



**PHYSICIAN ORGANIZATION IN RELATION
TO QUALITY AND EFFICIENCY OF CARE:
A SYNTHESIS OF RECENT LITERATURE**

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ABSTRACT: Health care providers, researchers, policymakers, and the public have a growing recognition that today's health care delivery system is not organized to take advantage of the many drivers of quality and efficiency, and that the system suffers from underuse, overuse, and misuse of care. Many experts believe that greater (and different) delivery system organization is fundamental to improved quality and efficiency. This report summarizes and presents a framework for understanding recent research literature linking delivery system organizational attributes with health care efficiency and quality. The focus is on physician groups, as physicians represent the core of any organized delivery system. The report also highlights areas for further research and refinement of the framework and discusses whether and how policymakers can promote specific physician group attributes as a means of improving value.

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EXECUTIVE SUMMARY

Several recent studies offer compelling evidence that American health care is not as efficient nor as evidence-based as it should be, and that Americans suffer from underuse, overuse, and misuse of care. Many experts believe that greater (and different) delivery system organization is fundamental to improved quality and efficiency. A redesigned delivery system would require an infrastructure largely absent from the cottage industry form of physician practice today.

Some analysts suggest that a model already exists for providing that infrastructure: the organized delivery system. One challenge faced by advocates of this model, however, is the difficulty of clearly describing its structural elements. Due to confusion over the definition of organized delivery systems, a literature search to determine how such systems perform is not straightforward. One study may address a specific structural attribute of the organized delivery system, while the next may address another, etc.

This report addresses that challenge by proposing a framework for synthesizing an emerging but disparate body of literature linking specific attributes of organized delivery systems (specifically, physician practices) to improved quality and efficiency, so that research addressing one attribute can be usefully considered in light of research addressing other attributes. The report also summarizes recent literature, highlights areas for further research, and discusses the role of policymakers in promoting physician group attributes linked to quality or efficiency.

Studies were selected for inclusion in this report based on an informal literature review, discussion with experts working in this area, and review of references in key articles. Emphasis was placed on more recent studies (post-2000), as the intent was to capture emerging knowledge.

A Framework for Synthesizing the Literature

Experts use many terms to describe the same general concept of “organization” among physicians, including integrated delivery systems, organized systems of care, organized delivery systems, and accountable care systems. Each of these terms stakes out a territory that is a point along the organizational continuum, from none to complete vertical integration.

At what point along that continuum is there “enough” organization to meet the quality and efficiency needs of a 21st-century health system? To address that question in

the literature this report first identifies a number of measurable characteristics that represent the core elements of organization. The common denominator of the many concepts of organization referenced here is the physician group practice. A few specific physician group attributes are both key to most of these definitions of organized delivery systems and have been extensively studied in the research literature. These attributes are:

- **Cohesion.** This term describes the degree to which physicians practice collaboratively in a group, with shared purpose, performance measures, and often finances. Because no bright line separates cohesion and its absence, in the literature this quality is often defined by delineating between “true” medical groups and independent practice associations.
- **Scale.** Separate from the degree of cohesion within a practice, a minimum practice size may be required to support necessary infrastructure for quality and efficiency improvements. (Some diseconomies of scale above a certain size may exist.)
- **Affiliation.** This characteristic situates the practice in a larger context. Is the practice part of a system that can provide infrastructure support? Such a system might be created, owned, or supported by a health plan, hospital, physician group, or independent entity.

Most studies of these physician practice attributes measure quality in a handful of ways, including HEDIS (Health Plan Employer Data and Information Set) scores; assessment of the application of specific evidence-based practices; and the presence of care management guidelines; electronic medical records or information technology capabilities, and other quality improvement activities. Researchers have hypothesized that various attributes of organization are positively associated with quality measures, which are, in turn, hypothesized to translate into actual quality of care.

Physician Groups, Quality, and Efficiency

This report summarizes several studies exploring the relationship of physician group cohesion, scale, and affiliation with quality of care. These attributes appear to contribute to quality, although the research is not entirely conclusive. Instead, findings synthesized here begin to buttress with evidence the theoretical case for delivery system reform through physician group organization. Today, the state of that evidence is not great, but it is good enough to be intriguing and to prompt further study.

The report also summarizes the somewhat-limited literature on the efficiency of organized delivery systems or physician groups. Efficiency of health care delivery varies greatly. Work by Elliot Fisher and colleagues indicates that if health care providers in all regions of the country were as efficient as those in the most efficient regions, Medicare savings of up to 30 percent would be possible. The challenge for efficiency-seekers is to identify *which* 30 percent of care is unnecessary and could be eliminated safely. It would be naïve to suggest that any health care provider has the key to doing this correctly. Some evidence indicates, however, that multispecialty and/or prepaid group practices use fewer resources—or get more for the resources they do expend—than do other providers.

Discussion

Although research suggests a link between group practice organizational attributes and quality or efficiency, researchers don't know exactly why these links exist, nor the direction of causality. Most likely, the attributes of cohesion, scale, and affiliation are proxies for other, more difficult to study, characteristics. Leaders of high-performing integrated delivery systems suggest several characteristics that are key to their performance:

- *Strong Physician Leadership.* Many of the best-known integrated delivery systems and large multispecialty medical groups were founded by strong and charismatic physician leaders.
- *Organizational Culture.* Shared vision, values, and sense of mission around stewardship for both individual patients and populations is critical to performance.
- *Clear, Shared Aims.* Clarity of aims allows for meaningful performance measurement and encourages internal, transparent sharing of performance data. Shared aims also ensure that different parts of the organization are not hampering one another's attempts to improve quality and efficiency.
- *Governance.* As used here, governance refers to an organization's ability to set goals purposefully and implement a plan to achieve them. Someone or something (e.g., a board of directors) can cause the organization to act collectively and intentionally to improve quality or efficiency.
- *Accountability and Transparency.* Accountability to employers and patients, coupled with transparency of information, can help improve quality of care. Research shows that groups with external incentives—financial or otherwise—for improving quality tend to score better on quality indices.
- *Selection and Workforce Planning.* In organized delivery systems, leaders can select providers for participation, excluding those who do not meet standards.

Organized systems also can be more intentional about the mix of providers they include (e.g., primary vs. specialty care, physicians vs. ancillary providers), targeting them toward the population's health needs.

- *Patient-Centered Teams.* Multidisciplinary teams of providers may provide higher quality care than individual providers. As physicians organize and affiliate with other parts of the delivery system, their one-on-one relationships with patients can be leveraged to connect the patient to a team of providers and to the delivery system as a whole. Alternately, rather than being a key to the success of systems, teams may detract from patient-centeredness (or the human scale of care), as the relationship with a single provider becomes less important.

It is the attributes listed above (and likely others not listed), rather than cohesion, scale, and affiliation per se, that are hypothesized to create a causal link to quality measures and, ultimately, to quality itself.

Implications

Evidence increasingly shows that improved “systemness” drives quality and efficiency. Until a better understanding is reached of how specific organizational attributes contribute to systemness, however, policymakers should strive to create an environment that rewards quality itself (rather than tying incentives to organizational attributes). An important area of focus is the payment system. No amount of evidence of the superiority of systems will encourage providers to join group practices if payment incentives work in the opposite direction, as some do today.

