



COMMISSION ON A HIGH PERFORMANCE HEALTH SYSTEM

ORGANIZING THE U.S. HEALTH CARE DELIVERY SYSTEM FOR HIGH PERFORMANCE

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ABSTRACT: This report from The Commonwealth Fund Commission on a High Performance Health System examines fragmentation in our health care delivery system and offers policy recommendations to stimulate greater organization—established mechanisms for working across providers and care settings. Fragmentation fosters frustrating and dangerous patient experiences, especially for patients obtaining care from multiple providers in a variety of settings. It also leads to waste and duplication, hindering providers' ability to deliver high-quality, efficient care. Moreover, our fragmented system rewards high-cost, intensive medical intervention over higher-value primary care, including preventive medicine and the management of chronic illness. The solutions are complex and will require new financial incentives, changes to the regulatory, professional, and educational environments, and support for new infrastructure. But as a nation, we can no longer tolerate the status quo of poor health system performance. Greater organization is a critical step on the path to higher performance.

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PREFACE

The Commonwealth Fund Commission on a High Performance Health System is pleased to present the report, *Organizing the U.S. Health Care Delivery System for High Performance*, which addresses fragmentation in the U.S. delivery system, a problem that leads to frustrating and dangerous patient experiences, medical errors, poor overall quality of care, and an emphasis on intense, often redundant or unnecessary medical encounters and interventions over higher-value primary care. The report describes the characteristics of high performance health care and offers policy recommendations for achieving greater organization and higher performance.

In August 2006, the Commission released its first report, *Framework for a High Performance Health System for the United States*, which outlined its vision of a uniquely American, high performance health system offering high-quality, safe care; access for all people; efficient, high-value care; and the capacity needed to improve. In subsequent reports, *Why Not the Best? Results from a National Scorecard on U.S. Health System Performance* and *Aiming Higher: Results from a State Scorecard on Health System Performance*, we found that on each major dimension of health system performance, the nation falls far short of what is achievable, and that performance varies widely. In an effort to find solutions, the Commission in November 2007 issued *A High Performance Health System for the United States: An Ambitious Agenda for the Next President*, which outlined five key strategies for change: ensuring affordable coverage for all; aligning incentives and instituting effective cost control; providing accountable, coordinated care; aiming higher for quality and efficiency; and ensuring accountable leadership.

Organizing the U.S. Health Care Delivery System for High Performance expands on the recommendations provided in *Ambitious Agenda*, focusing on the delivery of care. This report identifies six attributes for an ideal health care delivery system: information flow to providers and patients through electronic health record systems; care coordination and care transition support; peer accountability and teamwork among providers; easy access to appropriate care; accountability for the total care of the patient; and continuous innovation to improve quality, value, and patient experiences. To move our fragmented delivery system toward this ideal, the Commission recommends payment reforms: bundled payment systems that reward coordinated, high-value care and expansion of pay-for-performance programs to reward high-quality, patient-centered care; patient incentives to choose to receive care from high-quality, high-value systems; regulatory changes that remove barriers to clinical integration; accreditation programs for organized delivery systems; changes in provider training; government support to help facilitate organization where necessary; and an acceleration in the adoption of health information technology.

We should no longer tolerate the outcomes of our fragmented health care system. We hope that this report will inform and encourage policymakers and other stakeholders to work toward reforming fundamentally the way our health care system is organized in order to achieve high performance.

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EXECUTIVE SUMMARY

Health care delivery in the United States has long been described as a “cottage industry,” characterized by fragmentation at the national, state, community, and practice levels. There is no single national entity or set of policies guiding the health care system; states divide their responsibilities among multiple agencies, while providers practicing in the same community and caring for the same patients often work independently from one another. Furthermore, the fragile primary care system is on the verge of collapse. This report from The Commonwealth Fund Commission on a High Performance Health System examines the problem of fragmentation in our health care delivery system, particularly at the community level, and offers policy recommendations to stimulate greater organization.

The fragmentation of our delivery system is a fundamental contributor to the poor overall performance of the U.S. health care system. In our fragmented system:

- patients and families navigate unassisted across different providers and care settings, fostering frustrating and dangerous patient experiences;
- poor communication and lack of clear accountability for a patient among multiple providers lead to medical errors, waste, and duplication;
- the absence of peer accountability, quality improvement infrastructure, and clinical information systems foster poor overall quality of care; and
- high-cost, intensive medical intervention is rewarded over higher-value primary care, including preventive medicine and the management of chronic illness.

How Do We Want Health Care to Be Delivered?

If we do not want the status quo, how do we want health care to be delivered? The Commission has identified six attributes of an ideal health care delivery system, each of which has been demonstrated to be an important driver of high performance:

1. Patients’ clinically relevant information is available to all providers at the point of care and to patients through electronic health record systems.
2. Patient care is coordinated among multiple providers, and transitions across care settings are actively managed.
3. Providers (including nurses and other members of care teams) both within and across settings have accountability to each other, review each other’s work, and collaborate to reliably deliver high-quality, high-value care.

4. Patients have easy access to appropriate care and information, including after hours; there are multiple points of entry to the system; and providers are culturally competent and responsive to patients' needs.
5. There is clear accountability for the total care of patients.
6. The system is continuously innovating and learning in order to improve the quality, value, and patients' experiences of health care delivery.

Is It Achievable?

After identifying these six attributes, we examined 15 diverse health care delivery systems. From the case analyses, four important lessons emerged:

- Our ideal delivery system is achievable; existing delivery systems have many of the key attributes we have identified.
- There is more than one way to organize providers to achieve those key attributes, ranging from fully integrated delivery systems and large, multi-specialty group practices to looser forms of organization such as private networks of independent providers (e.g., independent practice associations) and government-facilitated networks of independent providers.
- Although there are diverse approaches, some form of organization (i.e., established mechanisms for working across providers and settings) is required to achieve these attributes. This finding is consistent with the literature, which suggests that greater organization is associated with better quality and, to some extent, greater efficiency.
- Leadership is a critical factor in the success of delivery systems.

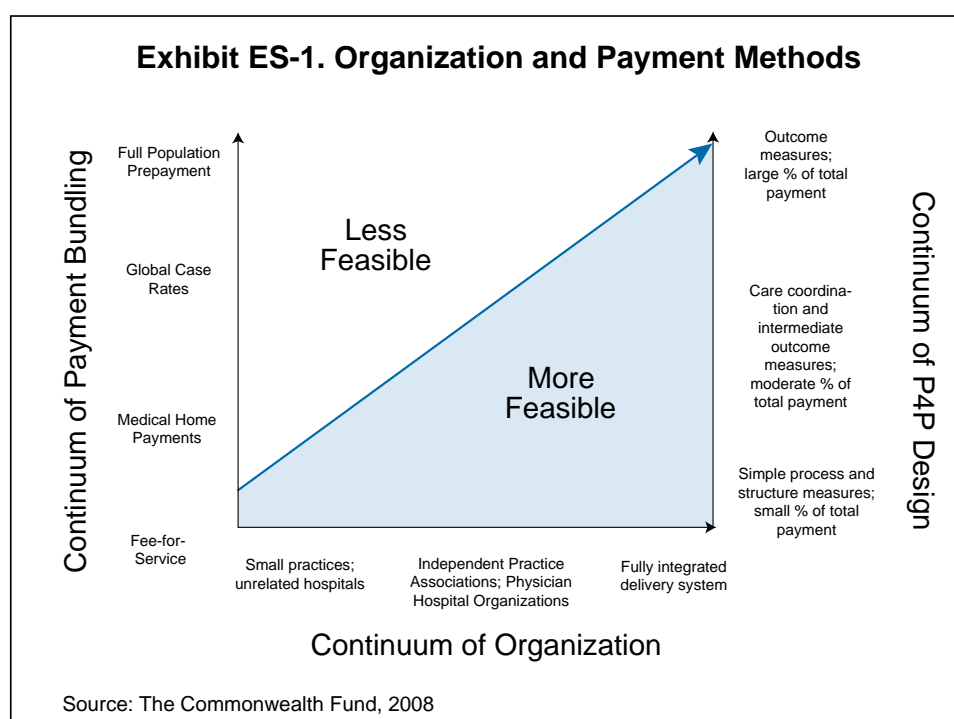
Getting the Care We Want: Policy Recommendations

Despite the potential benefits, the financial, regulatory, professional, and cultural environments act as barriers to organizing health care delivery. Policy interventions are needed for this critical component of health system reform. The policy recommendations below would promote greater organization of the delivery system to achieve gains in the quality and value of care. In proposing these policies, we are guided by two principles:

1. The policies should move the system toward achievement of the attributes of the ideal delivery system we have identified.
2. The policies should allow for diverse models of organization to achieve these attributes, explicitly recognizing that different regions of the country may require different arrangements.

No single policy will fix the fragmentation of our health care system. Rather, a comprehensive approach is required—one that might lead progressively to greater organization and better performance. We recommend the following strategies:

- **Payment reform.** Provider payment reform offers the opportunity to stimulate greater organization as well as higher performance. The predominant fee-for-service payment system fuels the fragmentation of our delivery system. We recommend that payers move away from fee-for-service toward bundled payment systems that reward coordinated, high-value care. In addition, we recommend expanding pay-for-performance programs to reward high-quality, patient-centered care. The more organization in delivery systems, the more feasible these payment reforms become (Exhibit ES-1). These payment reforms also could spur organization, since they reward optimal care over the continuum of services. Specifically, we believe that:
 - Full population prepayment—a single payment for the full continuum of services for a given patient population and period of time—should be encouraged. Such payments should be adequately risk-adjusted to avoid adverse patient selection. If full population prepayment is not feasible, payers should encourage:
 - Global case payments for acute hospitalizations. Ideally, such payments should bundle all related medical services from the initial hospitalization to a defined period post-hospitalization (including preventable rehospitalizations). These payments also should be risk-adjusted to avoid adverse patient selection.
 - Alternative payment structures for primary care. Primary care practices that provide comprehensive, coordinated, patient-centered care (e.g., certified medical homes) should be offered an alternative to fee-for-service payment. Promising alternatives include comprehensive prepayment for primary care services or fee-for-service payments plus a per-patient care management fee.



- Pay-for-performance should be expanded. The more bundled the payment mechanism, the higher proportion of the payment should be tied to performance. These programs should migrate away from measures that focus on individual processes in a single provider setting (e.g., hemoglobin A1C testing rates for patients with diabetes) toward broader measures of quality, such as clinical outcomes (e.g., blood pressure control or hospital readmission rates), care coordination, or patient experiences.
 - Medicare should support further demonstration projects that test innovations in payment design and care delivery.
- **Patient incentives.** Patients should be given incentives to choose to receive care from high-quality, high-value delivery systems. This requires performance measurement systems that adequately distinguish among delivery systems.
- **Regulatory changes.** The regulatory environment should be modified to facilitate clinical integration among providers.
- **Accreditation.** There should be accreditation programs that focus on the six attributes of an ideal delivery system we have identified. Payers and consumers should be encouraged to base decisions on payment and provider networks on such information, in tandem with performance measurement data.
- **Provider training.** Current training programs for physicians and other health professionals do not adequately prepare providers to practice in an organized delivery system or team-based environment. Provider training programs should be required to teach systems-based skills and competencies, including population health, and be encouraged to include clinical training in organized delivery systems.
- **Government infrastructure support.** We recognize that in certain regions or for specific populations, formal organized delivery systems may not develop on their own. In such instances, we propose that the government play a greater role in facilitating or establishing the infrastructure for an organized delivery system, for example through assistance in establishing care coordination networks, care management services, after-hours coverage, health information technology, and performance improvement activities.
- **Health information technology.** Health information technology provides critical infrastructure for an organized delivery system. Providers should be required to implement and utilize certified electronic health records that meet functionality, interoperability, and security

standards, and to participate in health information exchange across providers and care settings within five years.

Conclusion

Our fragmented health care delivery system delivers poor-quality, high-cost care. We cannot achieve a higher-performing health system without reorganization at the practice, community, state, and national levels. This report focuses on the community level, for which we have identified six attributes of an ideal delivery system. Our vision of health care delivery is not out of reach; some delivery systems have achieved these attributes, and they have done so in a variety of ways.

We can no longer afford, nor should we tolerate, the outcomes of our fragmented health care system. We need to move away from a cottage industry in which providers have no relationship with, or accountability to, one another. Though we acknowledge that creating a more organized delivery system will be difficult, the recommendations put forth in this report offer a concrete approach to stimulate greater organization for higher performance.

ORGANIZING THE U.S. HEALTH CARE DELIVERY SYSTEM FOR HIGH PERFORMANCE

I. BACKGROUND

Health care delivery in the United States has long been described as a “cottage industry,” characterized by fragmentation at the national, state, community, and practice levels. Despite the federal government’s role as the single largest payer for health care, there is no national entity or set of policies guiding the health care system.¹ States divide their responsibilities among multiple agencies, while providers practicing in the same community and caring for the same patients often work independently from one another. Furthermore, the fragile primary care system is on the verge of collapse.² This report focuses on the organization of health care delivery at the local level, considering the relationships among physicians, hospitals, and other providers in a community. Not surprisingly, fragmentation at this level is often reflected in patients’ experiences, as illustrated in the fictional cases that follow:

Frank, a 67-year-old male with Medicare fee-for-service coverage, was admitted to the hospital for an acute exacerbation of heart failure. During the week following his discharge, he tried to schedule a visit with his primary care physician (PCP), as he thinks he was told to by the hospital staff, but he somehow let it slip. Six weeks after he left the hospital, his shortness of breath was getting worse—he could barely make it across his bedroom without stopping to rest, and stairs were out of the question. During Frank’s first post-hospital visit with his PCP, she could not find a copy of his hospital discharge summary in the stack of papers that make up his chart. When Frank shows her the medications he was discharged with, she becomes frustrated and worried because she cannot reconcile them with the medications from her primary care clinic’s chart. Fearing that she cannot safely stabilize Frank at this point, she chooses to readmit him to the hospital.

