain organizational changes, which lacked the objectivity we felt necessary for our review. Two research assistants extracted relevant information on each remaining article, including objectives, research methods, organizations studied, and study findings. This process revealed a group of articles and books that were largely prescriptive in nature (e.g., discussing how to implement a hospital merger, how physicians or hospitals should form a particular joint venture). It also revealed another group that did not examine health organizations per se or, if they did, selectively discussed events for these organizations that illustrated or supported points they made. Both groups were excluded because they did not provide a critical review of evidence and often were commentaries on the merits of implementing certain changes. Finally, a group of studies we identified were literature reviews that summarized research findings (i.e., findings on the efficiency effects of physician group formation). Given that many of the studies underlying these reviews were already included in our synthesis, these literature reviews were considered redundant.[6] In all, we were left with 101 articles, working papers, monographs, and books for our literature synthesis.

We grouped studies by the major type of organizational change examined, namely, horizontal consolidation and integration of hospitals, horizontal consolidation and integration of physicians, and vertical integration of physicians and hospitals. A summary table was developed for each type of organizational change. Each table entry identified authors and year of publication, areas of study, method/design, organizations studied, and key findings. The major areas of study were defined as the relative benefits of organizational change, the process of change, and the outcomes of change. Some studies examined more than one of these areas, and this was noted in the tables. A small subset of studies examined the link between the process and outcome of organizational change. These studies provide important insights about why organizations succeeded or failed in achieving their objectives, and we specifically noted these findings in the summary tables.

HORIZONTAL HOSPITAL CONSOLIDATION AND INTEGRATION

Table 1 reports 38 studies on the horizontal consolidation and integration of hospitals. Specifically, they studied the transition of independent hospitals (State A) into mergers or multihospital networks, systems, or other alliances (State B).

RELATIVE BENEFITS OF HORIZONTAL HOSPITAL CONSOLIDATION AND INTEGRATION

Five studies described the potential benefits of horizontal hospital consolidation and integration. Cross-tabulation of survey data by Bogue et al. (1995) and Bazzoli et al. (2002) found that the three primary anticipated benefits from merger were the same even though the former studied the 1980s and the latter studied the 1990s. These were the following: (1) strengthen financial performance, (2) consolidate services, and (3) achieve operating efficiencies. Lynk (1995a) conducted a multivariate analysis that showed that consolidation of hospital departments could result in greater financial predictability and lower peak load staffing due to reductions in the variability of demand. Barro and Cutler (1997) and Wicks, Meyer, and Carlyn (1998) conducted case studies of hospital mergers and concluded that operational efficiencies could be generated through consolidating key administrative functions, eliminating service duplication, closure or conversion of underused inpatient capacity, and exploiting economics of scale. Barro and Cutler (1997) further discussed the benefits of increased market share on competitive position, namely, the potential for scale economies and greater market power in negotiations. Taken together, these studies suggest that hospital consolidation and integration can lead to stronger financial position through efficiency-generating or revenue-enhancing activities.

Although the studies above do not examine how these benefits vary depending on different internal and external contexts, five studies in Table 1 provide such insights. Alexander and Morrisey (1988a) and Brooks and Jones (1997) conducted multivariate empirical analyses of hospitals that merged or joined multihospital arrangements in the 1980s. They found that weak hospitals looked to consolidate with stronger hospital partners to take advantage of local market opportunities. More recent case studies, however, suggest that hospitals consolidate to amass market power rather than to compensate for internal shortcomings. These external pressures included actual or anticipated growth of managed care, reductions in hospital Medicare and Medicaid

(text continues on p. 274)

TABLE 1 Organizational Change: Horizontal Consolidation and Integration—Hospitals

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Alexander, Halpern, and Lee (1996)	O	Empirical analysis—multivariate	92 hospitals that merged 1980-1990, matched with a random sample of 276 nonmerging hospitals	O: Short-term merger effects on operational efficiency included lower declines in occupancy rates and smaller increases in expenses per admission. As such, authors concluded that merger slowed or arrested trends toward hospital inefficiency. Mergers involving hospitals of similar size experienced greater improvements in operational efficiencies.
Alexander and Morrisey (1988a)	RB	Empirical analysis—multivariate	306 short-term general hospitals unaffiliated with systems in 1979 that became affiliated by 1983, matched with a random sample of 918 hospitals that remained unaffiliated	RB: Authors posit that market, management, and mission factors affect hospital and system benefits derived through system affiliation. Findings suggest that hospitals more likely acquired include nonteaching hospitals of low bed size, low occupancy rate, and low profit margin. For-profit systems more influenced by market conditions when selecting hospitals for acquisition than are nonprofit systems.
Barro and Cutler (1997)	RB	Case study, observational	5 hospital mergers that occurred in Massachusetts between 1985 and 1996	RB: Authors posit that hospitals benefit through merger through (1) the closure or conversion of unused inpatient capacity, (2) the creation of economies of scale, and (3) the development of networks to create full service organizations and to gain leverage in bargaining with payers.

Bazzoli, Chan, et al. (2000)	O	Empirical analysis—multivariate	2,159 hospitals that belonged to health networks or systems in 1995	O: Hospital costs and profitability differ substantially based on the type of network/system in which hospital is involved. Overall, system hospitals performed better financially than network hospitals. Among network hospitals, those in more centralized networks performed better, but among system hospitals, moderately centralized systems yielded lower costs and higher profits than tightly controlled systems.
Bazzoli et al. (2002)	RB, P	Empirical analysis—cross tabulation of primary data	80 hospitals that merged between 1989 and 1996 contrasted with 60 hospitals that merged between 1983 and 1988	RB: Study replicates Bogue et al. (1995) for a more recent time period. Finds that the merger benefits anticipated by hospitals are identical for the two time periods: strengthen financial position, consolidate services, and achieve operating efficiencies. P: In 1989-1996, hospitals placed less emphasis on service conversion or facility closure postmerger than they did 1983-1988. Selective consolidation of services occurred in 1989-1996, but these more recent hospital mergers emphasized downsizing staff, especially nurses. Most merging hospitals reduced administrative staff in senior management, public relations, general accounting, purchasing, and credit and collection

(continued)

TABLE 1 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Bazzoli, Manheim, Waters (2003)	RB	Empirical analysis—multivariate	1,016 urban community hospitals between 1994 and 1998	RB: Authors posit that hospitals with stronger management and better financial performance benefit more from health network than from system participation because networks allow them to retain their profits. However, empirical analysis suggests that hospitals with strong performance were more likely to join systems, possibly as a defensive strategy to managed care.
Bogue et al. (1995)	RB, P	Empirical analysis—cross tabulation of primary data	60 hospitals that merged between 1983 and 1988	RB: Hospitals typically identified the top three anticipated benefits from merger as follows: (1) strengthen financial performance, (2) consolidate services, and (3) achieve operating efficiencies. P: Hospitals implemented a variety of changes to achieve merger benefits. Hospitals highly competitive premerger or in close proximity to one another tended to consolidate services, convert service lines, and eliminate hospital capacity through merger. Those not facing these conditions tended to create regional networks for managed care contracting.

Brooks and Jones (1997)	RB	Empirical analysis—multivariate	Merging hospitals in the 12-county region of San Francisco combined with a random sample of nonmerging hospitals in 1983-1992	RB: Authors find that hospitals merge to take advantage of unique local merger opportunities rather than to achieve more general objectives of increased market power and efficiency. Greater geographic overlap in the merging hospitals' service areas and greater differences in relative financial performance may lead to greater benefits through merger.
Carey (2003)	O	Empirical analysis—multivariate	1,209 general hospitals that belonged to health systems in 1998	O: Hospitals in systems that centralized physician and insurance arrangements but were relatively decentralized in hospital service offerings were more cost-efficient than hospitals in other types of systems or that were unaffiliated.
Chan, Feldman, and Manning (1999)	O	Empirical analysis—multivariate	355 rural hospitals participating in 85 consortia during 1988-1992	O: Hospital benefits from participating in multihospital arrangements are related to the size of the consortium. Member revenues and profitability initially grow with consortium size but then decline at some point.
Clement et al. (1997)	O	Empirical analysis—multivariate	About 2,500 urban hospitals in 1995 that either were or were not members of strategic hospital alliances (SHAs)	O: Hospitals that belong to SHAs have higher net revenues per adjusted discharge than non-SHA hospitals, but cash flow and operating expenses per adjusted admission do not vary. Hospital participation in these arrangements appears to have revenue effects but not cost effects.
Cleverley (1992)	O	Empirical analysis—tabulation	5,772 hospitals with complete Medicare cost report data for 1986-1989	O: Compared with independent hospitals, system hospitals, especially those with for-profit systems, had higher return on equity, higher costs per case mix adjusted discharge, higher profits, and greater investment.

(continued)

TABLE 1 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Cohen, Dowling, and Gallagher (2000)	P	Case study, observational; empirical analysis, cross-tabulation	1997 merger of North Shore Health System and the Long Island Jewish Medical Center	P: Merged hospitals achieved between 20% and 72% integration based on authors' measures, most often in relation to educational activities rather than financial integration. Clinical departments that had the most integration had single chairpersons. Other facilitating factors included constant communication between leadership and staff, flexibility in building leadership models, patience in allowing events to progress rather than rushing action, and having a centralized executive team with authority to make decisions that was trusted and accepted by physicians.
Connor, Feldman, and Dowd (1998)	O	Empirical analysis—multivariate	122 hospital mergers (involving 244 hospitals) and 3,500 nonmerging short-term general hospitals between 1986 and 1994	O: Hospital mergers resulted in average cost savings of 5% that generally lowered consumer prices. These savings were greater for hospitals that were similarly sized, with higher premerger duplication of services, and with lower premerger occupancy rates. Merger cost and price savings were lower in less competitive and low-HMO penetration markets. Generally, merger cost and price savings were similar in magnitude mitigating financial performance improvement.

Connor et al. (1997)	O	Empirical analysis—tabulation of secondary data	122 hospital mergers (involving 244 hospitals) and 3,300 nonmerging short-term general hospitals between 1988 and 1994	O: This study replicates Connor, Feldman, and Dowd (1998) but uses cross-tabulations of the data. Findings are consistent with Connor, Feldman, and Dowd (1998).
Devers et al. (1994)	P	Empirical analysis, cross tabulation of primary data	Nine health systems that participated in the Health Systems Integration Study in the early 1990s	P: Study developed process integration measures. Functional integration focused on culture, financial management, support services, human resources, information systems, managed care contracting, administrative practices, new product and service development, quality assurance/improvement, and strategic planning. Clinical integration measures that were horizontal (rather than vertical) related to medical records availability, sharing of clinical support services, and sharing of clinical services. The nine systems studied were most effective in integrating functional aspects, including financial management and strategic planning. Other functions, notably information systems, had low integration scores. Clinical integration scores were even lower, especially when compared to functional integration achieved.
Dranove (1998)	O	Empirical analysis—multivariate	300 California hospitals in 1992	O: Substantial administrative scale economies exist in small hospitals, but these are depleted once hospitals have more than 10,000 discharges annually. Based on this, author concludes that administrative cost savings through merger are exhausted quickly.

(continued)

TABLE 1 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Dranove, Dukac, and Shanley (1996)	O	Empirical analysis—multivariate	CA system hospitals compared to random clusters of non-system hospitals in 1991-1992	O: Findings are consistent with Dranove and Shanley (1995). Generally, system hospitals do not exhibit production efficiencies nor do they limit duplication of expensive technology. They do have higher price/cost margins when compared to random collections of nonsystem hospitals.
Dranove and Lindrooth (2003)	O	Empirical analysis—multivariate	81 mergers and 41 system acquisitions from 1989 to 1996, matched with sample of nonconsolidating hospitals	O: Mergers in which hospitals legally merge generate cost savings in the 2nd, 3rd, and 4th year after merger. System acquisitions, on the other hand, in which the system already has one or more hospitals in the market, do not lead to cost savings.
Dranove and Shanley (1995)	O	Empirical analysis—multivariate	CA system hospitals compared to random clusters of nonsystem hospitals in 1988	O: System hospitals had similar levels of service offerings and administrative costs as random collections of nonsystem hospitals with similar characteristics. Systems were no better able to exploit economies of scale on these dimensions than independent hospitals. System hospitals did have higher revenues. Thus, the authors concluded that benefits to merging derive from the retail rather than the production side of the business.