The pure fee-for-service (FFS) payment model can discourage the organized, integrated care that is the hallmark of systems. Under FFS, physicians and hospitals are rewarded for taking actions—doing procedures, prescribing drugs, performing tests, etc.—regardless of whether the best evidence calls for such actions. FFS may also stand in the way of cooperation and collaboration across the delivery system, as each provider has an economic interest in providing more services for the patient, rather than in collectively determining how much and what mix of care is ideal.

Changing payment systems to reward quality and efficiency requires action on two fronts, both of which are examples of value-based purchasing. First, payments should reward better care. Schemes designed to do this include prepayment (coupled with quality measurement and reporting) and pay-for-performance, which builds on FFS. Second, the unit of payment should be large enough to encourage providers to seek efficient combinations of resources. A bundled payment for a complete episode of care, for example, might encourage coordination of inpatient and post-acute care.

As policymakers and purchasers focus on quality and efficiency outcomes, researchers should continue studying high-performing health systems to understand how they produce value. This work would provide a foundation for understanding how the best attributes of organized physician groups can be adapted for use in the broader, less-systematized health care mainstream.

PHYSICIAN ORGANIZATION IN RELATION TO QUALITY AND EFFICIENCY OF CARE: A SYNTHESIS OF RECENT LITERATURE

INTRODUCTION

While much of today's health care reform debate focuses on expanding access, equally important is the issue of improving the quality and efficiency of the delivery system. Highly regarded recent studies have offered evidence that health care is not as efficient nor evidence-based as it should be, and that patients suffer from the triple quality shortfalls of underuse, overuse, and misuse of care.¹ Researchers have also found massive, unexplained variations in resource use for similar conditions, indicating poor value in some cases.² Although there is no silver bullet for poor health system performance, we know that the delivery system must be organized to take advantage of the *many* drivers of efficiency and quality. Specifically, the Institute of Medicine's (IOM's) 2001 report *Crossing the Quality Chasm* proposed that a Twenty-First Century delivery system must meet six challenges: redesign care processes; make effective use of information technologies; manage clinical knowledge and skills; develop effective teams; coordinate care across patient conditions, services, and settings over time; and incorporate performance and outcomes measurements for improvement and accountability.³

A delivery system designed along the lines proposed by IOM requires an infrastructure largely absent from the cottage industry that constitutes the majority of physician practice in the United States today. The concept of improving health care delivery through the organization of physicians dates back at least 75 years, when the Committee on the Costs of Medical Care called for the expansion of group practice, building on the pioneering experience of the Mayo brothers in Minnesota.⁴ While the American medical establishment of the 1930s, dominated by solo-practice physicians, failed to embrace the committee's recommendations, subsequent generations of group practice advocates now believe that coordination of care by physicians practicing together offers advantages in improving quality and optimizing value.

Until recently, though, few studies have compared types of physician organization to determine how different forms translate into quality or efficiency. Over the last two decades, a large body of literature has compared health maintenance organizations (HMOs) to fee-for-service (FFS) delivery systems, but few studies drilled down below the common financing characteristics of HMOs to explore differences in physician group organization. A comprehensive analysis of the literature on HMO effectiveness and

efficiency concluded that HMOs reduce utilization without reducing quality, but noted as much variability within HMOs and how they deliver care as between HMOs and other types of delivery systems.⁵

An additional obstacle to development of evidence on the impact of various physician organizational attributes has been the difficulty of obtaining outcomes and process data from disaggregated providers for comparison against organized groups. This problem is declining, however, as more investigators—most prominently, those associated with the Dartmouth Atlas project and RAND—have begun publishing groundbreaking research on quality in FFS medicine.⁶

New research provides insights about moving from a cottage industry to something more purposefully organized, something with the infrastructure necessary to meet IOM's challenges. Some analysts have suggested that a model already exists for providing that infrastructure: the organized delivery system.⁷ One challenge faced by advocates of this model, however, is that of clearly describing its structural elements. Because of confusion about the definition of an organized delivery system, a search of the literature to determine how such a system performs is not straightforward. One study may address a specific structural attribute of the organized delivery system, while the next study may address another, and the next another.

This report addresses that challenge by: 1) proposing a framework for synthesizing an emerging but disparate body of literature linking attributes of organized delivery systems (specifically, physician practices) to improved quality and efficiency, so that research addressing one attribute can be considered in light of research addressing other attributes; 2) summarizing some of the more recent literature; 3) highlighting areas for further research and refinement of the framework; and 4) discussing whether and how public and private policymakers can promote these specific physician group attributes as a means of improving value in the health care system.

THE FRAMEWORK

Policy analysts have a hard time describing “organization” among physician groups, although they know it when they see it. In fact, they do not even agree on what to call it. Experts each have their own terms for the same general concept. Some refer to “integrated delivery systems,” others to “organized systems of care,” and still others to “organized delivery systems,” “accountable care systems,” “patient-centered medical homes,” or simply, “systemness.”⁸ Others refer to a culture that exists when group practices become larger and more complex or become part of a larger health system.⁹

Each of these terms stakes out a territory that is a point along an organizational continuum, from none (the pure cottage industry model) to complete vertical integration (the Kaiser Permanente or Veterans Health Administration models).

At what point along that continuum is there “enough” organization to meet IOM’s six redesign challenges? To address that question in the literature, researchers must agree on a number of measurable characteristics that could represent the core elements of organization.

As Shortell et al. have noted, the goal of any classification system is “to identify a few meaningful criteria that can usefully distinguish organizations that are more alike than those that are different.”¹⁰ The common denominator of the many concepts of organization referenced above is the physician group practice—the foundation of the delivery system.¹¹ This report examines a few specific physician group attributes that are key to most definitions of organized delivery systems and have been extensively studied in the research literature. This framework is not prescriptive regarding the attributes of organized systems or drivers of quality, but rather is descriptive of the ways researchers have presented these concepts in the literature. These attributes are:

- **Cohesion.** Defined in the dictionary as “the act or process of sticking together tightly,” cohesion is a quality internal to a practice, in contrast to “affiliation,” below, which is external. Cohesion is the degree to which physicians practice collaboratively in a group—not necessarily in the same building, but with a shared purpose and a collective ability to carry out shared intentions. Group members, as opposed to more loosely affiliated physicians in networks, share experiences and lessons, an approach to practice, and measures of performance. They may also share finances and common, comprehensive patient records. Physicians work for the good of the same organization and are not economic rivals. Because there is no bright line between cohesion and its absence, in the literature, this quality is most often described by delineating between “true” medical groups, more loosely affiliated networks or independent practice associations (IPAs), and unaffiliated, solo practices.
- **Scale.** Separate from the degree of cohesion within a practice, a minimum practice size may be required to support necessary infrastructure, such as disease management teams, electronic records, and systems for developing and sharing best practices. (Experts do not agree, however, regarding what the minimum size should be. In addition, some diseconomies of scale may occur above a certain

size.¹²) Size is also an important variable in influencing organizational culture in general.¹³

