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Integrated Delivery Networks: A Detour On The Road To Integrated Health Care?

It may no longer make sense for providers to venture beyond the hospital's walls to develop integrated solutions.

by **Lawton R. Burns and Mark V. Pauly**

ABSTRACT: This paper reviews the rationales and evidence for horizontal and vertical integration involving hospitals. We find a disjunction between the integration rationales espoused by providers and those cited in the academic literature. We also generally find that integration fails to improve hospitals' economic performance. We offer seven lessons from hospitals' efforts to integrate and then suggest four alternative models for achieving integrated delivery of health care services.

DURING THE 1990S MANY HOSPITALS pursued twin strategies of vertical and horizontal integration. Each type of integration assumed multiple forms. Vertical combinations included acquisition of primary care physicians (PCPs), strategic alliances with physicians in physician-hospital organizations (PHOs) and management services organizations (MSOs), and the development of health maintenance organizations (HMOs). Horizontal combinations included the formation of multihospital systems, mergers, and strategic alliances with neighboring hospitals to form local networks. All of these combinations are collectively referred to as integrated delivery networks, or IDNs.

While the forms of integration varied across hospitals and markets, their economic performance, after a decade of experience, was generally uniform: Nothing worked.¹ This paper briefly summarizes the evidence for that conclusion from the late 1980s through the 1990s and then asks, What went wrong, and what prospects are there for integrated delivery that we can learn from these lessons?

Provider Versus Theoretical Rationales For Integration

■ **Vertical integration.** Proponents of vertical integration between hospitals and other health care providers and payers mentioned several goals underlying these efforts. These objectives reflected a range of efficiency goals (manage global capita-

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tion, form large patient and provider pools to diversify risk, reduce cost of payer contracting), access goals (offer a seamless continuum of care, respond to state legislation), and quality goals (assume responsibility for health status of local population). Of course, hospitals pursued private agendas in their vertical combinations, such as purchasing PCP practices out of fear of losing their referral bases or the mistaken belief that they could control the referrals. Some large physician groups engineered mergers with closely affiliated hospitals to tap the latter's cash reserves. Finally, some hospitals held the mistaken view that economies of scale and scope resulted from operating a common infrastructure over their diverse provider sites.

These hospital rationales only partially align with the academic view of vertical integration.² The major overlap concerns protecting access to needed inputs (such as referrals). However, the major theoretical rationale for vertical integration rests on gains from improved coordination among trading partners (such as lower costs of contracting and monitoring) that exceed the forgone gains from economies of specialized production. Providers mentioned such considerations rarely, if ever. Moreover, contrary to many providers' belief, there are no general results from economic theory that vertical integration leads to greater efficiency or market power on the part of the firm.³

■ **Horizontal integration.** Hospitals' rationales for horizontal combinations likewise reflected a mixture of efficiency goals (prepare for capitation, reduce excess capacity, strengthen financial position) and access goals (expand the delivery network). In fact, their objective functions for the two broad strategies often overlapped, which suggests that hospitals did not really understand the difference between the two. A major stated objective in horizontal integration was achieving economies of scale. Such economies were believed to flow from several sources, including large patient volumes, sharing of equipment and services, and group purchasing.

There were also a host of private motives behind these combinations. These included the need to prepare for the Clinton health plan and the presumed need to be one of the surviving "accountable health plans" in the local market; respond to stories of investor-owned chains that buy up local hospitals, rationalize their capacity, and out-compete freestanding community hospitals for managed care contracts based on lower costs; and exert greater bargaining power over managed care payers and resist their price-discounting pressures. With regard to this last motive, some local hospital systems may have been pursuing anticompetitive strategies under the banner of improved efficiency and access.⁴ Reports issued by hospital associations that endorsed IDNs provided legitimacy and political cover for what these systems were doing.⁵