Eberhardt (2001)	RB, P, O	Case study—observational	Two hospitals in New Hampshire that officially merged in 1992. Events through 2000 were followed, including dissolution of the merger in that year.	RB: Merging hospitals believed that actual and expected managed care growth and the expanded market share of another hospital system increased the benefits that would result from their merger. P: The process of merger entailed (1) merging administrative services and executive management; (2) consolidating support services; (3) consolidation of clinical support services; and (4) consolidating certain clinical services, especially low-volume ones. The hospital examined further clinical integration options, including closing acute care services at one site. This resulted in public protest and regulatory scrutiny that ultimately led to the merger's demise. O: The merger saved $21 million through administrative consolidation and $15 million through support service consolidation, especially through increased clout with suppliers.
Health Care Financing and Organization (HCFO) Briefings (1997)	O	Empirical analysis—cross tabulations of secondary data	23 hospital mergers in CA between 1985 and 1990 matched with control hospitals that did not merge and were in markets where no merger occurred	O: Reporting on research of Lisa Simonson and Jack Zwanziger, HCFO Briefings indicated that mergers reduced the rate of increase in aggregate inpatient expenses, but per unit volume costs and revenues were higher both after merger and relative to nonmerging hospitals. Inpatient costs appear to decline immediately after merger, but these initial gains erode quickly. Outpatient cost reductions resulting from merger were more persistent over time.

(continued)

TABLE 1 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
				P&O: Hospitals that merge do not close beds fast enough to respond to declining inpatient demand. As a result, initial merger cost reductions due to consolidation of administrative functions are subsequently lost.
Ho and Hamilton (2000)	O	Empirical analysis—multivariate	About 4,000 hospitals in 1992-1996 with a total of 400,000 patients that either had a heart attack, a stroke, or birth. In this group, 21 independent hospitals merged, 54 were system acquired, and 65 in one system were acquired by another system.	O: Hospital mergers and acquisitions did not have a measurable impact on inpatient mortality. The authors find that readmissions and early discharges of newborns increased for merged hospitals in some instances. The authors note that the large standard errors for their outcome measures may make it difficult to identify meaningful relationships.
Kastor (2001)	RB, P	Case study—analytical	3 mergers of academic medical centers in the 1990s: Partners Health Care System in Boston, New York-Presbyterian in New York City, University of California San Francisco-Stanford in the Bay Area of California	RB: Author posited that growing HMO power, restrictive state and federal reimbursement policies, and expensive technological advances increased the benefits of merger over independent operation. Merged institutions are better able to dull payer power and reduce costs through better bargaining position with vendors, consolidation of back-office functions and clinical departments.

				P: The academic medical center merger deemed "most successful" by the author experienced the consolidation of a few clinical departments and also implemented some joint ventures for research and educational programs. The hospitals merged several residency, fellowship, and continuing education programs and placed a centralized office between the two facilities to house combined administrative functions. Merging hospitals established a "super" governing board with ultimate power to decide policy for the corporation, and this was also viewed as important. Author suggests that the unrelenting pressure of environmental forces was essential to achieving integration objectives. Hospitals also succeeded because they were in close geographic proximity and lacked conflict among key stakeholder groups.
Krishnan (2001)	O	Empirical analysis—multivariate	Diagnostically related group (DRG)-level data for 110 Ohio hospitals in 28 markets, 20 of which merged in 1994-1995; similar data for 108 California hospitals in 10 markets, 15 of which merged	O: Hospitals that merged were able to increase prices at the DRG level for privately insured patients. Furthermore, these price increases were greater for those DRGs in which the merged hospital gained the most market share.

(continued)

TABLE 1 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Lesser and Brewster (2001)	RB, P, O	Case study, analytic	17 full asset mergers that were announced or recently executed during the first round of Center for Studying Health System Change site visits in 1996-1997	RB: Hospital executives believed that merger benefits were positively related to real and anticipated growth in managed care, growing reliance of Medicaid and Medicare on managed care, expectations of lower hospital revenues due to future reductions in Medicare payments, growth in for-profit hospital chains, and growth in for-profit managed care. Executives felt hospitals needed to shed costs and to work together to fend off revenue pressures. P: Process changes implemented through merger focused largely on consolidating administrative functions including managed care contracting and negotiating, finance, human resources, and purchasing. Relatively little consolidation of clinical services occurred and was typically driven by market opportunities rather than desire to reduce costs.

				O: While mergers yielded benefits to hospitals studied, hospitals did not achieve the efficiency gains hoped for nor did the merger result in excessive market power as feared by community representatives and payers. Efficiency gains were limited because hospitals feared that service changes would anger physicians, managed care did not evolve as aggressively as expected, and the merger provided sufficient leverage with payers to stem the erosion of reimbursement.
	Lynk (1995a)	RB	Empirical analysis—multivariate	4 hospitals that provided detailed census data for seven service lines in 1991-1992; American Hospital Association data on hospital beds and daily census	RB: Author explores possibility that hospital mergers provide benefits by reducing peak load staffing due to reductions in the variability of average daily census. He finds that variability in demand is indeed lower in larger hospital departments compared to smaller ones. This could create benefits for merging hospitals if they are able to consolidate clinical departments so as to increase clinical department size and thereby reduce demand variability.
	McCue, Clement, Luke (1999)	O	Empirical analysis—multivariate	372 urban hospitals that were members of Strategic Hospital Alliances (SHAs) in 1995	O: SHAs with single owner or a dominant owner, and those with for-profit dominance do not have better financial performance, as measured by cash flow, operating expenses, and net revenues per adjusted discharge, than other SHAs.
	Menke (1997)	O	Empirical analysis—multivariate	2,200 hospitals in 1990 of which 919 were affiliated with systems and 1,281 were not	O: Hospitals in multihospital systems were less costly than independently owned hospitals.

(continued)

TABLE 1 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Nauenberg et al. (1999)	O	Empirical analysis—multivariate	64 network-affiliated hospitals in New York State using longitudinal data for 1991-1995 and survey data on structural features of networks in 1996	O: More integrated and less complex (in terms of structure) hospital networks yielded greater benefits for hospitals in terms of higher numbers of discharges per hospital bed and higher operating margins. Hospitals joining networks with risk-sharing arrangements initially experienced increases in operating margin, but these effects dissipated over time.
Shih-Jen, Chan, and Kidwell (1999)	P	Empirical analysis—cross tabulation of primary data	Sample of 583 U.S. and 528 Canadian hospitals in 1995, 19.4% of which responded	P: Hospital executives perceived the following factors to be important to the success of hospital process reengineering: commitment of top management, bottom-up acceptance, benchmarking, and information technology.
Shortell, Gillies, and Anderson (1994)	P	Empirical analysis—cross tabulation of primary data	Nine health systems that participated in the Health Systems Integration Study in the early 1990s	P: Authors find that greater clinical integration (with both horizontal and vertical dimensions) is achieved when (1) system members identify with the mission and values of the organization, (2) strategic planning processes are in place that promote relevant input from across the system, (3) information systems provide clinical data across the system, and (4) budgeting policies and practices promote coordination across service lines. In addition, they state that greater sharing of information on quality assurance/improvement processes leads to more clinical integration.

Spang, Bazzoli, and Arnould (2001)	O	Empirical analysis—tabulation of secondary data	1,767 short-term community hospitals, including 204 that merged; 653 rivals to merging hospitals; and 910 nonmerging, nonrival hospitals 1989-1997	O: Study replicates Connor et al. (1997) for a more recent time period. Hospitals that merged generally had lower cost and price growth than their nonmerging rivals and also nonmerging, nonrival hospitals. Cost and price savings varied based on market and hospital conditions with savings greater in more competitive hospital markets and when merging hospitals had lower premerger occupancy rate. Generally, the findings suggest that merger cost and price savings, when present, are small.
Succi (1996)	O	Empirical analysis—multivariate	All community hospitals operating between 1984 and 1991	O: Hospitals benefited moderately when affiliated with a system. The improvement was greater when hospitals operated in an uncertain or competitive market. Performance improvements were higher when the hospital joined a system with compatible ownership.
U.S. Department of Health and Human Services (1992)	O	Empirical analysis—cross tabulation of secondary data	11 hospitals that merged in 1987 relative to a control group of nonmerging hospitals	O: Merged hospitals reduced costs and did not increase revenues or patient volume in comparison with control hospitals. However, researchers noted small number of observations studied.

(continued)

TABLE 1 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Walston, Burns, and Kimberley (2000)	O	Empirical analysis—multivariate	678 general hospitals with 100 or more beds in 1996	P&O: Hospital reengineering programs that were implemented without supporting integrative and coordinating activities led to higher costs. Specific integrative and coordinating activities studied included steering committees, project teams, codification of the change process, and executive involvement. The authors concluded that the process of change may be as important as the instrument of change in achieving intended outcomes.
Wicks, Meyer, and Carlyn (1998)	RB, P, O	Empirical analysis—cross tabulation of secondary data; case study, analytic	Merging hospitals in the markets of St. Louis and Philadelphia. Mergers in the former market occurred in the early 1990s, whereas the latter experienced consolidation in 1995.	RB: Stated motives for merger were comparable across hospitals studied: consolidating key administrative functions and eliminating duplication of services. Actions taken by study hospitals differed. Some hospitals sought increased market share due to their lower costs, while others sought to establish a more efficient network to obtain capitated or risk-based contracts.

				P: Posit a five-stage model for the process of hospital merger: (1) form a loose alliance, (2) consolidate administrative functions, (3) integrate cultures, (4) consolidate selected clinical services, and (5) close or convert facilities. From the authors' perspective, the third stage is intended to integrate the cultures of the medical staffs in preparation for decisions about clinical consolidation. Found that study hospitals progressed rapidly through the first two stages but got stuck in the third stage, especially when medical staff cultures were different and when external forces that motivated the need for change dissipated. After 3+ years, the merging hospitals were still in the midst of Stage 3. Among organizations studied, little actual consolidation of services occurred, and bed closure was slower than reductions in inpatient demand. O: For the mergers studied, total full-time equivalents, inflation-adjusted operating expenses, and inflation-adjusted costs per discharge declined for merged hospitals relative to national averages.
Young, Desai, and Hellinger (2000)	O	Empirical analysis—multivariate	All private nonprofit California hospitals with 30+ beds in 1990 to 1995. Local systems defined based on average distance of hospitals to system headquarters.	O: Prices (and thus profitability) of nonprofit hospitals acquired by systems increased the market share and thus market power of the system. Price increases were especially large for regional and national systems relative to locally based systems.

a. RB denotes studies that examine the relative benefits of State A and State B, P denotes studies of the process of change, O denotes studies of the outcomes resulting from change from State A to State B, and P&O denotes findings that attempt to link process aspects of change with the outcomes of change.

payments, or technological advances that required expensive technology and highly trained staff (Eberhardt 2001; Kastor 2001; Lesser and Brewster 2001). In addition, Bazzoli et al. (2003) conducted an empirical analysis comparable to Alexander and Morrisey (1988a) and found that large and more technically advanced hospitals rather than small, weak hospitals were more likely to join systems in the 1990s. The environmental pressures noted in the case studies above likely influenced consolidation strategies of the 1990s in that large hospitals were aligning with each other rather than with small, weak hospitals to grow market share and better fend off managed care and other pressures.

Overall, these studies of the relative benefits of merger and multihospital affiliation agree that hospital consolidation/integration was pursued to achieve improved or more stable financial condition. However, the studies also illustrate that the specific potential benefits may vary by hospital context, both internal and external, and also may change over time. As such, continuing study of hospital benefits and rationale for consolidation and integration is needed. In addition, research is needed to assess the perspectives of nonhospital stakeholders regarding how they perceive potential benefits or harm from these hospital actions.

PROCESS OF CHANGE: HORIZONTAL HOSPITAL CONSOLIDATION AND INTEGRATION

Table 1 reports on 10 studies that examined the process of organizational change as hospitals transitioned from an independent hospital (State A) to a consolidated/integrated form (State B). Seven of these studies assessed the actions undertaken by hospitals to enact this intended change. Overall, these seven studies suggest that involved hospitals were able to consolidate and integrate administrative functions, but clinical consolidation and integration have been harder to achieve. Empirical studies by Bazzoli et al. (2002) and Devers et al. (1994) and case studies by Kastor (2001) and Lesser and Brewster (2001) found consolidation of financial management, human resources, managed care contracting, administrative practices, strategic planning, and quality assurance and improvement functions among horizontally consolidating hospitals. Case studies by Cohen, Dowling, and Gallagher (2000) and Kastor (2001) also found considerable integration of educational activities in merging hospitals. Although some have suggested that this type of functional integration would be a precursor to clinical integration (Shortell, Gillies, and Anderson 1994), the studies noted above found little support for this view. Lesser and Brewster (2001) suggested that clinical service consolidation took place more often in response to market opportunities that would allow increased revenues rather than the desire to achieve operating efficiencies.

