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Case Study

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Kaiser Permanente: Bridging the Quality Divide with Integrated Practice, Group Accountability, and Health Information Technology

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ABSTRACT: Kaiser Permanente—comprising the Kaiser Foundation Health Plan, Kaiser Foundation Hospitals, and Permanente Medical Groups in eight regions—is the largest nonprofit integrated health care delivery system in the United States. The successful evolution of this organizational structure in a competitive marketplace has required a close partnership between managers and physicians supported by a culture of physician group accountability for quality and efficiency. An overarching agenda for achieving excellence focuses on high-impact health conditions, provides goal-oriented tools to analyze population data, proactively identifies patients in need of intervention, supports systematic process improvements, and promotes collaboration between patients and professionals to improve health. Central to this effort is KP HealthConnect, a comprehensive health information system that integrates an electronic health record with the tools to support physicians in delivering evidence-based medicine, coupled with a robust online patient portal that enhances members' access to and involvement in their care.

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OVERVIEW

In August 2008, the Commonwealth Fund Commission on a High Performance Health System released a report, *Organizing the U.S. Health Care Delivery System for High Performance*, that examined problems engendered by fragmentation in the health care system and offered policy recommendations to stimulate greater organization for high performance.[1] In formulating its recommendations, the Commission identified six attributes of an ideal health care delivery system (Exhibit 1).

Kaiser Permanente is one of 15 case study sites that the Commission examined to illustrate these six attributes in diverse organizational settings. Exhibit 2 summarizes findings for Kaiser Permanente, focusing on the Northern California and Colorado regions as two examples of the organization's model.

Exhibit 1. Six Attributes of an Ideal Health Care Delivery System

- ***Information Continuity*** Patients' clinically relevant information is available to all providers at the point of care and to patients through electronic health record systems.
- ***Care Coordination and Transitions*** Patient care is coordinated among multiple providers, and transitions across care settings are actively managed.
- ***System Accountability*** There is clear accountability for the total care of patients. (We have grouped this attribute with care coordination, since one supports the other.)
- ***Peer Review and Teamwork for High-Value Care*** 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.
- ***Continuous Innovation*** The system is continuously innovating and learning in order to improve the quality, value, and patient experiences of health care delivery.
- ***Easy Access to Appropriate Care*** Patients have easy access to appropriate care and information at all hours, there are multiple points of entry to the system, and providers are culturally competent and responsive to patients' needs.

Information was gathered from Kaiser Permanente's leaders, a site visit, and a review of supporting documents.[2] The case study sites exhibited the six attributes in different ways and to varying degrees. All offered ideas and lessons that may be helpful to other organizations seeking to improve their capabilities for achieving higher levels of performance.[3]

ORGANIZATIONAL BACKGROUND

Since its inception in 1945, Kaiser Permanente has become the largest not-for-profit, integrated health care delivery system in the United States, serving 8.6 million members in eight regions: Northern and Southern California, Colorado, Georgia, Hawaii, the Mid-Atlantic States, Ohio, and the Northwest (Exhibit 3). About three-quarters of the members are in California, the organization's birthplace. Its mission is to "provide affordable, high-quality health care services to improve the health of our members and the communities we serve."

The Kaiser Permanente Medical Care Program comprises three separate yet interdependent entities: Kaiser Foundation Health Plan (KFHP), Kaiser Foundation Hospitals (KFH), and Permanente Medical Groups in each region. These entities cooperate to organize, finance, and deliver medical care under mutually exclusive contracts built on common vision, joint decision-making, and aligned incentives. Kaiser Permanente is considered a "closed" group-model care system, since health plan members generally obtain care from Permanente physicians—with exceptions, such as when using point-of-service plans or when referred for care outside the system.

KFHP and KFH are not-for-profit corporations headquartered in Oakland, California, that share a common board of directors. KFHP and its regional subsidiaries contract with individual, group, and public purchasers of coverage to finance a full range of health care services for members. KFH arranges for inpatient care, extended care, and home health care for health plan members in owned or contracted facilities. It owns and operates 35 medical centers—hospitals with multispecialty outpatient and ancillary services—in California, Oregon, and Hawaii. Outpatient medical office buildings, of which there are 431 across all regions, typically offer primary care, laboratory, radiology, and pharmacy services; some also offer behavioral health and other specialty care.

The Permanente Medical Groups are multispecialty groups of physicians who accept a fixed payment (capitation) to provide medical care exclusively for

Kaiser health plan members in Kaiser facilities. They are organized as locally governed professional corporations or partnerships in each of the eight regions served and are represented nationally by The Permanente Federation. Working in cooperation with health plan and facility managers, Permanente physicians take responsibility for clinical care, quality improvement, resource management, and the design and operation of the care delivery system in each region.

Kaiser Permanente's workforce encompasses almost 167,000 employees of KFHP and KFH and 14,600 physicians in the Permanente Medical Groups. In 2008, Kaiser Foundation Health Plan and Hospitals reported combined revenue of $40.3 billion and capital

Exhibit 2. Case Study Highlights

Overview: Kaiser Permanente is the largest not-for-profit integrated delivery system in the U.S., serving 8.6 million health plan members through exclusive contracts with physician-governed Permanente Medical Groups in eight regions (14,600 physicians nationwide). Facilities include 35 inpatient medical centers in three states and 431 outpatient medical office buildings located across all regions. Eight affiliated research centers constitute one of the largest nonacademic research programs in the country.

Attribute	Examples from Kaiser Permanente Northern California and Colorado regions
Information Continuity	Comprehensive health information management system integrating electronic health records with physician order entry, decision support, population and patient-panel management tools, appointments, registration, and billing systems. Member Web portal for online access to health information and educational resources, shared medical record, visit history, appointment scheduling, prescription refills, lab test results, and secure messaging with the care team.
Care Coordination and Transitions; System Accountability*	Regional 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 and team. There is "in-reach" at every patient contact to check on and address outstanding preventive care needs. Stratified population and patient-panel management: proactive primary care teams leverage ancillary staff and information systems to deliver proven preventive therapies and support patient self-care and lifestyle change. Care and case management and transitional care is provided for patients with uncontrolled disease or complex comorbidities. Primary care teams in Northern California include a behavioral medicine specialist (licensed clinical psychologist or clinical social worker) who co-manages patients with mental health conditions to support improved outcomes.
Peer Review and Teamwork for High-Value Care	Integrated prepaid group-practice model inculcates a culture of group accountability for quality and efficiency supported by peer feedback and sharing of unblinded performance data within the group. Medical groups identify and develop internal clinical leaders. Labor–management partnership defines common vision and commitment to shared decision-making involving managers, physicians, and employees.
Continuous Innovation	Promotes organizational learning through in-house journal, annual innovation awards, workshops, site visits, and local clinical champions. Care Management Institute convenes interregional expert teams to develop evidence-based guidelines, programs, and tools; identifies causes of variation and best practices for local adoption. 21st Century Care Innovation Collaborative tests and spreads innovations to transform primary care using information technology. Kaiser hospitals are engaged in collaborative learning to attain the status of World Class Hospitals using rapid-change interventions. Garfield Innovation Center serves as a learning laboratory to support simulation, prototyping, and evaluation of innovations to improve health care delivery.
Easy Access to Appropriate Care	Multiple entry options include call centers for primary care appointments and 24-hour nurse advice, after-hours urgent care, scheduled telephone visits, and electronic messaging with the care team. Group visits offer regular contact with a multidisciplinary care team and peer support for patients with chronic illness. Culture-specific patient-care modules allow patients to communicate in native language with bilingual staff oriented to cultural norms. Institute for Culturally Competent Care designs programs and tools and guides Centers of Excellence. Training programs develop bilingual staff and certify health care interpreters.

*System accountability is grouped with care coordination and transitions since these attributes are closely related.

spending of $2.9 billion. Spending on community benefit programs amounted to $1.2 billion for community health promotion, charity care and safety-net institutions, professional education, and research. Eight affiliated research centers constitute one of the largest nonacademic research programs in the country.

This case study draws primarily from the experience of the Northern California region, with supporting examples from Colorado and other regions (Exhibit 4). Because the organization operates in a decentralized fashion with regional autonomy to meet local needs, these examples may or may not be typical of the program as a whole.

