



Case Study

Organized Health Care Delivery System • July 2009

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Commonwealth Fund pub. 1283
Vol. 18

Group Health Cooperative: Reinventing Primary Care by Connecting Patients with a Medical Home

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ABSTRACT: Group Health Cooperative (GHC) is a nonprofit, consumer-governed health care organization serving 580,000 members in Washington State and Idaho through an integrated multispecialty group practice and a network of community providers. Integrated financing and delivery—supported by a partnership between health plan administrators and medical group physicians—enable GHC to launch innovations and organize services in ways that make the most sense operationally and clinically. Exemplifying this approach is GHC’s implementation of a patient-centered medical home model of primary care that enhances the roles of a multidisciplinary care team and uses electronic health records to deliver proactive, coordinated care. Information technology is a key to improving patients’ communication with their care team, engaging them in evidence-based care, and reducing fragmentation of services. GHC is using “lean” techniques to involve care teams and other frontline staff in standardizing their work, an approach that can likely be expanded to include other organizations.



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).

Group Health Cooperative (GHC) 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 GHC, focusing on the ambulatory care setting. Information was gathered from health system leaders at GHC and from a review of supporting documents.² The case study sites exhibited the six

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 patients' 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.

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

Group Health Cooperative (GHC) is a nonprofit, consumer-governed health care system founded in 1947 that provides care and/or coverage to 580,000 residents of Washington State and northern Idaho (Exhibit 3). Originally a staff-model health maintenance organization that employed physicians, GHC has evolved into a mixed-model network health plan that contracts with a large multispecialty medical group and with independent physicians in private practice. The system and the medical group together employ about 9,000 and generated \$2.5 billion in revenue in 2007.

GHC and its subsidiaries offer coverage options to employer groups, individuals, and those enrolled in public insurance programs including Medicare, Medicaid, the State Children's Health Insurance Program, and Washington Basic Health, a state coverage program for low-income families. Its market share is about 10 percent. GHC and Kaiser Permanente established an affiliation in 1997 to enable the sharing

of best practices, member reciprocity of services, and joint marketing to national accounts; the two organizations remain separate and independent.

The Group Health Permanente medical group, a professional corporation of more than 900 physicians formed in 1997, has an exclusive contract with GHC under which it serves about two-thirds of GHC's members in facilities that are owned and operated by GHC. (The medical group also employs physician assistants, psychologists, and optometrists.) The remaining one-third of GHC members receive care from a contracted network of almost 9,000 independent physicians and group practices, primarily in market areas with lower population density or market share.

Outpatient facilities in the integrated group practice include 26 primary care centers, five specialty units, and seven behavioral health clinics. Some primary care medical centers are colocated with urgent- and specialty-care services in facilities that offer onsite laboratory and pharmacy services as well as physical therapy, eye care, behavioral health, and outpatient surgery.

GHC contracts with 41 community hospitals. A major hospital partner in Seattle is Virginia Mason Medical Center, which serves approximately 25 per-

Exhibit 2: Case-Study Highlights

Overview: Group Health Cooperative (GHC) is a consumer-governed, not-for-profit integrated financing and delivery system that serves 580,000 members in Washington State and Idaho enrolled in group, individual, and public insurance programs. The 900-physician Group Health Permanente medical group contracts exclusively to provide care to two-thirds of GHC members in 31 outpatient medical facilities owned and operated by GHC. Other members receive care from a network of 9,000 community clinicians and hospitals.

Attribute	Examples from Group Health Cooperative
Information Continuity	<p>EHR (electronic health record) system across all group-practice sites with integrated best-practice alerts, decision supports, and computerized order entry (electronic prescribing).</p> <p>Patient Web portal for online access to health information from the EHR, appointment scheduling, prescription refills, laboratory test results, and secure e-mail with clinicians.</p> <p>Electronic health risk assessment (e-HRA) linked to EHR identifies at-risk patients and offers recommendations for lifestyle change.</p>
Care Coordination and Transitions; System Accountability*	<p>Implementing patient-centered medical-home model of primary care to promote proactive care coordination and patient engagement. Multidisciplinary primary care teams (medical assistants, clinical pharmacists, nurses, nurse practitioners, and physician assistants) use the EHR to conduct outreach, prepare patients for visits, follow up after emergency and hospital visits, perform telephone triage, and provide patient education and disease management.</p> <p>Complex case management for sickest/costliest patients to coach patients and reduce hospitalizations. Palliative care program with physician home visits for homebound patients. Anticoagulant management service has reduced adverse drug events by 26 percent.</p>
Peer Review and Teamwork for High-Value Care	<p>A mission-driven, values-based organizational culture brings people together to achieve higher performance. Collaboration between health plan administrators and physician medical directors (appointed from the medical group) promotes integrated health care delivery.</p> <p>Clinical dashboards communicate comparative physician performance. Performance-based pay rewards achievement on quality, patient satisfaction, productivity, and engagement.</p> <p>Medication Use Management increased generic prescribing and reduced high-risk drug use among elderly patients through physician education and data feedback.</p>
Continuous Innovation	<p>Global capitation allows GHC to organize services in ways that make the most sense operationally and clinically, implement innovations, and move services across care settings to optimize care. Center for Health Studies evaluates effectiveness of interventions.</p> <p>Innovative use of information technology to promote patient-centered and coordinated team care, e.g., home blood-pressure monitoring using the online patient portal, supplemented by online pharmacist-led care management.</p> <p>Cross-functional teams use lean manufacturing principles to redesign work processes, improve throughput, and reduce waste, e.g., reducing time and cost for prescription refills.</p> <p>Content of care program aims to improve quality by reducing unwarranted variations in care and by involving patients in shared decision-making so that care reflects their preferences.</p>
Easy Access to Appropriate Care	<p>Same-day primary care appointments for urgent needs. After-hours urgent care and telephonic nurse advice tied to EHR.</p> <p>Direct access to specialists.</p> <p>Group visits enhance educational opportunities and build social support among patients with common health needs.</p> <p>Telephone visits and secure messaging with the care team (GHC aims to make 30 percent of all patient encounters telephonic and electronic).</p>

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



cent of GHC members. In 2008, GHC closed a major hospital that it had operated in Redmond and opened a large, multispecialty outpatient and urgent-care center in neighboring Bellevue (a suburb of Seattle) adjacent to a contracted hospital, Overlake Hospital Medical Center. Group Health continues to operate its Central Hospital as a specialty medical center offering labor and delivery services and overnight infusion services.

The Group Health Center for Health Studies conducts epidemiologic, behavioral, clinical, and health services research. It has a staff of 250 and received \$34 million in external grant funding in 2007. The Center's work includes collaborative research on evidence-based practices and innovative approaches to care management that are pilot-tested within GHC and often disseminated to other delivery systems. GHC's Department of Clinical Improvement and Education offers continuing medical education programs for physicians and other health care providers.

GHC's mission is "to design, finance, and deliver high-quality health care." A guiding principle states: "To promote patient-centered care and innovation, we continually ask ourselves: 'What's next for our patients' health?'" The organization is governed by a consumer-elected board of directors. All adult health plan members may register to vote at the annual membership meeting and may speak at the start of public

board meetings. Members also can join a focus group or serve on their local medical center council if they want to have a voice in helping to improve services.

INFORMATION CONTINUITY

GHC has invested more than \$25 million since 2003 to implement and extensively customize a commercial electronic health record (EHR) system with integrated best-practice alerts, decision supports, and computerized order entry (electronic prescribing) to promote evidence-based medicine, quality and patient safety, and patient-centered care.⁴ Patient-panel management tools go beyond disease-specific registries to track patients' comprehensive preventive and chronic care needs.