There are two clear shortfalls in Frank’s case: the lack of care coordination and support as Frank made the transition from hospital to home, and the information gaps in the paper medical records in his PCP’s office. Although discouraging, Frank’s case is typical. Among Medicare beneficiaries, 17.6 percent of hospitalizations result in a readmission within 30 days and, of those, about 75 percent are potentially preventable.³ Hospitals only provide a simple intervention—giving written discharge instructions for heart failure patients—to about two-thirds of U.S. patients; far fewer hospitals provide a full care transition program.⁴ The lack of coordination between hospitals and ambulatory care teams is exacerbated by the scarcity of electronic medical records, making tasks such as medication reconciliation more difficult. As of early 2008, less than 15 percent of physicians used electronic medical records in ambulatory care settings.⁵

Sally is a 42-year-old woman with type 2 diabetes who faithfully sees her internist several times a year. Each time, she complains of a new ache or pain, which then becomes the focus of the visit. Her doctor is a solo practitioner, whose primary interactions with other physicians are during occasional grand rounds and medical staff meetings at the local hospital and a week-long educational conference every few years. One day, the doctor receives a letter from Sally's insurance company saying that, in the past two years, she has not had several of the screening tests that are recommended for diabetics, including screenings for kidney and eye disease that can be long-term complications of diabetes. The doctor knew that these were recommended tests for patients with diabetes. When he reviewed Sally's medical record, it took him 15 minutes to confirm that she in fact had not had these tests in over two years.

Sally's doctor is trying his best, and his knowledge of the basic management of diabetes is up-to-date. Yet, he missed two important tests for Sally—a common occurrence. According to data published in 2006, among commercially insured diabetes patients, only 55 percent had the recommended eye exams or tests for kidney complications.⁶ The critical factor in this doctor's error of omission is that he did not have a system in place for tracking and delivering appropriate care. This could have been addressed by participation in a quality improvement initiative, or implementation of an electronic medical record system with disease registries, care reminders, and clinical decision support. However, as a solo practitioner, this doctor is markedly less likely to take either of these steps than are physicians in larger practices.⁷

Trent is a 33-year-old investment banker who, apart from mild asthma, is fit and healthy. His asthma is usually well controlled with inhaled steroids and the use of his rescue inhaler about once a week. This winter, he caught a cold that had been going around his office, exacerbating the symptoms of his asthma. Although he could get by, he was very uncomfortable and relied on his rescue inhaler every four hours. He phoned his doctor's office to try to get an appointment after work or on Saturday, but was frustrated because there was a wait of a few weeks for the limited times that the office had after-hours appointments. This being a very busy time at work, he didn't want to take sick time to see his doctor during regular office hours, so he decided to "ride it out." However, by Sunday, he had become increasingly uncomfortable. He tried calling his doctor's office for advice, but he got an answering machine directing him to the emergency room for "medical emergencies." Trent was not sure this qualified but, not knowing what else to do, he went to his local hospital's emergency room. After waiting five hours to see a doctor, he was treated with an albuterol nebulizer, given a prescription for oral steroids, and sent home.

Like Frank and Sally, Trent's experience is not uncommon. A recent survey of health care experiences found that 60 percent of U.S. patients found it difficult or very difficult to get care on nights, weekends, or holidays without going to the emergency room.⁸ Although Trent did not end

up hospitalized, this happens frequently among more fragile patients who do not have optimal care management and access to ambulatory services. The frequency of such “ambulatory care-sensitive” hospital admissions varies widely across the United States. For example, there is a fourfold difference between the top-performing and bottom-performing states in rates of admission for pediatric asthma, suggesting that many of these admissions could be prevented.

These three cases illustrate some of the shortfalls in our health care delivery system, reflecting its fragmentation and disorganization. If this is not how we want health care to be delivered, what do we want and how will we get it?

II. HOW DO WE WANT HEALTH CARE TO BE DELIVERED?

In a more organized health care delivery system, Frank, Sally, and Trent would have markedly different patient experiences:

- During his hospitalization, Frank would be actively engaged in planning for his care after discharge. His discharge plan would consider his medical needs, as well as needs for clinical nursing, physical therapy, and help with daily activities (e.g., cooking and cleaning). He would leave the hospital with clear instructions about how to manage his illness, and have an appointment with his primary care practice scheduled for soon after discharge. A nurse, physician, or other clinical care manager would check in with him on a daily basis for a few days after discharge. He might even be given equipment to let his care team remotely monitor his medical status. During his first post-discharge physician visit, the details of his hospitalization would already be in his electronic medical record, and his primary care team would have communicated with the hospital team to coordinate a treatment plan. Frank would have avoided another hospitalization, and enjoyed a better quality of life.
- Sally’s physician and other office staff would have participated in a quality improvement collaborative with other practices to improve their care management processes, and they would have an electronic health record (EHR) system to help optimally manage Sally’s care. The EHR would have reminded both Sally and her physician to have the recommended tests. In addition, Sally’s physician would be tracking over time performance indicators based on evidence-based clinical guidelines for all of his diabetic patients, and working with other practices to learn how to achieve benchmark performance. With better care, Sally would be more likely to prevent long-term complications associated with diabetes.
- Trent would have been able to schedule an evening or weekend appointment when he needed it. Although his regular doctor may not have been available every evening or on weekends, there would always be a physician or other clinician who has access to Trent’s

electronic medical records. Trent would have been able to avoid a costly emergency room visit and enjoy a quicker recovery from his asthma exacerbation.

In each of the cases, someone—a person, practice, or other organization—would be clearly accountable for the total care of the patient and would ensure that the patient receives high-quality, patient-centered care. In short, an ideal health care delivery system would be organized to have the following attributes:

1. Patients' clinically relevant information is available to all providers at the point of care and to patients through electronic health record systems.
2. Patient care is coordinated among multiple providers and transitions across care settings are actively managed.
3. Providers (including nurses and other members of the care team) both within and across settings have accountability to one another, review one another's work, and collaborate to reliably deliver high-quality, high-value care.
4. Patients have easy access to appropriate care and information, including after hours; there are multiple points of entry to the system; and providers are culturally competent and responsive to patients' needs.
5. There is clear accountability for the total care of the patient.
6. The system is continuously innovating and learning in order to improve the quality, value, and patients' experiences of health care delivery.

Each of these attributes is discussed in more detail below.

Attribute 1: Patients' clinically relevant information is available to all providers at the point of care and to patients through electronic health record systems.

It is critical that providers have access to a patient's full medical history at the point of care in order to deliver the most clinically effective and efficient care. To have this information available in real time, the most feasible approach is to implement interoperable electronic health record systems. Patients also should have access to their medical records, either through a portal to their provider's EHR system or through a direct transfer of information to patients' personal and portable health records. In addition to providing timely and relevant clinical information, EHRs have tools to support providers, including clinical decision support systems, reminders for preventive and other routine services, disease registries for population management, and e-prescribing.⁹

Systematic reviews of the literature have demonstrated the potential for health information technology to transform the delivery of health care, making it safer, more effective, and more efficient.¹⁰ EHRs, when successfully implemented, improve the quality of care by increasing

adherence to clinical guidelines, enhancing providers' capacity for disease surveillance and monitoring, and reducing medication errors.¹¹ In terms of controlling costs, in addition to efficiencies gained from better care management and reduction of duplicative tests, EHRs can improve administrative efficiency. Practices that have implemented EHRs report savings from reduced transcription services, decreased labor and supply costs for chart maintenance and creation, and decreased physical space requirements for medical records.¹²

Attribute 2: Patient care is coordinated among multiple providers and transitions across care settings are actively managed.

As patients navigate through our health system, they see multiple providers (e.g., primary care providers and specialists, psychologists, social workers, and physical therapists) across different settings (e.g., hospitals and physician offices). It is therefore critical that their care is coordinated, and that transitions among care settings are actively managed. Without such management, patients are likely to be frustrated, medical errors are more likely to occur, and unnecessary or avoidable utilization of health care services will increase.

There is strong evidence that, if properly implemented, systems of care coordination could improve health outcomes and reduce costs, especially for patients with complex care needs. In North Dakota, MeritCare Health System and Blue Cross Blue Shield of North Dakota collaborated to conduct a chronic disease management (CDM) pilot program that linked diabetes patients to a CDM nurse in their primary care clinic. This team-oriented approach to coordinating diabetes care resulted in a significant increase in the receipt of recommended care and improved clinical outcomes, including better control of blood sugar and cholesterol, lower tobacco use, and decreased hospital admissions and emergency department visits. Total costs per member per year were \$530 lower than expected in the intervention group, based on historical trends, saving an estimated \$102,000 for 192 patients in the pilot.¹³

Geisinger Health System has used coordination within a primary care setting through its Advanced Medical Home program. There is great interest now in the "medical home" concept, which is an approach to providing primary care that is accessible, continuous, comprehensive, patient-centered, and coordinated. At Geisinger, patients at high risk for disease complications are assigned a nurse case manager, who is employed by the health plan but embedded as a member of the primary care team in local Geisinger clinics as well as non-Geisinger medical groups. The nurse care manager coordinates with patients' primary care physicians to develop and carry out customized care plans, including instituting evidence-based protocols and conducting outreach and follow-up when appropriate. The nurse also ensures that all patients admitted to the hospital receive timely follow-up care after discharge and analyzes what happened if a patient has to be readmitted. The system has documented improvements in care processes and cost control, such as

savings of about \$100 per member per month from reductions in avoidable hospital use among diabetes patients.¹⁴

As with care coordination programs, there is evidence that care transition programs can result in better outcomes and lower costs. In the Advanced Practice Nurse (APN) Transitional Care Model developed by Mary Naylor of the University of Pennsylvania, APNs follow up with hospitalized heart failure patients after discharge to provide customized care in their homes. A randomized clinical trial of this protocol revealed increased mean time to first readmission for the intervention group, compared with the control group, and significantly fewer total rehospitalizations and lower mean total costs at 52 weeks after discharge.¹⁵ Together, these changes resulted in a one-third reduction in total Medicare outlays.¹⁶ Similarly, Eric Coleman of the University of Colorado Health Sciences Center determined that patients and their caregivers who received tools and support from a nurse “transition coach” upon hospital discharge were significantly less likely to be rehospitalized.¹⁷ Using his Care Transitions Measure, Coleman demonstrated that hospitals that provide adequate information to patients on how to manage their conditions following discharge are significantly less likely to have patients return to the hospital or the emergency room for the same condition.¹⁸

Attribute 3: Providers (including nurses and other members of the care team) within and across settings have accountability to one another, review each other’s work, and collaborate to reliably deliver high-quality, high-value care.

In an ideal delivery system, providers both within and across settings would work together to reliably deliver high-quality, high-value care. In order for this to be effective, providers must develop accountability to one another. At a system level, accountability would be based on the notion of group responsibility and shared commitment to quality care. This would be evidenced in the performance improvement infrastructure, including peer review procedures, processes for sharing best practices, routine monitoring and feedback of provider performance, and monitoring of overall system performance.¹⁹ Collaborative efforts, supported by effective leadership and shared goals, result in better performance than that of providers working in isolation. For example, large physician groups generally perform better on measures of clinical quality than small physician groups (see Section IV for additional discussion).

In addition to having a performance improvement infrastructure, it is also important that providers offer team-based care. The Institute of Medicine identified the development of effective teams as one of the key challenges for the redesign of health care organizations, and 88 percent of Americans view doctors and nurses working as a team as an effective way to improve health care quality.²⁰ For example, the IMPACT program, disseminated by the University of Washington, improves the quality and efficiency of care for patients with late-life depression through

collaborative teamwork. Under this model, a depressed patient's primary care physician works in collaboration with a care manager (a nurse, psychologist, or social worker who may be supported by a medical assistant or other paraprofessional) to develop and implement a treatment plan. A consulting psychiatrist provides weekly caseload supervision to the care manager. If the patient's condition does not improve (by at least 50 percent after 10 weeks), the consulting psychiatrist suggests treatment changes.²¹ In multiple studies, the IMPACT program has been shown to be significantly more effective than usual care for depression in a wide range of primary care settings. A randomized controlled trial found that 45 percent of IMPACT patients had a 50 percent or greater reduction in symptoms of depression after 12 months, compared with 19 percent of patients in the usual care group.²² IMPACT patients had lower-than-average costs over four years for all of their medical care, a total of approximately \$3,300 less than patients receiving usual care, even taking into account the cost of the IMPACT program.²³

Attribute 4: Patients have easy access to appropriate care and information, including after hours; there are multiple points of entry to the system; and providers are culturally competent and responsive to patients' needs.

In a patient-centered health system, appropriate care should be easily accessible to patients. Beyond having health insurance coverage, patients should be able to access appropriate health care when it is convenient for them; that means offering same-day appointments for urgent care and office hours that extend beyond regular work hours. Providers should be culturally competent, too—that is, they should show respect for and demonstrate understanding of patients' preferences and their cultural, social, and economic backgrounds. There should also be multiple ways for a patient to enter the health system, such as through convenient retail clinics or e-health visits, as well as through traditional primary care clinics. Finally, patients should have 24-hour access to clinicians to help them navigate the health system for urgent care needs.

There is evidence that patients who receive care in a setting that is well organized and offers enhanced access to providers (e.g., in a medical home) are more likely to get the care they need, receive reminders for preventive screenings, and report better management of chronic conditions than patients who do not receive regular care in such settings.²⁴

Attribute 5: There is clear accountability for the total care of the patient.

In our health care system, it is easy to imagine that no single physician, or entity, feels accountable for the total care of a patient, but only for the portion of care they directly deliver. Without accountability for total care, it is easy to ignore care coordination and care transitions (and risk having patients “fall through the cracks”), and to focus on high-cost, intensive medical interventions rather than higher-value preventive medicine and the management of chronic illness.