This is consistent with Bogue et al. (1995), who found perhaps the most service consolidation of all studies in Table 1, with 57% of merging urban hospitals in 1983-1988 consolidating inpatient services in one of the merging hospitals. This latter study examined hospital consolidation just after the implementation of the Medicare Prospective Payment System, which provided motivation for hospitals to develop or expand hospital services that continued to be paid on a more generous, retrospective cost basis.

Although the studies above focus on the array of actions taken to implement change, two qualitative studies in Table 1 add interesting insights about the sequence and timing of actions in implementing organizational change. Indeed, these studies help explain why hospitals had limited success implementing premerger plans to consolidate and integrate clinical services. Consistent with studies noted above, Eberhardt (2001) and Wicks, Meyer, and Carlyn (1998) found that administrative functions were consolidated by merging hospitals and that these actions occurred quickly. With this consolidation complete, the hospitals studied by Eberhardt (2001) focused on consolidating patient support functions and low-volume clinical services. This, too, succeeded without much difficulty, but the hospitals stumbled with the next step, namely, wide-scale clinical service consolidation and the closure of one of the merging hospitals. Diverse local stakeholders had conflicting agendas and became vocal at this point. In essence, the lack of conflict and the presence of hierarchies in administrative and patient support departments made initial consolidation straightforward, but such facilitating factors were not present for clinical consolidation. Wicks, Meyer, and Carlyn (1998) suggested that integrating cultures across medical staffs was an essential prelude to clinical integration. They found, though, that such integration took much time to accomplish. Even 3 years after hospital mergers were legally consummated, the involved hospitals were still attempting to integrate medical cultures and thus had made little progress in actual clinical consolidation.

Given the complexity of integrating clinical services, an important question is whether any contextual factors facilitate this action. Four qualitative case studies in Table 1 provide these insights. Together, they suggest that organizations need to pay attention to their internal structures and relationships when implementing major change and that, externally, hospitals need to face consistent pressure if they are implementing tough decisions. Creating a centralized decision-making authority that spans the integrating organizations and clinical departments to be merged was found to be important by Cohen, Dowling, and Gallagher (2000); Kastor (2001); and Shortell, Gillies, and Anderson (1994). Shortell and colleagues noted that this centralized authority must develop shared values and vision with which the integrating organizations must identify. Shih-Jen, Chan, and Kidwell (1999) identified the importance of

buy-in at the top of the organization as well as bottom-up acceptance to establish shared values and vision and to minimize internal conflict. Cohen, Dowling, and Gallagher (2000) noted the importance of certain organizational attributes, including constant communication within and across multiple levels of consolidating hospitals. In relation to external contextual factors, Kastor (2001) noted the importance of the geographic proximity of merging hospitals and overlap in their medical staffs. He also noted the role that unrelenting environmental pressures have to play in motivating hospitals to integrate clinically.

Overall, these studies of the process of change suggest that there are initial changes that come quickly—namely, administrative consolidation—but others take substantial time and are fraught with difficulties given the conflicting interests of involved stakeholders. The Eberhardt (2001) study is particularly illuminating about the interplay of organizational objectives, organizational actions, and external environmental pressures. More research like this is needed to assess how hospital actions affect the organizational and environmental context in which they operate and how hospitals in turn respond to these context changes. Indeed, such research might identify critical junctures in the process of hospital consolidation/integration that could form the basis for primary data collection on a larger group of organizations and thus the basis for more rigorous empirical analysis.

OUTCOMES OF CHANGE: HORIZONTAL HOSPITAL CONSOLIDATION AND INTEGRATION

Several studies have examined the effects of hospital horizontal consolidation/integration on various outcome measures, most notably hospital costs, prices, and profitability. Indeed, we identified 19 studies that contrasted outcomes for independent (i.e., State A) versus consolidated hospitals (State B) and 6 that examined outcomes across different forms of integrated activity (i.e., different forms of State B). Generally, these studies assessed outcome effects within 1 to 3 years after hospital consolidation. Given the process of change studies reviewed above, these studies at best are measuring the short-term effects of hospital consolidation rather than long-term effects.

Studies of the effects of horizontal consolidation on hospital costs yield a mix of findings. Most of the studies in this area focus on cross-tabulation or multivariate analysis of cost data, but observed differences in findings are not the result of different methods. If one were to look strictly at those studies that examined cost changes after hospitals legally merged under one license and owner, one would observe more consistency in results. Namely, studies examining mergers per se (rather than multihospital affiliations) have found

positive cost savings (Alexander, Halpern, and Lee 1996; Connor et al. 1997; Connor, Feldman, and Dowd 1998; Dranove 1998; Eberhardt 2001; Lesser and Brewster 2001; Health Care Financing and Organization (HCFO) Briefings 1997; Spang, Bazzoli, and Arnould 2001; U.S. Department of Health and Human Services 1992; Wicks, Meyer, and Carlyn 1998). Studies that have found no costs savings or cost increases all looked at multihospital arrangements (Clement et al. 1997; Cleverley 1992; Dranove, Durkac, and Shanley 1996; Dranove and Shanley 1995). Recent research by Dranove and Lindrooth (2003) specifically contrasted cost changes after merger with cost changes after system affiliation, and their results confirm that mergers lead to cost savings, while system affiliations do not.

Even though studies of hospital mergers have found cost savings, the results of these studies indicate that these savings are quite limited. They tend to be small in magnitude (Connor et al. 1997; Connor, Feldman, and Dowd 1998; Lesser and Brewster 2001; Spang, Bazzoli, and Arnould 2001), may simply represent movements away from prior inefficiency (Alexander, Halpern, and Lee 1996), are limited to smaller hospitals and quickly exhausted (Dranove 1998), largely result from administrative savings (Eberhardt 2001), and may simply be one-shot savings rather than reductions in rates of cost growth (HCFO Briefings 1997). However, given that most studies only looked 1 to 3 years after merger, it may be that it was too early in the process of merger to observe appreciable savings.

Although it may be tempting to conclude from the above discussion that full asset mergers are essential for achieving at least some cost savings from horizontal hospital consolidation, two important provisos exist. First, one difficulty with the studies of multihospital organizations noted above is that they do not account for variation in the structure of these organizations. It may be that specific forms of multihospital organizations are more conducive to cost savings, while others are not. In fact, Bazzoli, Chan, et al. (2000) and Carey (2003) found that cost savings and efficiencies did vary across health systems based on the degree of centralization they achieved in services and arrangements. Nauenberg et al. (1999) and McCue, Clement, and Luke (1999) did not find differences in costs across different types of multihospital organizations but classified them on the basis of organizational complexity and ownership mix rather than centralization of activity. Second, it may be that hospital actions undertaken during the consolidation/integration process are important to achieving cost savings. Walston, Burns, and Kimberley (2000) looked at whether reengineering efforts, which typically accompany hospital consolidation, resulted in lower hospital costs and assessed the effects of implementing coordinating activities to support the reengineering process. They found that these activities, which included steering committees, project teams,

codification of the change process, and executive involvement, were critical if reengineering efforts were to generate hospital cost savings. The authors concluded that the process of change may be as important as the instrument of change.

In addition to examining costs, several studies have examined the effects of hospital horizontal consolidation/integration on hospital revenues or profitability. This is important for assessing whether hospitals alone benefit from the cost savings they generate or if some value is passed on to consumers and health plans in terms of lower prices. These studies have been remarkably consistent, finding higher revenue or profit levels, or growth in these measures, for consolidating hospitals versus independent hospitals (Clement et al. 1997; Cleverley 1992; Dranove, Durkac, and Shanley 1996; Dranove and Shanley 1995; Krishnan 2001; Succi 1996). These findings hold true if hospitals undertake legal merger or if they join multihospital arrangements.[7] It should be noted that Connor et al. (1997); Connor, Feldman, and Dowd (1998); and Spang, Bazzoli, and Arnould (2001) did find lower price growth among merging hospitals compared with nonmerging hospitals, but this occurred only in selected markets, especially those with high levels of hospital competition. Other studies noted in Table 1 examined how price and profit effects vary across different forms of State B integrated organizations, but it is impossible to reach overarching conclusions from them because each uses a different method for classifying these organizations (Bazzoli, Chan, et al. 2000; Chan, Feldman, and Manning 1999; Clement et al. 1997; Nauenberg et al. 1999; Young, Desai, and Hellinger 2000). Future research that focuses on one or a few schemes for categorizing multihospital arrangements would be valuable.

A final set of studies noted in Table 1 focused on other outcome effects associated with hospital consolidation and integration. One especially interesting study is that of Ho and Hamilton (2000), who examined whether quality of care changed when hospitals merged or participated in multihospital arrangements. They found no quality improvements resulting from hospital consolidation and limited evidence of quality deterioration on a few indicators. This study is the only one to our knowledge that looks beyond financial effects of hospital consolidation and integration. Continued research on quality effects is vital for assessing whether consumers benefit or are harmed as hospitals consolidate, especially because research has shown that consumers are unlikely to benefit through lower prices.

Overall, as evident from Table 1, much research has focused on the effects of merger or multihospital affiliation on costs, prices, and hospital financial performance. The results of these studies have been fairly consistent, once one looks more closely at the type of consolidation that occurred. Namely, costs are saved through full legal mergers, albeit by a limited amount, and hospitals

use the increased market power from consolidation to raise prices and earn more profit. In lieu of additional research to confirm these findings, future research should look at other outcome measures, especially those affecting consumers and other stakeholders in the market. In addition, research that links aspects of the process of change to the outcomes of change could yield important new insights.

HORIZONTAL PHYSICIAN CONSOLIDATION AND INTEGRATION

Table 2 reports 30 studies on the horizontal consolidation and integration of physicians. These studies examined the transition from independent, fragmented physician practices (State A) to larger consolidated/integrated physician organizations, including medical groups, IPAs, and PPMCs (State B).

RELATIVE BENEFITS OF HORIZONTAL PHYSICIAN CONSOLIDATION AND INTEGRATION

Table 2 includes six studies that examined the benefits of physicians integrating their independent practices into more consolidated forms. Coddington, Moore, and Clarke (1998); Conrad et al. (1999); and Robinson (1998) assessed the benefits of PPMCs relative to independent practice. Hillman, Welch, and Pauly (1992) and Pope and Burge (1996) focused on the benefits of various forms of group practices relative to independent practice. Two common benefits associated with either PPMCs or medical groups were (1) clinical and administrative efficiencies achieved through increased scale and (2) greater clout with insurers in negotiating contracts. These two benefits are similar, of course, to those identified within the horizontal hospital consolidation literature. However, the studies also identified unique benefits to physician consolidation, including the ability to pool risk from capitated contracts across physicians (Hillman, Welch, and Pauly 1992), better data systems and management expertise for risk contracts (Coddington, Moore, and Clarke 1998; Robinson 1998), and the availability of much needed capital to grow the practice or cover occasional revenue shortfalls (Coddington, Moore, and Clarke 1998; Conrad et al. 1999; Robinson 1998). Robinson and Casalino (1996) further added that physician horizontal integration would yield greater benefits to physicians than vertical integration with hospitals because physicians could achieve the benefits noted above without dealing with organizations that were burdened by expensive excess capacity.

(text continues on p. 293)

TABLE 2 Organizational Change: Horizontal Consolidation and Integration—Physicians

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Burns (1997)	RB	Review of existing research literature; empirical analysis—cross tabulations	Physician practice management companies (PPMCs) operational in 1997	RB: Market and environmental characteristics identified as potentially increasing the benefits of PPMC affiliation relative to independent practice included (1) increasing overhead costs for medical practice coupled with the increased complexity of technology, (2) the relative shortage of some specialists, (3) increased managed care market share, and (4) growing market power of payers. Suggests that potential benefits from PPMCs are being realized given increases in stock price and earnings per share of PPMCs and also their growth in revenues and physician members.
Burns, DeGraaff, and Singh (1999)	RB	Empirical analysis—multivariate	Physician medical groups reporting data to the American Medical Association in the 1991 and 1995 census of medical groups	RB: Market conditions that affect the benefits of PPMC affiliation include substantial HMO presence, substantial physician supply, and a high percentage of patients in a practice with poor payers. Different types of physician groups perceive different potential benefits from consolidation with for-profit or nonprofit acquirers. For-profit acquisition may be more advantageous for the group and the acquirer if the physician organization can manage managed care contracts and capitation.