EHR installation was completed across all group-practice sites by 2005. The plan estimates that EHR adoption has saved \$4 million in transcription costs and \$2.5 million in medical records management costs over three years, while also providing indirect savings through the redeployment of office space formerly used for medical records.

All GHC members have access to an online portal called MyGroupHealth where they can check covered benefits, look up participating providers, complete an electronic health risk assessment (described below), and participate in online discussion groups. Those seeing physicians in GHC-owned medical cen-

ters also can use enhanced online functions to schedule appointments, order prescription refills, send secure e-mail to their care team, and access shared portions of the EHR including health conditions, medications, immunizations, laboratory test results, and after-visit summaries of primary care visits.

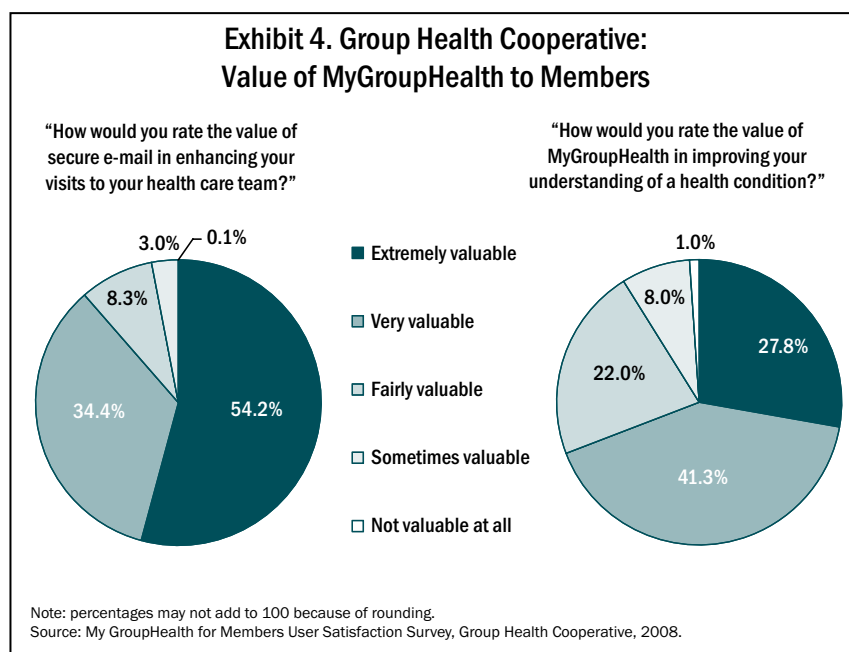
Use of MyGroupHealth has been increasing steadily since its enhancement in 2003 (basic functions have been available since 2000). As of February 2009, 50 percent of members seeing physicians in GHC-owned medical centers were identity-verified to use enhanced online functions, up from 33 percent in December 2005 and 5 percent in September 2002. Use of the site is less common among GHC members seeing community physicians; about one-quarter were registered to use basic functions in February 2009.⁵

To promote patient engagement in care, GHC makes normal laboratory test results available immediately to patients on MyGroupHealth (and at the same time to physicians in the EHR). Abnormal test results that do not require patient counseling are available to patients one business day after their physician receives the result. This one-day lag provides physicians with an opportunity to follow up with patients if needed while avoiding delays in making results available to

them. Test results that require patient counseling (e.g., HIV tests) are manually released by the physician.

MyGroupHealth users who complete an electronic health risk assessment (e-HRA) receive tailored feedback reports with evidence-based recommendations for improving health and promoting wellness. For GHC members seeing physicians in GHC clinics, their health profile is integrated into the EHR, where health concerns are flagged for follow-up by their physician. For those seeing community physicians, e-HRA completion triggers an alert to care management staff, who follow up with the member's provider.

A survey of active MyGroupHealth users found that 94 percent were satisfied with the online portal. Those who were "very satisfied" increased from 48 percent in 2005 to 55 percent in 2008. Secure e-mail, prescription refills, and lab results were the highest-rated features of the site. Almost nine in 10 survey respondents reported that secure e-mail was "extremely" or "very" valuable in enhancing visits to the health care team, and seven in 10 reported that MyGroupHealth was "extremely" or "very" valuable in understanding a health condition (Exhibit 4).⁶



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

Coordinating Care Through the Primary Care

Medical Home. GHC has long emphasized the central role of primary care teams in coordinating care and addressing patients' health and wellness needs. GHC was an early adopter of a population-based approach to chronic disease management that used disease registries (since replaced by comprehensive data-reporting tools) and evidence-based guidelines to identify and deliver effective care to patients, support patient self-management, and provide specialty care as needed.⁷ This approach grew out of the conceptual development of the chronic care model by researchers in the Group Health Center for Health Studies.⁸

In recent years, however, as GHC pushed to improve its competitiveness in the marketplace, it began to see unintended consequences of a “production-oriented” approach to primary care: swollen patient panels (reaching as high as 2,500 or 3,000 patients per physician), increasing specialty-care referrals, rising costs of hospital and emergency care, and signs of burnout in the workforce. Like other organizations, GHC was also finding it difficult to recruit new primary care doctors and was struggling to improve performance by engaging patients in their own care. “We were on a platform that was not

sustainable,” said Michael Erikson, GHC’s vice president of primary care.

In response to these challenges, GHC in 2007 began a pilot project to define and test a “medical home” model of primary care delivery at its Factoria Medical Center in Bellevue (a suburb of Seattle). Exhibit 5 lists core principles that emerged from the pilot. Although many elements of the medical home were already in place at GHC, the pilot intensified them to promote proactive care planning and patient engagement. Key interventions included using EHR reporting tools to systematically identify and address patient care needs, expanding the care team and enhancing the roles of support staff to reduce patient panel sizes and extend physician time with patients, and using phone calls and secure e-mail as alternatives to personal visits.

The care team at the Factoria Medical Center, which serves about 12,800 members, now consists of about six full-time-equivalent family-practice physicians and a pediatrician, supported by:

- medical assistants (one per physician) who support pre-visit planning and post-visit communication
- clinical pharmacists (one per 10,000 patients) who provide advice to the care team and educate patients during visits and follow-up calls

Exhibit 5. Core Principles of a Medical Home at Group Health Cooperative

1. The relationship between the personal care physician and the patient is the core of all that we do. The entire delivery system and the organization will align to promote and sustain this relationship.
2. The personal care physician will be a leader of the clinical team, responsible for coordination and integration of services, and together with patients will create collaborative-care plans.
3. Continuous healing relationships will be proactive and will encompass all aspects of health and illness. Patients will be actively informed about their care and will be encouraged to participate in all its aspects.
4. Access will be centered on patients' needs, will be available by various modes 24/7, and will maximize the use of technology.
5. Our clinical and business systems are aligned to achieve the most efficient, satisfying, and effective patient experiences.

- licensed practical nurses (two per 10,000 patients) who answer patient calls, conduct telephone outreach, and follow up with patients who have made unplanned visits to a hospital emergency department
- registered nurses (two per 10,000 patients) who provide intensive short-term disease management for patients with uncontrolled chronic illness, and provide transitional care after patients are hospitalized
- affiliated professionals (a physician assistant and a nurse practitioner) who see patients for same-day acute-care needs and follow-up chronic care visits.

Compared to other similar primary care sites at Group Health, the pilot site demonstrated better outcomes at one year including significant improvements in measures of patient experience and clinical quality, fewer emergency department (ED) visits, and reduced staff burnout. A trend toward lower hospital admissions for select ambulatory care-sensitive conditions also appeared promising to GHC's leaders. Telephone encounters and electronic messaging increased substantially, supplanting some in-person visits. Despite higher primary care costs, the model was cost-neutral at one year, owing mainly to the reduction in ED visits.⁹

Perhaps the most compelling outcome was the positive reaction by physicians at the pilot site. Frustrated by the old way of working, which seemed to require continual personal sacrifices to meet patients' needs, family physicians like Eric Seaver expressed new hope in the medical home approach. "I get up in the morning looking forward to work. I enjoy seeing my patients...and I can actually see myself practicing primary care for a long time in this type of environment," he told the *Seattle Times*.¹⁰ Two experienced physicians who had been planning to retire decided to stay on instead. "It's their first shot at really being able to do the work that they believed in," Erikson related.