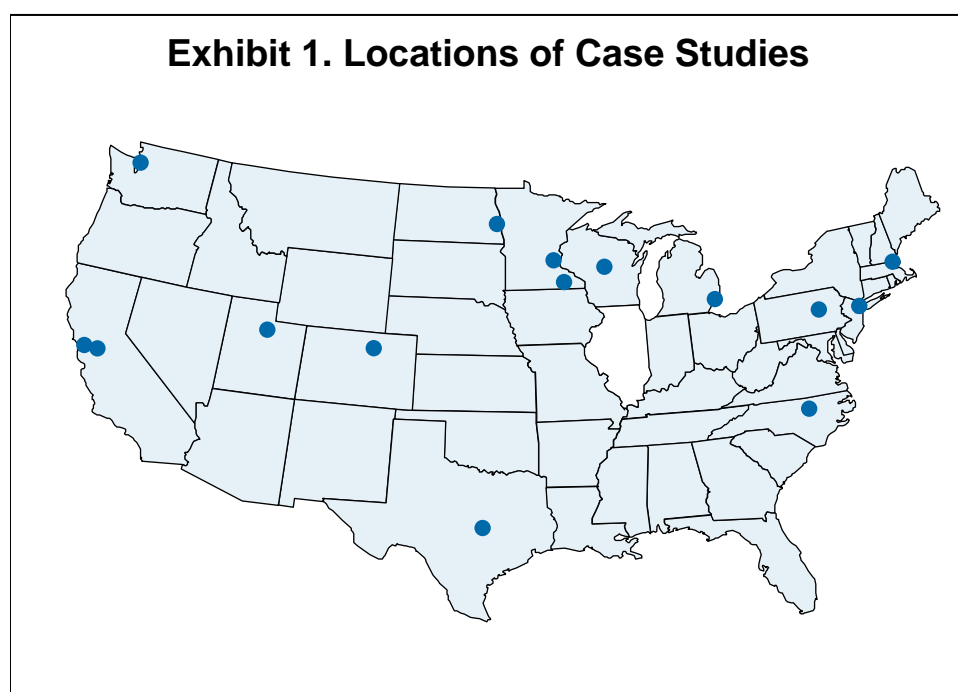
In an ideal delivery system, some entity would be accountable for the total care of patients, across providers and care settings. The locus of accountability may be with an individual physician, a medical home, or the entire delivery system.

Attribute 6: The system is continuously innovating and learning in order to improve the quality, value, and patients' experiences of health care delivery.

In an ideal delivery system, providers and health system leaders would be continuously learning and applying their knowledge to improve the quality, value, and patients' experiences of health care. Not only would innovation drive performance improvement for existing processes, but also new structures and models of care would be tested to deliver greater quality and value to patients (e.g., the disease management and care coordination models described above).

III. IS IT ACHIEVABLE?

Despite the overall fragmentation of the health care delivery system, there are pockets of innovation and high performance in the United States. The Commonwealth Fund, in partnership with Issues Research, conducted case studies of 15 diverse types of delivery systems that have been widely recognized as examples of high performance (see [Appendix](#) and Exhibit 1). The case studies examine the achievements of the delivery systems on the attributes we have identified for ideal health care delivery. The subjects range from fully integrated delivery systems such as Kaiser Permanente to large multi-specialty group practices such as the Marshfield Clinic to looser forms of organization such as Community Care of North Carolina. Even among the integrated systems, there was diversity with regard to public versus private systems, whether the system also included a health plan, and the contractual relationships among the partners.



From the case analyses, four important lessons emerge:

- Existing delivery systems have achieved many of the attributes of ideal health care delivery.
- There is more than one approach to organizing providers to achieve these attributes (see box).
- Although there are diverse approaches to organization, some form of organization (i.e., relationship among providers with established mechanisms for working across providers and settings) is required to achieve these attributes.
- Leadership is a critical factor in the success of delivery systems.

The following sections illustrate how the 15 delivery systems examined in our case studies achieved the attributes of ideal health care delivery. A summary of each health system's performance on each attribute is found in the Appendix (Exhibit A2).

Patients' clinically relevant information is available to all providers at the point of care and to patients through electronic health record systems.

In nearly all the delivery systems, providers use a shared electronic medical record. Lab results and other tests are available to all providers, regardless of who actually ordered the test. In some systems, such as the Group Health Cooperative, Henry Ford, Geisinger, and Kaiser, electronic medical records have portals to enable patients to access their medical information and make appointments online. The investment in these systems was substantial, both in terms of hardware and software costs as well as training and ongoing support of provider utilization. The resources were either a direct investment by the delivery system or, as in the case of Partners HealthCare, funded in part by a payer's pay-for-performance program negotiated by the delivery system. In either case, organization was critical not only in getting providers to adopt electronic medical records, but also in creating infrastructure to enable information exchange.

Regional Health Information Organizations or Health Information Exchange Networks may be able to facilitate information exchanges among providers. However—given the demise of high-profile health information exchange efforts such as the Santa Barbara County Care Exchange and the slow adoption of EHRs by physicians not in large organizations—widespread use of EHRs with sharing of information among providers is most likely to occur in organized delivery systems.²⁵

Patient care is coordinated among multiple providers and transitions across care settings are actively managed.

Organized delivery systems are working to ensure that patient care is coordinated and care transitions are managed. Several delivery systems, including Geisinger, Group Health Cooperative, and Henry Ford, are developing their primary care sites to be “medical homes,” or centers of care coordination for ambulatory patients. Intermountain Healthcare (IHC) emphasizes the central

Multiple Models of Organizing for High Performance

One important lesson from the case studies is that there are several ways to organize providers to achieve high performance. Below we identify four models. Although there are variations within these models, and many organizations cross categories, this categorization is useful as we consider policies to promote greater organization.

Model 1: Integrated delivery system or large multi-specialty group practice, with a health plan.

In this model, a single entity includes a delivery system (hospitals, physicians, and other providers) and a health plan. The insurance function gives it flexibility in organizing to deliver high-value care. This is the most common model among the 15 case studies. However, only Kaiser Permanente is a closed model that exclusively serves patients who are members of Kaiser Health Plan. Others, such as Geisinger Health System, are open systems that serve patients both within and outside their health plans.

- Founded in 1945, Kaiser Permanente (KP) is the largest nonprofit health maintenance organization (HMO) in the United States, integrating care and coverage for 8.7 million members in eight regions. The organization has three separate, but cooperative, entities: Kaiser Foundation Health Plans, Kaiser Foundation Hospitals, and nine Permanente Medical Groups. These entities have their own governance and management structures and exist in a “partnership of equals” under exclusive and interdependent contracts.
- Founded in 1915, the Geisinger Health System is an integrated delivery system serving 2.5 million people in northeastern and central Pennsylvania. It employs 12,000 people, including a multi-specialty group of some 650 physicians. About 30 percent of Geisinger Clinic patients are enrolled in the Geisinger Health Plan. Likewise, about half of The health plan’s 209,000 members have a physician in Geisinger-owned clinics. The health plan also contracts with more than 15,000 independent physicians and 80 community hospitals.

Model 2: Integrated delivery system or large multi-specialty group practice, without a health plan.

In this model, a single entity includes a delivery system but no health plan. Examples of this model include the Mayo Clinic and Partners HealthCare.

- Mayo Clinic is the world’s oldest and largest integrated multi-specialty group practice, serving about 520,000 patients a year. From its roots in a 19th-century family practice, Mayo by the 1920s had developed into a private, nonprofit organization dedicated to patient care, research, and education with a salaried staff representing nearly every medical discipline. Today, Mayo Clinic is located in Minnesota, Florida, and Arizona. It employs 54,900 staff, including 3,400 physicians and researchers. Mayo Health System is an affiliated regional system of clinics, hospitals, and nursing homes serving about 2.4 million patients in Minnesota, Wisconsin, and Iowa.
- Founded in 1994, Partners HealthCare is a nonprofit organized delivery system serving more than 1.5 million patients in greater Boston and eastern Massachusetts. The system includes two founding academic medical centers, four community and three specialty hospitals, community health centers, a physician network, home health, and long-term care services. Partners Community Healthcare, Inc., contracts with over 1,000 primary care physicians and 3,500 specialists. The network is organized into Regional Service Organizations (RSOs) ranging from a 10-physician group practice to a physician-hospital organization of more than 250 physicians. Within each RSO, physicians coordinate care for their patients and share financial risk against system-wide pay-for-performance goals.

Model 3: Private networks of independent providers, such as an independent practice association (IPA) or virtual network.

In this model, a private association organizes multiple independent providers, or providers join together to share and coordinate services. An IPA usually contracts with insurance agencies to provide comprehensive health care services on a capitated basis, but makes fee-for-service payments to individual providers. The association or network may provide infrastructure services (e.g., performance improvement and care management) similar to those provided in Models 1 and 2. The Hill Physicians Medical Group and virtual networks in North Dakota are examples of this model.

- Founded in 1984, the Hill Physicians Medical Group is an IPA based in northern California. It is owned by 236 physicians and contracts with about 2,200 independent providers. Hill contracts exclusively with HMOs, and serves 350,000 patients in its region, including 30,000 Medicare risk patients. This represents about 40 percent of The participating physicians' patient base.
- Health care providers in rural North Dakota have established cooperative arrangements to provide local access to quality care by sharing resources, expertise, infrastructure, and service delivery. For example, the Northland Healthcare Alliance is a network of 25 hospitals and long-term care facilities that develop and share services, such as a mobile magnetic resonance imaging service and grant development for community health centers. The Northwestern North Dakota Information Technology Network is developing electronic medical records to be shared by 11 hospitals. A Rural Mental Health Consortium provides onsite mental health services in remote areas through clinical nurse specialists. The North Dakota Telepharmacy Project and other networks extend the rural workforce to remote areas through electronic linkages, promote cooperation among providers, and enable patients to receive timely care without the burden of long-distance travel.

Model 4: Government-facilitated networks of independent providers.

In this model, government takes an active role in organizing independent providers, usually to create a delivery system for Medicaid beneficiaries. They may develop care coordination networks, provide information technology infrastructure, perform care management, or deliver other services characteristic of an organized delivery system. Community Care of North Carolina is an example of this model from the case studies. The Danish health care system provides an international example.

- Founded in 1998, Community Care of North Carolina (CCNC) is a public-private partnership that provides key components of a medical home and care management for more than 817,000 of the state's Medicaid and SCHIP patients. CCNC is a community-based system of 14 regional networks, each of which is a nonprofit organization consisting of a partnership of local providers including hospitals, primary care physicians, and county health and social services departments. The state provides resources, information, and technical support. Physician fee-for-service reimbursement is supplemented by a per-member per-month (PMPM) fee for case management. The regional networks also receive a PMPM fee to cover the cost of care management and network administration.
- Denmark has a universal health insurance system that emphasizes patient-centered primary care. Physician practices are private, earning fee-for-service payments plus a fee for serving as a patient's medical home, while the government facilitates infrastructure that is essential for organization. There are organized after-hours services and a nationwide health information exchange maintained by an independent nonprofit organization. Ninety-eight percent of primary care physicians have paperless offices, and prescriptions, lab and imaging tests, specialist consult reports, and hospital discharge letters flow through a single electronic portal accessible to patients, physicians, and home health nurses.

role of primary care physicians in managing patients' care, enabling them to treat chronic illnesses in the context of broader health issues. For example, IHC instituted a mental health integration program in which behavioral health professionals support primary care teams in recognizing and treating patients with both physical and mental illnesses. At the Mayo Clinic, every patient is assigned a coordinating physician, whose job it is to ensure that patients have an appropriate care plan, all ancillary services and consultations are scheduled in a timely fashion to meet patients' needs, and patients receive clear communication throughout and at the conclusion of an episode of care.

In the New York City Health and Hospital Corporation's Queens Health Network, care managers dedicated to several different clinical areas or settings (e.g., the emergency department, diabetes, heart failure, or HIV) are responsible for identifying high-risk patients and coordinating their care across inpatient, outpatient, and community clinics, with the goal of preventing emergency hospital visits. These care managers operate under a cross-functional care management department.

Even in less-integrated systems, such as Community Care of North Carolina (CCNC), care management is critical. CCNC is a system of 14 regional networks, each of which is a nonprofit organization consisting of essential local providers, county health departments, and social services. CCNC networks rely on case managers, whose core processes are the same across all networks, to help identify high-risk patients, assist in disease management education and follow-up, help patients coordinate their care and access services, and collect data on process and outcome measures.

A systematic approach to coordinating patient care and managing transitions requires some organizing entity. The mechanism is apparent in a single organization such as an integrated delivery system, since a single organization housing multiple providers and care settings is responsible for all aspects of that patient's care. Individual providers or small practices that seek to offer well-coordinated care must establish multiple linkages with other providers and settings. These linkages are, in fact, the beginning of "organization."

Delivery systems that include health plans have financial incentives to provide care coordination and care transition services. To the extent that overall costs are reduced from fewer emergency room visits or hospitalizations, these programs offer a positive return on investment. However, the case studies revealed that even in cases where no direct incentives existed, exemplary organizations made significant investments in care coordination, presumably because they saw the need for such services for providing excellent patient care.

Providers (including nurses and other members of the care team) within and across settings have accountability to one another, review one another's work, and work together to reliably deliver high-quality, high-value, care.

Across the case studies, the delivery systems created a culture of quality in which providers had a sense of group responsibility and accountability to one another. At Kaiser Permanente, this fostered transparency, the sharing of performance data among peers, and the use of feedback as a driver of performance improvement. Kaiser Permanente physicians believe they are collectively and individually responsible for the quality and cost of care; they are stewards of both member resources and member health; and they are accountable to the health plan as full and equal partners. At Kaiser and other systems, shared accountability is reflected in robust performance measurement infrastructure as well as the aligning of incentives with performance goals. For example, HealthPartners has implemented a pay-for-performance program with their medical groups, Henry Ford has rewards and recognition programs for all staff, and Geisinger and Kaiser have a robust physician incentive program.

Patients have easy access to appropriate care and information, including after hours. There are multiple points of entry to the system, and providers are culturally competent and responsive to the needs of the patient.

For example, Intermountain Healthcare extends access to underserved populations through community and school-based clinics, in addition to traditional primary care practices. HealthPartners reaches out to workers through their Well@Work workplace clinics. It is difficult to imagine how unrelated practices—those that are not part of a larger organized delivery system or active participants in an information exchange—could offer easy access to appropriate medical care, with multiple points of entry to the system.