Christianson (2001)	RB	Case study—analytic	Physician organizations being studied through the Community Tracking Study	RB: Growth of managed care reduced the perceived benefits of independent practice for specialists perceived to be in oversupply. However, consumer demand for large networks and easy access to specialists has countered this effect. Provider consolidation into Independent Practice Associations (IPAs) and groups dull the bargaining power of managed care organizations. Increased hospital market power through consolidation may lead some specialists to consolidate and seek new revenue streams. However, hospital consolidation and pursuit of centers of excellence have also increased hospital rivalry to align with certain specialists.
Coddington, Moore, and Clarke (1998)	RB, P	Review of existing literature; case study—observational	Several PPMCs	RB: Physicians benefit from PPMC affiliation by obtaining capital for (1) growing their practices; (2) adding primary care physicians and sites; (3) availability of funds to invest in new services, facilities, equipment, and information systems; (4) obtaining and managing medical risk; (5) buying out retiring physicians; and (6) covering cash flow shortages and insulating practice against risk. P: Finding a good capital partner requires (1) establishing trust; (2) assessing ability to provide higher quality health care product; (3) assessing fit between medical group and capital partner, and assessing strengths and competencies of capital partner; (4) developing a group business strategy; (5) developing business plans and financial models; and (6) assessing effect on competitive position.

(continued)

TABLE 2 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Conrad et al. (1998)	O	Empirical analysis—multivariate	60 medical groups in Washington State with 865 primary care physicians and 200,931 adult enrollees in 1994	P&O: Compensation methods used by capitated medical groups did not significantly affect the use and cost of health services per enrollee after controlling for patient, health plan, and other physician characteristics. Findings suggest that individual physician payment arrangements do not have an independent effect on health services use and costs in capitated medical groups.
Conrad et al. (1999)	RB, O	Review of existing literature; empirical analysis—cross tabulations	For empirical analysis, review of Securities and Exchange Commission (SEC) 10-K statements for nine leading PPMCs in 1996-1997	RB: PPMCs offer the potential benefits of (1) negotiating significant price discounts with suppliers; (2) creating clinical efficiencies through more coordinated care; (3) creating economies of scope and scale by spreading the fixed costs of information systems, managed care infrastructure, and other complementary assets; and (4) economies of scale in administrative costs. The revenue-increasing potential of PPMCs relates to their negotiation of favorable terms with health plans and acquisition of risk-based contracts. O: PPMCs have been best able to deliver benefits to physicians through aggressive negotiations with suppliers. However, existing research suggests that only 6% of practice costs are for supplies and professional liability insurance, suggesting that only modest economies of scale and scope have been found in specialty groups.

Dupell (1997)	P	Case study—observational	Three multispecialty clinics that were acquired by a PPMC	P: Following actions were important to realizing the benefit of PPMC affiliation: (1) improving operating profitability, largely through expense control; (2) attracting private equity, especially long-term financing versus short-term financing; (3) renegotiating debt terms with lenders based on PPMC performance; and (4) changing real estate ownership to operating leases.
Gorey and Bannon (1998)	O	Case study—observational	Physician practices that merged	O: Physician practice mergers led to improved group leverage in negotiating, administering, and managing risk contracts. Increased leverage resulted from greater size, geographic coverage, and improved infrastructure. However, mergers increased practice overhead costs (both administrative structure and staffing), required the development of a new culture and leadership cadre, and took years to accomplish.
Greenfield et al. (1992)	O	Empirical analysis—multivariate	349 practicing physicians that were in solo fee-for-service, multispecialty fee-for-service, or prepaid multispecialty groups	O: Compared to solo fee-for-service physicians, multispecialty fee-for-service groups had 20% lower hospitalization rates, while prepaid multispecialty groups had rates 39% lower. In contrast, prepaid multispecialty groups had significantly higher rates of office visits than their fee-for-service counterparts.

(continued)

TABLE 2 (continued)

Author(s) (year)	Areas Studied[a]	Study Design/Method	Organizations Studied	Key Study Findings[a]
Grumbach et al. (1998)	P	Empirical analysis—tabulation	53 physician-led IPAs in California that were actively engaged in managed care contracting in 1996	P: The operational and process changes implemented as physicians shifted from independent practice to an IPA included (1) development of management practices that resemble HMO approaches, (2) selection processes for new physician members to ensure quality and cost-efficiency, and (3) development of centralized governance and decision-making authority. The authors noted that these changes may lead some to believe that IPAs are autocratic, making decisions with little input from rank and file, but they are necessary to deal effectively with a tough market.
Havlicek, Eiler, and Neblett (1992)	O	Empirical analysis—cross tabulation	All physicians in group practices in 1990	O: Overhead costs as a percentage of group revenue declined until group practice size of 10 to 15 physicians was reached. Then the percentage increased until a group size of about 100 was reached.
Hillman, Welch, and Pauly (1992)	RB	Empirical analysis—cross tabulations	260 HMOs that responded to a 1988 survey on arrangements with physician organizations	RB: Authors discuss the development of intermediary organizations that hold capitated contracts for physicians. These intermediaries pool risks for capitated physicians, which has benefits in transferring risks. However, if intermediary pays physicians fee-for-service rather than sharing risk, physicians are sheltered from the incentives that HMOs seek to instill among physicians.

Kerr et al. (1995)	P	Empirical analysis—cross tabulations	94 physician organizations in California were surveyed in the early 1990s	P: All physician organizations studied reported using gatekeeping and preauthorization for certain referrals and tests. Most also used profiling of utilization patterns, guidelines, and managed care education. Physician organizations were also implementing utilization management techniques, some at early stages of development.
Kerr et al. (1996)	P	Empirical analysis—cross tabulations	94 physician organizations in California were surveyed in the early 1990s	P: Capitated physician organizations developed quality assurance activities that monitored areas of potential overuse (e.g., cesarean delivery) more so than areas of potential underuse. Underuse of preventive services was also monitored closely, more so than follow-up for chronic disease.
Kralewski et al. (1996)	P	Empirical analysis—multivariate	45 medical groups in Minneapolis/St. Paul in 1992	P: Examined the development of (1) administrative controls, such as employment of administrators and medical directors; (2) patient care systems standardization and integration, such as computer-based clinical information systems, clinical guidelines, profiling, and gatekeepers; and (3) use of physician productivity incentives. Capitation payment was not a major factor in explaining variation in these formal control mechanisms. Authors suggest that physician groups either use less formal mechanisms than those studied to control resource use or use none at all and that capitation is not as important as the underlying management capacity of the group in implementing control mechanisms.

(continued)

TABLE 2 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Kralewski et al. (1998)	P	Empirical analysis—cross tabulation	103 medical clinics that were part of different group practice systems and 52 independent clinics that participated in Minnesota Blue Cross/Blue Shield (BC/BS) during 1995	P: Authors studied same control mechanisms as in Kralewski et al. (1996). They found that medical clinics that were part of a system more often had computerized medical records and approaches to monitor drug use. They also found that the length of time the physician organization had participated in capitated contracts rather than the percentage of their revenues that were capitated was more relevant to the implementation of process/operational changes. However, they also found that few medical groups have the information systems needed to monitor physician compliance with guidelines so as to manage risk.
Kralewski et al. (1999)	O	Empirical analysis—multivariate	26 medical groups with 298 physicians participating in Minneapolis/St. Paul HMO. Cost data were assembled for 3,071 hypertension patients of these groups.	P&O: Three major conclusions were drawn from the analysis: (1) resource use for a well-defined episode of care varied much more that the authors expected in the highly competitive managed care market of Minneapolis, (2) the culture of the group practice was more important than organizational or process characteristics in determining physician resource use, and (3) culture and operational characteristics only explained 8% of the variance in resource use for the patients studied. Ultimately, the authors concluded that group practice organizations had less influence on physician practice style than expected.

Kralewski et al. (2000)	O	Empirical analysis—multivariate	86 medical clinics providing services to BC managed care patients in 1995	P&O: Capitation of medical groups is correlated with lower patient per member per year costs. When combined with fee-for-service with withhold provisions for individual physicians, this effect is smaller. Clinics that use resource-based or profit-sharing payments, physician profiling, and clinical guidelines have lower patient costs. Payment methods at the group and individual physician level do appear to influence costs of care.
Medical Group Management Association (MGMA 1998)	O	Empirical analysis—tabulation; followed by case study—observational	1,194 practice groups monitored by MGMA	P&O: Findings suggests that physician practices with the best financial performance had (1) cost containment activities including detailed cost accounting, transaction costing, zero-based budgeting, and physician incentives and (2) revenue-generating activities including effective managed care contracting, effective coding, and improved service delivery. Overall, groups managed more like businesses performed better. The study suggests that successful practices focus on specific customer segments and are selective in choosing new physician members.
Pauly, Escarce, and Wedig (1996)	O	Empirical analysis—multivariate	Physician group practices	O: The authors' analysis suggests that economies of scale do not exist in medical practices and that costs rise directly with the number of physicians.

(continued)

TABLE 2 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Penner (1999)	P	Case study—analytical	22 physician organizations in California in 1995	P: Physician organizations developed several processes to manage capitated contracts, including a provider network, approaches to forecast and monitor service use, information systems, contract negotiation capabilities, and training and communication programs for staff and physicians.
Pope and Burge (1996)	O	Review of existing research and empirical analysis—multivariate	3,505 self-employed or employed physicians in group practices in 1988	O: Measuring output as practice revenues, authors find increasing returns to scale for single specialty practices, implying that larger groups have lower practice costs. The lowest-cost practice size was about 5 MDs compared with the sample average of 2.4 MDs per practice. On average, multispecialty groups appeared to be operating efficiently. The study suggests that economies of scale are present but are quickly depleted.
Robinson (1998)	RB, P	Case study—observational	Three California physician practice management firms (PPMs): MedPartners, FPA Medical Management, and UniMed. Data were from 1994 and 1996.	RB: Physicians benefit from PPMs through their (1) competencies in capitation and utilization management and (2) expanded access to financial capital.

				P: Division of responsibilities between PPM and medical groups was discussed. PPM was responsible for establishing capital budgets, managing daily clinic operations, employing nonphysician personnel, purchasing supplies, and information systems. The medical group retained responsibility for physician recruitment, performance expectations, payment, quality, and utilization. A joint policy board was responsible for establishing objectives for patient services and revenues, prioritizing capital needs, and contracting with health plans.
Robinson (1999)	O	Case study—observational	Medical groups in California	O: Benefits of larger groups are depleted at some point because processes for coordination become too complex. Large group size undermines traditional governance and involves consolidating multiple practice sites and specialties with heterogeneity in income, status, and market areas. Collegial relations grow weak and internal politics grow strong, which could breed discontent among affiliated physicians.
Robinson and Casalino (1995)	RB	Case study—analytic	6 California medical groups: Bristol Park Medical, Friendly Hills Healthcare, HealthCare Partners, Mullikin Medical Centers, Palo Alto Medical Foundation, and San Jose Med Group	RB: Medical groups form and grow larger so that they can obtain capitated contracts from HMO. This in turn spurs HMOs to expand the use of capitation as a basis for payment.

(continued)

TABLE 2 (continued)

Author(s) (year)	Areas Studied[a]	Study Design/Method	Organizations Studied	Key Study Findings[a]
Rubin et al. (1993)	O	Empirical analysis—multivariate	Random sample of patients of 367 physicians in four specialties in different types of practices	O: Patients of solo practices had higher overall levels of patient satisfaction than did patients of multispecialty or HMO practices. No significant differences were found between fee-for-service and prepaid patients in satisfaction. Whether fee-for-service or prepaid, care was rated better in smaller practices than in larger practices.
Safran, Tarlov, and Rogers (1994)	O	Empirical analysis—multivariate	Longitudinal study of 303 primary care physicians and their patients. Physicians were either in traditional fee-for-service practice, IPA-HMO, or group HMO.	O: Financial access to health care services was highest in prepaid systems. Organizational access, continuity of care, and accountability were highest in fee-for-service systems. Coordination of care was highest and comprehensiveness of care was lowest in HMOs.