GHC's leaders were so encouraged by the results of the pilot that they decided to spread the medical home model to the remaining 25 primary care clinics during 2009. "We were convinced we had to transform primary care. We had enough information from the pilot to say, This is the primary care model that we are committed to evolving and there's no need to wait," Erikson said. GHC expects to complete the rollout in the first quarter of 2010.

To implement the change rapidly across sites while also ensuring that it would result in a stable and reliable system, the model was subdivided into standard work elements for staged adoption using "lean" techniques (*see the [Appendix](#) for a description of each element; see the [Continuous Innovation](#) section for a description of "lean"*). Each element is being tested and refined for nine weeks in three pilot sites to prove that it consistently generates expected outcomes before being disseminated across the system. Erikson estimates that a site-by-site rollout of the complete model would take twice as long. "People are very excited to be engaged in this work, and you want to bring the work to them as soon as you can," he said.

Instituting a new and standardized way of working with patients (and of recording work in the EHR) represents a "monumental change" for professional staff that can be "difficult and painful" during the transition, said Claire Trescott, M.D., medical director for primary care. "In the middle of a busy day, it's hard to do that, but every single one of [the physicians] that I talk to says it's the right work; it's the right change to make. This is a dramatically different way for us to deliver health care in this country, and it is the way we have always wanted to get primary care."

Coordinating Care for Patients with Complex Care Needs. While primary care teams manage the majority of patients with chronic illness, the Complex Care Management Program optimizes care for the sickest 1 to 2 percent of the population who are at risk for poor outcomes and high costs due to their diagnoses, medications, or hospital admissions. Patients are identified using predictive modeling tools, referrals from

physicians or hospital or home health staff, or self-referrals. Complex-case managers are centrally coordinated but deployed locally to primary care clinics so that they can work cooperatively with the primary care team to coordinate patients' care.

A centralized case management program for patients with heart failure was instituted in 1998 based on a best-practice model described in the literature.¹¹ Nurse case managers work closely with a cardiologist to manage 100 to 120 patients each, with clear program admission and exit criteria to maintain capacity. The cardiologist provides staff development and case review during regular team meetings. The case managers work as part of a multidisciplinary team to coordinate care for patients by:

- contacting patients over the phone and in person during clinic visits to assess needs and risk factors (e.g., co-occurring conditions such as depression)
- coaching patients in self-care education and monitoring their progress and medication use
- tracking hospital admissions and discharges
- coordinating communications with physicians and referrals to home health care-givers, social workers, physical therapists, nutritionists, and other specialists.

Patient education reinforces the goals of a care plan developed by a cardiologist that emphasizes the importance of anticipating exacerbations and knowing what to do when they strike. Nurse case managers receive training in motivational interviewing to assess patients' readiness for making behavior changes and to support them in setting goals, such as daily participation in an at-home exercise program. Patients build self-confidence as they celebrate small victories such as improved mobility. Case managers also facilitate discussions of end-of-life care planning and transitions to hospice care when appropriate.

An analysis of outcomes among patients hospitalized for heart failure during the first three years of the case management program found that participants

had 32 percent fewer hospital readmissions for any cause than did those who were not receiving case management. The plan reports that 84 percent of patients in the program achieve stable or improved functional capacity. Participants also report high satisfaction with the program.¹²

GHC recently developed its Palliative Care Service for homebound patients with complex conditions for whom curative care is no longer the focus but who are not eligible for hospice. Palliative care physicians make home visits to conduct physical exams, adjust medications, order medical equipment or ancillary services if needed, and help patients understand the course of their disease and plan ahead for the kind of care they want should they experience problems. The focus is on helping patients to remain stable and comfortable at home and thus avoid unnecessary emergency visits to the hospital.

Coordinating Care to Improve Medication Safety.

Patients taking anticoagulation medication to prevent blood clots need close monitoring to assure optimal treatment while minimizing the risk of bleeding and other adverse events. Based on research showing that centralized management resulted in improved outcomes, GHC in 2003 established the telephonic Anticoagulation Management Service. (Previously, primary care nurses monitored patients in a decentralized manner.)

Care managers monitor laboratory values and drug dosing using standard algorithms. To make the most effective use of resources, pharmacists and nurse practitioners manage new patients and those with complex conditions, registered nurses manage patients whose therapy is not achieving clinical goals, and licensed practical nurses monitor patients who are under control. Patient-care representatives remind patients who have missed blood tests.

Since program inception, the proportion of patients whose therapy is within target range has increased from 68 percent to 75 percent while adverse events have declined by 25 percent. These improvements are associated with an estimated \$2.9 million in

cost savings annually from avoided ambulance, hospital, and long-term care.

Promoting Healthy Lifestyles. GHC and employers encourage members to complete an e-HRA at least once a year through reminders in newsletters, after-visit summaries, and other educational materials. A personalized health profile lets members see a side-by-side comparison of their current and last assessment, including a general health ranking and customized recommendations for health improvement. A survey found that almost three-quarters of e-HRA users planned to take recommended action to improve their health, and four out of five users planned to have an e-HRA again in the future to gauge their progress.¹³

Group Health Cooperative also offers employers or other purchasers a suite of health and wellness services called Momentum that integrates the e-HRA with targeted interventions aimed at improving patient involvement in care and reducing unnecessary use of services and, ultimately, costs. Services offered include lifestyle and health coaching, a rewards program, work-site health screenings, and reporting and consultative services.

PEER REVIEW AND TEAMWORK FOR HIGH-VALUE CARE

GHC promotes integrated health care delivery through a collaborative relationship between the health plan's administrative leaders and medical directors appointed from within the Group Health Permanente medical group. Through this partnership, the organization seeks to harness the potential of its people to improve quality and deliver services cost-efficiently, using information technology as an enabling tool along with financial incentives and performance reporting to motivate change.

Whereas values have largely guided the organization in the past, lately its leaders have been applying management discipline to translate values into measurable goals. They are making a major push to develop physician leadership at all levels and to instill a holistic understanding of the roles that quality, service,

access, and affordability play in patients' experience with care. This means giving attention to team morale and configuration so that each professional's skills are put to their best use in cooperation with other team members. "We are working hard to create incentives and a culture that takes full accountability for every interaction with every patient," said Peter Morgan, executive vice president of the Group Practice Division.

Group Health Permanente instituted performance-based pay for primary care physicians six years ago. Twenty percent of compensation is contingent on meeting performance targets that encompass clinical quality, patient satisfaction, and productivity. Clinicians are rewarded for engagement in group visits, secure messaging, telephone visits, and care management. Performance "dashboards" communicate comparative performance data to individual physicians and clinical chiefs.

Specialty experts review the medical literature and develop evidence-based treatment guidelines and recommendations that help primary care colleagues take better care of patients. Specialists earn as much for their cognitive contributions as they do for direct patient care. These clinical road maps are widely embraced within the group practice, and are promoted through performance-based incentives across the broader provider network.

The Medication Use Management Program offers an example of these principles in action. The program aims to optimize the quality, safety, and affordability of physician prescribing practices through physician education and feedback combined with electronic alerts that distill evidence-based recommendations developed by interdisciplinary expert teams (clinical pharmacists, physician specialists, and researchers). The plan estimates that these efforts saved \$3.4 million in 2008 through more cost-effective prescribing.