In the Northern California region, about 7,000 Permanente physicians serve 3.2 million members from the San Francisco Bay area east to Sacramento and the Central Valley. In the Colorado region, established in 1969, about 480,000 members receive care from 800 Permanente physicians in the Denver-Boulder area and from affiliated community physicians in the Colorado Springs area. Market share for the two regions is about 44 percent and 16 percent in their respective market areas, composed predominantly of commercial coverage (87% and 85% respectively) and Medicare (11% and 13%).

INFORMATION CONTINUITY

Kaiser Permanente has been using information technology for more than 40 years to improve clinical and administrative functions.[4] Its use of electronic health records (EHRs) dates from the 1990s in some regions.[5] Building on this experience, and with the active participation of its physicians, Kaiser Permanente in 2003 launched a $4 billion health information system called KP HealthConnect that links its facilities nationwide and represents the largest civilian installation of EHRs in the United States. As of April 2008, the system was successfully implemented in outpatient clinics in all eight Kaiser regions. Every Kaiser hospital has the essential components of the system and 25 had implemented all modules as of December 2008.[6]

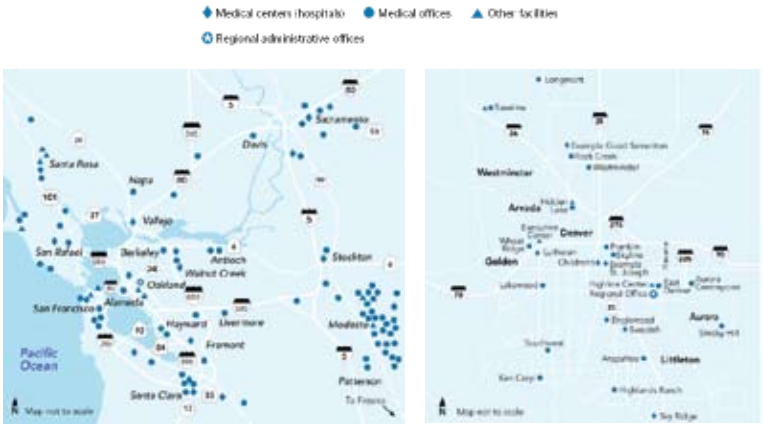
The EHR at the heart of KP HealthConnect (purchased from vendor Epic Systems Corp.) provides a longitudinal record of member encounters across clinical settings and includes laboratory, medication, and imaging data. HP HealthConnect also incorporates:

- electronic prescribing and test ordering (computerized physician-order entry) with standard order sets to promote evidence-based care
- population and patient-panel management tools such as disease registries to track patients with chronic conditions

Exhibit 3. Kaiser Permanente Regions

Note: Circles represent approximate geographic service areas.
Source: Adapted from information on the Kaiser Permanente Web site.

Exhibit 4. Kaiser Permanente Service Areas: Northern California and Colorado Regions



Source: Kaiser Permanente.

- decision support tools such as medication-safety alerts, preventive-care reminders, and online clinical guidelines
- electronic referrals that directly schedule patient appointments with specialty care physicians
- performance monitoring and reporting capabilities
- patient registration and billing functions

KP HealthConnect is designed to electronically connect members to their health care team, to their personal health information, and to relevant medical knowledge to promote integrated health care. For example, members can complete an online health risk assessment, receive customized feedback on behavioral interventions, participate in health behavior change programs, and choose whether to send results to KP HealthConnect to facilitate communication with their physician.

To more fully engage patients in their care, physicians and staff encourage them to sign-up for enhanced online services. As a result, more than one-third of health plan members nationwide (and nearly one-half of members in Northern California) are using a Web portal called My Health Manager to track selected medical information from the EHR, view a history of physician visits and preventive care reminders, schedule and cancel appointments, refill prescriptions, and send secure electronic messages to their care team or pharmacist.[7] Online laboratory test results—the most popular online function—include links to a knowledge base of information on test results and related self-care strategies. A pilot project is testing the capability for members (initially Kaiser employees) to transfer information securely from My Health Manager to Microsoft Corporation's HealthVault personal health record application.[8]

Physician leaders report that access to the EHR in the exam room is helping to promote compliance with evidence-based guidelines and treatment protocols, eliminate duplicate tests, and enable physicians to handle multiple complaints more efficiently within one visit.[9] A study in the Northwest region found that patient satisfaction with physician encounters increased after the introduction of the EHR in exam rooms there.[10] Early findings from ongoing hospital implementations suggest that the combination of computerized physician-order entry, medication bar-coding, and electronic documentation tools is helping to reduce medication administration errors.

Use of the EHR and online portal to support care management and new modes of patient encounters appears to be having positive effects on utilization of services and patient engagement. For example, three-quarters or more of online users surveyed agreed that the portal enables them to manage their health care

Exhibit 5. Kaiser Permanente Hawaii: Distribution of Patient Contacts, 1999–2007

*Measurement for secure messaging began in 2005.
Source: Kaiser Permanente.

effectively and that it makes interacting with the health care team more convenient.[11] Patients in the Northwest region who used online services made 10 percent fewer primary or urgent care visits than before they had online access (7 percent fewer visits compared with a control group of patients).[12]

The Hawaii region experienced a 26 percent decrease in the rate of physician visits following implementation of KP HealthConnect (Exhibit 5). Overall patient contacts increased by 8 percent due primarily to a large increase in scheduled telephone visits. Urgent care and emergency department visits increased, although the increase accounted for only about 5 percent of the decrease in office visits. The authors speculated that the EHR facilitated more-efficient care delivery and helped doctors resolve problems over the telephone.[13]

CARE COORDINATION AND TRANSITIONS: TOWARD GREATER ACCOUNTABILITY FOR TOTAL CARE OF THE PATIENT

Having a broad spectrum of services available within one organization and, in many cases, in one location, makes it easier to coordinate care for patients. Kaiser Permanente's integrated model of care focuses not only on the spectrum of medical care that a patient may need at any one time, but also on members' interactions with the organization across time and the continuum of care—clinic, hospital, home, hospice, or extended care.

The Northern California region, for example, stresses "in-reach" to patients at every contact (not just during primary care visits) to check on outstanding preventive care needs and to schedule services such as mammograms. Medical assistants receive feedback reports that prompt them to follow-up with patients whose preventive care needs were not addressed during a recent clinic visit. As a result of such in-reach and outreach efforts, the plan's breast cancer screening rate in 2007 was 79 percent among women (ages 40 to 69) with private coverage and 86 percent among Medicare members, as compared with national rates of 69 percent and 67 percent, respectively.

Regions are evaluated on how well members are linked or "bonded" to a primary care physician and an "accountable unit" (module or team of providers) that is responsible for coordinating and ensuring continuity of care. This whole-person perspective may contribute to member loyalty: California members stay enrolled for 14 years on average, compared with four years for competitors.

Improving Population Health. The Northern California region uses a population and patient-panel management strategy to improve care and outcomes

for patients who have—or who are at risk for developing—chronic diseases. This approach is built on the philosophy that a strong primary care system offers the most efficient way to interact with most patients most of the time, while recognizing that some patients need additional support and specialty care to achieve the best possible outcomes. Patients are stratified into three levels of care:

1. ***Primary care with self-care support*** for the 65 percent to 80 percent of patients whose conditions are generally responsive to lifestyle changes and medications.

2. ***Assistive care management*** to address adherence problems, complex medication regimens, and comorbidities for the 20 percent to 30 percent of patients whose diseases are not under control through care at level one.

3. ***Intensive case management and specialty care*** for the 1 percent to 5 percent of patients with advanced disease and complex comorbidities or frailty.

Level one emphasizes a proactive team approach that conserves physician time for face-to-face encounters by enhancing the contributions of ancillary staff (medical assistants and also nurses and pharmacists in some locations) to conducting outreach to patients between visits. The team uses a population database and decision support tools built into the EHR to track patients with chronic conditions such as diabetes or heart disease, develop action plans to engage them in self-care, ensure that they are taking appropriate medications, and remind them to get preventive care and other tests when needed.