Waterman and Bonham (1994)	P, O	Case study-observational	Good Samaritan Medical Group in San Jose, California, which had 23 MDs, and a hospital-affiliated IPA in Santa Clara County with 300 physicians	P: To integrate a medical group and an IPA, a task force was first convened to identify physician concerns. After many meetings, the physicians gained trust and were able to deal with governance and patient referral issues. Bylaws were developed for the new medical foundation, and a managed care agreement struck between the group, IPA, and hospital system. Committees were formed for decision-making purposes, officers were named, and leadership was diversified to satisfy involved parties. Managed care arrangements were worked out in relation to compensating IPA physicians for the group's capitated patients. It took 6 months to identify and implement these changes. Factors that complicated the change process included (1) need to develop new operational models because existing models were insufficient, (2) dealing with different cultures, (3) lack of initial trust, (4) concern about referrals, and (5) concern that IPA was too specialist dominated. O: Examined the immediate effects of a consolidation of a group practice and an IPA into a hospital-led medical foundation. After 1 year, the foundation had doubled in size to 40 full-time MDs, and the number of capitated lives increased from 23,000 (which were originally held by the group) to 40,000.

(continued)

TABLE 2 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Waters et al. (2001)	P	Empirical analysis—multivariate	1,514 physicians in group practices studied through the Physician System Alignment Study. Primary data collection occurred in 1999-2000.	P: Physician participation in the process of implementing care management activities was positively related to their participation in these activities and their attitudes toward them. However, physician involvement in the development of care management practices detracted from their later participation in them. Management involvement in the developmental phase had mixed effects on physician participation and attitude. The authors conclude that appropriate physician involvement as well as financial incentives and information systems affect the ability of physician organizations to implement major change.
Wolinsky and Marder (1985)	O	Empirical analysis—multivariate	Data on physician practices from the American Medical Association	O: Although group physicians appear to work more hours a week than do solo physicians, this difference is not present when one controls for other factors. However, group physicians do have more office visits per week than solo physicians, holding other factors constant.

a. RB denotes studies that examine the relative benefits of State A and State B, P denotes studies of the process of change, O denotes studies of the outcomes resulting from change from State A to State B, and P&O denotes findings that attempt to link process aspects of change with the outcomes of change.

Although the findings above do not consider the influence of contextual factors, other studies in Table 2 do. These studies indicate that growing managed care market share and payer dominance generally increase the benefits of physician consolidation/integration over independent practice (Burns 1997; Burns, DeGraaff, and Singh 1999; Christianson 2001). Robinson and Casalino (1995) further noted that growth in the use of capitation by HMOs spurred growth in larger medical groups to better manage risk, which in turn led to increased ability of HMOs to use capitation with physicians. Other factors commonly identified that could affect the relative benefits of consolidated/integrated physician organizations included increased complexity of management and clinical technology (Burns 1997), physician oversupply generally but also shortages in certain specialists (Burns 1997; Burns, DeGraaff, and Singh 1999; Christianson 2001), and increased hospital consolidation and market power vis-à-vis physicians (Christianson 2001).

Overall, these studies of the relative benefits bear similarities and some differences to the hospital literature discussed earlier. The similarities relate to the focus on efficiencies and the important influence of managed care. The differences relate to unique features of physician organizations, namely, the lack of capital and management expertise in small, independent practices. Given the recent retreat from capitated contracting arrangements in certain markets (Hurley et al. 2002), research that examines changes in the perceived benefits of different forms of physician consolidation/integration is important. Which forms of physician organization are currently viewed as providing the most benefit, and are perceptions about independent practice changing?

PROCESS OF CHANGE: HORIZONTAL PHYSICIAN CONSOLIDATION AND INTEGRATION

Comparable to the hospital literature, most physician organization studies on the process of change focused on the set of actions undertaken to support larger consolidated/integrated physician organizations. These studies typically focused on the management capabilities and practices implemented by newly formed physician organizations, especially to improve their management of capitated contracts. Grumbach et al. (1998), Kerr et al. (1995, 1996), and Penner (1999) all studied California physician organizations in the early to mid-1990s. Grumbach et al. (1998) noted that capitated physician organizations tended to develop management capabilities that resembled those of HMOs. Penner (1999) provided an inventory of these capabilities, including strategic and business planning, finance, actuarial skills in reviewing contracts and assessing service use, and contract negotiations. Kerr et al. (1995, 1996) focused on utilization management, physician profiling, and quality

assurance activities. Grumbach et al. (1998) further noted that groups developed new governance structures, new payment methods for physicians, and processes for selecting physicians to ensure quality and cost-efficiency.

Kralewski et al. (1996, 1999) examined similar types of management capabilities but for physician organizations in Minnesota rather than California. Their results stand in contrast to those above in that the development of these capabilities was fairly limited for Minnesotan physicians. They also found no relationship between the percentage of physician revenues that was capitated and the extent of the management capabilities developed. Rather, the length of time that the physician organization had capitation was more important to explaining the degree of management capability developed. Consistent with Kerr et al. (1995), however, Kralewski and colleagues found that use of formal mechanisms to control physician service use was quite limited. It is not clear why studies of California and Minnesota physician organizations differed in the respects noted above. HMOs in both states moved rapidly to develop capitated contracting arrangements with physicians. More research is needed about the different environmental and organizational contexts across areas of the country to see how this has influenced the formation and development of physician organizations.

Three studies in Table 2 provide qualitative descriptions of the sequencing and timing of events in the process of physician organization consolidation and integration. Coddington, Moore, and Clarke (1998) and Robinson (1998) examined the process of bringing partners together. The former study emphasized the key phases of (1) establishing trust, (2) assessing fit between and the relative strengths of organizations, (3) assessing ability to deliver a high-quality product, (4) developing a business strategy, and (5) considering effects on competitive position. Robinson (1998) focused on the "fit" and "relative strengths" dimensions and discussed the importance of carefully defining the roles and responsibilities of the parent organization (i.e., the PPMC he studied) and involved physician organizations. Waterman and Bonham (1994) examined the process of joining two very different physician organizations in one umbrella organization. They noted that a variety of physician-management committees were formed to deal with an array of tough issues. Physicians worked together for some time before they developed trust and could deal with cultural differences between the organizations. This was an important precursor before physicians could make decisions about referrals, managed care contracts, and the distribution of practice net revenues.

The remaining two process-of-change studies in Table 2 examined internal contextual factors that affected the process of change. Facilitating factors identified by Dupell (1997) included controlling expenses, developing joint business and financial strategies, attracting private equity, maintaining physician

leadership, and renegotiating contractual arrangements. Waters et al. (2001) focused on whether involving practicing physicians in developing and implementing new organizational processes facilitated change. They found that physician involvement in the implementation process positively affected their attitudes but that involvement in the development stage detracted from their ultimate acceptance. This likely reflects the high value physicians place on their time and the large commitment needed to fully develop and implement new organizational processes.

Generally, these studies of the process of change are comparable with those for horizontal hospital integration in that they suggest change takes time to ensure the development of stakeholder buy-in and organizational capabilities. They further suggest the importance of involving key parties—in this case, physicians—but the need to do so carefully so that the delicate balance of building trust is not thwarted by frustration with slow progress.

OUTCOMES OF CHANGE: HORIZONTAL PHYSICIAN CONSOLIDATION AND INTEGRATION

Studies of the outcomes of horizontal physician consolidation/integration have focused on (1) changes in the costs of operating a medical practice, (2) changes in the use of health services by patients, and (3) differences in patient satisfaction across practice types. In essence, the first area focuses on the value derived by physicians from consolidation to the extent it reduces their practice costs. The second area could represent value to health plans if physician organizations are more conservative in ordering health services and also value for consolidated physician organizations if they hold capitated contracts. The final area represents value as derived by patients to the extent that they perceive differences in access, quality, and coordination of services across different types of physician organizations. Outcome effects were assessed typically by cross-sectional comparisons of medical organizations. As such, they do not allow us to assess the trajectory of outcome changes as larger physician organizations form and solidify.

Several studies listed in Table 2 examined whether economies of scale were present in medical practices. In studies of medical groups, Havlicek, Eiler, and Neblett (1992) and Robinson (1999) found that modest efficiencies resulted as the number of physicians in a group increased, but Pauly, Escarce, and Wedig (1996) found no such efficiencies. Pope and Burge (1996) contrasted single specialty and multiple specialty groups and found that economies of scale existed for both but tended to be quickly depleted as physicians are added. Some studies noted in Table 2 provide insights as to why little or no physician practice cost savings may be present. Conrad, Feldman, and Dowd (1998)

noted that consolidated physician organizations can achieve cost reductions through greater leverage with medical suppliers but supply costs only represent about 6% of practice expenses. Gorey and Bannon (1998); Havlicek, Eiler, and Neblett (1992); and Robinson (1999) noted that overhead costs can actually rise for medical practices if they increased size beyond some point due to higher costs of coordination and the need to develop new culture and leadership. Robinson (1999) found that larger groups undermine traditional governance approaches and collegial relations among physicians.

Given these types of findings, the Medical Group Management Association (MGMA 1998) took a different tact to studying outcomes from physician consolidation/integration. Namely, they sought to answer the question: What organizational structures and actions were implemented by highly successful medical groups that distinguish them from less successful groups? In other words, they focused on the internal processes implemented by different medical groups that may explain differences in their ultimate financial performance. MGMA (1998) found that high-performing groups were distinguished by their commitment to cost containment activities, including careful budgeting and use of physician incentives, their attention to managed care contracting, and their efforts to improve the quality of their product. Consistent with these MGMA findings, Gorey and Bannon (1998) found that certain medical groups had achieved increased leverage in negotiating risk contracts with HMOs. MGMA concluded that medical groups with internal management capabilities that allowed them to operate like private businesses had the best financial performance.

The second type of outcome study examined the effects of physician consolidation/integration on health services use. Greenfield et al. (1992) found that physicians in solo practices had higher hospitalization rates than did group physicians but the latter, especially those in prepaid groups, had higher rates of office visits. Findings of Wolinsky and Marder (1985) were consistent with these in relation to office visits. Expanding on this basic work, a number of studies looked at internal structures and actions adopted by medical groups as they developed and how these affected health services use and cost. Kralewski et al. (2000) found that the compensation methods developed for individual physicians by capitated medical groups affected patient costs of care and that greater use of risk-based payments for individual physicians reduced these costs. In addition, they found that use of physician profiles and clinical guidelines was associated with lower patient care costs. These findings contrast with Conrad et al. (1998), who found that compensation methods used by capitated medical groups did not significantly affect the use of health services after controlling for patient, health plan, and physician

characteristics. Kralewski et al. (1999) contrasted the impact of internal structures established by a group, such as physician payment methods and profiling, versus group culture on physician resource use. They concluded that the latter was more important in explaining resource use.

A final group of studies reported in Table 2 focused on patient satisfaction with medical care. Rubin et al. (1993) found that patients in solo practice had higher overall satisfaction than patients of group practices. Group physicians provide more office visits per week than their solo counterparts and thus may be spending less time per patient. Saffran, Tarlov, and Rogers (1994) examined patient perceptions about access and coordination of care within different forms of physician organizations. They found that patients rated organizational access, continuity of care, and accountability highest in medical groups that were compensated on a fee-for-service basis but rated coordination of care highest for groups linked to HMOs.

In summary, studies that have examined consolidated/integrated physician organizations have generally found limited effects on practice costs but important effects on health resource use and patient satisfaction. Some interesting research has emerged in recent years to assess how internal actions and structures implemented by various physician organizations relate to these dimensions. However, they yield conflicting findings. Thus, continued research in this area is warranted. Another important area of study is potential quality-of-care differences that may exist across different types of physician organizations and how quality differences may relate to internal processes and structures. Finally, it is intriguing how many studies have focused on the important influence of the culture of physician organizations on their costs and resource use. More research is needed that delineates key dimensions of physician organizational culture and tests and validates approaches for quantifying these dimensions.

VERTICAL INTEGRATION OF PHYSICIANS AND HOSPITALS

Table 3 reports on 33 studies that examined the integration of hospital and physician organizations. Specifically, the studies examined physician and hospital organizations (State A) linking together through a variety of arrangements that were intended to integrate service delivery and financing functions (State B).

