California HealthCare Foundation

Building Teams in Primary Care:
15 Case Studies

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by
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About the Foundation

The **California HealthCare Foundation,** based in Oakland, is an independent philanthropy committed to improving California's health care delivery and financing systems. Formed in 1996, our goal is to ensure that all Californians have access to affordable, quality health care. For more information about CHCF, visit us online at www.chcf.org.

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Expanding the Role of Medical Assistants in a Solo Private Practice

KEY ELEMENTS

Type of practice
solo (one physician) private primary care practice; four staff members

Location
single site, Stockton, CA

Patient population
high percentage of diabetes patients

Team care innovations
medical assistants trained to perform many diabetes care functions; medical assistants share in pay-for-performance bonuses

Dr. Adubofour is a general internist in Stockton, California. As a solo practitioner, he has transformed his private office into a true primary care team. His work demonstrates that teams need not be confined to larger primary care institutions, but can thrive in the smallest practices. According to Dr. Adubofour, "There isn't time in primary care to effectively look after all the patients with chronic disease. We need to redesign the office environment. Physicians want to do a good job, but can't do it by themselves."

Dr. Adubofour's practice includes five people: himself, an office manager, two medical assistants (MAs), and a receptionist. The four non-physician staff members are cross-trained to do one another's jobs. They can all perform front desk, back office, and medical records functions. Each day, one medical assistant is in charge of medical records and referrals while the other is responsible for patient flow. If the patient-flow MA is backed up with too much work, the medical-records MA comes to help. The MAs and receptionist rotate jobs so that each refreshes their skills at each job. The office manager can also fill in if a staff member is absent. Every morning (unless he is doing hospital rounds), Dr. Adubofour convenes a brief huddle with the team to review and plan the day's schedule.

Dr. Adubofour has focused on diabetes, a major clinical problem in California's Central Valley, for team development. He has trained the entire staff in diabetes care and updates the training at occasional staff meetings. Patients with diabetes have charts in red folders, which alerts the MA to perform particular tasks to assist physician and patient to improve diabetes outcomes. These include sending patients for overdue lab work, making timely eye, dietary, and podiatry referrals without needing to check with the doctor, doing foot exams which include microfilament sensory checks using the California Diabetes Program's diabetes foot charts (www.caldiabetes.org), and downloading glucose values from the patients' glucometers. In addition, the MAs, as diabetes care coordinators, are trained to fill out and update the diabetes management flow sheet for each patient at each visit, which Dr. Adubofour then reviews with each patient. The MAs also distribute diabetes health-record cards (available from the California

Diabetes Program). The health record lists essential diabetes-related examinations and allows patients to keep account of their progress. For patients newly diagnosed with diabetes, the MA conducts an educational session with videotapes (in various languages).

A crucial aspect of diabetes care, one that is lacking in many large and small primary care practices, is between-visit care, usually performed by follow-up phone calls. Dr. Adubofour has trained the medical assistants to make and take calls from patients three or four days following a visit for new patients with diabetes or after visits in which a significant medication change has been made. In addition, a list is maintained of all the patients with diabetes that the practice is particularly worried about; MAs set time aside once a week, making phone calls to encourage these patients. If patients have questions or problems, Dr. Adubofour is consulted. During these calls, the MA is not making medical decisions but is checking to see if the patient is comfortable with the advice given by the physician. For example, the physician may have instructed a patient to increase his or her insulin dose by four units if the morning blood sugar exceeds target glucose levels. MAs may check to see whether the patient made that dosage change and whether the patient has any questions about the physician's instruction.

Dr. Adubofour asserts, "Doctors are surrounded with MAs eager to be recognized as important members of the primary care team. We need to use them." In his experience, medical assistants relish the training and love to become involved with the care of patients. In addition to enhanced job satisfaction, the entire staff equally divides up any pay-for-performance dollars that come into the practice. The staff realizes that if it does not perform its diabetes work properly and quality goes down, the practice will not get pay-for-performance money.