Outreach to patients with chronic conditions typically occurs as follows: The physician reserves a weekly appointment slot to meet with his or her staff and review a computer-generated list of 10 to 20 patients who are not achieving treatment goals. The physician indicates follow-up instructions for each patient, such as increasing medication dosage or ordering a test. The medical assistant or nurse then contacts the patient to relay the physician's instructions, using prepared scripts to ensure consistent communication. Contact is typically made by telephone but may occur by letter in some cases.

At level two, care managers (specially trained nurses, clinical social workers, or pharmacists) support the primary care team to help patients gain control of a chronic condition. Interventions may include providing self-care education, titrating medications according to protocol, and making referrals to educational classes (e.g., for smoking cessation). The goal is to move patients back to level one after an intervention period of several months to a year. Successful transitions require that primary care teams be prepared to follow up with patients and prevent them from relapsing. Care managers may be part of the local primary care team or may be centrally located at a medical center, depending on local resources.

An example of intensive case management (level three) is a cardiac rehabilitation program called Multifit for patients with advanced heart disease, such as those recovering from a heart attack or heart surgery. Nurse case managers provide telephonic education and support for up to six months to help patients make lifestyle changes and reduce their risk of future cardiac events. Aided by the EHR and a patient registry, the Colorado region enhanced the program by adding a telephonic cardiac medication management service provided by clinical pharmacy specialists, with ongoing follow-up until patients achieve treatment goals and can be transferred to primary care for maintenance.[14] Results for patients participating in the Colorado program included the following:

- Cholesterol screening increased from 55 percent to 97 percent of patients, while cholesterol control has almost tripled from 26 percent to 73 percent of patients.[15] The Colorado plan ranked first among health plans nationally in 2007 on a measure of cholesterol screening for patients with cardiovascular conditions.[16]

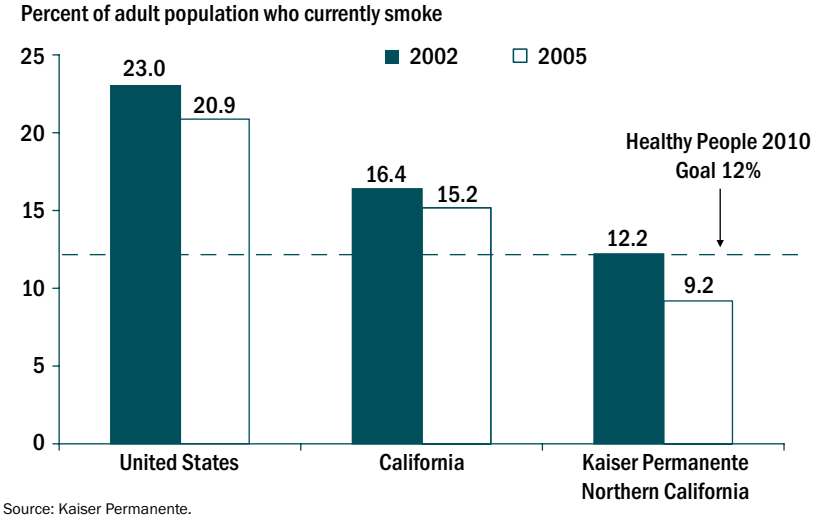
- Relative risk of death declined by 89 percent among those enrolled in the program within 90 days of a cardiac event, and by 76 percent for those with any contact with the program.[17] An estimated 260 major cardiac events and 135 deaths have been avoided per year because of these improvements.[18]

The Northern California region in 2004 initiated a program called PHASE—Prevent Heart Attacks and Strokes Everyday—to consistently deliver proven prevention therapies for controlling blood pressure, blood lipids, and blood glucose among a broadly defined population of patients at risk for cardiovascular disease. Diabetics make up two-thirds of the target population, which also includes patients with coronary artery disease, stroke, chronic kidney disease, peripheral arterial disease, and abdominal aortic aneurysm. Interventions include prescribing four drugs whenever appropriate—aspirin, lipid-lowering medications, ACE inhibitors, and beta-blockers—and promoting four lifestyle changes: tobacco cessation, physical activity, healthy eating, and weight management.

Focusing on the entire spectrum of primary, secondary, and tertiary prevention for cardiac care management has resulted in the following improvements in care and outcomes in the Northern California region:

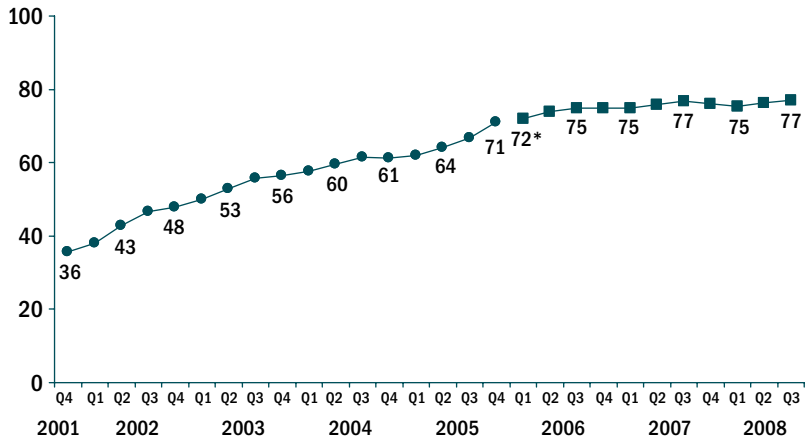
- The prevalence of adult smoking declined from 12.2 percent to 9.2 percent of members from 2002 to 2005, more than twice the rate of improvement in the California population as a whole (Exhibit 6).
- Blood pressure control more than doubled, from 36 percent of patients with hypertension in 2001 to 77 percent of 313,000 patients with the condition by the third quarter of 2008 (Exhibit 7). The plan ranked third-highest in the nation on this measure in 2007, according to the National Committee for Quality Assurance (NCQA).
- Appropriate receipt of target prescription medications increased from 41 percent to 53 percent of PHASE patients from 2004 to 2008.[19] Blood glucose control (hemoglobin A1c <9%) improved from 66 percent to 73 percent of diabetic patients, while cholesterol control (LDL-C <100) improved from 50 percent to 63 percent of all PHASE patients from 2005 to 2008.
- Hospitalization rates (age/sex adjusted) declined by 30 percent for coronary heart disease, by 56 percent for ST-elevated myocardial infarction (heart attack), and by 20 percent for strokes from 1998 to 2007.

Exhibit 6. Kaiser Permanente Northern California: Adult Smoking Prevalence in 2002 and 2005



Source: Kaiser Permanente.

Exhibit 7. Kaiser Permanente Northern California: Trend in Blood Pressure Control Rate: 2001–2008

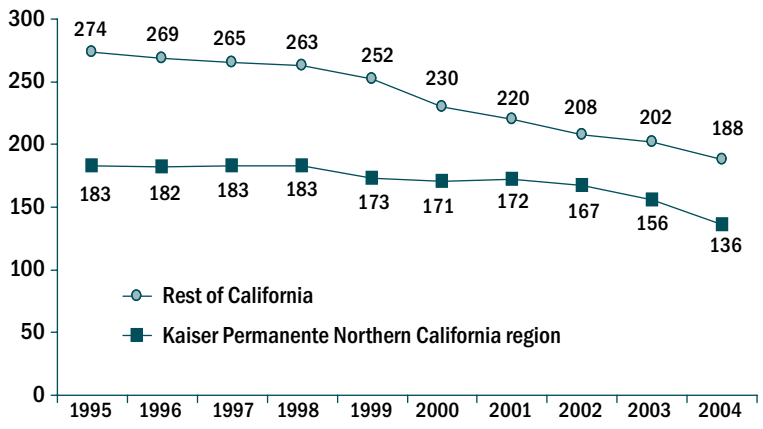


*Measure definition changed in 2006 from population ages 46–85 to ages 18–85.
Source: Kaiser Permanente.

- The heart disease mortality rate decreased by 26 percent from 1995 to 2004. As of 2004, Northern California Kaiser Permanente members had a 30 percent lower chance of dying from heart disease than other Californians (Exhibit 8).

Integrating Behavioral Health and Primary Care. Each primary care team in Northern California includes a behavioral medicine specialist, who is a licensed clinical psychologist or clinical social worker trained to work in primary care. The behavioral medicine specialist co-manages patients with identified mental health conditions such as depression or anxiety disorders, providing counseling (using proven modalities such as cognitive behavioral therapy or behavioral activation) and problem-solving support individually or in group sessions. The patient's primary care physician is responsible for medication management. Patients with severe mental health conditions or substance use disorders are referred to psychiatric specialty care or chemical dependency treatment.