In some cases, this approach restricts choices to ensure patient safety. GHC never covered the drug Vioxx, for example, because its own evaluation indicated safety concerns before the drug's market recall. Likewise, the use of high-risk medications that can

have adverse effects in the elderly has been reduced 18 percent among elderly patients.

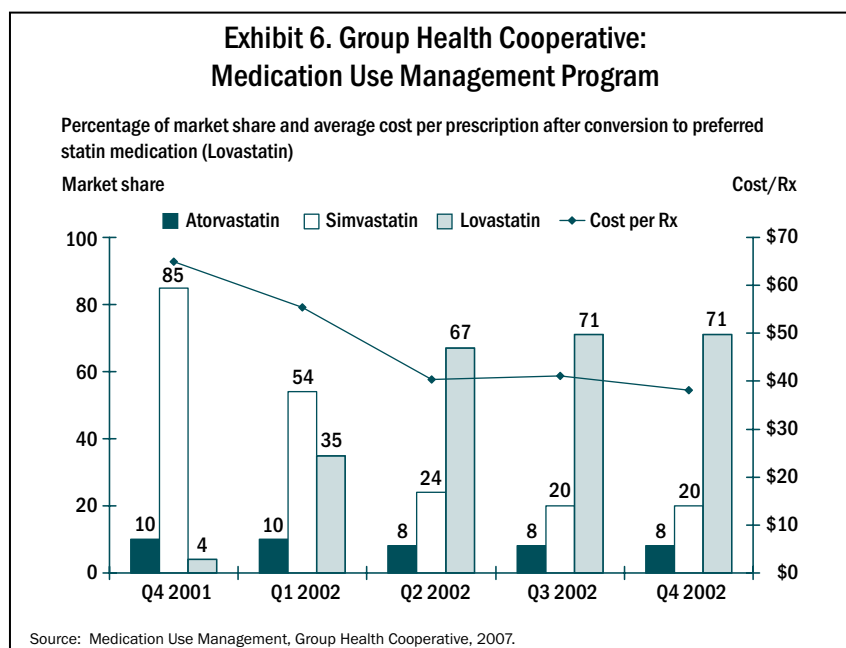
In other cases, the program identifies patients who could benefit from wider use of a drug, costing more in the short run but generating long-term savings by reducing disease complications. In an example from the program's early years, the use of cholesterol-lowering drugs (statins) increased from 32 percent to 68 percent of diabetic patients (age 55 and older) from 2001 to 2002. Meanwhile, increasing the use of a generic statin drug (Lovastatin) from under 5 percent to over 70 percent of prescriptions lowered the average cost of a prescription by 40 percent (Exhibit 6). Together, these actions improved quality of care while reducing the cost of doing so.

CONTINUOUS INNOVATION

Improving Clinical Care Delivery. Working with what is, in effect, a global budget, GHC is able to organize a global scope of services, shift funds to launch pilots, implement innovations, and move services across different settings to optimize patient care. Collaboration with researchers in its Center for Health Studies allows GHC to rigorously study its own experience to learn how well a change works before broadening or continuing its use. The medical home pilot, described above, is a good example.

In another example, a two-year controlled trial in Group Health primary care clinics assessed the effects of half-day “mini-clinics” for patients with chronic conditions such as diabetes. The mini-clinics provided group education and support services supplemented with individual assessments and visits with clinicians. Patients who attended the mini-clinics received more preventive services and helpful education and had significantly higher self-reported health status, half as many emergency department visits per year, and 24 percent fewer specialty care visits per year than patients who received usual care. Outcomes tended to improve with increasing frequency of attendance at mini-clinics.¹⁴

Building on this proof of concept, many GHC primary care clinics now offer group-oriented medical visits led by physicians or other clinicians that vary in format and may range in size from eight to 20 patients. Some group visits, typically those for seniors or people with a severe or chronic illness such as cancer or diabetes, occur monthly. Others, such as group preventive care visits for women, bring patients together for a onetime session. Comments from group-visit participants and physicians indicate that patients benefit from and value the opportunity to interact with their peers for mutual support and learning, a process



that reinforces treatment and lifestyle goals and can make individual physician visits more productive.¹⁵

Using Information Technology to Support Innovations in Care Delivery. Recent collaborative research at Group Health exemplifies its innovative use of information technology to promote patient-centered and coordinated team care in accord with Wagner's Chronic Care Model.¹⁶ Family physician and investigator Beverly Green, M.D., and her colleagues conducted a one-year study in which patients with uncontrolled hypertension were randomly assigned to one of three groups: (1) usual care, (2) home blood-pressure monitoring plus secure Web site training on MyGroupHealth (the online patient portal), or (3) home blood-pressure monitoring and secure Web site training supplemented by online pharmacist-led care management.

The clinical pharmacists received training in the evidence-based care of hypertension and operated under stepped medication protocols consistent with national and organizational guidelines. After an initial introductory phone call, the pharmacists communicated with patients via secure messaging at regular intervals and offered medication changes in response to blood-pressure values submitted online by the

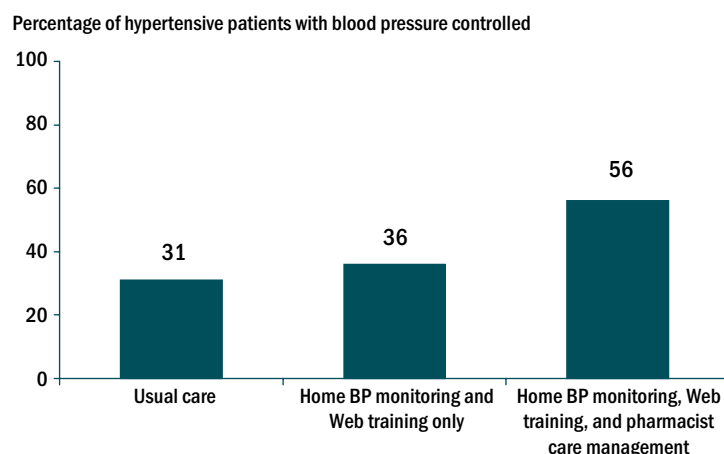
patients. These communications became part of the comprehensive patient record in the EHR.

While all three patient groups realized some level of improvement in blood pressure levels, the group that received pharmacist care management realized a significantly greater improvement and was almost twice as likely as the usual-care group to have achieved blood pressure control (Exhibit 7). The intervention was particularly effective for those with a higher systolic BP at the start of the study, who were more than three times as likely as the usual-care group to have achieved blood pressure control.

Empowering Teams to Improve Work Processes.

GHC is applying "lean" principles (see box) to optimize work flow in a growing number of areas. For example, cross-functional Quality Improvement Support Teams bring experts in clinical care, work-flow process, and information technology together with frontline clinical staff to rapidly develop and test new processes and tools (such as best-practice alerts) for care management. GHC estimates that this approach increases the speed of making system changes by a factor of five compared to traditional development approaches, while also reducing cycles of rework (doing the work over again because it did not achieve an acceptable result the first time) by

Exhibit 7. Group Health Cooperative: Web-Enabled Chronic Disease Management for High Blood Pressure



Source: B. B. Green, A. J. Cook, J. D. Ralston et al., "Effectiveness of Home Blood Pressure Monitoring, Web Communication, and Pharmacist Care on Hypertension Control," *Journal of the American Medical Association*, 2008 299(24):2857-67.

What Is Lean?