Many of the delivery systems examined, including Group Health Cooperative, the Marshfield Clinic, and Denver Health, have reengineered their work processes to improve same-day access for their members, and most have 24/7 alternatives (e.g., call lines and urgent care centers) to emergency department care. Health information technology plays a key role in improving access to care. Electronic systems facilitate easier scheduling of appointments. In addition, systems such as the Henry Ford Health System's interactive Web site, "MyHealth," enable virtual medicine consults or "e-visits."

The Role of Retail Clinics

Retail clinics—clinics that offer a limited menu of medical services (such as the care of sore throats or routine immunizations) on a walk-in basis—deserve special mention because of their rapid proliferation in our health system.²⁶ At first glance, it may appear that retail clinics further fragment our health care delivery system. Yet, that is not necessarily the case. Retail clinics, if part of an organized delivery system (e.g., Geisinger Health System’s “Careworks Convenient Healthcare” clinics), can promote easy access to care and greater efficiency. It is crucial to coordinate care provided by retail clinics with the care delivered by the patient’s larger delivery system. This is most likely to be achieved with a shared electronic medical record system.

On its own, organization does not necessarily foster cultural competency among individual providers. Still, large delivery systems or smaller systems linked through virtual networks or shared services agreements have the resources needed to develop culturally sensitive programs for diverse patient populations. With organizational commitment, such programs can be transformative. Kaiser has developed clinics for specific patient populations. At these clinics, patients communicate with their providers in their native language and staff members are aware of and sensitive to patients’ cultural backgrounds. New York City Health and Hospitals Corporation (HHC) meets the needs of patients speaking over 100 languages through central dispatch offices for interpretation services, supported by standardized medical interpretation training for 200 bilingual and multilingual staff and volunteers, as well as multilingual publications and signs. HHC’s Bellevue and Kings County Hospitals, as well as two large community-based ambulatory care centers, are piloting the use of remote simultaneous medical interpreting, in which a remotely located interpreter uses wireless technology to interpret between providers and patients. Initial results indicate the technology improves the privacy, speed, reliability, and efficiency of interpretation, compared with traditional interpretation methods, thereby reducing linguistic and medical errors and the length of visits.²⁷

There is clear accountability for the total care of the patient.

Although there are cases in which one of the delivery systems assigned an accountable physician (e.g., Mayo Clinic) or an accountable practice (e.g., Geisinger’s “Medical Homes”) for a patient, it may be more appropriate to say that each of the health systems assumed accountability for the patient. Even though patients move among different providers and across care settings, they generally remain within the health system. This arrangement is most explicit in the prepaid practices, such as Kaiser Permanente, as there is clear financial accountability for patients’ total care. However, the other delivery systems also assumed responsibility for patients, reflected in their efforts to coordinate care and manage care transitions.

The system is continuously innovating and learning in order to improve the quality, value, and patients' experiences of health care delivery.

The case studies found widespread evidence of innovation and continuous improvement. Not surprisingly, across many of the systems, electronic medical records play a critical role as enablers of performance improvement activities. For example, the Health and Hospitals Corporation uses health information technology to implement evidence-based practices through standing orders and routine screening protocols, while HealthPartners uses EHRs for clinical reminders and safety alerts.

In addition to using health information technology, organized delivery systems take advantage of their scale and infrastructure to improve health care quality and value. For example, Intermountain Healthcare has adopted an overarching strategic plan called Clinical Integration that focuses on improving value in key work processes. The program is built on three pillars: integrated management information systems, an integrated clinical and operations management structure, and integrated incentives. Early on, they realized \$20 million in cost savings from 11 clinical improvement projects. Likewise, Denver Health seeks to continually streamline operations and eliminate waste for strategic “value streams”—such as access to care, inpatient flow, outpatient flow, operating room flow, and billing—with rapid-cycle improvement projects targeted at individual processes. Health Partners has a comprehensive model for improvement that includes: setting ambitious targets; measuring optimal care; reaching agreement on best care practices and support for improvement; aligning incentives; and ensuring transparency of results. At Scott & White in Temple, Texas, every major facility and clinic has a director of quality and a Quality and Patient Safety Council who report monthly to a system-wide Quality and Patient Safety Council led by the system CEO. The system-wide Council, on which four board members (including a layperson) serve, monitors quality across the organization. Any core quality measure not achieving 90 percent becomes an organization-wide quality improvement initiative with a formally chartered team led by a physician and an operational leader.

Without an organizing entity, providers could certainly engage in performance improvement projects and take advantage of external resources (e.g., the Medicare Quality Improvement Organization program, Institute for Healthcare Improvement campaigns, or national quality improvement collaboratives), but they would lack the expertise and economies of scale that come from a larger organization. In addition, they would face enormous difficulties in working across provider settings, and would not be able to implement novel innovations such as the chronic disease management program in North Dakota or the Advanced Medical Home program at Geisinger, both described above.

In short, the cases illustrate that the care that we want—care that meets the six attributes of an ideal health care delivery system—requires organization.

IV. WHAT DO WE KNOW ABOUT “ORGANIZATION”?

For the purposes of this report, we define “organization” as relationships among providers, with established mechanisms for communication or working across providers and settings. Although the case studies demonstrate that there are various effective approaches to organization, ranging from fully integrated delivery systems like Kaiser Permanente to looser networks of providers like Community Care of North Carolina, it is clear that some form of organization is required to achieve the attributes of an ideal health system we have identified.

The argument linking greater organization with higher performance is straightforward. Information should flow more easily among providers in an organized system than among unrelated providers. More organized systems are likely to have more resources and expertise to invest in infrastructure, ranging from health information technology to staff and processes for quality measurement and improvement activities, and be able to take advantage of economies of scale. Large organizations can create financial incentives for physicians to improve the quality of care. In organized systems, physicians and other health care providers should have easy access to colleagues for formal and informal consultation and sharing knowledge. As part of an organization, providers could hold one another accountable for delivering high-quality care. An organized system also has the potential to efficiently allocate resources for the optimal care of the patient. Finally, a more organized system should offer multiple points of access to care across the continuum of health services.

We reviewed the literature examining the relationship between various types of organization and performance on measures of clinical quality, efficiency, and patient experiences. Overall, the literature demonstrates that more organized systems generally perform better than less organized systems on measures of clinical quality, show promise for reducing health care costs, and have a mixed record in terms of patients’ experiences. It is also clear, however, that organization by itself does not necessarily lead to high performance.

Organization and Quality

There is a growing body of evidence published in the peer-reviewed literature that more organization is associated with higher quality. Beginning with the most basic level of organization—the formation of groups of physicians—large group practices perform better than solo practices. For example, large practices are twice as likely as small groups or solo practitioners to engage in quality improvement and utilize electronic medical records.²⁸ They are also more likely to practice in teams, use performance and outcome measurement for quality improvement purposes, and provide preventive services than solo practitioners or small groups.²⁹ Group practices have achieved better health outcomes as well: they have been shown to achieve lower mortality in their heart attack care than solo practices.³⁰ Further, physicians in group practices perform better

on recertification tests than those in solo practice. Maintenance of board certification is voluntary, but there is evidence that certification correlates with better quality and outcomes and more reliable care, higher rates of preventive services, lower mortality in myocardial infarction and colon resection, and fewer low birth weight babies.³¹

There is also evidence that relationships among groups are important. For example, physician group affiliation with networks is associated with higher quality, with the impact greatest among small physician groups.³² Independent practice associations (IPAs) are twice as likely to use effective care management processes as small groups with no IPA affiliation.³³

Finally, there is evidence that full integration may lead to even higher performance. For example, integrated medical groups in California achieve a higher level of clinical quality than IPAs. Leaders of integrated medical groups are more likely than IPAs to report using electronic medical records, following quality improvement strategies, and collecting patient satisfaction data.³⁴ Medical groups are also four times more likely than IPAs to offer health promotion programs.³⁵ Health maintenance organizations (HMOs) with group or staff model physician networks (i.e., large networks in which the physicians are employees or members of a partnership) tend to have higher performance on clinical measures than HMOs with independent physician networks.³⁶

Organization and Efficiency

There are few studies focusing on the relationship between organization and efficiency. Older studies have demonstrated that costs are about 25 percent lower in prepaid group practices than in other types of health plans, and a study of eight large, prepaid group practices found a physician-to-population ratio of 22 to 37 percent below the national rate.³⁷ A more recent study revealed that chronically ill Medicare patients in integrated delivery systems use significantly fewer patient resources in the last 24 months of life, compared with the national average, including fewer hospital days and ICU days. Total physician and hospital spending for patients in organized systems were 24 percent and 2 percent less, respectively, than other practices.³⁸

There has been more research showing that health care systems that emphasize primary care provide better outcomes at lower cost.³⁹ In such systems, including prepaid group practices and integrated delivery systems with fee-for-service payer environments, Medicare beneficiaries have more visits with primary care physicians and fewer visits with specialists for each episode of care, spend fewer days in intensive care, and incur lower health care costs.⁴⁰ A study comparing Kaiser Permanente to the British National Health Service illustrates this connection between primary care and efficiency. The study found that Kaiser achieved better performance outcomes in several areas for approximately the same cost per person. The authors attributed Kaiser's superior efficiency to "integration throughout the system."⁴¹

Organization and Patient Experiences

Most studies show that, on average, prepaid group practices perform worse on measures of patient satisfaction than fee-for-service health plans.⁴² It is difficult to tease out whether this is related to the insurance function of prepaid group practices, or to characteristics inherent to organized delivery systems. In more recent cases, large group practices (e.g., Harvard Vanguard Medical Associates in Massachusetts) have achieved high performance on measures of patient satisfaction, demonstrating that it is possible for organized systems to excel in this area.⁴³ Integrated systems are more likely than solo practitioners to collect data on patient experiences and to base physician bonuses on patient satisfaction.⁴⁴

A recent study by the Pacific Business Group on Health found that an intervention focused on improving doctor–patient communication, coordination of care, and access to care led to improvements in patient experience scores for communication and coordination of care items.⁴⁵ This suggests that organized care settings can improve patients’ satisfaction by focusing on provision of patient-centered care.

Finally, there is evidence that patients desire more organized care, at least in theory. According to The Commonwealth Fund Survey of Public Views of The U.S. Health Care System, 68 percent of Americans believe that patient care would improve if physicians practiced in groups, rather than on their own.⁴⁶

V. TRENDS IN PHYSICIAN ORGANIZATION

Despite evidence that greater organization is associated with better quality and, to a lesser extent, greater efficiency, physicians have not been migrating toward more organized systems. For their part, patients generally have not been seeking out or demanding care from organized delivery systems. The proportion of physicians in small practices (with one to five physicians) is dropping. Yet, doctors are migrating toward mid-sized, single-specialty groups in which they can negotiate higher payments, concentrate capital, and selectively provide services that garner higher profit margins, rather than toward large, multi-specialty group practices or integrated delivery systems.⁴⁷

During the height of managed care in the mid-1990s, physicians began to aggregate into larger multi-specialty groups, independent physician associations, or physician-hospital organizations to achieve economies of scale and take advantage of The referral benefits of having primary care physicians within the organization. At the time, large multi-specialty group practices experienced a number of advantages over other, smaller practices, including leverage with health plans and hospitals, economies of scale, improved physician lifestyle, and improved quality of care.⁴⁸

While the general population reported fairly high levels of satisfaction under managed care, those with chronic illnesses (with greater exposure to utilization management) were much less satisfied with their care, compared with the prior fee-for-service environment.⁴⁹ However, satisfaction varied with factors such as ownership status (i.e., nonprofit versus for-profit) and plan type (i.e., staff model versus discounted fee-for-service).⁵⁰ By the late 1990s, initial consumer support for managed care, particularly the more restrictive forms, had declined as consumers worried that needed care might be withheld and wanted greater control over the health care options available to them. Researchers found that patients in managed care plans valued their primary care provider's role as care coordinators, but wanted them to refrain from acting as gatekeepers to specialty care.⁵¹ Employers began to demand broad, almost universal choice among providers. The backlash resulted in marketplace, legislative, and legal reactions that altered the operations of most managed care organizations and HMOs.

As managed care organizations and health plans reduced cost containment restrictions, large multi-specialty groups, IPAs, and physician-hospital organizations lost many of the advantages that had brought them together in the mid-1990s. Physicians became more distant from hospitals and many stopped providing services they had provided traditionally, including emergency department call and service on hospital committees.⁵²

On its own, the consumer backlash against managed care does not account for the increase of mid-sized single-specialty practices rather than larger, multi-specialty groups. Practice costs increased over this time but payment rates did not follow, creating incentives for physicians with fee-for-service payments to provide additional services and emphasize technology-dependent procedures rather than cognitive services. Other barriers to the success of integrated systems include failure to manage costs, conflicts between primary care providers and specialists, and uneven regulatory environments that place a greater burden on HMOs than on fee-for-service plans.⁵³ Purchasers are also partially responsible for the limited presence of large multi-specialty group practices and integrated systems. Few employers provide incentives that would lead employees to choose more integrated systems.

Despite the trend of physicians moving away from organized delivery systems, some high-performing organized systems have created an attractive work environment for physicians. For example, Kaiser Permanente reports having many more physician applicants than open positions, and is now considered a desirable place to work among physicians completing residency training.⁵⁴

Similarly, although patients have not been demanding care from organized delivery systems, it is clear that attributes of high-performing organized delivery systems, such as care coordination and widespread adoption of electronic medical records, are desired by patients.⁵⁵ In addition,

as noted above, some large group practices, such as Harvard Vanguard Medical Associates, have excelled in measures of patient experience. As we seek to create an environment that stimulates organization for high performance, it is important to derive lessons from these experiences to build support for organized delivery systems among providers and patients.