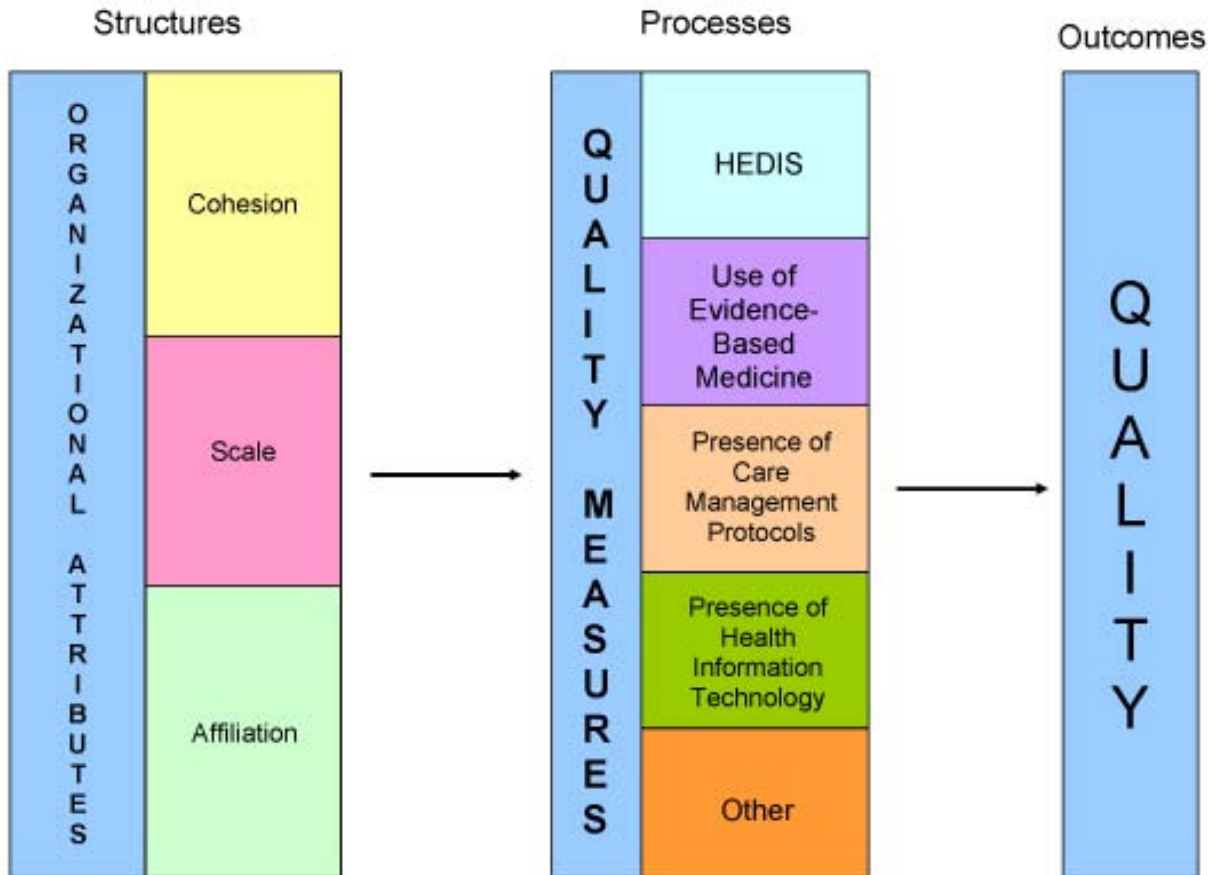
- **Affiliation.** This term refers to the affiliation of a practice with a larger system. While cohesion refers to an internal quality of the practice, affiliation situates the practice in a larger context. Is the practice part of a system that can provide infrastructure support? As articulated in the concept of the patient-centered medical home, can care be “coordinated and/or integrated across all elements of the complex care system (e.g., subspecialty care, hospitals, home health agencies, nursing homes) and the patient’s community (e.g., family, public and private community-based services)”?¹⁴ Such a system could be created, owned, or supported by a health plan, a hospital, other physicians, or an independent company.

These attributes are not entirely separable from one another. Aspects of cohesion, for example, may be intertwined with scale. It is useful to think of these attributes as a Venn diagram of three slightly overlapping circles which, taken together, paint a picture of organization. Within the literature, the area where those circles overlap is not always clear—researchers use different terms to discuss similar concepts.

While defining organization in a meaningful way is difficult, defining quality is perhaps even more difficult. Most studies of the relevant physician group attributes measure quality in a handful of ways. These methods include HEDIS scores; assessment of the application of specific evidence-based practices; and the presence of care management protocols or guidelines, electronic medical records or information technology, and other quality improvement activities.¹⁵

These quality measures and physician practice organizational attributes come together in the framework shown in Figure 1. Researchers have hypothesized that various attributes of organization are positively associated with quality measures, which are, in turn, hypothesized to translate into actual quality of care. (This report does not explore the links between the quality measures in Figure 1 and actual quality, but literature on each is available.¹⁶) This three-part framework is analogous to Donabedian’s quality framework, comprised of structure, process, and outcomes.¹⁷ The organizational attributes in the first column of Figure 1 can be thought of as structures, while the measures are process measures, presumed to relate to actual quality or outcomes (mortality, morbidity, etc.).

Figure 1. Linking Physician Group Organizational Attributes to Quality of Care



Source: Author's analysis and Donabedian, 1966.

This report also provides a review of the somewhat-limited literature linking physician group organizational attributes to efficiency, a term with at least as many meanings as quality.¹⁸ Here, an efficient provider expends fewer resources for the same health outcomes as other providers, or the same amount of resources for a better outcome.

This report is not intended as a systematic review of the literature on this subject. Rather, it is meant as a tool to help synthesize some of the more recent literature that deals with various aspects of organized delivery systems. Studies were selected for inclusion based on an informal review of the literature, discussion with experts working in this area, and review of references in key articles. Emphasis was placed on more recent studies (post-2000), as the intent was to capture emerging knowledge. A more formal, systematic literature review would also be welcome; this report may serve as a starting place for such an effort.

PHYSICIAN GROUPS AND QUALITY OF CARE

Two studies found that specific organized delivery systems—the Permanente Medical Groups and the Veterans Health Administration, respectively—performed better than their less-organized counterparts on a number of quality measures.¹⁹ Unlike these two important studies, which looked at selected organized delivery systems as a gestalt, the studies reviewed for this report break delivery systems into specific structural attributes, potentially rendering their findings more generalizable to other physician groups.

A summary of findings from the studies reviewed is presented in Table 1. A more detailed explanation of each study can be found in [Appendix A](#), beginning on page 15.

Table 1. Summary of Study Findings on Physician Groups and Quality of Care

COHESION	
<i>Reference</i>	<i>Finding</i>
Mehrotra, Epstein, and Rosenthal, 2006	Integrated medical groups (IMGs) more likely than independent practice associations (IPAs) or hybrids to have an electronic medical record and to use more quality improvement programs. IMGs had higher HEDIS-like scores than IPAs on four preventive measures but not on two chronic disease measures.
Gillies et al., 2006	The greater the extent to which an HMO’s physician network is characterized as either a group or staff model, the higher the plan’s performance on four out of five composite quality measures.
Schmitt diel et al., 2004	Medical groups more likely to use patient-level reminders than IPAs; no differences in use of physician-level reminders.
McMenamin et al., 2004	Medical groups four times more likely to offer any of eight health promotion programs than IPAs; being a medical group rather than an IPA significantly and positively associated with increase in the number of programs offered.
McMenamin et al., 2003	Significant, positive association between being a medical group (as opposed to an IPA) and offering smoking cessation support.
Shortell and Schmitt diel, 2004	Twelve large prepaid medical groups significantly more likely to use care management processes for patients with asthma, congestive heart failure, depression, and diabetes than other large but more loosely organized groups.
Casalino, Gillies et al., 2003	Positive but insignificant association between being a medical group (vs. an IPA) and greater use of care management processes.
Li et al., 2004	Of physician organizations treating diabetes, medical groups use more diabetes care management processes than IPAs, but difference is insignificant.
Kim et al., 2004	Among for-profit health plans, group/network models provide more recommended diabetes processes of care than IPA/direct-contracting models. Among nonprofit health plans, no effect observed relating to contracting model.
Parkerton, Smith, and Straley, 2004	Within a single, large, multispecialty group, primary care practice coordination (measured by shared practice, team tenure, and medical clinic size) associated with beneficial outcomes in cancer screening in women, diabetic management examinations, and patient satisfaction.