The phrase “lean production” was coined in the late 1980s by John Krafcik of the Massachusetts Institute of Technology and is derived from the Toyota Production System and manufacturing principles that have been in use for decades. Lean is a management strategy for organizing and managing various operations through the identification of the value-added and non-value-added steps in any process or value stream. Lean eliminates waste by requiring less time, money, material, and labor while generating higher quality through the standardization of processes. The essence of lean is doing more with less. The lean model defines the value of a service or product in terms of the needs and satisfaction of customers or stakeholders.¹⁷

improving user acceptance of the changes. Other results to date include reducing the time and cost of refilling prescriptions, enhancing the efficiency of laboratory services, and improving the accuracy and speed of claims processing.

Lean methods are at the heart of the staged implementation of the primary care medical home model (described in “Care Coordination,” above). Clinical teams at the pilot sites come together in rapid process improvement workshops to design the “standard work” for each element of the model and to agree upon measures by which performance will be monitored. “So it’s designed by the clinical teams themselves, based on the commitment that leadership has made,” said Michael Erikson, vice president of primary care. “There are a lot of details that go into each one of those elements. Lean takes you to the very people who do the work to have them help you design how they are going to get it done.”

In the past, the adoption of new methods was often uneven among staff and sites across the system. Some physicians and clinics have not yet fully embraced the new call-management system, for example. The lean approach makes results measurable and transparent to promote consistent and reliable change in a “non-dictatorial” way, said Claire Trescott, M.D., medical director for primary care. “So we can go into a clinic and say, ‘You’ve slipped, you’re not there. Let’s problem-solve and find out why.’”

While some professional staff will not change to the extent that managers would hope, Trescott noted, most are willing to adopt a standardized approach to work when they see that it gives them

more time with patients. “After 30 years of practice, I’ve never seen anything that could standardize physicians’ work. This [approach] standardizes the standardizable parts and then actually gives you more freedom to practice clinically, because you’re taking out the wasteful processes in your work.”

Reducing Unwarranted Variations in Specialty Care.

GHC convened a content-of-care oversight group that aims to improve quality from the patient’s point of view: the convergence of outcomes, affordability, and satisfaction. Workgroups of clinicians within each specialty examine high-cost, high-frequency procedures to determine the extent to which practices and outcomes vary within the medical group, and the degree to which care delivered by the group as a whole varies from regional or national benchmarks and evidence-based best practices. The group solicits ideas from physicians on how to improve care and uses lean methods to define standard work and ways of making problems visible for correction.

For example, an application of this approach to wound care (mainly among diabetic patients with poor circulation) resulted in a process for conducting standard evaluations and for escalating interventions when healing doesn’t progress as expected. This process has prevented approximately 150 amputations in the last year.

Improving Shared Decision-Making. Research has found that when patients are fully informed about their treatment options for elective procedures, such as joint replacement or prostate surgery, they often elect more conservative treatment than their physicians

recommend. Treatment decisions made according to physician values are not always in accord with patient preferences.

In response, GHC is making video-based decision aids available to adult patients considering elective surgical procedures for “preference-sensitive” conditions such as osteoarthritis, heart disease, and breast cancer. The goal is to support decision-making shared between patients and physicians by helping patients clarify their values and preferences. The videos (jointly developed by the Foundation for Informed Medical Decision Making and the firm Health Dialogue) provide an evidence-based and unbiased view of treatment options and their potential risks and benefits, including personal accounts of individual experiences of the procedures in question.

“The idea is that we improve the quality of individual clinical decisions so that there is a higher concordance between the patient’s preferences and values and the care they actually receive,” said Paul Sherman, M.D., associate medical director for strategy deployment. Each specialty service is establishing a strategy for delivering the relevant decision aid to patients at the appropriate time (including by mail or online), whether before or after consultation with the specialist.¹⁸

EASY ACCESS TO APPROPRIATE CARE

In addition to the physical colocation of ancillary and other services in medical centers, larger primary care centers offer after-hours urgent care and smaller centers typically offer Saturday morning clinics for treatment of minor illnesses and injuries. Members also have access to medical guidance via a 24-hour telephonic nurse consulting service, which uses the EHR to give advice based on the patient’s medical history.

To maintain its market competitiveness and respond to perceived consumer demand, GHC launched the Access Initiative during 2002 and 2003 to improve convenient access to care and services. Components included the following:

- advanced-access scheduling of primary care appointments based on the patient’s preference,

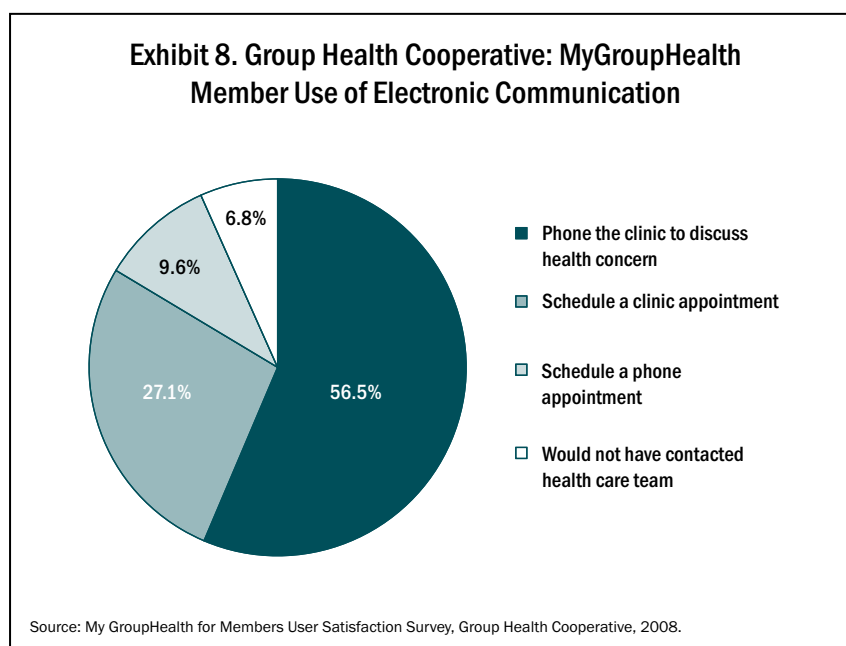
including same-day or next-day appointments when available

- direct access to specialty care (no referral necessary for most specialty consults)
- telephone visits and secure electronic messaging with the care team (GHC has set a goal that 30 percent of patient encounters will be telephonic or electronic)
- online patient access to the shared medical record and health promotion information (described in “Information Continuity,” above)
- primary care practice redesign and physician payment incentives to improve practice efficiency and physician productivity.

Survey data and anecdotal feedback from physicians suggest that the initiative improved patient satisfaction, and that users are substituting secure messaging for office visits and telephone calls, while also making contact when they otherwise might not (Exhibit 8). The latter finding suggests that this modality is helping to lower barriers to care. Three-quarters of MyGroupHealth users agreed that online services would be “extremely” or “very” important in their choice of a health plan, suggesting that electronic connectivity may influence member loyalty.¹⁹

Offering same-day primary care appointments improved timeliness of care but at the cost of some continuity of care with the same physician. The initiative was also associated with improved clinical efficiency and physician productivity.²⁰ However, physicians reported a substantial increase in workload and a compromised focus on population health that negatively influenced their work-life satisfaction.²¹

GHC is currently changing its strategy to remedy the unintended consequences of this approach by implementing the medical home model of care delivery as a more reliable and sustainable means of meeting patient needs. While maintaining a commitment to offering same-day access, the new staffing model calls for physician assistants and nurse practitioners to see patients for immediate acute-care needs.



This stipulation preserves physician time for chronic-condition management. The medical home model may improve continuity of care by reducing patient-panel sizes and by offering other modes of contact with the care team such as e-visits and group visits.