(text continues on p. 313)

TABLE 3 Organizational Change: Vertical Integration of Hospitals and Physicians

Author(s) (year)	Areas Studied[a]	Study Design/Method	Organizations Studied	Key Study Findings[a]
Alexander, Morrisey, and Shortell (1986)	P	Empirical analysis—multivariate	1,981 short-term general hospitals in 1982	P: Found that greater degrees of physician-system integration occur when there are higher levels of regulatory intensity and physician competition. However, the degree and types of integration activity depend on the corporate ownership of the hospital organization.
Alexander, Waters, Boykin, et al. (2001)	O	Empirical analysis—multivariate	1,965 physicians affiliated with 14 health systems in 1997-1998. Systems are members of the Center for Health Management Research.	P&O: Found that physicians in groups with larger physician equity positions, with productivity-based compensation, and/or ones who faced individual-based incentives perceived less satisfaction or alignment with their system. Study concludes that hospital organizations need to balance individual-based risk schemes with those that emphasize group and system performance to achieve long-term goals of loyalty and commitment to the system.

Alexander, Waters, Burns, et al. (2001)	O	Empirical analysis—multivariate	1,965 physicians affiliated with 14 health systems in 1997-1998. Systems are members of the Center for Health Management Research.	P&O: Physicians in groups that received more system-provided practice support services reported consistently higher satisfaction with and commitment to their system than physicians in groups that received fewer of these valued services. Centralized administrative control within a system lowered physician satisfaction. Overlapping governance (system administrators serve on medical group boards and vice versa) was only weakly associated with satisfaction. Physician satisfaction and commitment to the system generally resulted from resource flows that physicians valued but did not threaten their control or authority within the group.
Bazzoli, Dynan, and Burns (1999/2000)	O	Empirical analysis—multivariate	665 short-term general hospitals in 1995	O: Physician-hospital arrangements in which physicians were employed by the hospital were more successful in obtaining globally capitated contracts than systems with contractually affiliated physicians. Also, systems with greater numbers of involved physicians had greater numbers of capitated lives.
Bazzoli, Dynan, et al. (2000)	P, O	Empirical analysis—multivariate	665 short-term general hospitals in 1995	P: Global capitation of physician-hospital organizations was found to promote integration between hospitals and physicians in relation to administrative/practice management services, physician financial risk sharing, joint ventures to create new services, computer linkages, and an overall measure of physician-hospital integration.

(continued)

TABLE 3 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
				P&O: Found that the extent of physician-hospital integration in relation to the dimensions noted above did not significantly affect hospitals costs. Concluded that although global capitation was motivating increased physician-hospital integration, these integration efforts were not achieving ultimate objective of lowering hospital costs.
Bazzoli, Miller, and Burns (2000)	P	Case study—analytical	Eight hospital-led integrated health networks and systems and two large integrated medical groups	P: Found that hospital-led health networks and systems implemented a variety of processes and programs to assist physicians in managing capitated contracts and, thus, to enhance physician-hospital integration. These processes included: actuarial services, systems to track enrollees, provider contracting and relations, claims and payment administration, capital reserve management, and clinical and administrative information systems. Found that hospital-led organizations were best able to align with physicians if they provided a flexible, centralized source of the above services and offered physicians an active role in governance and management.
Burns, Andersen, and Shortell (1993)	RB	Empirical analysis—tabulation	Physicians practicing in Pima County, Arizona; 738 in 1985 and 547 in 1990	RB: Market and managed care changes have increased conflicts between physicians and hospitals and thus increase the benefits of physician-hospital alignment.

Burns et al. (1997)	RB	Empirical analysis—cross tabulation	665 short-term general hospitals in 1995	RB: Evidence suggests that no evolutionary relationship exists in which physicians and hospitals are likely to derive increasing benefits due to tighter integration as managed care market share increases. Specifically, there is no link between managed care prevalence and changes in the integrative status of health care organizations.
Burns et al. (2000)	RB	Empirical analysis—multivariate	1,807 short-term general hospitals in urban markets, 1993-1995	RB: Growing numbers of HMOs rather than growing HMO penetration increase the benefits of physician-hospital alliance formation, suggesting that alliances are primarily providing the benefit of serving as a provider contracting mechanism.
Burns et al. (2001)	O	Empirical analysis—multivariate	1,965 affiliated with 14 health systems in 1997-1998. Systems are members of the Center for Health Management Research.	O: Found that employed physicians have slightly greater satisfaction or commitment to their system than do loosely affiliated physicians. Aspects other than employment have stronger influences on these outcome measures. P&O: Financial support and services provided to physicians increase physician perceptions of satisfaction more so than efforts that involve physicians in hospital operations or decision-making. Economic investments and dependence on a system's hospitals promote greater commitment to that system, as do lack of alternative affiliation options for the physician, tenure with the system, and convenience (and inertia) in admitting patterns.

(continued)

TABLE 3 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Burns, Morrisey, et al. (1998)	P	Empirical analysis—multivariate	1,495 community hospitals in 1993	P: The process of integration is defined as physician-hospital interactions to share information, participate in decision-making, and coordinate behavior. Internal actions undertaken by physician-hospital organizations included providing physicians decision-making roles in governance and management; developing salaried arrangements for physicians; implementing hospital-sponsored joint ventures and group practices; providing management services to physicians; sharing clinical and financial information; and developing clinical guidelines.
Burns, Shortell, and Andersen (1998)	O	Empirical analysis—multivariate	Arizona physicians and hospitals with 50+ beds	P&O: Physicians with hospital-based roles, salaried positions, longer tenure with hospital, governance roles, executive positions, and economic joint ventures with the hospital reported more positive attitudes. Physician prior admitting loyalty positively shaped some attitudes toward hospital, but the effect of positive attitudes on future admitting loyalty was less pronounced.

Coddington, Ackerman, and Fischer (2000)	P	Case study—observational	11 integrated delivery networks	P: Organizational factors that facilitate physician-hospital integration include a focus on the patient, development and continuity of physician leadership, teamwork and multidisciplinary approach, communication, control of hospital spending, a focus on core competencies in patient care, limited use of cross-subsidies, a deliberate strategy of integration based on shared vision and a focus on care management, changes in component systems that support process and culture changes, a focus on change management, development of provider-owned health plans, and a strong bottom line.
Coddington, Chapman, and Pokoski (1996)	P	Case study—observational	10 integrated delivery networks and PPMCs	P: Suggest that integration can be effectively achieved if hospitals communicate regularly with physicians, develop appropriate medical and business reasons for integration, focus on only a few initiatives at a time, time efforts with respect to the market, concentrate their geographic strategy, recognize physicians learn by experience, develop physician leadership, promote strong physician commitment to quality improvement, and provide broad support and investments in information technology for quality improvement in clinical practices.

(continued)

TABLE 3 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Coddington, Fischer, and Moore (1994)	RB	Case study—observational	10 integrated delivery systems	RB: Suggested that relative benefits of physician-hospital integration include increased market share, more secure physician income and better quality of life, a financially stronger institution, enhanced adaptability to changing health care environment, increased admissions relative to competitors, and growth or stability in earnings and cost-effectiveness.
Devers et al. (1994)	P	Empirical analysis, cross tabulation	Nine health systems that participated in the Health Systems Integration Study in the early 1990s	P: Three dimensions of physician and hospital integrative activities are identified: (1) functional integration—entails coordination of business and administrative support functions, (2) physician-system integration—relates to the economic involvement of the physician with the system and alignment of economic incentives, and (3) clinical integration—the coordinative development of patient care programs and sharing of patient information. Found that the systems studied achieved high degrees of functional integration. Mixed results present for physician-system integration, with high levels of involvement of physicians in governance and management but low levels of administrative and economic integration. Low levels of information system and clinical integration occurred.

Dynan, Bazzoli, and Burns (1998)	P	Empirical analysis—tabulations, multivariate	665 short-term general hospitals in 1995	P: Six physician-hospital integration process measures were identified: administrative and practice management services, physician financial risk-sharing arrangements, joint ventures to create new services, development of physician-to-hospital and physician-to-physician computer linkages, physician involvement in strategic planning, and salaried physician arrangements. Different physician-organizational models achieved differing levels of integration. Management service organizations implemented the greatest degree of integration on the six dimensions.
Gillies et al. (2001)	P	Case study—analytic	30 medical groups with 12 health systems in 1997-1998. Systems are members of the Center for Health Management Research.	P: Barriers to physician-system integration are identified as (1) environmental—low capitation, high levels of physician competition, and shortage of primary care physicians; (2) culture—lack thereof; and (3) information system—lags in development and consistency across units. Facilitators include mentoring programs among physicians and system management of information systems with the active involvement, support, and participation of physicians. Also found that building trust is important to process of integration and is aided by active physician leadership and involvement in system decision-making and policy formation.

(continued)

TABLE 3 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Goes and Zhan (1995)	P, O	Empirical analysis—multivariate	300 California hospitals 1981-1990; case study results from San Francisco hospitals	P&O: Physician membership on hospital boards was associated with higher hospital operating margins and consistently higher occupancy—no effect on hospital costs. Physician ownership of the hospital had a negative direct effect on operating margins and occupancy rates but no effect on cost. Increased integration of physicians and hospitals in their financial arrangements was positively related to occupancy rates and negatively related to hospital costs.
Gorey (1993)	RB	Case study—observational	Eight Physician Hospital Organizations (PHOs), six of which had physician organizations	RB: Posited that PHOs offer hospital benefits of expanded and diversified scope of activities without overt competition with hospital medical staff, greater physician loyalty, expanded referral base, reduced financial risk for new ventures, and improved ability to secure and retain managed care contracts. PHOs offer benefits of marketing expertise, administrative resources and name recognition of a local hospital, an expanded managed care patient base, and participation in joint decision making.
Greenberg (1998)	RB	Case study—observational	Marshfield Clinic—vertically integrated physician-hospital health plan during the 1990s	RB: Benefits of physician-hospital integrated systems include reduction in transaction costs and uncertainty, and increased coordination between ambulatory and inpatient care.

Kohn (2000)	P	Case study—analytic	Provider interviews in 12 sites that occurred between May 1996 and April 1997	P: Envisions two-stage process to physician-system integration. First, new organizational structures are created with the potential to change outcomes, but there may be efforts to resist change. Second, changes in delivery must follow. This requires changes in financial incentives, utilization review, and quality assurance. Suggests that structural changes occur quickly; process changes do not.
Kralewski et al. (1995)	P	Case study—analytic	8 Minnesota health organizations that were developing integrated service networks in 1993	P: Suggested that developing an integrated physician-hospital network was facilitated by creating a tight physician-practice culture, developing physician leadership focused on cost-effective practice styles, changes to a population focus and patient outcome focus, gaining the commitment of clinicians to cost-effective care, and providing them with the information and support services to do so.
Lemieux-Charles and Leatt (1992)	P	Case study—analytic	8 community hospitals with 200+ beds in Ontario Canada, 1986	P: Hospitals with high levels of physician-hospital integration had implemented a strategic plan and had highly structured medical staff organizations. These hospitals also had no budgetary deficits. Hospitals with moderate or low integration had little planning activity and a moderately structured medical staff.

(continued)

TABLE 3 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Mark et al. (1998)	P, O	Empirical analysis—multivariate	1,495 community hospitals in 1993	O: Hospitals with strategies to integrate physicians and to modify physician behavior had lower margins and higher costs than their counterparts. Making department heads responsible for profitability had a significant positive effect on margins. P&O: Find that including medical staff on the hospitals board and offering physicians management services had a significant negative impact on average Medicare costs.
Morrisey et al. (1996)	RB	Empirical analysis—multivariate	1,495 community hospitals in 1993	RB: Benefits of physician-hospital integration include single signature contracting, bargaining leverage with managed care organizations, and efficiency gains that increase competitiveness. Find that tight physician-hospital integration is rare but more common in hospitals with greater amounts of revenue from managed care.
Morrisey et al. (1999)	P	Empirical analysis—multivariate	591 community hospitals in 1993	P: Examined hospital efforts to establish structural or operational linkages with physicians and clinical integration, including hospital efforts to streamline or coordinate care processes. Find only a modest relationship between the share of hospital revenues associated with managed care and physician and clinical integration.