VI. HOW WILL WE GET THE CARE WE WANT?

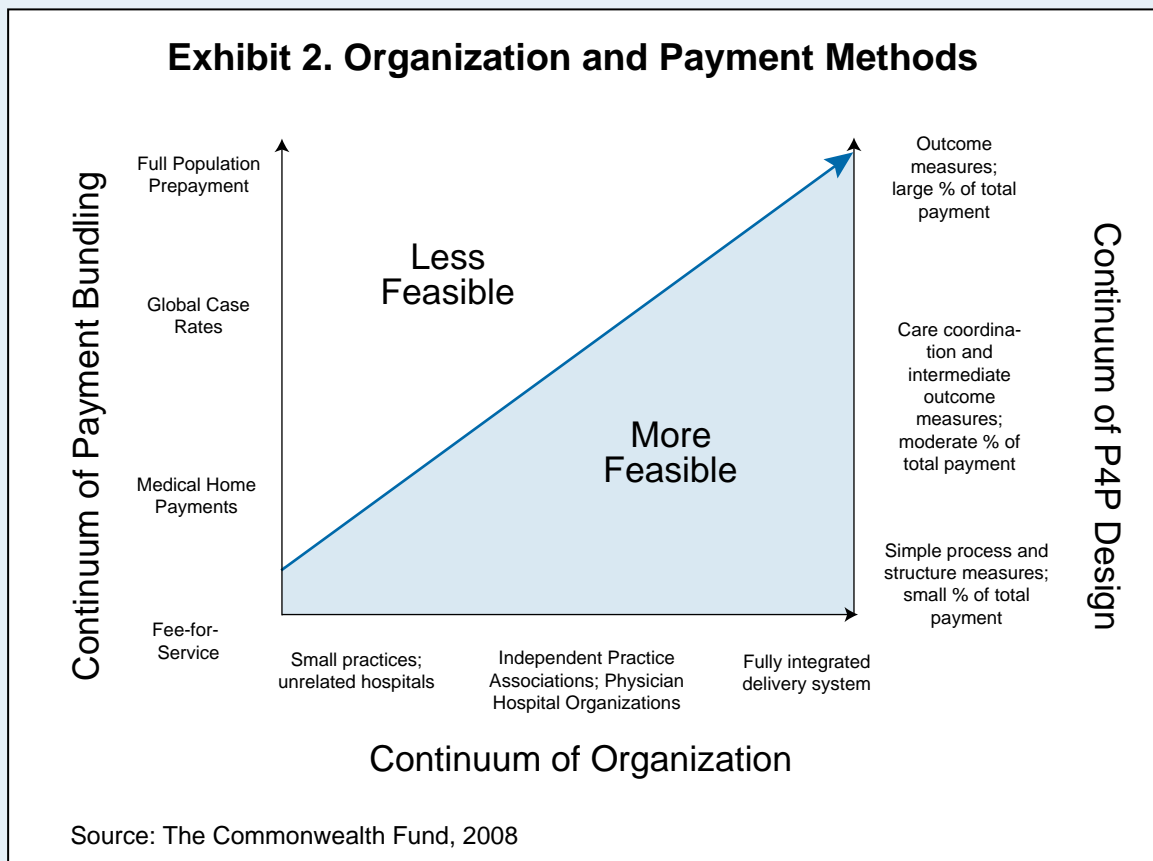
In order to get the care we want, our fragmented health care system needs to be fixed. We have identified the key attributes of an ideal health care delivery system and demonstrated that more organization, while it may take diverse forms, is required to achieve them. At the same time, organization alone is inadequate to ensure high performance, especially in terms of efficiency and patients' experiences. Therefore, policy interventions should focus on stimulating organization as an explicit path toward high performance. The policies fall into the following categories:

- **Provider payment reform:** Financial incentives are a powerful lever for changing provider behavior. For example, the introduction of the diagnosis-related group prospective payment system for hospitals resulted in a marked decrease in severity-adjusted length of stay overall. The predominant fee-for-service payment system facilitates our fragmented delivery system; financial incentives do not reward care coordination, efficiency, or high-value care (see box). As a result, it often acts as a barrier to greater organization and more coordinated and efficient care delivery.
- **Patient incentives:** Financial incentives are also a powerful lever for changing patients' behavior. For example, payer interventions such as provider-tiering (in which insurers offer lower copayments to encourage patients to choose providers deemed to be of higher value) and network narrowing (removing lower-quality or lower-value providers from a network) have been effective at getting enrollees to change providers. Currently, there are limited incentives to encourage patients to choose high-performing organized delivery systems.
- **Regulatory changes:** The regulatory environment can either facilitate or act as a barrier to certain types of delivery system organization. The current regulatory environment does not encourage hospital-physician integration.
- **Accreditation:** Accreditation programs may stimulate the growth of organized delivery systems as well as improve their performance, particularly if payers take these programs into account when making purchasing decisions.
- **Government infrastructure support:** Even with appropriate incentives in place, there will be areas, particularly rural areas and other regions where small independent practices predominate, or for specific populations, in which formal organized delivery systems may not emerge. In such areas, government could facilitate the creation of shared organized delivery system infrastructure such as health information technology, performance improvement activities, care coordination networks, care management services, and 24/7 access to services.

Payment Reform and Organization

Payment reform is a key policy lever to stimulate greater organization for high performance. The predominant fee-for-service payment system supports the fragmentation of our delivery system. Under fee-for-service payments, in which every unit of service is reimbursed, the primary incentive for each provider is to produce higher quantities of care, without regard to the total costs of care. Under bundled payment systems, such as full prepayment for groups of patients, the primary incentive is to provide the most efficient care across providers and care settings, which generally entails activities such as care coordination, care transition support, and chronic care management. However, not all entities can accept bundled payment mechanisms. The relationship between organization and payment methods is depicted in Exhibit 2.

As the delivery system becomes more organized (e.g., going from unrelated hospitals and small practices toward a fully integrated delivery system such as Kaiser Permanente), more bundled payment methods and robust pay-for-performance programs are feasible. However, not only are they more feasible, these payment systems should be more desirable for organized delivery systems also. Bundled payment methods reward care coordination and efficiency, which more organized delivery systems should be able to achieve. In addition, with greater organization, it would be possible to increase the percent of total reimbursement subject to pay-for-performance programs, and to focus these programs on clinical outcomes measures. Not only would this create incentives for high performance, but it also would counterbalance the risk that bundled payments would lead providers to deliver too few services. It is not feasible to implement these measures at the small provider level.



- **Provider training:** Educational programs, including physician and other health professional training and continuing education, develop or enhance provider competencies. Currently, most programs do not teach providers how to successfully practice as part of an organized system. Rather, they tend to focus on silos in care (e.g., inpatient care). They do not emphasize competencies in skills such as coordinating care or working as part of a comprehensive care team.
- **Promoting health information technology:** Because the use of interoperable electronic health records is an important aspect of an organized delivery system, it may be reasonable to consider policy strategies that specifically encourage the adoption of EHRs as part of an overall strategy to promote organized delivery systems.

Evaluating the Policy Options

In Exhibit 3, we examine policy options within each of the categories of policy levers. We discuss why each policy option would promote greater organization, highlight the pros and cons of each approach, and identify important issues that must be addressed. In Exhibit 4, we estimate the potential impact of each policy option on the six key attributes of an ideal delivery system. The estimated impacts of the policies noted in Exhibits 3 and 4 are not precise projections but instead indicate relative magnitudes of effect based on our expert opinion, experience, and evidence where available. In Exhibit 5, we estimate the impact that each policy option would have in terms of stimulating the models of organization that we have identified as capable of achieving the attributes of an ideal delivery system.

Overall, it is apparent from our analysis that there are several potentially effective policy approaches to stimulate organization for high performance, yet all entail significant challenges. In addition, it is clear that no single policy lever or approach will stimulate all six desired attributes. Further, we find that the different policy levers would have differential impacts in terms of stimulating the various models of organization.

Exhibit 3. Policy Options to Facilitate Organization of the U.S. Health Care Delivery System for High Performance

Policy Option	Why this would foster greater organization	Pros	Cons	Other Issues
Provider payment reform				
Expansion of pay-for-performance programs	More organized delivery systems generally score higher on performance measures than less organized systems. As the size of the potential incentive pool increases, providers have a financial incentive to join or form organized delivery systems.	This strategy is focused on the desired outcomes, as reflected in the measures on which incentives are based.	It is difficult to construct traditional pay-for-performance programs to encourage care coordination or greater efficiency.	To date, most pay-for-performance programs are provider-centric; that is, they focus on a particular process for which a provider is responsible. A patient-centric approach focusing on outcomes over a period of time cannot be easily applied to individual providers.
Global case payment	A single payment for an episode of care that may involve multiple providers and settings encourages care coordination, care transition support, and efficiency. Organized delivery systems are better equipped to succeed under such payments, creating a financial incentive to join or form organized delivery systems.	This strategy strongly aligns payment with care coordination and efficiency; if quality incentives were in place, it would be aligned with high-quality care as well.	Payment model best suited for acute care episodes (hospitalizations), and may be too difficult to implement for ambulatory care.	Mandatory participation would be most effective. Appropriate risk adjustment would be critical.
Full population prepayment for organized delivery systems	Similar to episode-based payment, full prepayment for a population of patients encourages care coordination, care transition support, and efficiency. Since only organized delivery systems would be eligible, such payments would create a financial incentive to join or form organized delivery systems.	This strategy strongly aligns payment with efficiency; if quality incentives were in place, it would be aligned with high-quality care as well.	Patients might be concerned that they would be denied needed care to cut costs.	Appropriate risk adjustment would be critical.
Enhanced fee-for-service payments for organized delivery systems	Paying providers in organized systems higher fee-for-service rates would create a direct financial incentive for providers to join such systems.	This direct incentive may be most effective in getting providers to participate in organized delivery systems.	This payment strategy is not aligned directly with the benefits of an organized delivery system; higher payments won't necessarily result in higher quality or efficiency.	This could be used as a short-term strategy to stimulate participation in organized delivery systems.

Policy Option	Why this would foster greater organization	Pros	Cons	Other Issues
For primary care practices that provide comprehensive, coordinated, team-based care (i.e., have the characteristics of a "medical home"), either supplemental payments (e.g., per-patient fees in addition to fee-for-service) or comprehensive prepayment for primary care services	These alternate payment mechanisms would help primary care providers provide better care coordination, enhanced access, and promote use of information technology, all of which are important for an organized delivery system.	These payments to strengthen primary care have the potential to increase quality and reduce overall health system costs.	These practice-level payments don't directly address organization of the larger delivery system (i.e., relationships among providers).	Certification and/or accreditation program would be required.
Patient incentives				
Patient financial incentives (e.g., reduced copayments or premiums) to register with an organized delivery system	By driving patients toward organized delivery systems, this policy would increase providers' incentives to participate in such systems.	This direct incentive would likely be effective in getting patients to register with organized delivery systems. An incentive would likely meet less resistance than a requirement to enroll.	This is not directly aligned with increased quality or efficiency; the organized delivery system may not deliver higher-quality, more efficient care.	In communities in which more than one organized delivery system is available, incentives could be tiered to promote the highest-value system.
Regulatory Changes				
Modifications and consistent interpretations of antitrust, Stark, anti-kickback, Civil Monetary Penalties, and Tax Exemption laws to better facilitate clinical integration of providers	The current regulatory environment discourages certain types of clinical integration, especially between hospitals and physicians.	Removing the regulatory barriers would likely provide a large stimulus to greater organization.	Relaxing the regulatory environment may lead to abuses of the system, e.g., organizing for the primary reason of creating monopoly power.	
Shift to enterprise liability for malpractice: physicians who are part of an organized delivery system would not need to carry separate liability insurance	This would provide a financial incentive for physicians to practice in organized delivery systems.	Under this scenario, the organized delivery system would have greater incentives to ensure high-quality, safe care. The shift away from individual responsibility to organizational responsibility also would be more consistent with systems theories of quality improvement.	This potentially could diminish individual responsibility for high-quality, safe care.	Would need to resolve how enterprise liability deals with the work of physician extenders.
Accreditation				
Establish an accreditation program for organized delivery systems	If organized delivery systems were accredited, payers would be more likely to engage such systems in new payment arrangements, therefore stimulating their growth.	The accreditation process could include not only structural and process requirements, but also performance standards on quality and efficiency.	Accreditation programs would create an additional layer of administrative costs; such programs could also stifle innovation.	

Policy Option	Why this would foster greater organization	Pros	Cons	Other Issues
Government Infrastructure Support				
Establish government-funded infrastructure for organized delivery systems in areas where such systems don't/can't naturally develop	There are areas in which the formation of an organized delivery system won't naturally occur due to economic, social, or cultural reasons.	There are examples of this being successful (e.g., Community Care of North Carolina). Some of the costs could be recovered by charging providers a membership fee.	It would be difficult to decide when government intervention is necessary. This approach is not aligned directly with higher-quality, more efficient care.	This infrastructure could be directly provided by government agencies (e.g., local health departments), or by private vendors subsidized by the government.
Provider Training				
Require training programs to include competencies in practicing in organized delivery systems	Providers who are competent at practicing in more organized delivery systems might be more likely to seek employment in such systems.	Intervening at the training stage might be most effective in modifying career behavior.	This approach would not reach providers who are already out of training programs.	We do not currently have the capacity to provide this type of training.
As a condition of licensure, require competencies in practicing in organized delivery systems	Providers who are competent at practicing in more organized delivery systems might be more likely to seek employment in such systems.	By making this a condition of licensure, it would cover all practicing providers.	Outside of a true training environment (e.g., residency), it would be more difficult to teach this competency (e.g., via CME).	
Health Information Technology (HIT) Interventions				
Require that providers adopt interoperable electronic health records within 5 years	HIT infrastructure is necessary for organized delivery systems. In addition, the need to implement EHRs could provide an incentive for providers to join an organized delivery system.	This is likely to be the most effective strategy for accelerating HIT adoption.	It's not clear that all providers could actually meet the requirement. Some have argued that the products on the market right now are still not mature enough to justify widespread purchase/implementation.	Although an organized delivery system might be able to provide some financial/technical assistance, additional assistance might be required. This does not address the need for building the health information exchange infrastructure.
Payers should create a fund to help support provider adoption of interoperable electronic health records and/or support the development of health information exchange networks	HIT adoption is necessary infrastructure for organized delivery systems. Payer support in this area could help facilitate the formation/evolution of organized delivery systems.	This would address a significant barrier to HIT adoption. Payers experience a large portion of the savings associated with HIT adoption, and therefore should accept some of the costs.	Payer investment in this area does not guarantee better clinical or financial outcomes. Some have argued that the products on the market right now are still not mature enough to justify widespread purchase/implementation.	To the extent that external support would be targeted at small practices, which currently have lower adoption rates, the external support might not promote more organization, as it might allow small practices to remain independent. This could be mitigated by requiring practices to participate in health information exchanges as a condition of support.