As its primary care model is evolving to incorporate alternative forms of encounters, GHC is adapting its access measures accordingly. The medical home pilot used hard targets for timeliness of patient visits: the ability to see a patient within 36 hours or within seven days of an appointment request (depending on

Exhibit 9. Selected Externally Reported Results and Recognition: Group Health Cooperative (GHC)*

Ambulatory Care Quality (NCQA Quality Compass 2008)	<p><i>Clinical quality</i> (34 measures): GHC ranked in the top quartile of commercial health plans nationally or regionally on 14 measures, and in the top decile on five of those measures.</p> <p><i>Patient experience</i> (10 measures): GHC ranked in the top quartile of commercial health plans nationally or regionally on four measures, and in the top decile on one of those measures.</p>
National Recognition and Ratings	<p><i>Verispan Top 100 Integrated Health Networks</i> (2008).</p> <p><i>National Committee for Quality Assurance</i>: Health Plan Excellent Accreditation; Quality Plus Distinction in Member Connections.</p> <p><i>US News & World Report Best Health Plans</i>: GHC ranked among the top 25 Medicare plans in 2007 and 2008.</p> <p><i>JD Power and Associates National Health Insurance Plan Study</i>: GHC ranked in the top decile of large commercial health plans evaluated nationally in 2008 (104 plans) and in 2009 (128 plans). GHC ranked first among seven plans evaluated in the Northwest region in 2008 and second among nine plans evaluated in 2009.</p>

*See the *Series Overview, Findings, and Methods* for analytic methodology and explanation of performance recognition. CMS = Centers for Medicare and Medicaid Services; HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems (large hospitals means 300 or more beds and patient surveys); NCQA = National Committee for Quality Assurance (Quality Compass 2008 represents the 2007 measurement year).

the type of appointment). GHC is instituting a new measure of primary care continuity: the degree to which patients have a one-to-one encounter with their own physician as a percentage of all primary care and urgent-care encounters (where encounters include phone visits and secure messages).

RECOGNITION OF PERFORMANCE

In addition to the results of the specific interventions described above, Group Health Cooperative has achieved notable results on some externally reported performance indicators and has received recognition for its performance on several national benchmarking programs (Exhibit 9).

In comparison to 14 local provider groups included in a 2008 public report card issued by the nonprofit Puget Sound Health Alliance, a collaboration among local stakeholders, GHC rated above the regional average (the highest rating category) on 12 of 16 indicators. The plan's recent performance in comparison to national benchmarks has not met its own expectations, and it has made a public commitment to improvement that will result in a ranking in the top 10 percent of commercial health plans. The desire to accelerate performance improvement weighed heavily in its decision to undertake the medical home project to transform primary care.

A 2005 study of Group Health's diabetes care coordination program by the actuarial firm Milliman found that the rate of hospital admissions and ER visits among diabetic patients at Group Health was 45 percent lower than the rate of a comparison database of insured patients in the Pacific Northwest (i.e., 200 vs. 365 admissions per 1,000 members; 308 vs. 575 ER visits per 1,000; Exhibit 10). Physician visits were comparable, while overall costs per member per month were \$350 lower than the comparison benchmark. Clinical quality measures also were better (e.g., 83% vs. 51% with annual hemoglobin A1c test).²²

INSIGHTS AND LESSONS LEARNED

A mission-driven, values-based organizational culture appears to be the motivating factor for achieving higher performance at Group Health Cooperative. Its leaders point to the integration of health care financing and delivery, together with the "pioneering spirit" of its workforce, as key distinctions that create opportunities for innovation and bring people together to focus on common goals. The combination of mission, culture, and structure focuses innovation on ways to improve health for individual patients as well as for the member population as a whole.

GHC's leaders acknowledge the challenge of staying true to the core principles that motivate its

**Exhibit 10. Group Health Cooperative:
Diabetes Value Project Utilization Measures**

	Group Health Cooperative	Benchmark Database
1. Admissions per 1000 members	200	365
2. Hospital days per 1000 members	776	1,931
3. Average length of hospital stay	3.88	5.29
4. Outpatient visits/ 1000 members		
Hospital outpatient (E&M)	456	801
Physician Office (E&M)	9,545	9,650
5. ER visits per 1000 members	308	575

Note: Benchmark represents the Medstat MarketScan Research database representing over 100 payers including commercial, Medicare supplement, and Medicaid claims and enrollment. E&M=evaluation & management services; ER=emergency room.
Source: Milliman, *Diabetes Management Value Assessment*, Group Health Cooperative, 2005.

performance while also evolving to meet market demands for greater choice, lower premiums, and easier access to care. Scott Armstrong, Group Health's CEO, observes that the market is increasingly seeking ways to disaggregate services, while the premise of Group Health's model is that value ensues from their integration. Because of this difference in philosophy, GHC's leaders recognize that they must not only explain why their model is superior, but also demonstrate that it produces better outcomes.

Integrated delivery and financing confer distinct advantages. "We have the opportunity to align our financing around what makes sense clinically and operationally," in contrast to the fee-for-service environment, "where design is largely ruled by the reimbursement system," said Peter Morgan, vice president of the group practice division. "Capitation is not the only payment mechanism we can work with, but it certainly makes it easier to align goals and vision and make strategic decisions to use dollars to do smart, proactive upstream things to avoid poor-quality downstream events," said Michael Soman, M.D., president and chief medical executive of Group Health Permanente. As examples, the leaders cite GHC's ability to afford its heart-failure case-management program and its palliative care service by avoiding unnecessary emergency visits and hospitalizations while improving patients' care and quality of life.

Ownership of hospitals has not proven essential to GHC's integration strategy. Given excess hospital bed capacity in its primary service area, GHC realized that it would be more cost-effective to partner contractually with leading hospitals (such as Virginia Mason) than to continue operating its own. Hospitalists employed by the medical group provide care for GHC members in contracted hospitals. "Our medical group really extends into those hospitals, as an extension of our care system, with nurses and other staff actively involved in the coordination of care," Armstrong said. The transition from hospital ownership to partnership has required cultural adjustment and new ways of working, but has been positive overall by freeing the

system's leaders to enhance the organization's strengths in integrated group practice, he noted.

Everything we design is based on the question: What does the patient need? It's amazing how you design things differently when that's your credo. What would American health care be like if we designed it on the same principle?

*Claire Trescott, M.D.,
medical director for primary care*

Seeking growth outside its core service area in the greater Seattle area has entailed trade-offs between flexibility of strategy and control over performance. Because multispecialty group practice requires a certain scale to be effective, GHC uses a contractual network when expanding into areas with lower population density. Since contractual relationships provide fewer levers to influence performance, GHC carefully selects and monitors its contractual partners to obtain a good fit with its mission and standards.

People skills, process improvement, and information technology (IT) are key change levers for creating greater value, said James Hereford, GHC's executive vice president for strategic services and quality. He cited the organization's deep integration of IT into clinical practice as a competitive advantage that facilitates proactive, evidence-based care while reducing duplication and fragmentation of services. By applying information technology with patient needs in mind, GHC aims to create a better patient experience, improve communication with the care team, and engage patients in care. "The more patients know and the more we organize information for them, the more comfortable they are taking an active role in decision-making," said Matt Handley, M.D., associate medical director for quality and informatics, in a recent presentation.²³

For example, offering patients online alternatives to in-person visits and online supports to make visits more effective when they do occur—such as posting test results online as soon as they are available

(rather than waiting for the physician to review them)—empowers them to take responsibility for their care, prevents communication gaps, and reduces calls to the clinic, Handley said. Although physicians were wary of this approach initially, they came to appreciate it when they saw that patients valued it. “Most organizations focus their IT implementation on pleasing the clinicians,” Handley noted. “We focused on meeting the needs of our patients, and that resulted in a better experience for both our patients and our clinical community.”