SCALE	
<i>Reference</i>	<i>Finding</i>
Ketcham, Baker, and MacIsaac, 2007	Medicare patients with myocardial infarction treated by solo-practice physicians more likely than any other patients to die and least likely to receive cardiac catheterization or percutaneous transluminal coronary angioplasty (PTCA). For smallest three practice-size categories, mortality decreased and rates of catheterization and PTCA increased with size; effect leveled off for groups with 10 or more physicians.
Audet et al., 2005	Physicians in larger and salaried groups more likely to engage in various quality improvement activities than solo-practice and non-salaried physicians. Physicians in groups of 50+ more likely than solo-practice physicians to easily generate basic practice-level data for quality monitoring, to report receiving quality of care data from any source, or to generate internal quality data.
Mehrotra et al., 2007	Physician group characteristics independently and significantly associated with quality improvement initiatives included having more than the median number of physicians in the group (39 primary care physicians).
McMenamin et al., 2004	Physician group size significantly and positively associated with offering of health promotion programs.
McMenamin et al., 2003	Physician group size significantly and positively associated with offering of smoking cessation program.
Audet et al., 2004	Predominant factor affecting use of information technology in physician offices is practice size (87 percent of large group practice physicians have access to electronic test results vs. 36 percent in solo practice). Physicians in large groups more likely than solo practitioners to use electronic medical records, receive electronic drug alerts, use e-mail to communicate with colleagues and patients, and practice in a “high-tech” office.
Mehrotra, Epstein, and Rosenthal, 2006	Physician groups with larger volumes of patients have higher scores on HEDIS-like preventive care measures than other groups, but difference was insignificant.
Casalino, Gillies et al., 2003	Significant but very small association between size of IPA and likelihood of performing various care management processes. No similar association relating to medical groups and size.
Rittenhouse and Robinson, 2006	Direction of association between primary care practice size in California and use of care management processes for Medicaid patients inconsistent across target populations (patients with diabetes or asthma, adolescents, and children) and significant (and positive, but tiny) association only for patients with asthma.
Friedberg et al., 2007	Weak and inconsistent relationship between physician group size and performance on HEDIS measures among primary care physicians practicing in groups of three or more in Massachusetts.
Curoe, Krlewski, and Kaissi, 2003	Increased size of medical group led to decrease in level of cultural dimensions of quality emphasis, organizational trust, and collegiality.
AFFILIATION	
<i>Reference</i>	<i>Finding</i>
Casalino, Gillies et al., 2003	Physician organization ownership by hospital or health plan significantly associated with greater use of care management processes (effect is very small).
McMenamin et al., 2004	Physician organization ownership by hospital or health plan significantly and positively associated with increase in number of health promotion programs offered.

<i>Reference</i>	<i>Finding</i>
McMenamin et al., 2003	Physician organization ownership by hospital or health plan significantly and positively associated with presence of smoking cessation programs.
Rittenhouse and Robinson, 2006	One factor strongly associated with use of more care management processes for Medicaid patients with diabetes and asthma is being a community clinic or hospital-based clinic (vs. an IPA). Association did not hold true for use of preventive care management processes.
Mehrotra et al., 2007	Physician groups affiliated with network of physician groups two-and-a-half times more likely than other groups to have quality improvement initiatives. Finding is statistically significant.
Friedberg et al., 2007	Network-affiliated primary care physicians practicing in groups of three or more had higher scores on 10 out of 12 HEDIS measures than did non-affiliated groups, with mean performance rate differences ranging from 2–14 percentage points.
Curoe, Krlewski, and Kaissi, 2003	In physician groups, cultural dimension of quality emphasis increases as ownership shifts to systems (as opposed to physician ownership).

PHYSICIAN GROUPS AND EFFICIENCY

Efficiency of health care delivery varies greatly. Fisher et al. conducted seminal research on the FFS Medicare population, finding greater than two-fold differences in health spending nationally during the last six months of life.²⁰ Race-, age-, and sex-adjusted spending at the end of life in 1996 was \$8,414 in the Miami area, compared to \$3,341 in Minneapolis. Similar variations were found for all conditions and types of care examined. The differences in spending were not due to differences in prices of medical services or in average levels of illness or socio-economic status. Rather, “They [were] due to the overall quantity of medical services provided and the relative predominance of internists and medical subspecialists in high-cost regions.”²¹

Higher-spending regions performed no better than lower-spending regions on most measures of quality and performed worse on several preventive care measures. Health outcomes and patient satisfaction were also no better in higher-spending areas.²² If all regions used the same level of inputs as the lowest-spending regions, savings of up to 30 percent would be possible for Medicare.

The challenge for efficiency-seekers is to identify which 30 percent of care is unnecessary and could be eliminated safely. Suggesting that any health care provider has the key to doing this correctly or that certain methods always result in improved efficiency would be naive. A number of studies suggest, however, that multispecialty group practices and/or prepaid group practices do, in fact, use fewer resources—or get more for the resources they expend—than do other types of providers. A summary of

findings from these studies is presented in Table 2. A more detailed explanation of each study can be found in [Appendix B](#), beginning on page 22.

Table 2. Summary of Study Findings on Physician Groups and Efficiency of Care

EFFICIENCY	
<i>Reference</i>	<i>Finding</i>
Medicare Payment Advisory Commission, 2007	In four geographic regions studied, spending on the highest quintile of Medicare beneficiaries was lower for patients associated with multispecialty or hospital-affiliated groups than for other patients.
Chuang, Luft, and Dudley, 2004	Meta-analysis. Costs about 25 percent lower in prepaid group practices than in health plans built around other types of provider groups; not possible to determine what aspect of the prepaid group practices drives down costs.
Feachem, Sekhri, and White, 2002	For approximately same cost per person, integrated Kaiser Permanente achieved better performance in several quality areas than did the British National Health Service (characterized by sharp budgetary and organizational divisions between primary and specialty care and between inpatient and outpatient care). Authors attribute Kaiser’s better performance to “integration throughout the system.”
Ham et al., 2003	For 11 leading acute causes of hospitalization for people 65 and over, bed-day use in the British National Health Service was three-and-a-half times that of Kaiser Permanente’s standardized rate.
Goodman et al., 2006	Three-fold difference in physician full-time-equivalent (FTE) inputs for end-of-life Medicare patients at academic medical centers. Differences in physician FTE inputs highly correlated with physician FTEs per Medicare beneficiary in the community, suggesting academic medical center staffing patterns reflect patterns of community in which they are located. Many of lowest-input academic medical centers geographically close to large, multispecialty group practices (Cleveland Clinic, Kaiser Permanente, Mayo Clinic, Intermountain Health Care, Scott and White Clinic, and Dartmouth-Hitchcock HealthCare System).
Sterns, 2007	In seven out of nine measures, chronically ill patients receiving care in 14 specific integrated delivery systems used fewer physician resources in the last 24 months of life than did chronically ill Medicare patients nationally. Integrated delivery system patients also used 18 percent fewer hospital days and 34 percent fewer ICU days in the last 24 months of life than their national counterparts. Total physician and hospital spending for patients in integrated delivery systems were 24 percent and 2 percent less, respectively, vs. other settings.