As with vertical combinations, the rationales for horizontal integration espoused by providers only loosely conformed to the benefits of merger identified in the economics and strategy literatures.⁶ Many of the finance-related benefits of merger accrue to for-profit firms because they obtain capital in the equity markets, so the benefits do not apply to nonprofit hospitals. Other benefits of hori-

zontal integration include the acquiring firm's belief that it can better use the assets of the target firm, the desire to enter new markets without expanding existing capacity or to speed up entry, to achieve synergies through enhanced performance of the combined firm, to glean economies of scale, and to increase market power by eliminating competitors. As with vertical integration, only the latter two motives parallel providers' stated rationales. Economists note that mergers are motivated by both efficiency and bargaining (market power) considerations.⁷

Performance Of IDNs

■ **Vertical integration.** *Physician practice acquisitions.* Hospitals acquired PCP practices by purchasing the practice assets and then placing the physicians on salary. In so doing, hospitals suffered heavy financial losses (because of high acquisition prices, adverse PCP selection, insufficient practice cash flows, lack of productivity and at-risk compensation incentives, and other factors), failed to garner more managed care contracts and covered lives, and failed to greatly increase physicians' "alignment" with their organizations.⁸ The accumulated losses and the failure of full-risk capitated contracting to develop in local markets led many hospitals to downsize their PCP networks before such benefits could be demonstrated and achieved.⁹

Physician-hospital strategic alliances. Hospital alliances with physicians took a number of forms, such as PHOs and MSOs, in the 1990s. The proportion of hospitals with these types of alliances peaked in 1996 and has declined ever since. By 2000 only 26 percent of hospitals had a PHO (down from 33 percent in 1996), and less than 13 percent had an MSO (down from 22 percent). The alliances' decline was fueled by their lack of managed care infrastructure and failure to attract covered lives in risk contracts and by their failure to improve physician-hospital collaboration and hospital financial performance (costs per day or discharge).¹⁰ More generally, evidence from the 1980s suggests that affiliating or linking outpatient care with a large and complex inpatient institution tends to raise the marginal and average cost of both outpatient and inpatient care.¹¹ While there surely are economies of scope for some medical services (it would not be efficient to have hospitals each specializing in one diagnosis-related group, or DRG), it is clear that there are limitations on the production side to efficient combinations.

Hospital-sponsored HMOs. Hospitals also integrated vertically into the insurance market by establishing their own HMOs. Hospitals experienced widespread failures with insurance products as a result of low capitalization, huge medical loss ratios, conflicting capital needs between hospitals and health plans, lack of expertise in actuarial science (poor pricing of risk) and marketing, and entry into competitive health insurance markets.¹² Recently, hospital systems and networks have begun to abandon their PPO and HMO products.¹³

The handful of successful provider launches of HMOs (Carle Clinic, Marshfield Clinic, Geisinger, Scott and White) may be attributed to some unique advantages

that are not easily imitated by others. These include the anchoring of the IDN around a core multispecialty group established seventy or eighty years ago, giving ample time to develop a coherent medical culture; the IDN's location in a rural area that buffers it against competition and market entry by commercial plans; and early development of the health plan during the 1970s that provided an accumulation of managed care experience.¹⁴ A related set of advantages account for the success of Kaiser and the Mayo Clinic, which other IDNs have failed to imitate.¹⁵

■ **Horizontal integration.** The three types of horizontal integration can be distinguished as follows. Multihospital systems feature common asset ownership but separate system versus hospital boards and executives. Mergers feature common asset ownership and consolidated governance and executive functions. Networks maintain the hospital's separate asset ownership and governance structure.