Exhibit 4. Policy Options and Their Potential Impact on Stimulating the Six Attributes of an Ideal Health Care Delivery System

The number of stars (1 to 4) indicates the relative impact that each policy option could have.

Policy Option	Clinical information at point of care through EHR systems	Care coordination/ care transitions	Team/group accountability to delivery high-quality, high-value care	Enhanced access to care for patients	Accountability for total care of the patient	System innovation to continuously improve
Provider Payment Reform						
Expansion of pay-for-performance programs	***	*	***	*	*	**
Global case payment	**	****	****	*	***	***
Full population prepayment for organized delivery systems	**	****	****	**	****	****
Enhanced fee-for-service payments for organized delivery systems	*	*	*	*	*	**
For primary care practices that provide comprehensive, coordinated, team-based care (i.e., have the characteristics of a “medical home”), either supplemental payments (e.g., per-patient fees in addition to fee-for-service) or comprehensive prepayment for primary care services	***	**	***	****	***	**
Patient Incentives						
Patient financial incentives (e.g., reduced copayments or premiums) to register with an organized delivery system	*	*	*	*	***	*
Regulatory Changes						
Modifications and consistent interpretations of antitrust, Stark, anti-kickback, Civil Monetary Penalties, and Tax Exemption laws to better facilitate clinical integration of providers	**	**	**	*	*	**

Policy Option	Clinical information at point of care through EHR systems	Care coordination/ care transitions	Team/group accountability to delivery high-quality, high-value care	Enhanced access to care for patients	Accountability for total care of the patient	System innovation to continuously improve
Shift to enterprise liability for malpractice: physicians who are part of an organized delivery system would not need to carry separate liability insurance	**	**	***	*	****	*
Accreditation						
Establish an accreditation program for organized delivery systems	***	**	***	***	**	**
Government Infrastructure Support						
Establish government-funded infrastructure for organized delivery systems in areas where such systems don't/can't naturally develop	****	****	***	***	**	**
Provider Training						
Require training programs to include competencies in practicing in organized delivery systems	**	***	***	*	**	**
As a condition of licensure, require competencies in practicing in organized delivery systems	**	***	***	*	**	**
Health Information Technology Interventions						
Require that providers adopt interoperable electronic health records within 5 years	****	**	*	**	*	**
Payers should create a fund to help support provider adoption of interoperable electronic health records and/or support the development of health information exchange networks	***	**	*	**	*	**

Exhibit 5. Models of Organization and Potential Policy Levers for Stimulating These Models

The number of stars (1 to 4) indicates estimated importance of the levers; the text underneath refers to the relevant options for each lever.

Models of Organization	Policy Levers						
	Payment Reform	Patient Incentives	Regulatory Changes	Accreditation	Government Infrastructure Support	Provider Training	Promoting HIT
Integrated delivery system or large-multi-specialty group practice, with health plan	**** Expand P4P Population Prepayment Global Case payment Medical home payments	*** Applied to delivery system	***	***	*	**	** Requiring HIT
Integrated delivery system or large multi-specialty group practice, without a health plan	**** Expand P4P Population Prepayment Global Case payment Medical home payments	*** Applied to delivery system	***	***	*	**	** Requiring HIT
Private networks of independent providers, such as IPAs	**** Expand P4P Population Prepayment Global Case payment Medical home payments	** Applied to network	****	**	**	*	** Requiring HIT Providing HIT adoption support
Government-facilitated networks of independent providers	** Medical home payments	** Applied to primary care practice	*	*	****	**	**** Requiring HIT Providing HIT adoption support

VII. POLICY RECOMMENDATIONS

The Commission on a High Performance Health System believes that addressing the fragmentation of the U.S. health care delivery system is a critical element of health reform, one that is necessary to achieve transformational gains in the quality and value of care. The goal of our policy recommendations is to stimulate greater organization of the delivery system to achieve high performance. In making the recommendations, we are guided by two overarching principles:

1. the policies should move the system toward achievement of the attributes of the ideal delivery system we have identified; and
2. the policies should allow for diverse models of organizational structure that might achieve those attributes, explicitly recognizing that different regions of the country may require different models of organization.

No single policy lever or option will fix the fragmentation of our health care system. Rather, a comprehensive approach is required—one that might lead progressively over time to greater organization of the health care system and better performance. We recommend the following strategies:

- **Payment Reform.** Provider payment reform offers the opportunity to stimulate greater organization, as well as higher performance. The predominant fee-for-service payment system supports the fragmentation of our delivery system. We recommend that payers move away from fee-for-service toward more bundled payment systems that reward coordinated, high-value care. In addition, we call for expanded pay-for-performance programs to reward high-quality, patient-centered care. Specifically, we believe that:
 - Full population prepayment to organized delivery systems should be encouraged; that is, a single payment should cover the full continuum of services of a given patient population for a period of time. This payment should be adequately risk-adjusted to avoid adverse patient selection. If full population prepayment is not feasible, payers should encourage:
 - Global case payments for acute hospitalizations. Ideally, these payments should bundle all related medical services from the initial hospitalization to a defined period post-hospitalization (including preventable rehospitalizations). These payments should be risk-adjusted to avoid adverse patient selection.
 - Alternative payment structures for primary care. Primary care practices that provide comprehensive, coordinated, patient-centered care (e.g., certified medical homes) should be offered an alternative to fee-for-service payments. Two promising alternatives include comprehensive prepayment for primary care services, or fee-for-service plus a per-patient care management fee.

- Pay-for-performance should be expanded. The more bundled the payment mechanism, the higher proportion of the payment should be tied to performance. These programs should migrate away from measures that focus on individual processes in a single provider setting (e.g., hemoglobin A1C testing rates for patients with diabetes) toward broader measures of quality, such as patient clinical outcomes (e.g., blood pressure control or hospital readmission rates), care coordination, and patient experience.
 - Medicare should support demonstration projects that test innovations in payment design and care delivery.
- **Patient Incentives.** Patients should be given incentives to choose to receive care from high-quality, high-value delivery systems. This would require performance measurement systems that adequately distinguish differences among delivery systems.
 - **Regulatory Changes.** The current regulatory environment should be modified to better facilitate clinical integration between providers.⁵⁶
 - **Accreditation.** There should be accreditation programs that focus on the six attributes of an ideal delivery system we have identified. Payers and consumers should be encouraged to base payment and participating provider network decisions on such information, in tandem with performance measurement data.
 - **Provider Training.** Current provider training programs for physicians and other health professionals do not adequately prepare providers to practice in an organized delivery system or team-based environment. Provider training programs should be required to teach systems-based skills and competencies, including population health, and be encouraged to include clinical training in organized delivery system environments.
 - **Government Infrastructure Support.** We recognize that, in certain regions or for specific populations, formal organized delivery systems may not develop. In such instances, we support an increased government role in facilitating or establishing the infrastructure for an organized delivery system, such as assistance with establishing care coordination networks, care management services, after-hours coverage, health information technology, and performance improvement activities.
 - **Health Information Technology.** Health information technology provides critical infrastructure for an organized delivery system. Providers should be required to implement and utilize certified electronic health records that meet functionality, interoperability, and security standards, and to participate in health information exchange within five years.

VIII. CONCLUSION

Our fragmented health care system delivers poor-quality, high-cost care. We cannot achieve a higher-performing health system without reorganization at the practice, community, and national levels. This report focuses on the community level, where we need delivery systems with the following attributes:

1. Patients' clinically relevant information is available to all providers at the point of care and to patients through electronic health record systems.
2. Patient care is coordinated among multiple providers and care transitions across settings are actively managed.
3. Providers (including nurses and other members of the care team) both within and across settings have accountability to one another, review one another's work, and work together to reliably deliver high-quality, high-value care.
4. Patients have easy access to appropriate care and information, including after hours; there are multiple points of entry to the system; and providers are culturally competent and responsive to the needs of patients.
5. There is clear accountability for the total care of the patient.
6. The system is continuously innovating in order to improve the quality, value, and patients' experiences of health care delivery.

This vision of health care delivery is not out-of-reach. We have demonstrated that some delivery systems have achieved these attributes, and they have done so in a variety of ways, ranging from fully integrated delivery systems to looser networks of providers created by private entities (e.g., Hill Physicians Independent Practice Association) or public-private partnerships (e.g., Community Care of North Carolina). The Commission's policy recommendations are intended to promote the spread of organized delivery systems as a path toward high performance, while acknowledging the different forms such systems can take.

It is important to recognize that, beyond the Commission's policy recommendations, other actions should be taken. If adopted, the policies would create an environment that would foster and promote organization for high performance. However, the policies would not teach delivery systems how to get there. Research is needed to learn about the organizational leadership and culture required to assist providers as they move toward greater organization. Research is also needed to explore the types of organized delivery systems that are most appropriate for different regions of the country. We also need to learn more about how these systems can interact optimally with public health systems and communities at large; this is critical, given the importance of preventive medicine and public health in determining overall population health. Such activities are

beyond the scope of the policy recommendations included here, but should be addressed by strong and coordinated leadership.

We can no longer afford, nor should we tolerate, the outcomes of our fragmented U.S. health care system. We need to move away from our cottage industry, where providers have no relationship with, or accountability to, one another. Though we acknowledge that moving toward a more organized delivery system will be complex and difficult, the recommendations of the Commission put forth in this report offer a concrete approach to stimulate organization for high performance.

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Appendix Exhibit A1. Case Study Sites

MODEL 1: INTEGRATED DELIVERY SYSTEM OR LARGE MULTI-SPECIALTY GROUP PRACTICE WITH A HEALTH PLAN

System and Locations	Description
Denver Health (Colorado)	Integrated health system and Colorado's largest safety-net provider, offering comprehensive care to 160,000 individuals (25 percent of all Denver residents) based on ability to pay (sliding scale) through an urban teaching hospital and regional trauma center, 911 response, poison and drug center, eight community clinics, 12 school-based clinics, public health department and clinics, and a health plan serving commercial (Denver Health and Denver public employees), Medicare, Medicaid and SCHIP populations.
Geisinger Health System (Pennsylvania)	A nonprofit, physician-led, integrated health system serving an area with 2.6 million people in 41 counties of rural northeastern and central Pennsylvania through three tertiary/quaternary hospitals, alcohol/chemical dependency treatment center, 650-physician multispecialty group practice in 40 sites, 209,000-member Geisinger Health Plan contracting with more than 15,000 providers and offering group, individual, and Medicare coverage, a Center for Health Research, and graduate medical education programs. Annual patient volume exceeds 30,000 inpatient admissions and 1.9 million outpatient visits.
Group Health Cooperative (Washington)	Consumer-governed, nonprofit integrated financing and delivery system and Center for Health Studies that serves 580,000 members in Washington state and Idaho enrolled in group, individual, and public insurance programs; two-thirds receive care in 31 owned medical facilities through exclusive contract with the 900-physician Group Health Permanente medical group. Others receive care from a network of 9,000 community clinicians and hospitals.
Health Partners (Minnesota)	A family of nonprofit, consumer-governed, integrated healthcare organizations that provide care and coverage to more than one million individuals in Minnesota, western Wisconsin, North and South Dakota, and Iowa through two hospitals (one a teaching hospital); a multispecialty group of 650 physicians practicing in 50 clinics; a 640,000-member health plan that contracts with 30,000 providers and offers group, individual, and public insurance programs; dental plans; a research foundation; and a medical education institute.
Henry Ford Health System (Michigan)	A nonprofit, integrated delivery system serving over one million residents of southeastern Michigan with five hospitals (one a large teaching institution and trauma center); 30 medical centers; 850 physicians in the multispecialty Henry Ford Medical Group, community care services including pharmacies, skilled nursing, home health, hospice, and dialysis services; 576,000-member Health Alliance Plan of Michigan offering group, individual, and Medicare coverage through contracted providers; and a Center for Health Services Research. The system has more than three million patient contacts annually, including 93,000 inpatient admissions.
Intermountain Healthcare (Utah)	A nonprofit integrated delivery system that provides care and coverage in urban and rural areas of Utah and southeastern Idaho with 21 hospitals; 142 clinics and physician offices; 700 physicians in the multispecialty Intermountain Medical Group; 500,000-member SelectHealth Plan offering individual, group, and government coverage through contracts with 3,700 physicians and 34 hospitals across Utah; and the Institute for Health Care Delivery Research. Intermountain logged over six million outpatient visits and 128,000 inpatient admissions in 2007.
Kaiser Permanente (nine states and the District of Columbia)	Largest nonprofit integrated delivery system and nonacademic research organization in the U.S., serving 8.7 million health plan members in eight regions through exclusive contracts with Permanente Medical Groups (14,000 physicians nationwide) who provide care in 32 inpatient medical centers and 421 outpatient medical offices with 37 million physician visits annually.
Marshfield Clinic (Wisconsin)	Nonprofit multi-specialty group practice serving 360,000 patients in 35 rural Wisconsin communities with 730 physicians in 41 ambulatory care sites that provided care during 3.5 million patient contacts. Affiliated 115,000-member Security Health Plan. Research and medical education foundations.
New York City Health and Hospitals Corporation	Largest municipal health care system in the US, serving 1.3 million patients (400,000 uninsured) regardless of ability to pay or immigration status. Workforce of 39,000 (including 3,000 employed and contracted academic physicians) provides medical and behavioral services through 11 hospitals, four skilled nursing facilities, six diagnostic and treatment centers, 80 community clinics, home health care, and 317,000-member MetroPlus health plan for Medicaid, Medicare SCHIP, and New York Child and Family Health Plus coverage programs.
Scott & White (Texas)	Largest integrated multispecialty health care system in Texas employing 500 physicians who practice in three hospitals, including a new long-term acute care facility, and in 20 regional clinics in central Texas, providing 1.4 million outpatient visits and over 30,000 inpatient admissions annually. Scott & White Health Plan enrolls 200,000 members in group, individual, and Medicare coverage programs and contracts with both Scott & White and independent providers. Clinical educational site for Texas A&M Health Science Center College of Medicine.