GHC’s experience also illustrates how an integrated delivery system behaves as a self-learning organism. When its previous efforts to enhance competitiveness in its group practice resulted in some unintended consequences (e.g., greater use of specialty care and higher ED and hospital costs), GHC felt these effects internally and altered course to find a better route to its goals (in this case, the medical home). In the unorganized fee-for-service environment, those unintended consequences would likely be externalized to the health system as a whole without some mechanism of accountability for their effects.

Implementation of the advanced medical home, now under way, provides the opportunity for GHC to show how optimizing care can pay for itself when incentives are aligned. It offers the prospect of resolving market ambivalence about integrated care systems by packaging population-based medicine in a

personalized and technologically advanced way that appeals to patients while generating enthusiasm among physicians. “There is enormous value and opportunity for us to demonstrate to the rest of the world we can do things that are relevant as we redesign our systems,” Armstrong said.

The broader potential of Group Health’s approach will be determined in the next few years as it applies what it has learned from instituting the advanced medical home model in its integrated group practice to developing a similar initiative in its contracted network of community physicians. Erikson noted that the health plan bears the financial risk for its entire member population, so it has an interest in identifying and working with primary care practices that might achieve similar results with regard to cost as well as patient experience.

Other health plans, physician group practices, and collaborations that are working to institute the medical home model also may find Group Health’s experience worthy of their interest. While the specific aspects may vary, the concept of relationship-based care at the heart of the model is transferable to any context. To quote GHC’s medical director for primary care, Claire Trescott, “Everything we design is based on the question: What does the patient need? It’s amazing how you design things differently when that’s your credo. What would American health care be like if we designed it on the same principle?”

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 et al., *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 on GHC was synthesized from telephone interviews with the individuals listed in the acknowledgments and from internal documents supplied by GHC, information from the GHC Web site (www.ghc.org), and presentations by Matt Handley, M.D., James Hereford, and Gerda Cunningham, R.N., C.C.M., given at the Partnership for Quality Care Summit, Washington, D.C., March 19, 2008.
- 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 The EHR vendor is Epic Systems Corporation, Verona, Wisconsin.
- ⁵ Personal communication with Maureena Moran, Executive Director of EIM and Web Services at GHC, Feb. 2009. Historical data are from: J. D. Ralston, D. Carrell, R. Reid et al., “Patient Web Services Integrated with a Shared Medical Record: Patient Use and Satisfaction,” *Journal of the American Medical Informatics Association*, 2007 14(6):798–806.
- ⁶ M. Moran and T. Boehm, *Results of My-GroupHealth for Members Satisfaction Survey* (Seattle: Group Health Cooperative, Sept. 2008). The survey was mailed in July 2008 to a random sample of 2,000 GHC members who had used My-GroupHealth during June 2008 to send at least one secure e-mail or place at least one prescription order, or to view 10 or more lab results or knowledge-base pages. The response rate was 38 percent and respondents’ demographics were similar to those of the overall online user population.
- ⁷ E. H. Wagner, D. K. McCulloch, M. J. Price et al., “A Population-Based Approach to Diabetes Management in a Primary Care Setting: Early Results and Lessons Learned,” *Effective Clinical Practice*, 1998 1(1):12–22.
- ⁸ E. H. Wagner, B. T. Austin, M. Von Korff, “Organizing Care for Patients with Chronic Illness,” *Milbank Quarterly*, 1996 74(4):511–44.
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- ¹⁰ C. M. Ostrom, “Northwest Primary Care Medicine: Curing What Ails Us,” *The Seattle Times*, Jan. 18, 2009.
- ¹¹ Information on complex-case management was obtained from G. Cunningham, “Congestive Heart Failure Case Management at Group Health,” presentation at the Partnership for Quality Care, Washington, D.C., March 2008, http://www.kaisernetwork.org/health_cast/hcast_index.cfm?display=detail&hc=2545. The model for the program was: M. W. Rich, V. Beckham, C. Wittenberg et al., “A Multidisciplinary Intervention to Prevent the Readmission of Elderly Patients with Congestive Heart Failure,” *New England Journal of Medicine*, 1995 333(18):1190–95.
- ¹² Partnership for Quality Care, *Case Studies of Innovations in Chronic Care to Improve Outcomes and Contain Healthcare Costs*, <http://www.pqc-usa.org/docs/report.pdf>.
- ¹³ AHRQ Health Care Innovations Exchange, “Innovation Profile: Online Tools and Services Activate Plan Enrollees and Engage Them in Their Care, Enhance Efficiency, and Improve Satisfaction and Retention” (Rockville, Md.: Agency for Healthcare Research and Quality, 2008), <http://www.innovations.ahrq.gov/content.aspx?id=2133>.
- ¹⁴ E. H. Wagner, L. C. Grothaus, N. Sandhu et al., “Chronic Care Clinics for Diabetes in Primary Care,” *Diabetes Care*, 2001 25(4):695–700. The study looked at 707 diabetic patients who were at least 30 years of age and attended 32 primary care practices that were randomly assigned to provide either usual care or mini-clinics. Measures included receipt of preventive-care services, outcomes such as self-reported health status and clinical measures of diabetes control, and use of services for the two groups.

- ¹⁵ R. Miskimon, "Group Visits Get Rave Reviews," *Northwest Health*, Spring 2006, <http://www.ghc.org/features/feature.jhtml?reposid=/common/features/story/20060403-groupVisits.html>.
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- ¹⁸ The Commonwealth Fund has provided a grant to the Group Health Center for Health Studies to evaluate the effects of these shared decision-making tools at Group Health Cooperative.
- ¹⁹ Moran and Boehm, *Results of MyGroupHealth for Members Satisfaction Survey*.
- ²⁰ D. Conrad, P. Fishman, D. Grembowski et al., "Access Intervention in an Integrated Prepaid Group Practice: Effects on Primary Care Physician Productivity," *Health Services Research*, 2008 43(5):1888–1905.
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- ²² Milliman, *Disease Management Value Assessment*, Group Health Cooperative, Dec. 2005. Results were adjusted for differences in demographics and reimbursement levels.
- ²³ M. Handley, Partnership for Quality Care Summit, Washington, D.C., March 19, 2008.
- ²⁴ This hypothetical scenario was related by Michael Erikson, GHC's vice president of primary care.
- ²⁵ Patient-panel sizes are adjusted using Diagnosis Cost Groups (DxCGs), which are also used to adjust the amount of resources provided to each clinic based on the characteristics of enrolled patients.
- ²⁶ Group Health Cooperative, *Reinventing Primary Care* (blog), <http://ghmedicalhome.org>.

Appendix: Standard Work Elements Constituting the Medical Home Model at Group Health Cooperative

Group Health Cooperative is implementing a patient-centered medical home model of primary care using the following eight work elements carried out by a multidisciplinary primary care team supported by the electronic health record (EHR).

1. Virtual medicine: Make effective use of secure messaging and phone visits to manage care. In the old, passive model, the care team received phone calls and secure e-mail to answer patients' questions—adding to overall workload. Under the new model, the care team uses phone and secure e-mail proactively for pre-visit planning, follow-up, and outreach. Physicians make simple adjustments to care via phone visits or secure messages, and task their associates (physician assistant or nurse practitioner) to handle same-day acute-care needs. This system frees the physician's time so that she or he can have longer appointments with patients who have complex care needs.

Following a visit, the medical assistant (or another member of the care team) asks the patient if he or she would like to have follow-up contact with the care team by secure message, by phone, or in person. If the patient is not yet registered but would like to use MyGroupHealth, the medical assistant expedites sign-up on the spot. "It is wonderful to do virtual medicine for patients," said GHC's Claire Trescott. "Our doctors touch their patients more today, even though they see fewer [in person] during the day. Patients only have to come and see you when they really need to." In a traditional fee-for-service environment, she noted, many patients make visits more for reassurance than from a clear clinical need. "This person has taken time off work, driven in, and waited for a five-minute visit that was unnecessary when you could answer their question by e-mail or by phone—especially if you know the person and have all of the medical background in front of you," she said.