Multihospital systems. The literature on multihospital system performance during the 1980s reported little evidence of economies of scale and none for improvements in cost per admission, profitability, service provision to the community, charity care, or patient outcomes.¹⁶ Subsequent analyses have generally found that hospital systems do not improve production efficiency (hospital expenses or cost per admission) or market share (inpatient days), may actually incur higher administrative costs, but may achieve some marketing benefits and increased revenues.¹⁷

A recent study of organized delivery systems that reported a positive association between integration and financial performance was based on only eight systems arrayed in a scatter plot (with two important outliers).¹⁸ Despite including some of the vanguard nonprofit hospital systems undertaking integrated delivery, the investigators concluded that they were still "loosely coupled" systems in a nascent stage of development.

Hospital systems are trending from tightly to loosely coupled structures. Between 1994 and 1998 there has been a decrease in systems organized centrally (from 16 percent to 8 percent), an increase in the proportion that are moderately centralized (from 25 percent to 42 percent), and a decrease in the degree of centralization of five of six products and services studied. Researchers suggest that there are diseconomies from overcentralization of hospital systems and a need to blend both centralized and decentralized forms of management in such systems.¹⁹

It is instructive to consider some of the spectacular horizontal successes and failures. Systems such as Partners Health Care, University of Pittsburgh Medical Center (UPMC), and Sutter Health have been successful in extracting greater levels of reimbursement from local payers by combining prestigious flagship and large numbers of high-quality community hospitals.²⁰ On the other hand, several systems have filed for bankruptcy (such as Allegheny Health Education and Research Foundation) or disbanded, while others have experienced double-notch bond downgrades and declines in utilization.²¹ These results may be due as much to poor management and market instability as to system membership, however.²²

Hospital mergers. As was the case with vertical integration, hospital merger activ-

ity peaked in 1996 and has steadily declined ever since.²³ This decline probably reflects the dwindling number of acquisition targets in local markets and the mounting evidence regarding lackluster postmerger performance in both health care and other industries.²⁴

A major finding from this literature is that economies of scale do not flow automatically from hospital size and merger. Indeed, research on the history of large corporations suggests that economies are achieved by driving higher volumes of output at a faster speed through physically consolidated capacity.²⁵ Such conditions are rarely met in hospital mergers. Early research on the economies associated with larger hospital size found inconsistent evidence. Recent studies have found that economies are achieved at low rather than high levels of hospital scale, with more modest cost savings.²⁶ A recent analysis of academic medical center (AMC) mergers reported savings of only 1–2 percent.²⁷ There is evidence suggesting that efficiencies flow from clinical consolidation in merging hospitals.²⁸ However, recent market studies of hospital mergers have noted the extreme geographic and political hurdles to getting clinical departments to consolidate.²⁹

Several studies also have found anticompetitive effects resulting from hospital mergers seeking to eliminate acute care competitors and exercise market power over payers.³⁰ In a set of longitudinal studies and simulations, researchers found that hospitals raise prices in response to mergers, price increases grow over time, and prices rise among both merging hospitals and nonmerging hospitals in the market.³¹ Even studies that find beneficial effects of mergers on price competition report higher prices following mergers in more concentrated hospital markets.³²

Hospital networks and alliances. Recent studies question the efficiencies of local hospital networks. Network membership may fail to improve cash flow per bed and operating expense per adjusted discharge and may fail to compete with system membership in terms of hospital costs and margins.³³ As with hospital systems, the proportion of centralized networks plummeted between 1994 and 1998 (from 18 percent to 1 percent), while moderately centralized and independent networks spread (from 52 percent to 61 percent, and 27 percent to 34 percent, respectively). The degree of centralization of six products and services also dropped. These figures are important because less centralized networks have higher costs.³⁴

Lessons Learned Along The Integration Highway

■ **Lesson 1: Critical assessment of assumptions.** The integration bandwagon was largely driven by key assumptions espoused by providers and consultants in the practitioner literature and industry conferences.³⁵ These assumptions were so often repeated that they became taken for granted as common sense. The assumptions included the following: (1) The California model of capitated health care is heading East; (2) local health care markets are marching through four stages of managed care and integrated health care development; (3) economies of scale logically follow from integration efforts; (4) there are synergies from integrating hospitals, physicians,