Exhibit 8. Kaiser Permanente Northern California: Heart Disease Mortality 1995–2004



*Age- and sex-adjusted to the 2004 Kaiser Permanente standard population.
Source: Kaiser Permanente Northern California Division of Research.

Since many patients have co-occurring mental and physical conditions, colocation of behavioral medicine specialists in primary care allows a broad perspective that is superior to disease-specific approaches. It also improves access to mental health care, since many patients prefer to receive such services from their primary care team and may not visit mental health specialists even when referred.

Through its participation in a study of a collaborative care model called IMPACT, the organization learned that outcomes could be enhanced by adopting a more systematic approach to caring for patients with depression. As a result, the region recently began using a population database and a patient-completed questionnaire called the PHQ-9 to track patients' progress and provide feedback so that the physician and behavioral medicine specialist can tailor treatment to achieve symptom-improvement goals.[20] The region ranks second among health plans nationally on a measure of antidepressant medication management–acute phase treatment, according to the NCQA.

Improving Transitional Care. The Colorado region offers a telephonic care coordination program to improve follow-up care for patients discharged from a hospital or skilled nursing facility. The program also services patients who frequently visit the emergency department (ED) or are at risk of hospitalization because of multiple chronic conditions.

Care coordinators (specially trained nurses or social workers) contact discharged patients within 24 hours to assess needs and stratify them to receive short- or longer-term services that may include verifying medications, developing self-care skills, coordinating services, and making referrals to community resources. Information on each patient contact is documented in the EHR for communication to the care team.

The plan credited the program with annual cost savings of $4 million from decreased readmissions (2.4% of intervention patients vs. 14% of usual-care patients at 12 months) and ED visits (7% vs. 16%, respectively). Satisfaction with the program exceeds 90 percent of physicians and 95 percent of patients.[21]

Improving Medication Safety. The Colorado region developed a computerized pharmacy alert system that reduced the relative risk of dispensing potentially inappropriate medication by 16 percent among elderly patients. When an elderly patient is prescribed a potentially inappropriate medication, the system notifies a pharmacist, who contacts the physician by phone or e-mail to review the order using a standard questionnaire and to recommend changes when warranted.[22] For patients taking anticoagulation medication, a telephonic, clinical pharmacist–managed anticoagulation service reduced the risk of therapy-related complications by 39 percent compared with usual care.[23]

Measuring Financial Outcomes. Assessing the economic benefits of disease management can prove difficult. A 2004 study of outcomes in Northern California reported mixed results: Costs increased at a lower rate in disease-managed groups of patients with a particular chronic condition than in a comparison group of patients without the condition. However, total costs did not decrease in absolute terms. Quality of care improved, but "there was no tendency for costs to increase less at medical centers where quality improved more."[24] Permanente physician leaders commented that the region had already achieved substantial benefits from disease management programs by the time of the study, helping to keep premiums below the national average.[25] Such programs provide better value for patients and purchasers through improved health outcomes and workplace productivity, said Warren Taylor, M.D., medical director for chronic condition management in the Northern California region.

PEER REVIEW AND TEAMWORK FOR HIGH-VALUE CARE

A multispecialty group practice creates organic connections among physicians, but also requires intentional management effort to achieve its potential. Sharon Levine, M.D., associate executive director of The Permanente Medical Group of Northern California, described the culture as one of group accountability: focused on education and information in lieu of regulation, and motivated by a sense of commitment rather

than compliance. Internal transparency—a willingness to share peer feedback (aided by a common medical record) and unblinded performance data within the medical group—has become the most powerful driver of performance improvement during the past 10 years, she said. This principle of group responsibility defines the core of "Permanente Medicine" and promotes clinical collaboration and coordination across specialties.

Under prepaid care, Permanente physicians take responsibility for both quality and cost of care. They are stewards of both member resources and member health: accountable to their patients, to the membership as a whole, to their peers, and to the health plan. There is a shared sense that wasted resources represent a lost investment in member health. Given this dual accountability, physician leaders maintain trust by being clear about the motivation for making changes: An initiative intended primarily to improve efficiency is never presented as one intended to improve quality, Levine said.

Physicians exercise this accountability through medical group self-management and self-governance, as full and equal partners with the health plan. This partnership is formally defined through annual agreements at both the national and regional levels and is given practical expression through joint decision-making bodies and day-to-day collaboration between physician leaders and health plan and facility managers at all levels. About one in seven physicians is involved in some kind of leadership role in Northern California. Physician leaders emerge from the ranks and are given management and leadership development training as needed to be successful in their roles.[26]

While emphasizing partnership and integration, "Permanente physicians pride themselves on their clinical autonomy," Levine said. For example, physicians do not need approval to deviate from the drug formulary if warranted for a particular patient. This practice environment—combining professional autonomy with group accountability—is a positive and important factor in recruiting new physicians.

Physician leaders believe that the compensation system is not the primary motivator of performance but that it must be aligned with a leadership strategy that engenders trust and commitment while recognizing and rewarding performance. Permanente physicians are paid market-competitive salaries (based on specialty), so there is no financial incentive for either under- or overtreatment. From its capitation payment, the medical group funds an incentive pool with rewards based on meeting quality and service goals at each organizational level: group, medical center, department, and individual physician. Physicians are eligible to earn an annual performance incentive payment of up to 5 percent of salary (on average) based on measures of quality, service and patient satisfaction, workload, and group contribution.

Another characteristic of the Kaiser Permanente partnership ethic is the organization's relationship to its labor unions. Organized labor has been a key source of support for the Kaiser Permanente model since its inception. As collective bargaining became strained in the 1990s because of pressure to cut costs, Kaiser Permanente and a coalition of its labor unions established the Labor Management Partnership in 1997 to foster a more positive relationship. Described by academic experts as historic in its scope and accomplishments, the Partnership has defined a jointly agreed-upon vision and commitment to a shared decision-making process involving managers, physicians, and employees.[27]

The integration of labor into organizational decision-making is credited with facilitating operational and financial improvements and with improving employee morale.[28] Although the organization's decentralized structure has sometimes created challenges in disseminating the partnership at every level, a reaffirmation of partnership principles emphasized their consistent application through teamwork.

CONTINUOUS INNOVATION

Facilitating intraorganizational learning. Kaiser Permanente promotes cross-learning among sites and regions through its in-house *Permanente Journal* (a recent compilation from the journal identified 34 clinical practice innovations, with outcome results and actions for adoption[29]), annual innovation

awards and site visits, learning collaborations and workshops, and systemwide resources such as the Permanente Federation and the Kaiser Permanente Care Management Institute.[30] The Care Management Institute:

- convenes interregional working groups of clinical experts to develop evidence-based guidelines (disseminated through the EHR)
- offers model care management programs for adoption regionally
- develops tools such as health risk assessments
- investigates the causes of interregional variations to identify best practices associated with better patient outcomes

To facilitate local adoption of innovations, medical groups identify local clinical champions who are given resources and tools to educate and engage their colleagues in making changes to improve practice and outcomes for patients.

The development of an osteoporosis disease management program offers an example of this process. Responding to evidence that many bone fractures can be prevented, orthopedic surgeons in Kaiser Permanente's Southern California region led multidisciplinary teams in each of the region's 11 medical centers to institute a "Healthy Bones" program for individuals at risk of osteoporosis and fractures. Care managers, primary care physicians, and surgeons use reports generated from the EHR to identify at-risk patients and provide them with education, screening, treatment, and monitoring as needed. The program has led to a 37 percent reduction in the rate of hip fractures treated in the region's medical centers, including a 60 percent reduction in the best-performing center.[31] The plan ranks first among Medicare plans nationally on NCQA's measure of osteoporosis management.

Under the auspices of the Care Management Institute, the region's orthopedic surgeons joined with experts from other Kaiser Permanente regions to develop a national clinical practice guideline to standardize osteoporosis management across the organization. This effort includes an annual videoconference to review the latest evidence, update and refine the guideline (such as by adding a risk-assessment tool to target treatment to those most likely to benefit), and share best practices. Other Kaiser Permanente regions have adopted the Healthy Bones program or have developed similar programs to improve osteoporosis testing and management.[32] "I always come away from the meeting knowing more than I came with," said orthopedic surgeon Richard Dell, M.D.