Prospective Payment Assessment Commission (1992)	O	Empirical analysis—cross tabulation	10 urban and rural hospital pairs that were consistent Medicare prospective payment system (PPS) "winners" or "losers"	O: Study focused on Medicare PPS but examined influence of physician-hospital arrangements on hospital financial performance. Found that the simple presence or absence of a PHO was not associated with a hospital's PPS financial performance.
Shortell (1991)	P	Case study—analytic	10 hospitals	P: Found that there are eight major factors that facilitate successful physician-hospital integration: understanding history and creating a culture of collaboration, management stability, genuine respect for physicians, high commitment to honest and frequent communication, willingness to share decision-making—with early and ongoing physician involvement, strong physician leadership and leadership development, ability to work together as business partners, and ability to manage the pace of change.

(continued)

TABLE 3 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Shortell, Gillies, and Anderson (1994)	P, O	Empirical analysis—cross tabulation	Nine health systems that participated in the Health Systems Integration Study in the early 1990s	P: Found that greater clinical integration (both horizontal and vertical dimensions) is achieved when (1) system members identify with the mission and values of the organization, (2) strategic planning processes are in place that rely on input from across the system, (3) information systems provide clinical data across the system, and (4) budgeting policies and practices promote coordination across service lines. Also found that greater sharing of quality assurance/improvement processes led to more clinical integration and that functional integration provides infrastructure to further physician-system and clinical integration. P&O: Correlational analysis suggests that higher overall integration as perceived by a system (which includes impressions of both horizontal and vertical integration) is positively associated with higher overall hospital financial performance and that greater integration leads to competitive advantage of a system relative to its market competitors.
Shortell et al. (1996)	P	Empirical analysis—cross tabulation; case study, observational	11 organized delivery systems	P: Authors found that systems must develop the following to expand physician-system integration: trust, physician leadership, group practice activity, expanded primary care network, supporting management and infrastructure, flexibility and patience.

Young and McCarthy (1999)	P	Case study—analytic	Three integrated delivery systems: Allina Health System (Minnesota), Legacy Health System (Oregon), and Lahey-Hitchcock Clinic (Massachusetts, Vermont, New Hampshire), in 1995 and 1997	P: Identified three major sets of processes that must be developed or coordinated for health organizations to integrate both horizontally and vertically: (1) planning processes: strategy formulation, program adaptation, and budget formulation; (2) organizational processes: authority and influence, client management, conflict management, motivation, and cultural maintenance; (3) measurement and reporting processes: financial measurement and reporting, and program measurement and reporting. At the time studied, the three systems had accomplished the components of (1) with the exception of integrated financial budgeting. The organizations had established committee structures needed for (2) and were working on developing new organizational cultures. Finally, the least progress was made in (3). The study organizations all recognized the importance of integrated program and financial reporting but had not identified key measures to track or alternatively did not have the systems in place to generate integrated reports on measures they selected. Authors found that successful implementation of physician-hospital integration activity was affected by senior management support, the presence of physician leadership, clear goals, and information support. Barriers were historical competition, a lack of common values, and conflicting financial incentives.

(continued)

TABLE 3 (continued)

Author(s) (year)	*Areas Studied*[a]	*Study Design/Method*	*Organizations Studied*	*Key Study Findings*[a]
Zuckerman et al. (1998)	O	Empirical analysis and case study—analytic	Health systems that are members of the Center for Heath Management Research	P&O: Salaried physicians expressed more favorable attitudes and satisfaction with their systems than nonsalaried physicians. Although small in magnitude, these differences were significant. Favorable physician attitudes toward their systems were related to building trust through open communication, sharing information, celebrating small victories, placing physicians in management and governance roles, and developing physician leaders.

a. RB denotes studies that examine the relative benefits of State A and State B, P denotes studies of the process of change, O denotes studies of the outcomes resulting from change from State A to State B, and P&O denotes findings that attempt to link process aspects of change with the outcomes of change.

RELATIVE BENEFITS OF VERTICAL INTEGRATION OF PHYSICIANS AND HOSPITALS

Seven studies in Table 3 examined the relative benefits that could accrue to physicians and hospitals as they developed vertical arrangements. Commonly identified benefits for both physicians and hospitals included improved financial performance, increased operational/financial stability, and increased revenues through expanded market share. In addition, some authors noted potential efficiencies and lowered costs of operations through vertical physician-hospital linkages (Coddington, Fischer, and Moore 1994; Greenberg 1998; Morrisey et al. 1996). Researchers also noted specific benefits for hospitals as greater physician loyalty, a more secured referral base, and greater access to managed care contracts (Gorey 1993). For physicians, specific benefits were similar to those identified for horizontal physician consolidation/integration, including access to management expertise, marketing, information systems, and financial capital (Gorey 1993). Another physician benefit noted by Greenberg (1998) was an expanded role in hospital decision-making.

The main contextual factor noted that would affect the relative benefits of physician-hospital integration was managed care presence and dominance in markets. Burns et al. (2000) stressed the importance of physician-hospital integrated arrangements as a contracting mechanism to deal with managed care, and Burns, Andersen, and Shortell (1993) found that the conflicts created between physicians and hospitals through managed care could be partially alleviated through their integration. Although managed care is frequently cited as a rationale for physician-hospital integration, Burns et al. (1997) did not find evidence that an evolutionary process existed in which managed care growth led to tighter forms of physician-hospital integration, namely, a movement from contractual arrangements to unified ownership-based models.

Perhaps the most interesting feature of the literature above is its striking similarity to what was found for horizontal hospital and horizontal physician consolidation/integration. In all instances, both cost reduction through new efficiencies and revenue enhancement through greater health plan leverage and access to more contracts were expected. In addition, physicians would benefit from linking with a hospital capital partner that would provide management expertise and infrastructure. The only unique benefit mentioned in the vertical integration literature was physician involvement in hospital decision-making, but physicians have long played such a role in this domain (Alexander and Morrisey 1988b) without the presence of formal physician organizational models, such as PHOs.

PROCESS OF CHANGE: VERTICAL INTEGRATION OF PHYSICIANS AND HOSPITALS

Perhaps the most frequently examined area in health care organizational change in recent years was the process of change for physician-hospital integration. In total, we identified 19 studies in this area. This likely reflects interest among organizational researchers in these arrangements given their inherent complexity, namely, the linking of traditionally hierarchical hospital organizations with typically nonhierarchical, autonomous physicians. In addition, hospital organizations needed to link with primary care physicians if health services and financing were to be integrated. Hospitals have had more experience dealing with physician specialists who treated patients in their facilities rather than primary care physicians who referred to these specialists.

A major focus in the process-of-change literature was developing the climate for change within involved organizations. The presence and continuity of physician leadership was by far most often mentioned in this literature (Coddington, Chapman, and Pokoski 1996; Coddington, Ackerman, and Fischer 2000; Gillies et al. 2001; Kralewski et al. 1995; Shortell 1991; Shortell et al. 1996; Young and McCarthy 1999). Physician leadership was viewed as important not only to securing physician involvement in governance but also as a mechanism for communicating to, and mentoring, practicing physicians. Another commonly identified facilitating factor was investment in component structures and systems that supported process and cultural change (Coddington, Ackerman, and Fischer 2000; Gillies et al. 2001; Kralewski et al. 1995; Lemieux-Charles and Leatt 1992; Shortell et al. 1996; Young and McCarthy 1999). This included not only investment in new management and clinical technologies but also investment in core competencies. Developing a shared vision across stakeholders was also considered to be especially important given traditional differences in the ways physicians and hospitals viewed health delivery and financing (Coddington, Ackerman, and Fischer 2000; Lemieux-Charles and Leatt 1992; Shortell, Gillies, and Anderson 1994; Young and McCarthy 1999).

With this groundwork in place, what set of internal changes were implemented to develop and operate a vertically integrated physician-hospital organization? Of all the studies in Table 3, Devers et al. (1994) is most helpful because it provides a framework that can be used to synthesize the results of other studies, identifying three categories of integrative activity: *functional integration*, which relates to consolidation and coordination of business support functions and administrative activities; *physician-system integration*, which relates to physician involvement in hospital planning and alignment

of financial incentives; and *clinical integration*, which involves coordinated development of patient services and protocols and sharing of patient information.

In relation to functional integration, case studies by Bazzoli, Miller, and Burns (2000c) found that health networks/systems were developing an array of traditional health insurance functions to provide the infrastructure to support capitated physician organizations, including actuarial services, enrollee monitoring systems, claims and payment administration, capital reserve management, and clinical and administrative information systems. Burns, Morrisey, et al. (1998) and Dynan, Bazzoli, and Burns (1998) examined the development of practice management support services that standardized back-office functions such as billing and collections, scheduling, hiring of office and nurse staff, and recruitment of physician personnel. In relation to physician-system integration, Burns, Morrisey, et al. (1998) and Dynan, Bazzoli, and Burns (1998) examined physician involvement in strategic planning and also found that hospitals were aligning financial incentives with physicians through salaried or joint risk-sharing arrangements. Finally, in relation to clinical integration, Burns, Morrisey, et al. (1998) identified efforts to share clinical and financial data between hospitals and physicians, and Dynan, Bazzoli, and Burns (1998) identified efforts to improve the sharing of clinical and laboratory data.

Devers et al. (1994) also provided comparisons of the relative degree of integrative activity for the health systems they studied. Overall, the nine systems had substantial functional integration, mixed results for physician-system integration, and much less clinical integration. These results share many similarities to the horizontal hospital and horizontal physician consolidation/integration studies described earlier, namely, that functional or administrative integration was extensive but other forms of integration were less apparent.

Two studies on the process of change in Table 3 are based on longitudinal case studies that provide insights on the timing and sequencing of change (Kohn 2000; Young and McCarthy 1999). Young and McCarthy (1999) developed an elaborate cross-functional process framework that described three sets of activities in which health organizations engage to form vertically integrated delivery organizations: planning processes, implementation of supportive organizational processes, and implementation of measurement and reporting processes. They found that organizations took about 1 to 2 years to complete the planning stage, including formulating specific strategies and developing plans for adapting programs. However, the authors noted that study organizations still lacked the integrated budgeting processes considered essential for implementing integration plans at the end of the planning

phase. In relation to organizational processes, the study organizations had formed the essential structures to begin implementing changes, namely, committees had been developed and their authorities identified. But at the time of the Young and McCarthy study, which was some 2 to 3 years into the process of change, these committees were still focused on gaining influence among key stakeholders, not implementing change in operational processes. This finding is consistent with Kohn (2000), who found that physicians and hospitals had quickly created the legal structures needed to pursue vertical integration but 2 or more years afterwards had not developed supportive mechanisms and processes within these new structures. The final set of activities in the Young and McCarthy framework was integrated measurement and reporting. These had not taken place for their study organizations because stakeholders had either not identified the measures to track or lacked the systems to track the indicators they selected.

These otherwise discouraging findings about the ability of physician and hospital organizations to transition to a vertically integrated system are modified somewhat when one looks at the effects of contextual factors. Factors that hasten the transition included higher regulatory intensity (Alexander, Morrisey, and Shortell 1986) and greater involvement of affiliated physicians and hospitals in global capitation (Bazzoli, Dynan, et al. 2000). The mere presence of managed care in a market, as measured by its market share, was not found to influence physician-hospital integrative activities (Bazzoli, Dynan, et al. 2000; Morrisey et al. 1999), suggesting that capitation per se was especially relevant in motivating integration. Finally, studies found conflicting effects of physician competition on integration, with Alexander, Morrisey, and Shortell (1986) finding that it leads to more integration and Gillies et al. (2001) finding the opposite. While these studies indicate that aspects of the external environment affect the process of physician-hospital integration, an unresolved question is the degree to which the internal context of the organization affects this transition. This section started with a number of observations regarding the importance of establishing a climate for change. These case study observations have not been tested empirically. Thus, at this stage, we do not know the degree to which the easing of external pressures due to a movement away from capitated contracting (Hurley et al. 2002) versus internal inertia impeded efforts to develop vertical arrangements.

OUTCOMES OF CHANGE: VERTICAL INTEGRATION OF PHYSICIANS AND HOSPITALS

Studies of physician and hospital vertical integration have looked at a fairly limited set of outcome measures relative to the literature on horizontal

hospital and horizontal physician consolidation/integration. Most of the studies have focused on physician satisfaction with, or commitment to, their hospital or health system/network and how specific organizational processes implemented during the change process affect physician satisfaction/commitment. A second area of study examines hospital financial outcomes, namely, how physician integration has affected a hospital's costs and profitability. Finally, one study examined the effect of physician-hospital integration on capitated contracting of health providers.