“A recent analysis of AMC mergers suggests that the benefits may require at least seven years to come to fruition.”

and health plans; (5) PCPs are essential for capturing managed care contracts from HMOs; (6) hospitals can control the referrals of physician practices they acquire; (7) hospitals can “partner” with physicians; (8) payers are interested in contracting with regional IDNs; (9) hospitals with large market shares can leverage HMOs; and (10) the Clinton health plan is coming. In reality, most of these assumptions turned out to be false.³⁶ Hospital executives failed to critically assess these assumptions, revisit them over time as evidence accumulated, and plan for alternative scenarios.

As part of a critical reassessment, executives must consider whether changing environmental and market circumstances render their integration strategies obsolete. For example, the shift from closed panels in the 1980s to open-access models and the consumer backlash against HMOs in the 1990s suggested that patients did not want closed panels of providers or to be locked into any one system seeking to integrate all levels of care. Simultaneously, the early downturn in the insurance underwriting cycle and the Balanced Budget Act (BBA) of 1997 signaled the coming of “margin compression” and the diminishing likelihood that HMOs would be more interested in paying providers for care management than in seeking steep discounts.

■ **Lesson 2: Leading, speeding, and bleeding.** A common error committed by IDNs was trying to do too much too quickly. Hospital executives believed that speed of IDN implementation would either confer competitive advantage by virtue of being a “first mover” or enable the firm to position itself for market changes emanating from California, the anticipated reforms of the Clinton plan, or the threat of market entry by Columbia/HCA.

The result of leading the market by speeding was often financial bleeding. Systems such as Allegheny, Detroit Medical Center, and the Hospital of the University of Pennsylvania suffered double-digit downgrades in their bond ratings and worsening financial conditions as they quickly rammed their systems together. The University of California, San Francisco (UCSF)–Stanford merger incurred losses totaling \$176 million.³⁷ A recent survey of thirty-seven large IDNs found that the higher the financial investment up front, the greater the subsequent deterioration in the IDN’s operating margins, return on assets, and debt position.³⁸ Finally, the costs of divorce can exceed the costs of combination. These separation costs include legal fees, the need to purchase new information systems or divide up jointly owned systems, the need to amortize prior investments over a smaller organization, reduced pricing leverage with payers, and lawsuits over unresolved liabilities from managed care contracts.³⁹

■ **Lesson 3: Learning curves and new organizational forms.** IDNs represented a new organizational form for the delivery of health care. By the late 1990s,

when most of the studies reviewed above had been conducted, even the vanguard systems had less than a decade of experience in managing these new organizational forms. The investigators who conducted these studies commonly noted that the systems they studied had yet to develop the centralized control mechanisms that might manage them more effectively. Moreover, there was little systematic feedback from experimenting with these forms, which lengthened the learning time and kept hospitals from moving down the learning curve more quickly.

A recent analysis of AMC mergers suggests that the benefits of such combinations may require at least seven years to come to fruition. Unfortunately, merged systems lose a lot of money during the early years, so the net present value could still be negative. Executives and boards, looking for more immediate results in their “leading and speeding” phase, may become impatient and prematurely pull the plug on the system to stop the “bleeding.”⁴⁰ This impatience may be a cultural problem with the West. Studies indicate that a majority of Western firms abandon selected managerial innovations (such as total quality management) after only two years, while their Japanese counterparts (facing lower interest rates) invest decades in their development.⁴¹

■ **Lesson 4: Structure versus process of integration.** IDNs represented a structural approach to integrated health care. That is, they attempted to integrate previously separate providers and functions under common structures and organizational models. All too often, however, they failed to develop a common, standardized set of activities across the different IDN components and to closely link the new structures with new organizational processes of providing incentives to physicians, managing medical staffs, and developing leadership.⁴² Thus, the structural integration was not accompanied by a processual approach to integration. All too often the structural and processual activities were only loosely linked together, with some disregard for day-to-day operations.⁴³