The Healthy Bones team is working with the National Osteoporosis Foundation and the American Orthopedic Association to spread the word about how effective osteoporosis disease management programs can be in identifying, risk-stratifying, treating, and tracking patients at risk for osteoporosis and fractures. Dell estimates that if the Healthy Bones approach were widely adopted and achieved a 25 percent reduction in the rate of hip fractures nationally, it would prevent 75,000 hip fractures in the United States each year.[33]

Developing improved modes of care delivery. The 21st Century Care Collaborative is using KP HealthConnect to develop innovations that will transform the ability of primary care teams to improve patient care delivery and member experience while also promoting a sustainable work environment for clinicians and staff. A prototype change package—developed from the experience of several pilot-test sites—is being spread regionally using a flexible approach that lets facilities and teams test elements to determine what works best in their circumstances. Principles and examples include:

1. Understand the needs of your population: Design the work and build the care team to meet the needs, e.g., maximize team roles and optimize team communication.
2. Develop relationship-based care and demonstrate that we know members, e.g., convene member councils, complete after-visit summaries.

3. Provide alternatives to traditional office visits, e.g., offer telephone visits and group visits, use secure messaging.
4. Embrace total panel ownership, e.g., conduct outreach to patients with chronic conditions, follow up with patients on new medicines.
5. Engage members in collaborative care planning, e.g., use goal sheet with diabetic patients, convene chronic care support groups.

These changes have synergistic effects. For example, replacing face-to-face visits with telephone visits saves time and increases convenience for members. It also frees time for the care team to conduct proactive panel-management activities, address urgent-care needs, and look for other opportunities to make things easier for patients, such as by calling those on the appointment schedule to resolve problems over the phone. Pilot sites reported improved quality and increased satisfaction for members and staff.[34]

In 2006, Kaiser Permanente established the Garfield Innovation Center, a 37,000-square-foot learning laboratory that supports the simulation, prototyping, and evaluation of innovations to improve health care delivery. Recent projects have prototyped ideas for improving exam room design, reenacted how rapid-response teams function to identify best care practices, and evaluated technologies for patient home monitoring.[35]

Improving care in the inpatient setting. Kaiser Foundation Hospitals have identified a set of strategic priorities to attain the status of *World Class Hospitals* by 2011. Hospitals are engaged in collaborative learning to promote consistently high clinical performance and to prevent adverse events such as hospital-acquired infections, pressure ulcers ("bed sores"), and patient falls using rapid-change interventions and "bundles" of evidence-based practices, with performance feedback to hold leaders accountable for results.

As of October 2008, eight Kaiser hospitals reported that their intensive care units had avoided any central-line-associated bloodstream infections in patients for 12 months, and seven others reported only one such infection in the past 12 months. In the Northern California region, core clinical performance measures improved across all hospitals (ranging from 4% for heart attack care to 10% for pneumonia care) between 2006 and 2008. The region's standardized mortality ratio for heart-attack patients was 27 percent below the national Medicare average in 2008.[36]

Over the last several years, Kaiser Permanente has developed and implemented a multipronged approach to handling the disclosure of medical errors. The organization's philosophy of disclosure and accountability is encapsulated in the following principles:

- Care for the patient
- Communicate about unanticipated adverse outcomes
- Report to appropriate parties
- Check the medical record
- Follow up and provide closure
- Support the patient care team

Physicians receive training on how to have open conversations with patients and families regarding adverse events and medical errors. "Situation-management teams" of trusted individuals within each medical center provide counseling and support to providers as needed. A health care ombudsman, available in most hospitals, acts as a certified health care mediator to facilitate communication and satisfactory outcomes between the care system and patients and their families. Kaiser reports that patients and staff have expressed positive feedback regarding their interactions with the ombudsman.[37]

Pursuing advances in medicine. In Northern California, Kaiser Permanente's Division of Research conducts epidemiologic and health services research to improve the health and medical care of members and the population at large. A major current project is assembling one of the world's largest biobanks of genetic, environmental, and health data. The biobank

will enable research on the causes of diseases that eventually may lead to advances in diagnosis, treatment, and prevention. Almost 400,000 Northern California members have volunteered to participate in the program by completing a health survey and are being asked to contribute saliva samples for DNA analysis.[38]

Improving efficiency. Innovations also focus on improving the efficiency of operations and cost-effectiveness of care. For example, Kaiser Permanente's size and integrated structure (almost all health plan members use Kaiser Permanente pharmacies) allowed the Northern California region to offer market share-based purchasing guarantees to generic pharmaceutical suppliers. Permanente physicians are encouraged to follow clinical guidelines, developed by expert physician peers and clinical pharmacists, to prescribe preferred generic equivalents to brand-name drugs whenever appropriate. This strategy enabled the plan in 2005 to realize annual cost savings of more than $150 million from the use of generic cholesterol-lowering drugs, for example, as compared with community prescribing patterns for such drugs.

EASY ACCESS TO APPROPRIATE CARE

The Northern California region recently undertook an initiative to improve patient-rated access and service on five targeted "imperatives of personal care." These include: 1) patients have a personal primary care physician; 2) they are able to see that physician; 3) callers have a short telephone wait; 4) they receive timely appointments; and 5) patients have a superior care experience. (Primary care physicians include general internists, family practitioners, pediatricians, and obstetrician/gynecologists.)

Regional leaders determined operational tactics associated with high patient ratings, set operational targets to meet them (such as having sufficient primary care physicians at each location with open panels to meet demand), and monitored performance. As a result of this effort, patient satisfaction scores increased regionwide, so much so that the worst-performing center in 2006 was better than the best-performing center in 1999.

To promote convenient access to care and information—and help reduce demand on the emergency department—the region offers multiple "entry points" including the following:

- call centers that offer one point of contact for routine plan information, primary care appointment scheduling, and 24-hour nurse advice
- the ability to "self-book" appointments through the phone or the Web (patients who book their appointments online are more likely to keep them[39])
- after-hours urgent-care appointments at selected locations (some medical centers offer walk-in treatment for minor injuries)
- the option of scheduling a telephone visit with the patient's primary care physician for conditions amenable to resolution over the phone
- electronic messaging with the primary care team for nonurgent matters, and with a specialist that the patient has consulted for up to a year after the visit

To offer timely and convenient appointments, the region aims for its call centers to book an appointment with the patient's designated primary care physician on a date and time that is acceptable to the patient in one call ("first contact scheduling"), a goal that it attains about 85 percent of the time, according to Donald Dyson, M.D., associate executive director of The Permanente Medical Group of Northern California. When the teleservice representative cannot offer an appointment that is acceptable to a patient, he or she sends an electronic notification to the patient's primary care office, which contacts the patient to find an acceptable time or, when appropriate, offer a telephone consultation with the doctor.

Teleservice representatives (who receive training, coaching, and monitoring on the job) use physician-created scripts to offer appointments in a

medically acceptable time frame based on the patient's chief complaint. Patients with urgent problems are scheduled to see a physician on the same or next day, while those with routine or chronic issues are scheduled more flexibly. Those who indicate emergent problems (such as chest pain) are immediately transferred to an advice nurse, who can consult with a physician if necessary to recommend an appropriate course of action such as going to the emergency department.

This approach has elements in common with the same-day appointment scheduling model known as "advanced access," which was originally developed at a Northern California Kaiser Permanente clinic, in that it seeks to balance the supply of and demand for physician appointments and promote patient satisfaction with care. About four of five Northern California Kaiser Permanente members (82%) report getting appointments and care quickly, ranking the region second among nine California health plans in the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey.[40]

For specialty care, the Northern California region has set a goal that 75 percent of patients will be able to see a specialist within two weeks of a referral from their primary care physician. Referrals are made electronically using KP HealthConnect and can be requested by patients over the phone. Some medical centers have "roving" dermatologists who can be consulted directly during primary care visits, so that patients need not schedule a separate appointment. In other locations, dermatologists can be consulted electronically through audiovisual tele-health connections.