DISCUSSION

If IOM’s *Crossing the Quality Chasm* report and its call for system redesign are not to suffer the same neglect as the 1932 report by the Committee on the Costs of Medical Care, the theoretical case for delivery system reform through physician group

organization must be buttressed by persuasive evidence of its advantages. What is the state of that evidence today? The answer is, in short, not great, but good enough to be both intriguing and frustrating.

Cohesion, scale, and affiliation with a system appear to be positive attributes, but questions remain. Critically, researchers do not know exactly why these attributes are linked to higher quality. Most likely, they are proxies for other, harder-to-study characteristics. Future research must drill down below the surface of these three attributes (or structures, in Donabedian's typology) to provide a more nuanced assessment of the drivers of quality and efficiency. Based on the author's and others' experience and conversations with integrated delivery system leaders, the following attributes/structures are suggested as worthy of further study:²³

- **Strong physician leadership.** Ham et al. believe that strong physician leadership is one of the critical factors that allowed Kaiser Permanente to achieve significant efficiencies compared to NHS.²⁴ How can effective, credible, high-integrity leadership of physician groups be measured to determine its impact on quality and efficiency?
- **Organizational culture.** What is the role of culture relative to quality and efficiency? Many physician leaders believe their organizations' shared vision, values, and sense of mission are critical to their performance, as is a professional culture of stewardship for both individual patients and populations. How can these aspects of culture be measured? Further, if culture does play an important role, what is the direction of causality? Are certain types of physicians naturally attracted to a specific cultural environment found in organized systems? Or does the system itself shape the physicians' preferences for a certain practice style as they acculturate (the nature vs. nurture question)? This report cites a few studies that have examined culture, but more work is needed in this area, drawing on the fields of sociology and cultural anthropology.
- **Clear, shared aims.** Don Berwick of the Institute for Healthcare Improvement has emphasized the importance of an organization having clear quality improvement "aims," without which he believes progress is impossible.²⁵ The presence of shared aims (an important aspect of culture) allows for meaningful measurement of performance and encourages open sharing of performance data within an organization. This, in turn, can contribute to a shared sense of professional pride and healthy competition among clinicians to perform the best

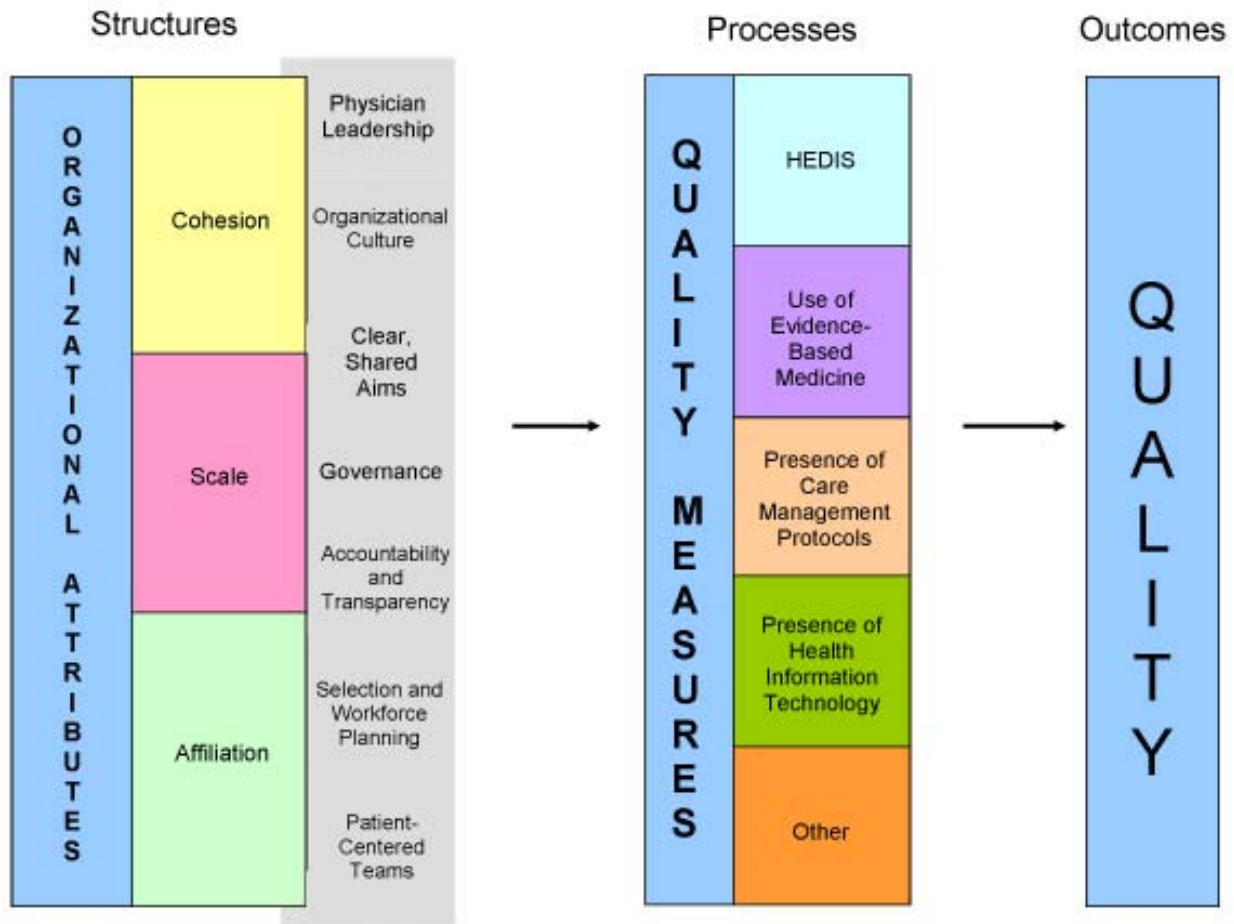
on common measures. Shared aims also ensure that different parts of the organization are not working at cross purposes or hampering one another's attempts at achieving improved quality and efficiency.

- **Governance.** As used here, governance refers to an organization's ability to set goals purposefully and implement a plan to achieve them. Someone or something (e.g., a board of directors) is in charge and can cause the organization to act collectively and intentionally. One testable hypothesis is that organizations with weak governance structures—whatever their form—have difficulty taking action to improve quality or efficiency.
- **Accountability and transparency.** Many experts believe that accountability to external stakeholders, coupled with transparency of information, will lead to improved quality. Little agreement exists, however, on the meaning of those terms. A number of researchers have found that groups with external incentives for improving quality tend to score better on quality indices.²⁶ These incentives can be financial (e.g., pay-for-performance) or non-financial (e.g., a requirement to report performance data). What other aspects of external accountability and transparency are observable and can be linked to quality and or efficiency of care?
- **Selection and workforce planning.** Unlike the non-system, organized delivery systems can select providers for participation and exclude those who do not meet standards of quality and efficiency. In addition, systems can be much more intentional about their mix of providers (primary vs. specialty care, physicians vs. ancillary providers), more closely targeting that mix to the population's health needs.
- **Patient-centered teams.** A number of experts have suggested that providers practicing in teams can provide higher quality care than others, but more work is needed in this area.²⁷ The quality of patient centeredness—or the ability to organize providers around patients' needs—has also been hypothesized as key to a system's ability to provide high-quality care.²⁸ Historically, one of the most important roles played by individual physicians has been developing and maintaining a connection with the patient. As physicians organize and affiliate with other parts of the delivery system, that important one-on-one relationship is leveraged to connect the patient to a team of providers organized around his or her needs. Alternately, rather than being a key to the success of systems, teams may

detract from patient-centeredness (or the human scale of care), as the relationship with a single provider becomes less important.