Moreover, the structures that were put in place to integrate different providers often failed to fundamentally alter the manner in which physicians practiced medicine and collaborated with other health care professionals (that is, “clinical integration”). As a result, integrated structures rarely integrated the actual delivery of patient care. This led some observers to suggest the presence of a disconnect between “front office mentality” of executives and their system-building efforts (and their focus on the superstructure of integrated health care) and the “front line mentality” of patient care professionals and teams (who deal with the substructure of integrated health care).⁴⁴

■ **Lesson 5: Generic integration strategies may not confer competitive advantage.** The literature reviewed above provides some empirical evidence that both vertical and horizontal integration fail to confer any competitive advantage on the firm. One explanation is that the firm’s competitors were pursuing the same strategies at the same time. The history of the adoption of managerial innovations and new corporate forms in the hospital industry reveals the strong presence of local imita-

tion and industrywide bandwagon effects.⁴⁵ These effects also seem evident in the pursuit of vertical and horizontal integration, as illustrated by the rapid diffusion of physician-hospital strategic alliances and hospital mergers during the mid-1990s. Indeed, if everyone is pursuing the same strategy at the same time, then competitive advantage may come only from superior execution. Unfortunately, as noted in the previous lesson, such execution may have been absent in most instances.

Another explanation is that IDNs diversified into new business lines that they did not understand or have any competence in managing. With regard to sponsorship of HMOs, hospitals lacked experience in marketing to either commercial accounts or individual seniors, actuarial skills in forecasting enrollees' future expenditures, and information systems for tracking costs and use. With regard to physician practices and strategic alliances, hospitals often understaffed the management of these efforts, managed them using inpatient-based information systems that were ill suited to office-based practice, and burdened them with hospital overhead costs. Generally, unrelated diversification rarely confers value, while related diversification confers value if the strategy is valuable, rare, and costly to imitate.⁴⁶ It is unclear whether any of these conditions were present.

■ **Lesson 6: Balancing polar interests and managing conflicts.** IDNs sought to integrate different professional groups with different orientations. Physicians' needs and interests were often polar opposites of those of the hospital system, requiring hospitals to develop capabilities in "polarity management" that enable harmonization of radically different cultures and incentives.⁴⁷ Evidence cited earlier regarding weak physician alignment with IDNs suggests that these capabilities are not widely developed. IDNs also (unsuccessfully) sought to integrate different businesses with divergent incentives, scales, and capital requirements—often leading to dysfunctional power struggles and conflicts of interest.⁴⁸

A growing body of research on corporate change has recognized the importance of managing polar opposites, conflicting values, and paradox.⁴⁹ Successful firms are those that can operate both globally and locally, be both centralized and decentralized, and employ both top-down and bottom-up planning.⁵⁰

■ **Lesson 7: Payer/consumer interest in integrated health care.** IDNs were assembled not solely or primarily to coordinate patient care delivery at a micro level, but rather to compete against other hospitals as well as to attract HMO contracts and leverage higher reimbursement rates in the local market. Unfortunately for hospitals, HMOs and other payers have not been interested in underwriting their IDN development. Indeed, based on the evidence presented earlier, HMOs rightfully viewed the integration efforts as contracting cartels that wanted better prices for doing the same job, no value added in terms of medical management, and systems with no credible continuum of care.⁵¹

It is also unclear whether IDNs were assembled based on consumers' interest and demand. Surveys have repeatedly shown that patients want easy access to the practitioners of their choice and the convenience of one-stop shopping. It is not

clear, however, whether they ever wanted a “continuum of care” or even understood what that was. Several reports have emphasized that such integrated models of delivery are more appropriate for some segments of the patient population (such as the elderly, the frail elderly, and those with chronic conditions) than for the population at large.⁵² Particularly in the case of acute illnesses or chronic conditions, consumers may value the ability to pick and choose their providers and to act as their own “general contractors.” They want an integrated care package, perhaps, but they want it based on their own preferences.