Kaiser plans to offer scheduled online encounters or e-visits in the future for patients with the necessary audiovisual technology (e.g., Webcam). In a pilot test at one medical center, patients can attach a digital photograph to electronic messages to help their physician determine the nature of their problem. For example, a physician could view a photo of a child's rash to determine that it is the chicken pox and thus avoid a visit that would expose other children to infection in the physician's office.

KP HealthConnect has been designed to actualize the philosophy that "the home and other personal settings will be the locale of choice for many health care services."[41] Family members can act as proxy users for children or other patients who do not use online services. One in 10 online users surveyed in the Northwest region indicated that they would not have contacted their provider if they couldn't send electronic messages, suggesting that the Web portal may help to address otherwise unmet needs.[42] The standard for replying to electronic messages is 48 hours. In the Colorado region, physicians are encouraged to respond within 24 hours, a goal they reportedly meet more than 90 percent of the time.[43]

As an alternative to the traditional physician visit, patients with chronic illnesses can elect to participate in a variety of scheduled and drop-in group medical visits in many areas. Group visits offer the opportunity to meet regularly with a multidisciplinary care team (which may include a health educator and pharmacist in addition to the physician) while building social support with peers. In a controlled trial conducted in Colorado among older, chronically ill patients, those who attended 90-minute monthly "Cooperative Health Care Clinics" had fewer hospitalizations and emergency visits and lower overall costs of care than usual-care patients. Group-visit participants also reported better quality of life and ability to manage their health, and higher satisfaction with their physician.[44]

Through these kinds of access initiatives and related care management, information technology, and process improvements, Northern California members' use of the emergency department (ED) declined by almost one-third over the course of 11 years, from a rate of 300 visits per 1,000 adults in 1997 to 205 visits per 1,000 in 2008 (Exhibit 9). Philip Madvig, M.D., associate executive director of the medical group, credits the integrated nature of the delivery system with laying the foundation that has made this kind of improvement possible.

Offering Culturally Competent Care. Kaiser Permanente's Personalized Care Model encompasses a commitment to providing culturally competent care and to working aggressively toward eliminating health disparities. Its Institute for Culturally Competent Care develops tools, training, and educational resources to help accomplish these goals. The Institute guides the work of nine Centers of Excellence in Culturally Competent Care, located in several regions, which tailor services to meet the unique health care needs of diverse population groups including African Americans, Armenians, Latinos, people with disabilities, and women.[45]

Several California medical centers offer culture-specific patient-care modules (Chinese, Spanish/Latino, and Vietnamese) where patients can communicate in their native language with a bilingual care team oriented to their cultural norms. Anne Tang, M.D., chief of the Bilingual Chinese Module at the San Francisco Medical Center, described how establishing cultural rapport can be critical to effective treatment, for example, by allowing members to feel comfortable disclosing the use of alternative medicines such as herbal blood thinners that can interact with anticoagulation treatment.

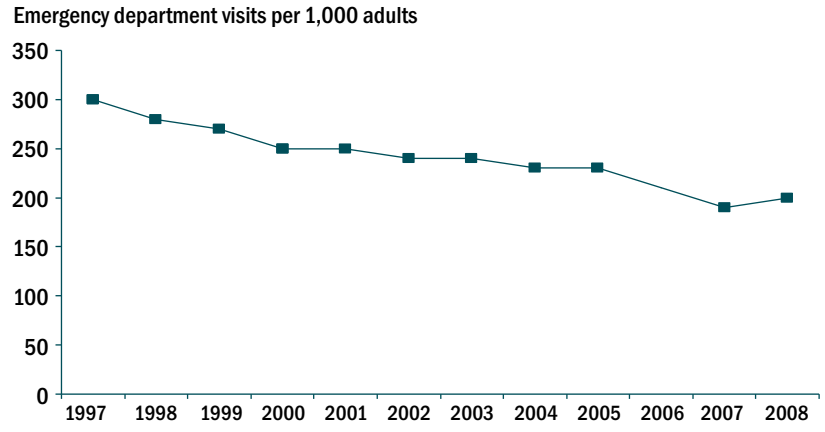
Two Kaiser Permanente programs have earned the National Committee for Quality Assurance's "Recognizing Innovation in Multicultural Health Care" award as models for other health plans. The Qualified Bilingual Staff model curriculum has been used to train more than 3,000 staff in Northern California to enhance their linguistic competency in serving patients who speak languages other than English.[46] The Health Care Interpreter Certificate Program, developed by Kaiser Permanente and offered in conjunction with the City College of San Francisco, has trained more than 1,000 students to address gaps in the training and availability of qualified interpreters.[47]

RECOGNITION OF PERFORMANCE

In addition to the results of the specific interventions described above, Kaiser Permanente has achieved notable results on selected externally reported performance indicators and has received recognition for its performance on several national benchmarking or award programs (Exhibit 10).

The California Office of the Patient Advocate's 2008 Healthcare Quality Report Card gave Kaiser Permanente's Northern and Southern California regions the highest overall ratings among eight large health maintenance organizations in the state. Both regions received four-star "excellent" ratings for clinical quality (the only plans to do so) and three-star "good" ratings for consumer experience (two other

Exhibit 9. Kaiser Permanente Northern California: Trend in Emergency Department Use



* Data from 2006 are unavailable.
Source: Kaiser Permanente.

Exhibit 10. Selected Externally Reported Results and Recognition for Kaiser Permanente of Northern California and Colorado*

Inpatient Care Quality[51] (CMS Hospital Compare Jan.–Dec. 2007)	*Four-topic clinic*al composite (24 measures): Eight of 14 Northern California Kaiser hospitals evaluated ranked in the top quartile, and three of these in the top decile, of U.S. hospitals evaluated. *Heart attack treatment* (8 measures): Eight of 14 Northern California Kaiser hospitals evaluated ranked in the top quartile, and two of these in the top decile, of U.S. hospitals evaluated. *Heart failure treatment* (4 measures): Seven of 15 Northern California Kaiser hospitals evaluated ranked in the top quartile, and three of these in the top decile, of U.S. hospitals evaluated. *Pneumonia treatment* (7 measures): Four of 15 Northern California Kaiser hospitals evaluated ranked in the top quartile, and one of these in the top decile, of U.S. hospitals evaluated. *Surgical care improvement* (5 measures): Ten of 15 Northern California Kaiser hospitals evaluated ranked in the top quartile, and four of these in the top decile, of U.S. hospitals evaluated.
Ambulatory Care Quality (NCQA Quality Compass 2008)	*Clinical quality* (34 measures): Kaiser Health Plan of Colorado ranked in the top quartile of commercial health plans nationally or regionally on 26 measures, 23 of which were in the top decile. Kaiser Health Plan of Northern California ranked in the top quartile of commercial health plans nationally or regionally on 27 measures, 23 of which were in the top decile. *Patient experience* (9 measures): Kaiser Health Plan of Colorado ranked in the top decile of commercial health plans nationally or regionally on one measure. Kaiser Health Plan of Northern California ranked in the top quartile of commercial health plans nationally or regionally on three measures, one of which was in the top decile.
National Recognition and Ratings	*National Research Corporation's Consumer Choice Award*: Kaiser Foundation Hospital–Santa Rosa in 2006/2007; Kaiser Foundation Hospital–Fremont in 2007/2008; Kaiser Permanente Vallejo Medical Center in 2003/2004–2007/2008. *National Committee for Quality Assurance*: Health Plan Excellent Accreditation (both regions); Quality Plus Distinction in Member Connections (Northern California); Disease Management Program Design Certification (Care Management Institute); Physician Practice Connections Recognition Program (Northern California); Innovation in Multicultural Health Care Award. *US News & World Report Best Health Plans*: Kaiser Health Plan of Colorado ranked among the top 50 commercial health plans in 2008 and among the top 25 Medicare plans in 2005–2008; Kaiser Health Plan of Northern California ranked among the top 50 commercial plans in 2006 and 2008 and among the top 25 Medicare plans in 2006–2008. *JD Power and Associates National Health Insurance Plan Study*: Kaiser Health Plan of Colorado and Kaiser Health Plan of Northern California ranked in the top quartile of 104 large commercial health plans evaluated in 2008 and in the top decile of 128 such plans evaluated in 2009, and ranked first in their state among four and six plans evaluated in Colorado in 2008 and 2009, respectively, and among seven plans evaluated in California in both years. *National Business Coalition on Health eValue8*: Kaiser Health Plan of Northern California was the highest-performing Benchmark Plan for behavioral health in 2007. *Health Information Management Systems Society (HIMSS) Analytics Stage 7 Award*: 11 Northern California Kaiser hospitals are among 15 U.S. hospitals recognized for implementing an integrated EHR to achieve a paperless environment and the ability to share, warehouse, and analyze clinical data for improved decision support and care delivery.