Figure 2 shows how these more-nuanced organizational attributes or structures could be added to the framework used to describe the literature in Figure 1. The organizational attributes listed in the shaded area beside the first column underlie the original three proposed in this report. It is these attributes (and likely others not listed here), rather than cohesion, scale, and affiliation *per se*, that are hypothesized to create the causal link to the process quality measures. Figure 2 essentially presents a framework for generating testable hypotheses about the drivers of quality.

Figure 2. Hypotheses Regarding the Link Between Physician Group Organizational Attributes and Quality of Care



Source: Author's analysis and Donabedian, 1966.

Future research will be aided by innovations in the measurement of physician group organizational attributes. The National Committee for Quality Assurance, for example, is working with the four primary care specialty societies to develop measures to qualify primary care practices as patient-centered medical homes. The Agency for Healthcare Research and Quality, through its Evidence-Based Practice Center at Stanford University and the University of California–San Francisco, is developing a definition of care coordination to allow for assessments of its impact on quality.²⁹ With stronger tools such as these for quantifying systemness, assessing the links between organizational attributes and quality will be easier.

IMPLICATIONS

This report does not purport to prove that organized physician groups are superior. Rather, it seeks to synthesize the more recent literature linking attributes of organized physician groups to quality or efficiency, using a framework (Figure 2) to which additional attributes could be added easily. With respect to that goal, the report does have an important limitation. For the most part, the literature does not indicate which relationships are causal, nor the likely direction of causality if it exists.

While further study is needed, policymakers and purchasers need answers now. Stakeholders have little disagreement that the health care system must be redesigned to reward the drivers of quality and efficiency. Growing evidence suggests that organized delivery systems (as defined here) do in fact drive quality and efficiency, but because the specific causal mechanism is unknown, it may be too early to tie incentives to individual organizational attributes. Until more is known about specific organizational attributes that might lead to improvement, policymakers should strive to create the right environment to reward quality and efficiency. No amount of evidence of their superiority will cause providers to form organized systems if the payment environment does not encourage systemness.

A question often put to advocates of organized systems is “If you are so great, why haven’t you taken over the market”? Several researchers have studied the limitations of organized systems.³⁰ Many experts agree that the predominant FFS model discourages the organized, integrated care that is the hallmark of systems. Under FFS, physicians and hospitals are rewarded for taking actions—doing procedures, prescribing drugs, performing tests, etc. This payment system may encourage quality when the best evidence calls for doing more. The best evidence, however, sometimes calls for not doing something or for taking a more conservative approach. FFS payment also causes us to ask the wrong questions in evaluating quality (e.g., “Did the patient survive the bypass surgery”? instead of “Could the bypass surgery have been avoided”?) FFS may also stand

in the way of cooperation and collaboration across the delivery system, as each provider has an economic interest in providing more services for the patient, rather than in collectively determining how much and what mix of care is ideal.

Changing payment to reward quality and efficiency requires action on two fronts, both of which are examples of value-based purchasing. First, payments should reward better care. Payment schemes designed to do so include prepayment (coupled with quality measurement and reporting) and pay-for-performance, which builds on FFS. Second, the unit of payment should be large enough to encourage providers to seek efficient combinations of care resources. A bundled payment for a complete episode of care or a specific condition, for example, might encourage coordination of inpatient and post-acute care and better prevention. A number of value-based purchasing initiatives such as these are underway.³¹

If such initiatives are successful at rewarding quality and efficiency, and if quality and efficiency are indeed characteristics of organized systems, then increased systemness will become evident over time. Providers who are rewarded for efficient, evidence-based health outcomes will take pride in being stewards of their patients' health and finite resources without compromising quality or patient satisfaction. In the meantime, as policymakers and purchasers focus on outcomes, researchers should continue to examine high-performing health systems, not only to describe their attributes but also to better understand the levers that link those attributes to quality and efficiency. This work will provide a foundation for understanding whether and how the best attributes of organized physician groups can be exported to a predominantly cottage industry.

APPENDIX A. SUMMARY OF LITERATURE LINKING ORGANIZED PHYSICIAN GROUPS TO QUALITY

Cohesion

One hypothesis explored in a number of recent studies is that the cohesion of a physician practice can impact quality of care. Mehrotra, Epstein, and Rosenthal characterize cohesion as a spectrum, with integrated medical groups (IMGs) at one end and independent practice associations (IPAs) at the other.³² They state, “[IMGs are] centralized organizations in which physicians are employees or participants in a partnership arrangement. . . . Physicians belong to only one IMG and practice together in facilities owned and managed by the group.” In contrast, “IPAs . . . are decentralized groups. . . . Physicians typically have nonexclusive contractual relationships with IPAs and generally manage their own office independently.”³³

Mehrotra and colleagues analyzed 119 physician groups contracting with PacifiCare in California to determine whether cohesion, or being in a true group, is related to quality. They interviewed physician group leaders, asking them to self-identify as an IMG, an IPA, or a mix of the two (a “hybrid”). They also asked about various quality improvement strategies (e.g., using a diabetes disease management program, or contacting patients who missed immunizations or influenza vaccines). Finally, they asked whether the group’s physicians received a quality bonus and if they used an electronic medical record (EMR). Quality data based on Health Employer Data Information Set (HEDIS)-like measures were developed by PacifiCare using claims and were independently audited. They found statistically significant evidence that IMGs were more likely than hybrids or IPAs to have an EMR (37 percent vs. 18 percent and 2 percent, respectively) and used more quality improvement programs (7.2 out of 11, vs. 5.3 and 4.5, respectively). Being an IMG vs. an IPA was also significantly associated with having higher HEDIS-like scores for four preventive measures (mammography, pap screening, Chlamydia screening, and diabetic eye exam) but not for two chronic disease measures (asthma control medication and beta-blocker following acute myocardial infarction).

Gillies et al. examined the impact of cohesion on quality by comparing composite quality scores (based on HEDIS measures) for staff and group model health maintenance organizations (HMOs) to those of HMOs built on loosely affiliated physician networks.³⁴ The greater the extent to which an HMO’s physician network was characterized as either a group or staff model, the higher the plan’s performance on four out of five composite quality measures: women’s health screening, immunization rates, heart disease screening, and diabetes screening.

Another series of studies examined quality differences among physician groups using survey data from the National Study of Physician Organizations (NSPO).³⁵ The first round of the survey, conducted in 2000 and 2001, involved telephone interviews with leaders of 1,104 medical groups having at least 20 physicians each. Interviewees self-identified their groups as being medical groups or IPAs, using the following criteria:

- Medical groups provide health care services by three or more physicians who are formally organized as a legal entity governed by physicians, in which business, clinical, and administrative facilities, records, and income are shared.
- IPAs are organizations through which physicians contract with HMOs. Physician members of an IPA practice in solo or group practices that are independent of each other.³⁶

In one report based on these data, Schmittiel et al. examined the predictors of patient and physician reminder system use for preventive services.³⁷ They found that medical groups were more likely to use patient-level reminders than IPAs, but found no differences in use of physician-level reminders among practice types.