Four Alternative Models Of Integrated Health Care

Given the retreat of capitation and the resurgence of discounted fee-for-service (FFS) payment, it may no longer make sense for providers to venture beyond the hospital’s walls to develop integrated solutions. Indeed, recent industry reports encourage hospitals to concentrate on their core competencies (clinical processes and people) and adopt a “personalized health enterprise” delivery model.⁵³ If IDNs are not the future of integrated health care delivery, what other models exist?

■ **Customized integration and disease management.** One strategy focuses integrated medical delivery on high-cost and chronically ill patients. Such patients account for a disproportionate share of medical expenditures and are the most appropriate candidates for care models that are integrated around a specific disease or individually tailored to address a complex set of conditions.

In early 2001 the Centers for Medicare and Medicaid Services (CMS) selected fifteen sites for a pilot project to test whether providing coordinated care to Medicare FFS beneficiaries with complex chronic conditions could improve patient outcomes without increasing program costs. During the late summer of 2001, Florida’s Agency for Health Care Administration announced innovative partnerships with two large drug manufacturers—first Pfizer and then Bristol-Myers Squibb—whereby the manufacturers’ drugs would remain on the formulary for Medicaid patients, could be routinely prescribed by physicians treating Medicaid patients without hassle, and would not be subject to price rebates. In return for this favorable treatment, Pfizer agreed to develop technology-based disease management programs for four chronic conditions that use sixty specially trained nurse case managers, located in up to ten hospitals across the state, to conduct outreach, education, and monitoring among 12,000 chronically ill patients whose conditions have not yet become severe. Similarly, Bristol-Myers agreed to fund the hiring of community-based health professionals and social workers to assist black and Hispanic beneficiaries suffering from HIV/AIDS, depression, and various cancers with compliance with their treatment regimens; and community residents to help overcome beneficiaries’ language and cultural barriers to care. Using such programs, Pfizer and Bristol-Myers have promised to save Florida’s Medicaid program \$33 million and \$16 million, respectively, over the next two years.

Such projects rely on two types of care coordination (or integration) programs:

(1) case management programs for patients who are at high risk of hospitalization and adverse health outcomes resulting from their diverse health, functional, and social problems; and (2) disease management programs for patients with a single diagnosis and a common set of care needs related to that diagnosis. These two programs are considered “best practices” in the provision of integrated health care. Services are primarily rendered by nurse coordinators in the home and community and are viewed as preventive rather than acute care; the program is targeted at reducing hospital use.⁵⁴ Nevertheless, hospitals may continue to sponsor such programs, which have been found to reduce utilization, preventable admissions, and costs in Medicare risk plans.⁵⁵ Early evidence from the Coordinated Care Demonstration suggests a 50 percent reduction in costs per hospital stay and a drastic reduction in hospitalization rates for patients suffering from congestive heart failure, yielding a 6–7 percent reduction in cost to Medicare.⁵⁶

Success with these two initiatives depends on the ability to generalize the findings from these demonstrations. Disease management and case management might be included in public insurance programs, including payments or incentives to providers to deliver these integrated services. If so, the lead of the nation’s largest payer (Medicare) and third-largest state payer (Florida) may be followed by private insurers and HMOs.