*See the *Series Overview, Findings, and Methods* for analytic methodology and explanation of performance recognition.
CMS = Centers for Medicare and Medicaid Services; NCQA = National Committee for Quality Assurance (Quality Compass 2008 represents the 2007 measurement year); HEDIS = Healthcare Effectiveness Data and Information Set.

plans also received three stars in this category).[48] The Permanente Medical Group ranked in the top 20 percent of California medical groups evaluated on clinical quality, patient satisfaction, and health information technology by the Integrated Healthcare Association, a coalition of stakeholders that rewards the performance of physician groups in California.[49]

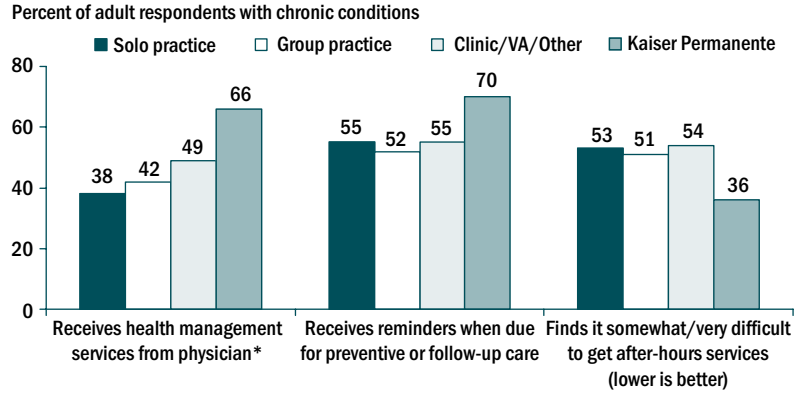
In a 2002 survey of California physicians conducted by the University of California, San Francisco, Center for the Health Professions, Kaiser Permanente physicians were more likely to report that participating in a medical group is an advantage in practicing medicine; that they receive incentives based on quality of care and patient satisfaction; that practice profile information is useful; that they work with nonphysician clinicians (suggesting interdisciplinary teamwork); and that disease management programs are offered to their patients.[50]

In a recent survey conducted for the California HealthCare Foundation, patients of Kaiser Permanente reported higher measures of physician-directed health management services, collaborative health management goal-setting, and reminders for preventive or follow-up care compared with patients seen in other settings of care in California (Exhibit 11). Kaiser patients were also less likely to report difficulties in securing an appointment for the same or next day or in accessing services after hours, and were more likely to be "somewhat" or "very" satisfied with their health benefits compared with other patients.[52]

An analysis of hospital use at the end of life among older Californians with chronic illness found that HMO (health maintenance organization) patients treated in Kaiser Foundation Hospitals had similar overall use but much less regional variation in use than HMO patients admitted to non-Kaiser hospitals in the state. (HMO patients generally had lower hospital use and less regional variation in use than patients with fee-for-service coverage.) Author Laurence Baker wrote: "One possible interpretation of these results is that greater care integration and hospital capacity [management] play important roles in reducing regional variations of hospital use."[53]

The identification of areas of excellence does not mean that Kaiser Permanente has achieved perfection. Its model works well most of the time but occasionally fails to live up to its promise. For example, in 2006, the Northern California region closed a fledgling kidney transplant program in San Francisco following news accounts that patients faced prolonged waiting times in the program.[54] The State of California fined the health plan $2 million for lapses in program oversight and another $2 million after a follow-up investigation found that the plan had failed to establish and

Exhibit 11. Kaiser Permanente Compared with Other California Practice Sites on Selected Managed and Preventive Care Services and Access to Care



*Health management services Includes: patient education materials, phone calls for advising care, prescription/refill reminders, home monitoring devices, and written plans for managing care.
Source: California HealthCare Foundation, *Living with Chronic Illness: Californians' Perspectives on Cost and Coordination of Care* (Oakland: California HealthCare Foundation, 2008). Survey of 2,745 adult respondents with chronic conditions, conducted online Nov. 2–19, 2007, using the Harris Interactive public panel.

maintain adequate procedures for reviewing quality of care in several medical centers.[55] The health plan implemented a correction plan to address identified deficiencies and agreed to future audits of its progress. Kaiser Permanente's track record suggests that the organization will learn from such missteps and continue to improve its performance over time.

INSIGHTS AND LESSONS LEARNED

Kaiser Permanente illustrates how a prepaid, integrated multispecialty group practice can manage population health through the confluence of supportive organizational structure, mission, leadership, and culture. Although Kaiser Permanente is actually three cooperative entities that engage in shared decision-making, it functions as an integrated whole and appears from the outside to be a single organization. Mutual interdependency means that neither the medical group nor the health plan can afford to let the other fail. Each must maintain patient trust and quality of care, while at the same time maintaining fiscal responsibility and responding to market demands.

Coordination of care is enhanced by the combination of a closely knit multispecialty group and a common information system that makes it possible to share information seamlessly across specialties and settings. Aligned incentives and group accountability appear to reduce internal tension between clinical disciplines within the medical group, enabling them to cooperate in achieving group goals such as cost-efficient deployment and use of radiological imaging technology. In a recent account of Kaiser Permanente's EHR adoption process, author Charles Kenney reported that physician involvement in the selection of the technology vendor was critical to its successful implementation.[56]

Adopting information technology entails some time trade-offs to achieve promised results. While a well-implemented EHR enhances physicians' ability to deliver high-quality medicine and meet patients' needs, it requires more of their time for information recording and management. Likewise, secure messaging with patients may increase physicians' workload initially, but eventually can reduce face-to-face visits as more of a primary care physician's patients use it and as the physician incorporates it into patient care management. Permanente physicians would never go back to the old way of working now that they see how these technologies improve the patient care experience, said Bernadette Loftus, M.D., associate executive director of The Permanente Medical Group.

Kaiser Permanente's innovative model of care delivery can generate controversy as it challenges traditional norms, though the outcome can be positive. During the organization's early years, the medical community opposed prepaid group practice as a threat to traditional medicine. When Permanente physicians were denied staff privileges in community hospitals, Kaiser built its own hospitals to care for its members. This approach turned out to confer an advantage on the organization, allowing it to closely manage its resources and achieve consistent results across its service area.

The care delivery model has been adapted by Kaiser in its regions outside California, where full integration does not exist because Kaiser does not own hospitals. In those regions the local organization seeks to develop good working relationships with contracted hospitals to facilitate care management, but lack of electronic linkages can impose barriers to the flow of information. Integration is enhanced in a contracted hospital in Colorado that shares a common EHR, making it possible to link inpatient and outpatient information on Kaiser members treated there. To better compete in its marketplace, the Colorado region also recently began offering its members the option of self-referring to specialists.

The Permanente Medical Groups aren't content to simply pay everyone a salary and hope for the best outcomes. Managing the culture appears to be a key element in producing a high-functioning group. Kaiser CEO George Halvorson cites the 1990s turnaround experience as one proof that organizational culture can be changed to emphasize key values, such as closely adhering to clinical evidence when treating patients. Physician leader Sharon Levine put it this way: "Thirty percent of driving performance is science: Identify the right thing to do. Seventy percent is sociology: Make

the right thing happen, and make the right thing easy to do." While there is a strong expectation for following standards on clinical matters, physicians are afforded greater autonomy in operational matters, such as whether to conduct telephone or group visits with patients.

Physicians and staff who led the site visit for The Commonwealth Fund exhibited a discernible optimism and pride of purpose in their clinical practice and in the organization's work. They described a culture in which everyone is expected to continually improve performance. Assuming that this attitude is widespread within the workforce, the organization appears to engender a valuable commitment to its mission. Evidence to support this observation includes the low turnover rate among physicians (4%–5% in the first three years after recruitment and less than 1.5% thereafter) and survey results indicating increasing physician satisfaction and higher staff ratings of organizational quality during the past few years.