Also using the NSPO:

- McMenamin et al. examined factors associated with physician groups' offering of health promotion programs, including nutrition counseling, smoking cessation, weight loss/management, prenatal education, health risk assessment, sexually transmitted disease prevention, stress management, and substance abuse.³⁸ Medical groups were four times more likely to offer any of the programs than were IPAs. In addition, being a medical group rather than an IPA was significantly and positively associated with an increase in the number of programs offered.
- In a separate study, McMenamin et al. found a positive association between being a medical group (as opposed to an IPA) and offering smoking cessation support.³⁹
- Shortell and Schmittiel took a slightly different look at cohesion by comparing quality among 12 large, prepaid multispecialty group practices vs. other practices with 100 or more physicians.⁴⁰ The 12 groups were significantly more likely to use specific care management processes (CMPs) for patients with asthma, congestive heart failure, depression, and diabetes than were other large but more loosely-organized groups. CMPs included disease registries, reminder systems, guidelines, case management systems, etc.

In contrast, two studies using the NSPO found no relationship between cohesion (medical group vs. IPA) and quality:

- Casalino et al. also examined the use of care management processes (CMPs) for patients with chronic illness.⁴¹ Among other factors, they asked whether being a medical group vs. an IPA was associated with greater use of these processes, but found only an insignificant positive relationship.
- Li et al. investigated the organizational factors that affect the adoption of diabetes care management processes.⁴² Of the physician organizations that treat patients with diabetes, medical groups used more diabetes care management processes than IPAs, but the difference was not significant.

In another look at cohesion, Kim et al. used patient survey data from the Translating Research into Action for Diabetes (TRIAD) study.⁴³ Among for-profit health plans, those classified by the researchers as being group/network plans provided more recommended diabetes processes of care than those classified as being IPA/direct-contracting plans (5.5 processes vs. 4.7, and statistically significant). Among nonprofit health plans, researchers found no effect relating to contracting model. The authors speculate that the observed differences in care may be due to the clinical infrastructure available to group-model plans that is not available in IPA/direct-contracting plans.

Even within a single, large, multispecialty group, one study found that cohesion of the primary care team impacts quality. Parkerton, Smith, and Straley assessed the influence of primary care continuity on patient outcomes within a multispecialty group.⁴⁴ They found that system continuity, or practice coordination, measured by shared practice, team tenure, and medical clinic size, was associated with beneficial outcomes in cancer screening in women, diabetic management examinations, and patient satisfaction ratings.

While a growing body of research links cohesion to quality of care, it must be acknowledged that in all of these studies, measures of the form of delivery system (group vs. IPA) are somewhat crude. Researchers share little agreement about what exactly characterizes a group vs. an IPA, and most rely on provider or health plan leader interviews to make the classification. In addition, most of the literature summarized here examines multispecialty, rather than single-specialty, groups. Accordingly, these findings should be viewed with some caution and may not be applied in general to other types of groups.

Scale

While cohesion appears related to quality of care, another important factor may be the size of the group, or its scale. As noted by Ketcham, Baker, and MacIsaac, large practices

may provide higher quality care than smaller ones because “Larger practices might be more readily able to adopt helpful infrastructure such as information technology. They also might more readily be able to investigate and implement new guidelines, protocols, and other care-improving processes.”⁴⁵ As described below, some research suggests larger groups provide higher quality than smaller groups, while other work indicates that the key distinction is between solo and non-solo practice, and that size of group among non-solo practices is irrelevant.

Casalino et al. interviewed 195 medical group, hospital, and health plan leaders in 12 communities to determine what they believed were the benefits of and barriers to large medical group practice.⁴⁶ While enhanced negotiating leverage with health plans was by far the most often cited benefit, interviewees also thought the advantages of groups of at least moderate size are their abilities to create organized processes to proactively improve care; serve as units of analysis for which statistically reliable and valid measurements of quality can be made; monitor performance; and implement clinical protocols.

To test empirically the relationship between practice size and quality, Ketcham, Baker, and MacIsaac examined internal hospital differences in recommended care of Medicare patients with acute myocardial infarction (AMI) related to the treating physician’s practice size.⁴⁷ Using the entire FFS Medicare population as a starting place, the study included all patients with a new occurrence of AMI in the study year whose physician worked for a non-HMO, office-based practice. Patients were divided into groups according to their physician’s practice size: solo, 2–5, 6–9, 10–19, 20–49, and 50+. Claims data were used to measure quality variables, including mortality and receipt of cardiac catheterization and percutaneous transluminal coronary angioplasty (PTCA) within one, seven, and 30 days of admission. Patients treated by solo-practice physicians were more likely than any other patients to die and least likely to receive cardiac catheterization or PTCA. For the smallest three practice-size categories, mortality decreased and rates of catheterization and PTCA increased with size. This effect, however, leveled off for groups with 10 or more physicians. Therefore, for this measure of quality, size of group matters only for the smallest groups, while being in solo vs. non-solo practice is more important.

The findings of Audet et al. also support the notion that solo practice is associated with lower quality.⁴⁸ Based on a national survey of adult medicine physicians, they found that those in larger and salaried groups were more likely to be engaged in quality improvement activities than their solo practice and non-salaried counterparts. Fifty percent of solo practice physicians reported being able to easily generate basic practice-

level data for quality monitoring (e.g., lists of patients by age, diagnosis, lab result, or current medication), while 61 percent of physicians in groups of 50 or more reported being able to do so. Solo-practice physicians were also less likely to report receiving quality-of-care data from any source or generating internal quality-of-care data (21 percent and 6 percent, respectively) than were their large-group counterparts (47 percent and 28 percent, respectively).

Mehrotra et al. conducted a telephone survey of primary care medical groups in Massachusetts to determine whether pay-for-performance (P4P) and a variety of group structural characteristics were associated with having quality initiatives.⁴⁹ The group characteristics that were independently associated with quality improvement initiatives included (among other factors discussed below) having more than the median number of physicians in the group (39 primary care physicians). The authors speculate that large physician groups with employed physicians may be better able to use P4P bonus monies to implement quality improvement initiatives because they can make central use of the dollars, rather than dividing and distributing money to individual physicians.

As noted previously, two studies by McMenamin et al. examined the factors positively associated with physician groups' offering of health promotion programs and smoking cessation support.⁵⁰ Organizational size was significantly and positively associated with offering both these types of programs.

A number of studies have linked increased size of practice to likelihood of having an electronic medical record.⁵¹ Audet et al. found that the predominant factor affecting use of information technology in physician offices was practice size.⁵² Eighty-seven percent of large group practice physicians had access to electronic test results, compared to 36 percent of solo-practice physicians. Physicians in large group practices were more likely than solo practitioners to use electronic medical records; receive electronic drug alerts; use e-mail to communicate with colleagues and patients; and practice in a "high-tech" office—defined as one in which physicians routinely or occasionally use at least four of the tools referenced in the survey.