2. Chronic-disease management: Ensure consistent care for patients with chronic illness and coordinate with complex-case management. At the request of physicians, registered nurses work with patients who have uncontrolled chronic illnesses to provide short-term intensive education and monitoring during clinic visits and over the telephone. The nurse also titrates medications based on the physician's treatment plan. After 60 days, patients are referred back to their physician if they have been stabilized or to the complex-case manager (described in "Care Coordination," above) if they need additional coaching to achieve treatment and lifestyle goals. The nurse also works with the complex-case manager as needed to coordinate transitional care and follow-up after the hospitalization of patients in fragile health and/or with multiple chronic conditions.

Affiliated staff may also play a role in following up with patients after chronic-care visits. After seeing a patient with newly diagnosed hypertension, the physician may introduce the nurse practitioner or physician assistant and say, for example:

This is my colleague. We are starting you on medicine for your high blood pressure. My colleague is going to follow up with you over the next few weeks and invite you back for a visit to get your blood pressure under control. She/he and I will be interacting throughout that time. If you have any need of me, we certainly will schedule for it, but my nurse practitioner or physician assistant is more than capable.²⁴

3. Outreach cell: Reach out to patients with unmet clinical needs. GHC has for some time sent annual "birthday letters" to patients to remind them of preventive-care needs and promote wellness. The medical home model expands this approach. Using "patient-panel management" tools built into the EHR, the team identifies patients who

have not received recommended preventive care (such as childhood immunizations) or who have not visited for chronic-condition management (such as having blood pressure checked). A team member will call or send a secure message saying, for example, “We haven’t seen you in a while. The following activities are important for your health. Is this something that you can and will do? Do you need a visit or a phone call to follow up?”

The licensed practical nurses make outbound calls each morning to any of the care team’s patients who visited the ED the previous day. (GHC has electronic links with local hospitals to receive daily updates on ED use and admissions by its members.) The nurse checks to see if the patients have any outstanding care needs and invites them to connect with the care team via secure e-mail, phone, or an office visit if needed. GHC’s leaders believe that this intervention was instrumental in reducing ED visits.

4. Pre-visit standard work: Make full use of every visit to address all chronic, preventive, and acute needs and reduce missed opportunities. This element supports the standardized execution of the chronic care/planned care model. The care team reviews patient needs ahead of appointments in order to be prepared to address them during or before the visit. For example, a member of the team will call the patient to schedule any outstanding tests so that results are available for review with the physician during the patient visit.

Because of this preparation, “Many of our physicians have said, ‘I am actually ahead of where my patient is. I know what they need before they do,’” said Michael Erikson, vice president of primary care. “They have time for a conversation with a specialist to say, ‘Here is what I’m observing. Should I run these tests before we consider referral?’ So they have more time to interact with specialists and make sure that it is the right referral and that it achieves the right outcome. They are continuously involved in making sure that they haven’t missed anything with the patient, which makes coordination of care much more proactive.”

5. After-visit summary: Support patient activation. Following clinic visits, patients receive a printed record of their visit (based on information entered into the EHR by the physician during or at the end of the visit) including diagnosis, treatment options, recommended self-care, and reminders about next steps to be taken. For patients who are registered for enhanced services on MyGroupHealth, the online after-visit summary provides a consistent place to review treatment plans and self-care instructions with links to relevant online health information to promote engagement in care.

6. Daily huddle: Ensure a prepared team. The extended care team meets each morning to prepare for that day’s work by reviewing the schedule and making adjustments as needed to accommodate staff absences or to improve work flow. The huddle also provides an opportunity to discuss how the team can improve. Care teams rated this element as one of the most positive changes to improve work life, second only to the reduction in panel sizes. “You begin to see the birth of real teamwork,” said Trescott.

7. Call management: Reinforce bonding between patients and the primary care doctor and team. Before work was standardized, patients were rarely able to call their clinic and speak directly to someone on their care team who could answer questions about their care. They often had to repeat their request several times, leave a message, and then wait (nine hours on average) for someone to call back with an answer.

A new call-management program links the phone system to the EHR. When patients call and enter their identification number, their call is routed directly to the nurse on their primary care team, or to their physician if she or he is taking calls at that time. Physicians are scheduled to conduct phone calls and other “virtual medicine” tasks at

specific times each morning and afternoon, which vary based on call-volume patterns. Nurses consult with doctors between visits when they need to relay information back to patients.

This process has led to 65 percent of patient calls being resolved immediately (“first call resolution”) and 99 percent being resolved within two hours. Physicians generally like the new approach, Trescott noted (although a few still have an aversion to using the phone for patient contact). “You aren’t sitting there at seven at night, playing phone tag. You just take care of [the call] when it comes in.”

8. Patient panels: Facilitate relationship-based care by reducing patient-panel sizes to 1,800 patients per physician (adjusted for patients’ severity of illness).²⁵ Panel balancing represents one of the most challenging aspects of the change process, Trescott noted, since some patients must switch physicians, severing established relationships.²⁶ The hope is that the greater personal attention this approach affords will overcome the temporary loss in continuity.

The pilot clinic hired two new primary care physicians (bringing the total to about seven full-time-equivalents serving about 12,800 members enrolled at the center) and additional support staff, at an annual cost of \$650,000. Physicians at the pilot site are now seeing about two patients per hour (14 to 16 per day), versus four to five patients per hour under the old model. This transition (and related process changes to enable it) took about six months to achieve, according to Erikson.

For the rollout, GHC is hiring 20 new primary care physicians (bringing the total to about 300 serving 400,000 patients of the medical group), several new associates (more in rural areas where it has been difficult to recruit physicians), and 60 medical assistants, at a total incremental cost of \$9 million per year when fully implemented. While the pilot project was cost-neutral owing to a reduction in ED visits, GHC expects that deeper and broader penetration of the model will ultimately achieve cost savings through reductions in hospitalizations and in physician turnover.

Erikson said that GHC is already seeing a positive effect on physician recruitment, with interest in the medical home from physicians finishing residencies across the country and from physicians in private practice. “It’s the attractiveness of this work for the primary care physicians—family doctors and general internists. This is what they went to school for. This is how they want to practice, and they will go where they need to do that.”

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ACKNOWLEDGMENTS

The authors gratefully acknowledge the following individuals who kindly provided information for the case study: Scott Armstrong, president and CEO; Michael Erikson, vice president for primary care; Matt Handley, M.D., associate medical director for quality and informatics; James Hereford, executive vice president for strategic services and quality; Maureena Moran, executive director of EIM and Web Services; Peter Morgan, executive vice president of the Group Practice Division; James Ralston, M.D., M.P.H., assistant investigator, Group Health Center for Health Studies; Paul Sherman, M.D., associate medical director for strategy deployment; Michael Soman, M.D., president and chief medical executive of Group Health Permanente; Hugh Straley, M.D., former president (retired) of Group Health Permanente; and Claire Trescott, M.D., medical director for primary care. Douglas Conrad, Ph.D., Department of Health Services, University of Washington, kindly provided his perspective on a study of the access intervention at Group Health Cooperative. The authors also thank the staff at The Commonwealth Fund for advice on and assistance with case study preparation.

Editorial support was provided by Joris Stuyck.

This study was based on publicly available information and self-reported data provided by the case study institution(s). The Commonwealth Fund is not an accreditor of health care organizations or systems, and the inclusion of an institution in the Fund's case studies series is not an endorsement by the Fund for receipt of health care from the institution.

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.