Kaiser Permanente's experience also suggests that prepaid group practice alone may not be enough to achieve the highest performance without market pressure and transparency. Until the 1990s, Kaiser Permanente enjoyed a 15–20 percent price advantage in the insurance market due to the principles of its model, but its competitors learned to achieve similar gains in part by emulating and adapting its strategies. Financial losses sustained in the late 1990s, along with the advent of public performance reporting in combination with unblinded internal performance feedback within the medical group, acted as a wake-up call that energized the organization to demonstrate the potential of its model by making a stronger push for innovation and quality.

Today the plan seeks to differentiate itself on overall value with a competitive price point in the marketplace. The Northern California region has maintained a consistent cost-growth trend of about 6 percent per year over the past 10 years, although premiums have risen somewhat more to fund infrastructure improvements that are expected to deliver increasing value over time. The health plan has made a capital investment of $4 billion for KP HealthConnect and spends about 3 percent of annual revenue on its information technology budget. The medical groups also invest in training physicians, which entailed some temporary loss in productivity during EHR adoption.

> "Thirty percent of driving performance is science: Identify the right thing to do. Seventy percent is sociology: Make the right thing happen, and make the right thing easy to do."
>
> *Sharon Levine, M.D., associate executive director, The Permanente Medical Group.*

The Kaiser Permanente model of integrated group practice has the advantage of having evolved over seven decades, but it may not be easy to replicate today. During the 1980s and 1990s, Kaiser sought to expand in several new regions, but only two (Georgia and the Mid-Atlantic) proved successful. Researchers who studied the North Carolina experience found that a combination of political, economic, and organizational factors contributed to the plan's withdrawal from that state. They concluded that realizing the potential of this model in new markets requires a "conjuncture of several supportive conditions," such as gaining a critical mass of members to support the delivery of a full scope of services that can be internalized within the multispecialty group. Doing so may depend in large part on whether purchasers offer and reward consumers for selecting better-value options.[57]

Whether or not the Kaiser Permanente model can be replicated in its entirety, it offers a valuable source of inspiration and experience as a "learning laboratory" for the development of strategies, techniques, and innovations that may be transferable to other settings—not only other multispecialty groups, but also traditional practices. For example, many medical practices and organizations nationwide have adopted the "advanced access" model of patient scheduling pioneered by Mark Murray, M.D., and Catherine

Tantau, R.N., primary care team leaders at the Kaiser Permanente clinic in Roseville, California.[58]

Some innovations that appear rooted in Kaiser's organizational context may be seen in a different light should purchasers adopt payment reforms that promote coordination of care.[59] For example, Kaiser's use of telephonic and electronic patient encounters may not seem desirable to medical practices paid on a fee-for-service basis, which encourages them to maximize face-to-face encounters, but may be more attractive under a payment scheme that rewards efficient practice. Should consumers come to demand them, these tools may come to be seen as necessary adjuncts to medical practice to assure patient satisfaction and loyalty and to help promote better health outcomes.[60]

Summarizing Kaiser Permanente's current strategy and experience, CEO George Halvorson said that organizations wishing to achieve excellence require an overarching agenda to: 1) focus attention on the most important conditions driving overall costs; 2) provide goal-oriented tools to analyze population data, proactively identify patients in need of intervention, and support systematic process improvements; and 3) create a culture in which patients and professionals collaborate to improve health.

For a complete list of case studies in this series, along with an introduction and description of methods, see *Organizing for Higher Performance: Case Studies of Organized Health Care Delivery Systems—Series Overview, Findings, and Methods,* is available at www.commonwealthfund.org.

NOTES

1 T. Shih, K. Davis, S. Schoenbaum, A. Gauthier, R. Nuzum, and D. McCarthy, *Organizing the U.S. Health Care Delivery System for High Performance* (New York: The Commonwealth Fund Commission on a High Performance Health System, Aug. 2008).

2 Information about Kaiser Permanente was synthesized in part from a presentation by CEO George Halvorson to a Commonwealth Fund Commission on a High Performance Health Care System meeting in San Francisco, and from the Commission's site visit to the Kaiser Permanente San Francisco Medical Center in March 2007. Additional information was obtained from presentations, telephone interviews, or e-mail communications with the individuals named in the acknowledgments; from information and documents available on the organization's Web site (www.kp.org) and from regulatory filings; and from other presentations and publications cited below.

3 A summary of findings from all case studies in the series can be found in D. McCarthy and K. Mueller, *Organizing for Higher Performance: Case Studies of Organized Delivery Systems. Series Overview, Findings, and Methods* (New York: The Commonwealth Fund, 2009).

4 For examples, see A. C. Enthoven and L. A. Tollen, "Epilogue," in *Toward a 21st Century Health System,* edited by A. C. Enthoven and L. A. Tollen (San Francisco: Jossey-Bass, 2004).

5 The Colorado region developed an EHR in collaboration with IBM Corporation that was fully functional by 1997. Physicians in the Northwest region had access to an EHR (from Epic Systems Corp.) starting in 1994; exam room computers were installed in 2001. Kaiser began rolling out the Colorado EHR to other regions early in the decade but reevaluated that decision and, through a process that actively involved clinicians, selected the Epic system as a better fit for its needs. For more on this topic, see C. Kenney, "Kaiser Permanente and the Future of Health Care," in *The Best Practice: How the New Quality Movement Is Transforming Medicine* (Philadelphia: PublicAffairs/Perseus Book Group, 2008).

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8 E. Montalbano, "Microsoft, Kaiser Pilot Integration of E-health Systems," ABC News/IDG News Service, June 9, 2008, http://abcnews.go.com/Technology/PCWorld/story?id=5030248.

9 For a description of how the EHR helps improve cancer treatment, see P. J. Wallace, "Reshaping Cancer Learning Through the Use of Health Information Technology," *Health Affairs* Web Exclusive, Jan. 2007 26(2):w169–w177.

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[13] C. Chen, T. Garrido, D. Chock et al., "The Kaiser Permanente Electronic Health Record: Transforming and Streamlining Modalities of Care," *Health Affairs* 2009 28(2):323–33. Similar though more modest effects were seen in the Colorado and Northwest regions after they implemented legacy EHRs. See T. Garrido, L. Jamieson, Y. Zhou et al., "Effect of Electronic Health Records in Ambulatory Care: Retrospective, Serial, Cross Sectional Study," *British Medical Journal*, March 2005 330(7491):581–85.

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[15] J. A. Merenich, T. R. Lousberg, S. H. Brennan et al., "Optimizing Treatment of Dyslipidemia in Patients with Coronary Artery Disease in the Managed Care Environment," *American Journal of Cardiology*, 2000 85:36A–42A; K. J. Olson, J. Rasmussen, B. G. Sandhoff et al., "Lipid Management in Patients with Coronary Artery Disease by a Clinical Pharmacy Service in a Group Model Health Maintenance Organization," *Archives of Internal Medicine*, 2005 165:49–54.

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[17] J. A. Merenich, K. L. Olson, T. Delate et al., "Mortality Reduction Benefits of a Comprehensive Cardiac Care Program for Patients with Occlusive Coronary Artery Disease," *Pharmacotherapy,* Oct. 2007 27(10):1370–78. The average duration of follow-up in the study was 3.6 years after hospitalization.

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[19] Appropriate receipt of prescription medications means that the patient was assessed, did not have contraindications to the drug, was prescribed the drug, and filled the prescription at the pharmacy. The drugs included lipid-lowering medications, ACE inhibitors, and beta-blockers.

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The aim of Commonwealth Fund–sponsored case studies of this type is to identify institutions that have achieved results indicating high performance in a particular area of interest, have undertaken innovations designed to reach higher performance, or exemplify attributes that can foster high performance. The studies are intended to enable other institutions to draw lessons from the studied institutions' experience that will be helpful in their own efforts to become high performers. It is important to note, however, that even the best-performing organizations may fall short in some areas; doing well in one dimension of quality does not necessarily mean that the same level of quality will be achieved in other dimensions. Similarly, performance may vary from one year to the next. Thus, it is critical to adopt systematic approaches for improving quality and preventing harm to patients and staff.