Success of this prevention-oriented strategy does not necessarily imply success for hospital-based integrated care. The real issue here is which supplier of the medical inputs used by the chronically ill has a comparative advantage in managing the disease care process. Is it the supplier of a crucial medication, or of the information that binds the care process together, or of the inpatient and skilled nursing care, which some patients will still need? Since the primary objective in many disease management plans is to keep patients out of hospitals and nursing homes, one may question whether the managers of those institutions are best positioned, based on either incentives or skills, to take a leading role. Indeed, borrowing from Lesson 4 above, one may question the success of efforts that fail to include front-line providers such as the patient’s physician. Prior research suggests that the physician plays a key role in the success of disease management by encouraging patients to join and by maintaining ongoing involvement in the patient’s care.⁵⁷

■ **Co-location of care.** Joint-venture collaborations in industry often rely on co-location of personnel to achieve coordination of activities. That is, personnel from one firm relocate their offices to the other firm; the intent is to foster greater interaction, learning, and mutual adjustment. Some health care organizations have adapted this model by geographically co-locating specialties and departments. Kaiser Permanente’s Chronic Disease Recovery Program, for example, has located substance abuse services in the same place as primary care provision. PCPs trained in substance abuse are teamed with nurses and medical assistants as part of a “carve-in” program. Compared with traditional models that segregate substance abuse treatment from the primary care clinic, carve-in patients with substance abuse-

“The most radical development is the incorporation of technological advances into new ‘digital hospitals.’”

related medical conditions appear to achieve greater drug abstinence levels at no additional cost.⁵⁸ In a similar vein, the Cleveland Clinic has developed a digestive disease center that co-locates its departments of colorectal surgery and gastroenterology. The physical arrangement allows surgeons and gastroenterologists to collaborate in diagnosing and treating patients; to share rooms and equipment; and to conduct joint, interactive teaching.

Here again, generalizability to other services or beyond the demonstration setting has yet to be determined. Moreover, as noted above, co-locating outpatient care with high volumes of complex inpatient care seems to increase costs. Finally, real improvements obviously arise from skillful planning of collaboration and coordination; physical co-location is an effect, not a cause, of improved management. Following Lesson 4, structural efforts to co-locate personnel require process changes in teamwork and care delivery to facilitate improvements. Successful buyer-supplier alliances in the auto industry, for example, involve joint decision making, cooperative planning, and sharing of detailed technical information—much of which is facilitated by co-location of their personnel.⁵⁹

■ **IT-integrated health care.** A third method to integrate health care relies on information technology (IT). There have been a number of advances here, including electronic medical records (EMRs), personal digital assistants, digital imaging/storage/retrieval, automated drug and supply dispensing, beds with built-in electronic patient charts, remote patient monitoring, electronic transmission of patients’ physiological data, and robotic surgery. Many large hospitals that spent the 1990s attempting to perfect vertical and horizontal integration strategies are now implementing IT solutions at the focal institution. Some have even proclaimed that IT projects (for example, a unified clinical information system with instant physician access to digital patient records, online prescription ordering, and storage and archival of diagnostic scans) have played a central role in their financial turnarounds.

The most radical development is the incorporation of all of these technological advances into newly designed and built “digital hospitals.” HealthSouth, traditionally a provider of integrated rehabilitation services, has announced plans to build several digital acute care hospitals over the next decade (the first is now under way in Birmingham, Alabama). The publicity surrounding the new hospital and its partnership with Oracle not only has attracted other prominent product vendors but also has enabled HealthSouth to negotiate large discounts on all equipment supplied—in effect, lowering the cost of construction.

The plans for the digital hospital call for a wireless communication network and a centralized medical record database that allows physicians equipped with lightweight computer pads to access patients’ vital signs or medical records from

any location at any time. Patient beds will be outfitted with interactive screens to allow staff to enter treatments and update records electronically.⁶⁰ Company executives expect that the reduction in paperwork and improved information access will attract medical and nursing professionals to work in their facilities.

What are the likely prospects for this intervention, either at these beta-test sites or diffused more generally? It is plausible (although difficult to demonstrate so far) that routine patient medical and billing records can be stored or exchanged electronically. It is less obvious that this technology should lead to changes in the cost of care or help to integrate different providers of service. Indeed, the biggest chasm to bridge may be the office systems of different physicians. Kaiser Permanente is reportedly struggling to develop a clinical information system that covers its thousands of physicians and other clinicians.⁶¹ The (as yet undocumented) benefits will likely depend on the ability to harness technological interventions with managerial innovations and interorganizational networks, in effect creating “socio-technical systems of care.”⁶² Following Lesson 5, such technological-organizational linkages will need to be customized for each IDN rather than derived generically. Good information flow would seem to be necessary but not sufficient for more integrated care.