MODEL 2: INTEGRATED DELIVERY SYSTEM OR MULTI-SPECIALTY GROUP PRACTICE, WITHOUT A HEALTH PLAN

System and Locations	Description
Mayo Clinic (Minnesota, Arizona, Florida)	The oldest and largest integrated, not-for-profit, multispecialty group practice of medicine, with 3,400 clinic physicians and scientists serving 520,000 patients on three major campuses with four owned and managed hospitals. Mayo Health Systems is an affiliated network of 17 hospitals and clinics with 750 physicians serving 2.4 million patients in 70 communities in Minnesota, Wisconsin, and Iowa. Five schools of biomedical education.
MeritCare Health System (North Dakota)*	MeritCare is an integrated hospital and clinic system—the largest multispecialty group practice in North Dakota with 400 physicians, two regional hospitals in the Fargo-Moorehead area admitting 24,000 patients annually, 46 ambulatory clinics that providing 1.5 million patient visits each year to residents of more than 30 communities in southwestern North Dakota and northern Minnesota, and the largest regional home health care provider.
Partners HealthCare (Massachusetts)	A nonprofit, loosely integrated delivery system in which members maintain autonomy while sharing knowledge, resources, and services. Serves over 1.5 million residents of greater Boston and eastern Massachusetts through two academic hospitals, four community and three specialty hospitals, community health centers, home health and long-term care. Partners Community Healthcare contracts with 4,500 physicians in regional service organizations ranging from 10 to 250 physicians.

MODEL 3: PRIVATE NETWORKS OF INDEPENDENT PROVIDERS, SUCH AS AN INDEPENDENT PRACTICE ASSOCIATION OR A VIRTUAL NETWORK

System and Locations	Description
Hill Physicians Medical Group (California)	Independent practice association serving 320,000 commercially insured and 30,000 Medicare Advantage patients in eight northern California counties through contracts with 2,200 autonomous member-physicians, including 236 physician owners.
North Dakota: Rural Cooperative Networks	<p>Health care providers in rural North Dakota have established cooperative arrangements to provide local access to quality care by sharing resources, expertise, infrastructure, and service delivery. For example:</p> <p>The Northland Healthcare Alliance is a network of 25 hospitals and long-term care facilities that develop and share services.</p> <p>The Northwestern North Dakota Information Technology Network is developing electronic medical records to be shared by 11 hospitals.</p> <p>The Rural Mental Health Consortium provides onsite mental health services in four remote areas through clinical nurse specialists.</p> <p>The North Dakota Telepharmacy Project is a collaboration between the North Dakota State University College of Pharmacy, the North Dakota State Board of Pharmacy, and the North Dakota Pharmacists Association to "re-store, retain, or establish pharmacy services in medically underserved rural communities." Participants include 21 central pharmacies and 36 remote telepharmacy sites.</p> <p>West River Health Services provides a full range of health services to over 35,000 residents in rural communities of North and South Dakota and Montana with a 25-bed critical access hospital and community clinic, five satellite rural health clinics, and a multispecialty group of 16 physicians.</p>

MODEL 4: GOVERNMENT-FACILITATED NETWORKS OF INDEPENDENT PROVIDERS

System and Locations	Description
Community Care of North Carolina (CCNC)	Public-private partnership that provides key components of a medical home and care management for 730,000 Medicaid and 87,000 SCHIP patients statewide. CCNC is a community-based system of 14 regional networks, each of which is a nonprofit organization consisting of a partnership of local providers including hospitals, primary care physicians, and county health and social services departments. About 3,000 physicians in 1,200 primary care practice sites participate in CCNC networks statewide, representing about half of the primary care practices in the state. The state provides resources, information, and technical support. Physician fee-for-service reimbursement is supplemented by a per-member per-month (PMPM) fee for case management. The regional networks also receive a PMPM fee to cover the cost of care management and network administration.

Note: SCHIP = State Children's Health Insurance Program. *MeritCare was examined as part of a broader case study on North Dakota

Appendix Exhibit A2. Summary of Case Study Systems on Desired Delivery System Attributes

MODEL 1: INTEGRATED DELIVERY SYSTEM OR LARGE MULTI-SPECIALTY GROUP PRACTICE WITH A HEALTH PLAN

System	Attribute #1: Information Continuity	Attributes #2 and #5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High-Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
Denver Health	Image-based EHR accessible system-wide with computerized registries, alerts and preventive care reminders; fully immunized two-year-olds increased from 38 percent in 1995 to 85 percent in 2006.	Established caregiver teams, with roles and responsibilities shared among physician, nurse, and medical assistant. Participation in federal Health Disparities Collaborative, using the Chronic Care Model to frame the delivery of care.	Achievement of a high-performance health system is an integral part of The organization's strategy and vision. Clinical decisions are data-driven, with feedback loops for continuous quality improvement.	Multiple points of access—family health centers, school-based clinics, telephonic nurse advice line. Same-day appointments. Group visits for chronic disease self-management.	Applied lean manufacturing principles to redesign work processes using rapid-improvement teams for key value streams such as patient access, inpatient and outpatient flow, operating room flow, and billing.
	Inpatient CPOE and medication administration checking systems promote patient safety at the bedside and improve timeliness of fulfilling physician orders. Digital imaging system.	Community Health Advisors partner with businesses, schools, and churches to provide health education and referral services.	Nationally-recognized medical critical care group implemented standardized protocols supported by IT in the ICU, leading to reductions in length of stay for certain diagnoses, with no increase in adverse outcomes.	Restructured the hiring process to reduce staff turnover and improve employee productivity, customer service, and quality. Co-location of social services in or near two medical clinics. Outreach to community-based organizations.	Reinstituted structured communication protocols to promote patient safety.
	EHR with decision support across all group-practice sites, and accessible to some external physicians. Developing a RHIO to electronically link providers in its service area. Patient Web portal for health information, appointment scheduling, email with clinicians, resulting in decreased no-show rates and telephone calls and increased physician productivity.	Piloting advanced medical home including 24x7 primary care coverage; nurse case managers employed by health plan embedded in primary care practices, virtual care management support, personal care navigator, home-based monitoring, and automated voice response surveillance. Goals are to increase primary care contacts, timely follow-up after hospital discharge, and improve outcomes.	Bringing physicians together in cross-disciplinary service lines to plan, budget, and evaluate one another's performance transformed the culture for high performance. ProvenCare SM packaged pricing products motivate physicians to efficiently and reliably deliver a bundle of evidence-based practices (40 heart bypass surgery processes increased to 100 percent adherence).	Advanced access redesign increased availability of same-day appointments from 50 percent in 2002 to 95 percent in 2006; 84 percent of sites have lead-time of one day or less. Patient satisfaction increased 48 percent. Walk-in clinics in area retail stores, linked via EHR and patient portal.	Geisinger's vision is to become a national model for care delivery and an engine of innovation through: 1) leadership to achieve the vision, 2) a compensation system that is aligned toward the achievement of specific strategic goals, and 3) timely feedback of information on progress toward those goals.

CPOE = computerized physician order entry; EHR = electronic health record; EMS = emergency medical system; ER = emergency room; ICU = intensive care unit; IPA = independent physician association; IT = information technology; RHIO = regional health information organization.

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
Group Health Cooperative	EHR with decision support across all group-practice sites.	Multidisciplinary primary care teams with practice nurse for triage, assessment, and care management, supported by EHR reminders and care plans to engage patients in disease self-management.	A mission-driven organizational culture is the motivating factor for bringing people together to achieve high performance at GHC.	Same-day primary care appointments for urgent needs.	Global capitation allows GHC to organize services in ways that make the most sense operationally and clinically, implement innovations, and move services across settings to optimize care.
	Online Health Risk Appraisal linked to EHR to identify at-risk patients.	Complex case management for sickest/costliest patients to improve care transitions.	Clinical dashboards to communicate comparative performance.	Direct access to specialists.	Cross-functional teams use lean manufacturing principles to redesign work processes, improve throughput and reduce rework, e.g., reduced time and cost for prescription refills.
HealthPartners	Patient Web portal for online access to health information, appointment scheduling, prescription refills, laboratory test results, and secure email with clinicians.	Anticoagulant management service reduced adverse drug events by 26 percent.	Performance-based pay rewards achievement on quality, patient satisfaction, engagement.	After-hours telephonic nurse advice tied to EHR.	E-visits (representing 20% of encounters).
	EHR integrates clinical decision support tools and safety alerts with individual patient health information to guide care processes before, during, and after the patient visit.	Piloting patient-centered medical home to promote clear communication and shared decision-making with patients.	Medication Use Management increased generic prescribing and reduced high-risk drug use among elderly patients through physician education and data feedback.	Group visits enhance educational opportunities and build social support among patients with common health needs.	Palliative care program.
HealthPartners	Patient Web portal for online access to health information, appointment scheduling, prescription refills, and secure email with clinicians.	Chronic disease management programs use registries to identify patients and engage them in self-care; promote medication compliance; appropriate treatment, home monitoring, communication, and follow-up in coordination with primary care physician.	Prepared Practice Teams in the HealthPartners Clinic use a Care Model Process and the EHR to anticipate needs, give evidence-based care, and ensure follow-up and support between visits.	Open-access options with no referral for specialist.	Comprehensive improvement model disseminated through leadership teams, workforce development, and participation in collaboratives. Elements include: 1) set ambitious targets, 2) measure what is important, 3) agree on best care practices and support improvement, 4) align incentives, and 5) make results transparent.
	EHR integrates clinical decision support tools and safety alerts with individual patient health information to guide care processes before, during, and after the patient visit.	Proactive outreach to patients at risk of behavioral health crises reduced overall costs of care.	Participation in Institute for Clinical Systems Improvement which brings health plans and clinics together to develop best-practice guidelines and collaborate on improvement.	Well@Work worksite clinics for acute care and health promotion.	Research foundation focuses on creating partnerships for improvement.
HealthPartners	EHR integrates clinical decision support tools and safety alerts with individual patient health information to guide care processes before, during, and after the patient visit.	Change clinic (pilot) integrates prevention and behavior change strategies in primary care.	Performance feedback, incentives and tiered networks encourage contracted providers to improve value.	Walk-in urgent care and retail convenience clinics (seeking to integrate with traditional clinics).	

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
Henry Ford Health System	EHR across all group-practice sites; viewable by external physicians for common patients.	Coordination is key system attribute, e.g., monitoring diabetic patients' blood sugar levels during transitions from inpatient to outpatient care and in the patient's home.	Collaborative Care Innovation Steering Committee creates evidenced-based bundles of interventions and redesigns work processes to improve compliance with evidence-based standards.	Same-day appointments for primary care and 30 percent reduction in average appointment waiting time.	A seven-pillar strategic framework (based on Baldrige Award criteria) promotes integration, service excellence, process improvement & efficiency, facilitated by cultural commitment to excellence.
	Regional ePrescribing initiative in collaboration with large purchasers and retail pharmacies. Digital imaging system. Patient Web portal for online access to health information, appointment and test scheduling, and e-consults with physicians.	Piloting advanced medical home in two clinics with redesigned care processes and a series of chronic disease management interventions to meet patient needs. EHR registries and alerts to identify diabetic patients who are due for services or not achieving clinical targets Virtual anticoagulation monitoring service.	Incentives, awards, and recognition are key ingredients to reinforce commitment. Incentives are tied to success in achieving strategic goals. E-dashboard communicates system-wide performance on quality and satisfaction.	Centralized contact center to improve customer service. Worksite chronic care programs. Research and outreach to help reduce health disparities. Point-of-care laboratory testing provides immediate feedback to providers and patients, and enables timely modifications in therapy during clinic visits.	Multidisciplinary teams implement each pillar of The strategic framework and engineer better processes to create an overarching "Henry Ford Experience." Researchers collaborate with physicians to pilot clinical improvements such as medication adherence monitoring via the EHR.
Intermountain Healthcare	EHR with decision support across all ambulatory clinic sites; viewable by external physicians.	Care Process Models support primary care physicians with evidence-based protocols, decision support tools, and patient educational materials.	Created a large, multi-specialty group practice in a matter of years, not decades. Found that a medical group built around core values and common work ethic self-selects and becomes a stable unit with a shared culture.	Neighborhood family clinics offer extended hours. Walk-in urgent-care clinics, pediatric after-hours clinics, and convenience clinics in retail stores. Network of occupational health clinics.	Clinical Integration (CI) strategy improves key work processes in nine Clinical Program areas through the work of regional leadership teams, guidance councils, and process-oriented development teams.
	Inpatient bedside computers and decision support systems. Patient Web portal for online access to health information, appointment and test scheduling, and e-consults with physicians.	Mental Health Integration links primary care and mental health specialists for collaborative care. Generalist nurse case managers in 15 clinics to support physicians in managing patients with complex chronic conditions.	Focusing on value-creation based on quality and service, rather than on productivity alone, motivated physicians to achieve excellent clinical and financial outcomes.	Operation and financial support of community and school-based clinics for underserved and uninsured.	CI is supported by integrated management information systems, integrated clinical and operations management structure, and integrated incentives.