Burns, Morrisey, et al. (1998), Burns et al. (2001), and Zuckerman et al. (1998) found that salaried physicians had more positive attitudes and greater commitments to their hospitals when compared with nonsalaried, contractually affiliated physicians, but these effects tended to be small in magnitude. Looking at nonsalaried physicians, Alexander, Waters, Boykin, et al. (2001) found that physicians with greater risk-based payment were less satisfied with their hospital system than those with little or no risk-based payment. In relation to financial and other types of physician practice support that hospitals can provide, Alexander, Waters, Burns, et al. (2001) and Burns et al. (2001) found that these positively affected physician satisfaction/commitment with their hospital system. Furthermore, they found that involving physicians in hospital decision-making and governance also had a positive association, which is consistent with earlier research of Zuckerman et al. (1998). Generally, these findings suggest that shielding physicians from risk—either through salary or through non-risk-based payment methods—and providing them with valued financial and practice support makes them more satisfied with their affiliated hospital organization.

However, looking at the hospital perspective in terms of the value that physician-hospital arrangements create, no consistent pattern of findings exists. In relation to hospital costs, Mark et al. (1998) found higher costs generally for hospitals that had integrative physician organizations when compared with hospitals that lacked these arrangements. However, these results were moderated when the multivariate analysis accounted for the involvement of medical staffs on hospital boards and management, provision of physicians with practice management services, and the presence of strong physician leadership. Goes and Zhan (1995) found lower hospital costs when physicians and hospitals were financially linked through hospital billing of physician services and physician-hospital profit sharing. Bazzoli, Dynan, et al. (2000), on the other hand, found no hospital cost difference based on the physician integrative activities that were present. In relation to measures of profitability, the Prospective Payment Assessment Commission (1992) examined the presence or absence of PHOs and found no significant effect of these on Medicare margins. Mark et al. (1998) examined a larger sample and looked at a broader range of

integrative physician organizations and found lower total margins for hospitals with these organizations. However, correlational analysis of Shortell, Gillies, and Anderson (1994) suggested a positive relationship between a hospital's perceptions of functional, physician-system, and clinical integration and hospital profitability. Overall, it is not clear from these results if hospitals financially benefit from their physician-hospital integration activities.

A final study noted in Table 3 examined the acquisition of global capitated contracts by physician-hospital integrated organizations. One of the reasons why physicians and hospitals pursued integrated relationships was to obtain this kind of contract from HMOs. Bazzoli, Dynan, and Burns (1999/2000) found that ownership-based physician-hospital arrangements were more successful in obtaining these contracts compared with contractually based physician arrangements.

An interesting aspect of the studies reported in this section is the dominant focus on whether physicians were finding value from these vertically integrated arrangements. The studies provide a wealth of information that suggests physicians do indeed value these relationships if they receive valued services and are shielded from financial risk. However, did this return value to hospitals? The evidence reported above is inconclusive, but perhaps the most telling finding is one reported earlier in the article that hospitals were shedding their physician-hospital arrangements since 1996. This suggests these organizations may not have returned the value for which hospitals had hoped.

DISCUSSION AND OBSERVATIONS

An extensive literature on organizational change in health care exists, and this certainly presents challenges in reaching overarching conclusions given its diversity. Our objective in this synthesis was to look across this body of research and answer the question: What have we learned from it? This section addresses three questions: What do we know from existing research, namely, where do we see consistent patterns of findings? What do we need to know due to a lack of consistency or simply too little existing research? and Why is such research important?

WHAT WE KNOW FROM EXISTING RESEARCH

There are a number of consistent findings both within and across studies for the three types of organizational change we examined. In particular, the

literature we reviewed for horizontal hospital consolidation and integration, horizontal physician consolidation and integration, and vertical integration of physicians and hospitals all spoke to potential gains in financial performance and financial stability that organizations could achieve as they transitioned from an independent, unintegrated State A to consolidated, integrated forms of State B. Another point of commonality was the frequent mention of anticipated or actual growth in managed care as increasing the relative benefits of operating as a State B organization. Horizontally and/or vertically aligned organizations were viewed to have better ability to fend off managed care pressures, given their potential to create efficiencies and increase provider clout in payer negotiations. Thinking of managed care in this way may help explain why health organizations have backed away from some of the major organizational changes that began in the 1980s and 1990s. Given the managed care backlash (Reinhardt 1999; Enthoven and Singer 1999), some of the luster of State B has diminished as has some of the fear of remaining in State A.

Furthermore, in all three types of organizational change we examined, studies found that physician and hospital organizations were able to achieve consolidation of administrative units and functions and typically did so quickly as they moved toward State B. This makes substantial sense given the hierarchical structure inherent within administrative units of health organizations. Consolidating and integrating hierarchies, where roles, responsibilities, and lines of authority are clear, is fairly straightforward because duplicative functions are easily identified. While some innovation theorists have suggested that achieving "small wins" early on may provide the basis for dealing with tougher issues down the road, it was probably overoptimistic to have presumed that success at administrative integration would aid subsequent, more complex clinical integration. Indeed, the organizational change research we examined found that even 2 to 3 years after initiation of a change effort, organizations typically had not implemented major operational or clinical changes that were needed to achieve State B. Time was needed to build trust, to obtain buy-in, and to deal with resistance. In the meantime, some of the imperative that drove the organizations to transition to State B diminished as managed care lost its power and backed away from capitated contracting.

Finally, among studies of the outcomes of change, a few noteworthy areas of consistency were identified. First, the horizontal hospital consolidation/integration literature has found that full asset mergers that lead to one owner and one operating license result in cost savings, especially for small and initially inefficient hospitals. This literature also has found that horizontal hospital consolidation of any sort typically leads to higher prices or price growth. Second, the literature on vertical integration of physicians and hospitals

indicates that hospitals can indeed increase physician satisfaction based on the specific integrative structures and arrangements they implement. Third, although only a few studies examined the link between the process of change and outcomes of change, these studies have shown that how a firm executes its consolidation and integration plans likely has an important influence on the outcomes it achieves. Although there appears to be an important link between the process and outcomes of change, insufficient research exists to delineate the specific nature of this link.

WHAT WE NEED TO KNOW

Throughout the discussion of research on horizontal and vertical consolidation/integration, we identified specific areas of research that could add new insights to our understanding of organizational change. Rather than repeat these here, we discuss needed research that crosscuts the three types of organizational change we examined:

- *Ethnographic or anthropologic research on the process of change for health organizations*. There is a great need to better understand how change plays out for different organizations. Are there common critical junctures that organizations face? What internal and external contextual factors are most influential, and what is their interplay? Some of this work has taken place in studies that examined the sequencing and timing of events in the process of change, but their observations need to be further explored over time and across a broader set of organizations. The results of this type of research could provide important insights and hypotheses that could be used to design future organizational surveys. Broad-based data collection using these surveys could then be used in more rigorous multivariate analysis and hypothesis testing.
- *Better alignment of the insights gained from qualitative studies of the process of change with quantitative studies of the outcomes of change*. An interesting insight from existing case studies of the process of organizational change is that change takes substantial time. Even 2 to 3 years after organizations embark on the transition to State B, they were still attempting to establish the foundation for change in terms of trust building and integrating cultures. Most empirical studies, though, have looked 1 year to at most 3 years after major organizational change was initiated to assess outcome effects. Existing empirical research may simply be looking too early in the process of change to identify appreciable effects. Furthermore, if researchers are examining financial measures, such as changes in organizational expenses, these could be contaminated by the costs of the transition, namely, the time, energy, and resources devoted to the process of change.
- *More careful consideration of what has actually changed contentwise in an organization*. Armenakis and Bedian (1999) defined the process of change as the set of actions

undertaken by an organization during the enactment of an intended change. Different organizations may implement different sets of actions even though their intended objective is the same. Yet, most empirical research assumes that a merger between two hospitals, for example, is identical in terms of what happens organizationally to a merger between two other hospitals. Existing research that sought to link the process of change and outcomes of change demonstrates that this is not the case. The "black box" of organizational change needs to be penetrated and more data collected on what different organizations actually do as they implement major organizational change.

- *Understanding the relative impact of internal inertia versus changing external pressures on organizational change*. A critical question that cannot be answered from existing research is, What if market forces had not dissipated—would we have seen more hospital and physician organizations integrate clinical functions and quicker movement to State B organizational forms? There is certainly enough variability across U.S. health markets in the degree of pressures that health providers face for such analysis to occur.
- *Understanding how the changing external context affects the relative benefits of different organizational forms*. Clearly, some of the expectations of the 1980s and 1990s about the growth of managed care and its role in setting the terms of trade for health delivery and financing did not pan out. This leaves unanswered the question of what are the relative benefits of organizing hospitals and physicians given the current context. In particular, what is the driving logic behind current provider consolidation efforts? Furthermore, what are the implications for consumers and payers if preferred forms of organization for health providers lead to higher prices without appreciable effects on access, quality, or coordination of care? Researchers in economics, organizational behavior, and strategic management have theories and empirical tools that can help shed light on these areas, but little work has been done to address these questions.

WHY SUCH RESEARCH IS IMPORTANT

The U.S. health care system is constantly changing, sometimes in subtle ways and other times in major ways, in response to public health policy, private market imperatives, and technological advances. It is important that we learn as much as we can from the past so that future change efforts build on prior successes and do not repeat costly mistakes. Given existing research findings that physician and hospital organizations were only able to implement administrative consolidation and that this led to little change in anticipated outcome measures, should we conclude that hospitals and physicians are simply unable to implement major organizational change? It is tempting to jump to this conclusion, but it is important to recognize that the complex questions raised above were not addressed. There are deep, fundamental gaps in

existing research such that we do not understand what worked in the past, what failed, and why. If research is to benefit health managers and policy makers, we need insights to the questions raised above and in the prior sections. Health management researchers and health service researchers need to look beyond what is readily doable given existing data, such as studying whether costs are higher or lower in larger medical groups or merged hospitals, to study these more complicated issues.

Certainly, the questions posed above are not simple to examine because they require long-term qualitative research and new primary data collection. These questions may form the basis for the next two decades of health management research and health services research. However, there has been so much experimentation with change among health organizations during the last two decades that there is ample ground for these kinds of study. In addition, as future waves of organizational change inevitably occur in the U.S. health system, we believe that the questions posed throughout this literature synthesis in conjunction with our organizing framework will provide a basis for designing studies that can effectively examine future health organizational change.

NOTES

1. Hospital and physician organizations also undertook efforts to develop their own insurance products that were then integrated with their traditional health delivery functions (Shortell, Gillies, and Anderson 1994). However, our review of relevant articles suggested that most of the research looking at financial integration with health delivery assessed provider involvement with capitated contracts. Other than McCue (2001), there is little research literature examining provider decisions to develop and market their own insurance products.
2. Barnett and Carroll (1995) classified resource dependency theory, contingency theory, institutional theory, and transactions cost economics as "strategic adaptation theories" and organizational ecology and evolutionary economics as "selection theories."
3. Another interesting aspect of organizational change in health care not captured in Figure 1 is that a variety of organizational forms are perceived to be alternatives in achieving similar aims. For example, hospitals in the 1990s became involved in contractually based health networks or ownership-based health systems largely to achieve similar aims of developing regional networks and increasing leverage with managed care organizations. Thus, we could imagine a series of alternative State B's arrayed in Figure 1, each with its own net present value and its own costs of change depending on how similar their content was to State A.
4. Of course, one of the difficulties facing health executives as they consider implementing major change is to assess exactly what value the market will place on their

new organization and exactly what investments at which times will be needed to create a State B organization. As is true with any conceptual model, our intent is to illustrate the key components of the decision-making process, namely, the comparison of relevant costs and benefits associated with organizational change, rather than to suggest that organizations have complete and perfect knowledge to precisely measure these components given the uncertainties they face.

5. Most notably, we focused on the Agency for Healthcare Research and Quality and the Changes in Health Care Financing and Organization program of the Robert Wood Johnson Foundation.
6. Another group of studies we excluded only indirectly examined the types of organizational change we were interested in. For example, many studies examined the effects of differences in hospital concentration across markets on hospital costs and prices primarily to examine the effects of competition on these dimensions (i.e., Melnick et al. 1992; Robinson and Luft 1985; Zwanziger and Melnick 1988).
7. There has also been debate over whether this result holds true for nonprofit and for-profit hospitals, with the bulk of the recent evidence supporting the position that both types of hospitals raise prices or net revenues after they consolidate with others. See Lynk (1995b); Dranove and Ludwick (1999); and Keeler, Melnick, and Zwanziger (1999).

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