A few studies have found either no relationship between group size and quality, or a negative relationship. Mehrotra, Epstein, and Rosenthal found that physician groups with larger volumes of patients (a proxy for group size) had higher scores on HEDIS-like preventive care measures than other groups, but the difference was not significant.⁵³ Casalino et al. found a significant but very small association between size of IPA and likelihood of performing various care management processes. Interestingly, this

association did not hold true for medical groups.⁵⁴ Rittenhouse and Robinson found that the direction of association between primary care practice size in California and use of care management processes for Medicaid patients was inconsistent across target populations (patients with diabetes or asthma, adolescents, and children) and was significant (and positive, but tiny) only for patients with asthma.⁵⁵ Friedberg et al. found a weak and inconsistent relationship between physician group size and performance on HEDIS measures among PCPs practicing in groups of three or more in Massachusetts.⁵⁶ Curoe, Kralewski, and Kaissi, using a survey of physicians in the Midwest, found that increased size of a medical group led to a decreased level of cultural dimensions the researchers called quality emphasis, organizational trust, and collegiality.⁵⁷

Affiliation

A third means of characterizing delivery system organization is to ask whether a physician group or IPA is independent or is owned by or contracts with a larger entity—a health plan, for example, or a hospital. Budetti et al. describe the factors that encourage physicians to affiliate with hospital systems, but their definition of physician affiliation could as easily apply to collaborations with health plans/insurers as well.⁵⁸ To them, physician alignment with systems is “[t]he degree to which physicians and their medical groups share, identify with, and work toward accomplishing goals together with their affiliated health system.”

Cortese and Smoldt note that “Physicians need hospitals; hospitals need physicians. And most of all, patients need their providers to work together.”⁵⁹ This sharing of goals and coordination of all aspects of patient care is another important piece of organization, as it speaks to physicians’ ability to draw on the support of the larger system.

Casalino et al. found that ownership of a physician organization by a health plan or hospital was statistically significantly associated with greater use of care management processes, although the effect was very small.⁶⁰ McMEnamin et al. found that physician organization ownership by a hospital or health plan was significantly and positively associated with an increase in the number of health promotion programs offered and the presence of smoking cessation programs.⁶¹ Shortell et al. reported that medical groups affiliated with a hospital, health plan, or health system were significantly more likely to score in the top quartile on care management and health promotion indices than were non-affiliated groups.⁶²

To measure the adoption of care management protocols (CMPs) for chronic illness and preventive care among providers serving California’s Medicaid program,

Rittenhouse and Robinson surveyed groups with at least six primary care physicians and at least one Medicaid HMO contract.⁶³ One of the factors most strongly associated with the use of more CMPs for diabetes and asthma was being a community clinic or hospital-based clinic (rather than an IPA). This association did not hold true for use of preventive care management processes.

In their survey of medical groups in Massachusetts, Mehrotra et al. found that groups affiliated with a network of physician groups were two-and-a-half times more likely than others to have quality improvement initiatives.⁶⁴ The finding was statistically significant. Similarly, Friedberg et al. compared quality scores for network-affiliated vs. non-affiliated primary care physicians practicing in groups of three or more in Massachusetts.⁶⁵ In their study, “network-affiliated” groups were those in which the members “agreed that the network would negotiate their contracts with the health plans . . . [and] network affiliated groups could take advantage of quality management services offered by a network medical director.”⁶⁶ Network-affiliated groups had higher scores on 10 out of 12 HEDIS measures than did non-affiliated groups, with mean performance rate differences ranging from 2–14 percentage points.

Finally, Curoe, Kralewski, and Kaissi reported that the cultural dimension of “quality emphasis” increased as ownership of physician organizations shifts to systems.⁶⁷

APPENDIX B. SUMMARY OF LITERATURE LINKING ORGANIZED PHYSICIAN GROUPS TO EFFICIENCY

The Medicare Payment Advisory Commission recently examined overall costs for Medicare patients who received care from multispecialty group practices or hospital-affiliated practices versus those who did not (the latter primarily received their care from solo physicians or small single-specialty groups).⁶⁸ In the four geographic areas examined, spending on the highest quintile of Medicare beneficiaries was lower for patients associated with multispecialty or hospital-affiliated groups than for other patients.⁶⁹

Several studies have examined the costs of care provided by prepaid group practices vs. groups that are not prepaid, all finding lower spending among the former.⁷⁰ In a meta-analysis, Chuang, Luft, and Dudley reported that costs were about 25 percent lower in prepaid group practices than in health plans built around other types of provider groups.⁷¹ However, it was not possible to determine what aspect of the prepaid group practices drove down costs (i.e., was it the payment mechanism, the multispecialty nature of the group, or something else?). The authors noted, “Other studies have shown that hospital utilization in large multispecialty group practices such as the Mayo Clinic and the Palo Alto Medical Clinic is similar to that in prepaid group practices. Thus, the lower utilization and imputed costs may reflect integration of the delivery system more than a specific physician payment.”⁷²

Feachem, Sekhri, and White compared costs and utilization in Kaiser Permanente to that of the British National Health Service (NHS), shedding light on the cost containment potential of organized care systems.⁷³ In 2002, the time of the study, NHS was largely characterized by sharp budgetary and organizational divisions between primary and specialty care and between inpatient and outpatient care. For approximately the same cost per person, Kaiser Permanente achieved better quality performance in several areas than did NHS—providing a reminder that efficiency means both spending less for equal quality and spending the same for better quality. The authors attributed Kaiser’s better performance to “integration throughout the system, efficient management of hospital use, the benefits of competition, and greater investment in information technology.” A follow-up study by Ham et al. found the difference in resource utilization between NHS and Kaiser Permanente was largely driven by differences in bed-day use.⁷⁴ For 11 leading acute causes of hospitalization for elderly people, bed-day use in NHS was three-and-a-half times that of Kaiser’s standardized rate.

Another study took a more granular look at differences in resource use and efficiency by examining physician staffing patterns. Goodman et al. found a three-fold difference in physician full-time-equivalent (FTE) inputs for end-of-life Medicare patients at academic medical centers across the nation.⁷⁵ Differences in physician FTE inputs in academic medical centers were highly correlated with the number of physician FTEs per Medicare beneficiary in the community, suggesting that academic medical center staffing patterns reflect patterns of the community in which they are located.

Academic medical centers with the lowest physician inputs per patient tended to be in smaller, rural areas, but with notable exceptions, including the University of Cincinnati Hospital, the University of California-San Francisco system, and the University of Minnesota system. The authors noted that many of the low-input academic medical centers were geographically close to large, multispecialty group practices (the Cleveland Clinic, Kaiser Permanente, the Mayo Clinic, Intermountain Health Care, the Scott and White Clinic, and the Dartmouth-Hitchcock HealthCare System). They speculated that practice patterns of those groups influence the academic medical centers near them, noting, “Even in FFS environments, group practices use fewer physicians per capita than is true in small-group or solo practices.”

Using the same dataset as the Fisher and Goodman teams, Sterns examined use and costs for chronically ill Medicare patients receiving care from 14 selected integrated delivery systems, defined as “organizations comprised of a multispecialty physician group and an acute care hospital with common governance and linkages.”⁷⁶ In seven of nine measures, chronically ill patients receiving care in integrated delivery systems used fewer physician resources in the last 24 months of life than did their counterparts nationally. Integrated delivery system patients also used 18 percent fewer hospital days and 34 percent fewer Intensive Care Unit days at the end of life than their national counterparts. Total physician and hospital spending for patients in integrated delivery systems were 24 percent and 2 percent less, respectively, vs. other settings. While this study does not address quality directly, the previous work by Fisher using these data demonstrated that physicians in higher-spending regions provided the same or lower quality care than those in lower-spending regions.⁷⁷

NOTES

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