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
Kaiser Permanente (N. Calif. & Colo. Regions)	Clinical and administrative information management system integrates EHR with CPOE, decision support, population and patient panel management tools, appointments, registration, and billing systems.	Health plans are evaluated on how well they manage patients across the lifetime continuum of care (not just a care episode), including ongoing linkage with an accountable primary care physician or team.	Inculcates a culture of group accountability supported by performance-based feedback and compensation system; identifies and develops internal clinical leaders.	Institute for Culturally Competent Care designs programs and tools. Qualified Bilingual Staff Model trains bilingual staff to enhance services.	A 21st Century Care Innovation Project identified specific innovations that would transform primary care, e.g., e-visits, team care, member councils.
	Patient Web portal for online access to health information, appointment scheduling, prescription refills, and secure messaging with clinicians.	Stratified population management: midlevel practitioners provide care and case management and transitional care for patients with uncontrolled disease or complex comorbidities.	Redesigned care process to emphasize proactive team approach that leverages ancillary staff and information systems to improve clinical care and patient self-care.	Health Care interpreter Certificate program makes model curriculum available nationwide. Culture-specific clinics: patients can communicate in native language with staff oriented to cultural norms.	Promotes cross-learning through in-house journal, annual innovation awards, workshops, and site visits. Care Management Institute convenes multi-disciplinary teams to develop evidence-based guidelines, programs, and tools; identifies best practices for local adoption.
Marshfield Clinic	EHR with decision support available across all Clinic sites and on tablet PCs for physicians.	EHR generates intervention list of high-risk patients to support physicians in proactive care planning and follow-up.	Physicians are engaged in improvement through guideline-based performance feedback, coaching, and education.	Advanced access model to increase timeliness of appointments and continuity with the same physician.	Clinic leaders have made the achievement of high-performance an integral part of The organization's core strategy and vision.
	Patient Web portal for online access to health information and requesting prescription refills.	Telephonic care management by nurses for anticoagulation and heart failure patients.	Regional medical directors attend local departmental meetings to share performance results and improvement strategies and solicit feedback.	24-hour call line: nurses use EHR to tailor advice to patient care plan, perform triage using online guidelines, and schedule clinic appointments when needed (at select clinics).	Local sites are engaged in redesign efforts to optimize workflows, e.g., increasing diabetic foot exams.

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
New York City Health and Hospitals Corporation	Integrated system-wide EHR and CPOE systems.	Nurse care managers coordinate care for high-risk or chronic disease patients, such as transitioning ER patients to community physicians and educating diabetic patients on disease self-management.	Ongoing team collaboratives develop a common framework for rapid-cycle improvements in chronic disease management, critical care, and other areas.	Ambulatory care redesign reduced clinic waiting times, missed appointments, and time to get an appointment.	Creating a culture that balances competition for reputation with imperative for collaboration to share expertise, best practices, and data for improvement. Leaders empower frontline teams to design change.
	Patients in Queens are given Smart Cards with medical history; readers in every Queens ER, extending to community providers.	Piloting "bridge teams" (social worker, financial counselor, physician or nurse) to facilitate comprehensive discharge planning and ambulatory follow-up for high-risk inpatients.	Multyear campaign to promote a fair, just, open culture of learning, prevention, and accountability.	Enhancing language and interpretation services, such as training for multilingual staff and volunteers and use of remote simultaneous medical translation.	Strategic use of IT drives performance improvement through evidence-based protocols and screening tools embedded in the EHR
	Rolling out software for community providers to refer patients to HHC and receive electronic results.		Health plan quality incentives, reports, and awards for improvement.	Free health screening and testing services; financial assistance programs.	
Scott & White	Deploying telehealth applications to remotely monitor homebound patients with chronic diseases.				
	EHR links main hospital and community clinics, facilitating communication across the care continuum.	Nurse care managers are embedded in two large clinics to work with primary care physicians on patient chronic disease management.	Physicians are evaluated through annual credentialing and performance reviews including patient care, teaching, research, and community service.	Clinic Ambassadors greet patients at the door, direct them to appointments and generally act to facilitate patient comfort and access.	Every major facility has a director of quality and a Quality and Patient Safety Council; systemwide Quality Council monitors quality measures; any core measure not achieving 90 percent becomes an organization-wide quality improvement initiative with a formally chartered team led by a physician and an operational leader.
	Hospital nurses use mobile computers for electronic medication administration at bedside.	Health plan-sponsored nurse care managers provide telephone support for chronic disease education, monitoring and follow-up after hospital discharge; refer patients for clinic appointments as needed.	EHR facilitates informal peer review and feedback. Some departments perform formal blinded peer review with feedback to physicians.	Office of International Affairs serves non-English-speaking patients (primarily from Mexico and Korea) with 24-hour interpretation and bilingual providers.	Clinical Simulation Center is used to design and test new processes and to promote continuous learning for human error prevention.
	Primary care physicians receive email notifications of specialist consultations for their patients and for medication reconciliation following hospital discharge.	Divisions/departments can earn a 20 percent bonus by scoring 90 percent or higher on quality targets and goals.		Telemedicine program for select specialties reduces geographic barriers for patients in remote areas.	
	Online portal allows patients to find a doctor, schedule appointments, request prescription refills, make payments, and learn about health topics.	New mothers receive phone follow-up and transitional support following birth.	Patients as Partners program invites patients to share personal stories of negative experiences; lessons learned are shared across the organization to improve quality and service.	"Today Care" clinic offers walk-in urgent care access seven days a week.	
		Anticoagulation clinics staffed by pharmacists or nurses monitor patients outside the hospital using standardized protocols.		Group visits for chronic disease education.	

MODEL 2: INTEGRATED DELIVERY SYSTEM OR MULTI-SPECIALTY GROUP PRACTICE, WITHOUT A HEALTH PLAN

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
Mayo Clinic	EHR accessible by all clinicians at each Mayo Clinic site, with Web-based cross-site linkages.	Every Mayo patient is assigned a coordinating physician to ensure that there is an appropriate care plan, that ancillary services and consultations are scheduled in a timely fashion, and that the patient receives clear communication throughout and at conclusion of visit.	Site-based Clinical Practice Committees are responsible for quality of care at each site, including dissemination of expert-developed clinical protocols.	Patient scheduling system uses algorithms to assign new patients to physicians and orchestrate a patient's time at the Clinic; takes into account the patient's availability, the specific time and sequencing requirements of office consultations, laboratory tests, and procedures, and the travel time between appointments.	Center for Translational Science Activities creates innovative systems for delivering benefits of research discoveries into day-to-day medical practice.
	Clinic-wide telephonic paging system for rapid consultations. Implementing EHR portal for referring physicians to upload patient information and receive results of The patient visit. Developing enhanced decision support tools and patient portal.	Testing ways to reorganize outpatient visit to increase time with patients, e.g., use of midlevel practitioners, electronic communication and monitoring to engage patients in self-care between visits.	System-wide Clinical Practice Advisory Group reconciles protocols across sites and is responsible to Board of Governors for overall system quality. The EHR is open to all Mayo physicians and invites comment and collaboration from care team members.		Building an electronic learning system to spread medical knowledge system-wide, in addition to existing ground rounds, online curricula, in-house journal. Consultative resources for systems engineering and improvement. Local teams undertake pilots; successful projects are taken to scale.
MeritCare Health System	MeritCare clinics and hospitals are connected via an EHR that includes laboratory test results, digital radiological images, and prompts for recommended preventive and chronic care.	Collaborated with Blue Cross Blue Shield of North Dakota on a chronic disease management pilot program that linked diabetic patients to a nurse in their primary care clinic, resulting in improved processes and outcomes of care and reduced costs.	Brings care team members together to map and redesign care processes to maximize value and efficiency using "lean" manufacturing techniques (see Attribute #4).	Strategic initiative to improve access and reduce waiting times at critical points of contact such as the ER.	The pilot partnership between MeritCare and Blue Cross Blue Shield of North Dakota tested new payment methods initially using a shared-savings model, which evolved to a management fee for disease management.
	The EHR standardizes clinical data, facilitates proactive patient visit planning, and tracks clinical metrics. The EHR is accessible to doctors caring for MeritCare patients at nonaffiliated hospitals.	Restructuring to integrate vertical service lines (e.g., cardiology) within a horizontal matrix that tracks actual patient experience within each setting of care and across the continuum of care.	Internal medicine department shares physician performance results within the department to foster peer accountability, with the possibility for additional pay based on productivity and a quality bonus tied to achievement of department-wide performance targets.	Reengineering cardiology test scheduling reduced appointment waiting time from three weeks to next-day or second-day appointment availability. The psychiatry department decreased appointment callback time from two hours to five minutes.	MeritCare's Patient and Family Advisory Councils provide an interactive forum for responsive action to improve care delivery.

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
Partners HealthCare	Two preferred EHR systems adopted by 90% of academic physicians and by 80% of community-based primary care physicians. CPOE and medication administration systems in all acute-care hospitals.	Transitional care coordination or linkage for commercially insured patients and for all heart failure patients. Telephonic health coaching for Medicaid patients. Participating in nurse care management demonstration for high-risk Medicare beneficiaries.	Making high quality uniform across the Partners system by convening clinical communities of content experts across institutions, establishing system-wide standards, measuring performance, promoting design and implementation of system-based programs, and sharing best practices. Over 300 measures are monitored system-wide.	Community partnerships to eliminate disparities. Rapid online or telephonic access to academic consulting specialists. Tightly orchestrated communication between EMS and hospital staff to increase heart attack survival rates.	Pay-for-performance contracts support a High Performance Medicine Initiative to: promote EHR adoption; increase patient safety and reduce errors; promote uniform high quality across the system; better coordinate care for the sickest patients; and improve efficient use of high-cost drugs and radiology tests.

MODEL 3: PRIVATE NETWORKS OF INDEPENDENT PROVIDERS, SUCH AS AN IPA OR A VIRTUAL NETWORK

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
Hill Physicians Medical Group (IPA)	Financial incentives and training support to foster EHR adoption by member-physicians. Secure electronic messaging system used by some member-physicians to conduct e-prescribing, e-consultations, e-referrals. Web-based registry system used by some member-physicians as a basic clinical support tool.	Welcome Home program facilitates patient transition from hospital to home, recently doubling the number of discharged patients who are contacted for follow up. Coordinated patient outreach campaigns via mail or phone. Catastrophic care management using predictive modeling tools to identify patients at risk for future high utilization of care.	Participation in California Quality Collaborative developed physician champions to lead internal quality collaborative focused on improving diabetes care. Robust internal performance incentives based on utilization, clinical quality, citizenship (e.g., IT use) aligned with external incentives (Integrated Healthcare Association).	Some member-physicians use secure messaging to communicate with patients, e.g., sending lab results and preventive care reminders. Patients can use secure messaging to schedule appointments and receive appointment reminders.	IPA employs regional health educators who act as change agents to help member-physicians implement practice redesign, disease management, and preventive care. IPA management staff members are empowered to work together to make changes and proactively improve care processes.

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
North Dakota: Rural Cooperative Networks	The Northwestern North Dakota Information Technology Network is facilitating development of an EHR among 10 critical access hospitals and a tertiary hospital, building on a successful collaboration between two critical access hospitals that realized efficiencies by sharing hardware and software.	Small critical access hospitals act as a "health care central" for rural communities, providing emergency, inpatient, skilled nursing, and home care from a single location. Many CAHs in North Dakota are part of formal networks that facilitate improved coordination, quality, and efficiency. West River Health Services coordinates a continuum of care across a large rural area through a multidisciplinary group of physicians who support midlevel practitioners in satellite clinics.	Northland Healthcare Alliance shares resources, infrastructure, and expertise to strengthen collaboration across a virtual network of 25 hospitals and long-term care facilities (see Attribute #4). Within West River Health Services, shared patients and shared resources facilitate the network's aims of quality first, excellence in care, innovation in service, and treating patients like family.	Northland Healthcare Alliance created a mobile magnetic resonance imaging (MRI) service that lets rural patients receive care in their community at lower cost than if they were referred outside their community. In the Rural Mental Health Consortium, masters-level clinical nurse specialists provide onsite assessment, intervention, and ongoing management services to patients in four geographically isolated communities. Telemedicine facilitates access to medical and mental health services across a wide geographic area, permits efficient monitoring of home-bound patients, and avoids the burden of long-distance travel that can discourage care-seeking.	The North Dakota Telepharmacy Project uses technological innovation to promote access to a limited resource (pharmacists) in rural, underserved communities. A licensed pharmacist at a central pharmacy supervises the processing of prescriptions by a registered pharmacy technician at remote telepharmacies and rural hospitals.

MODEL 4: GOVERNMENT-FACILITATED NETWORKS OF INDEPENDENT PROVIDERS

System	Attribute #1: Information Continuity	Attributes #2 and 5: Care Coordination/Accountability	Attribute #3: Peer Review and Teamwork for High Value Care	Attribute #4: Easy Access to Appropriate Care	Attribute #6: Continuous Innovation
Community Care of North Carolina	Plans to use savings from other initiatives to promote the adoption of EHR among local essential providers.	Develops and disseminates resources and tools to support population-health management for Medicaid patients.	Network clinical directors identify best practice models and create system-wide quality measures and initiatives.	Each CCNC patient selects or is assigned a primary care physician who serves as a "medical home" providing acute and preventive care and facilitating access to specialty care and after-hours coverage.	Innovative delivery model incorporates principles of public-private partnership, physician leadership, quality and population management, shared responsibility and incentives.
	Partnering with Blue Cross Blue Shield to promote electronic prescribing statewide with planned educational, technical, and grant support.	Local networks hire nurse case managers who work in concert with physicians to identify high-risk patients, assist in patient education and follow-up, coordinate care and help patients access services.	Regional medical management committees and quality improvement planning groups implement initiatives locally.	Networks work with their "medical homes" to increase after hours and weekend availability.	Chronic disease initiatives have increased adherence to clinical guidelines and improved outcomes such as reduced asthma-related ER visits and hospitalizations.
	Care managers in regional networks use a common Web-based case management information system to track patients and their assessments, facilitate care planning, and enable secure messaging.	Networks collaborate with other community agencies (such as the local health department and mental health agency) to coordinate care,	Local clinical directors work with peers in the community to support and encourage quality improvement efforts.	Mental health integration pilot co-locates behavioral health specialists in primary care and reverse co-locates primary care physicians in behavioral health practices.	Builds sustainable community based infrastructure to launch other health initiatives.