■ **Patient-integrated health care.** A fourth approach to integrated health care empowers individuals and gives them incentives to coordinate their health information and serve as their own gatekeeper. Personal medical records (PMRs)—which allow individuals to store their own histories, medical records, and test results in image format—are already available on the market.⁶³ They represent the consumer’s own version of EMRs (patient-centric rather than provider-centric) that is portable across sites of care with worldwide availability in wireless format to authorized practitioners. The PMR solves the problem (noted above) of lack of connectivity between physicians and their office systems.

The PMR can also incorporate information beyond the clinical encounter such as patients’ input regarding complementary and alternative medicine therapies and advance health care directives, health status and depression assessment, family medical and drug interaction history, medication reminders, emergency notification, preventive health recommendations, and patients’ preferences. It can thus provide point-of-service information to the patient and physician to inform the process of diagnosis and treatment and integrate it with the patient’s prior treatment. A number of health systems have issued “smart cards” to allow their members to store personal health information regarding chronic conditions.

Another illustration is the growing trend among health plans and hospitals to allow patients to self-refer to their panels of specialists. What the patient loses in terms of active coordination of care by a provider and potential fragmentation of care may be more than counterbalanced by the patient’s higher satisfaction with specialist care access and treatment received.⁶⁴ With the managed care backlash and the trend toward open-access models, this approach comes closest to being a

consumer-oriented model of health care delivery.⁶⁵

A related approach is to mass-produce customized and integrated patient services. Here the goal is to combine the advantages of customer focus and individualized care with economies of scale. This approach is borrowed from industry (such as the manufacture of bicycles). One illustration is the Kaiser Foundation's "Cooperative Care Clinics," in which twenty to twenty-five patients receive monthly group visits with a care team consisting of a physician and nurse for routine checkups and lifestyle counseling. Patients may also see other caregivers such as therapists and pharmacists during the visit. One novel element in this model is that patients engage in a lengthy, in-depth group discussion with the physician as well as counseling and communicating with one another. Such dialogue promotes social support, patient education, and informal tips on disease management.

Similarly, some systems have implemented computer-based patient support systems that host discussion groups and personal stories, enable patients to gain greater confidence and perceived self-control in their health care, and improve patients' comprehension of health care information.⁶⁶ Such support systems are believed to reduce inappropriate care and improve quality.⁶⁷

How well these devices work to improve outcomes and what their effects are on levels of spending are not known. In contrast to provider IDNs, patient-integrated health care at least enjoys the potential advantage of patient-centricity and patient interest (following Lesson 7). However, patients may lack motivation to select providers based on costs and to scrutinize their hospital bills. Many patients may not really want to put the time and effort into managing their own care if outcomes are only rarely affected. Integrating with the patient's database information on copayments, or the balance on a spending account, may serve to develop important financial incentives.

The Hospital Of The Future

All of these alternatives give the hospital-based enterprise a role, but by no means the leading role, in linking the services that patients receive. What entity will actually control the process of coordination is still up for grabs. Given the strong trends toward outpatient care, even within a hospital structure, we can probably rule out an inpatient-oriented firm as a contender. The hospital will have to be more than a hospital alone. Economic theory implies that organizational structure and control depend on transaction cost, or its mirror image, transaction productivity. It remains to be seen whether any of the current players, or possibly some wholly new entity, will perform best in that role. The evidence in this paper on what we have found not to work should help in evaluating the innovations we will see.

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NOTES

1. Our longer review suggests that quality outcomes were either unaffected or negatively affected.
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