Diabetes Practice Improvement Programs in California

Dr. Adubofour is keen to point other physicians to the resources available for training MAs through the Diabetes Care Coordinator Project of the Diabetes Coalition of California. Aimed at medical office assistants, this train-the-trainer program elevates the office assistant to an important member of the diabetes health care team by shifting some appropriate components of care to the assistant. The results: (1) the assistant gains a higher level of diabetes knowledge and training; (2) the clinician gets help delivering all the components of good care; and (3) the patient receives more comprehensive care to prevent diabetes and its complications.

Dr. Adubofour is also engaged with other diabetes improvement projects and practice-based research. His practice is involved in Advancing Practice Excellence in Diabetes, a project organized by the California Medical Association Foundation.

Some physicians may balk at giving more responsibility to MAs because they believe that MAs are already too busy. To the contrary, Dr. Adubofour believes that most MAs want to learn more skills and generally have sufficient time to perform additional functions. So, in Dr. Adubofour's office, the MAs' responsibilities go beyond diabetes care. For example, they ask women patients whether they have had Pap smears and mammograms. Setting the bar high, Dr. Adubofour teaches the MAs that no patient of the practice should ever die of cervical or breast cancer. The MAs also inquire about the pneumococcal vaccination status of qualified elderly patients.

Many physicians forbid medical assistants to tell patients whether their blood pressures or HbA1c levels are normal or abnormal, believing that such clinical information must come from the physician. Dr. Adubofour, in contrast, teaches the MAs evidence-based HbA1c and blood pressures goals and the MAs discuss with patients whether or not they have achieved those goals. After all,

Dr. Adubofour reasons, if a patient could look up the HbA1c and blood pressure targets on the Internet or in patient education materials, why should the MA be prevented from having those discussions? Dr. Adubofour emphasizes his confidence in well-trained MAs by recounting an anecdote: He was once invited to give a talk, was unable to go, and sent one of his practice's team MAs; with relative ease, she made a presentation to several health care providers, which was very well received. The MA was 20 years old.

The next step in the evolution of Dr. Adubofour's team building involves his plans to roll out a diabetes registry. Many private practitioners do not know how many patients with diabetes they have, an essential piece of data on which to base improvement work. Dr. Adubofour knows how many patients with diabetes are in his practice but does not know what percentage have HbA1c levels greater than 8 and therefore require extra attention. The office MAs will be trained in using the registry and will thereby assume partial responsibility for the entire population of practice patients with diabetes.

The work of Dr. Adubofour demonstrates that significant team building can take place in even the smallest primary care practice. He views his practice team as a win-win-win: better for the patients, better for the physician, and better for the entire practice staff.

2. Dr. Charles Burger:
Innovative Team Roles in Private Practice

KEY ELEMENTS

Type of practice
small (two MDs) private primary care practice; 14-person staff

Location
single site, Bangor, ME

Patient population
diverse 5,500-patient panel; 250 visits per week.

Team care innovations
team care adapted to small practice with highly innovative job descriptions; patient representatives and MAs with greatly expanded roles; computerized triage protocols for incoming phone calls

Dr. Charles Burger is a primary care practitioner in Bangor, Maine. For many years, Dr. Burger has been transforming his practice into a smoothly running team. Formerly an independent practice, the office is now owned by the Eastern Maine Health Care System. The practice, with about 5,500 active patients from a variety of socioeconomic backgrounds, is financially stable with about 250 visits per week. About 60 percent of the patients are insured commercially, almost 30 percent are covered by Medicare, 8 percent by Medicaid, and 3 percent are self-insured. The practice has some of the highest marks in the state on patient satisfaction and clinical outcome measures. Staff turnover is very low.

The practice team consists of Dr. Burger, one other primary care physician, one nurse practitioner, one RN, an office manager, six to seven patient representatives, and four medical assistants. Overall, the practice has 3.4 (full-time equivalent) support staffers per clinician. The practice is fully computerized.

All clinical processes in Dr. Burger's office are guided by a software system that helps staff determine when and where a patient needs to be seen depending on the answers they give to scripted questions. The practice has adopted a version of advanced-access scheduling, offering patients same-day appointments. For years, the office has tracked demand and can predict how each day will unfold. On Mondays, heavy with telephone calls, more staffers act as receptionists and few appointments are scheduled.

Patient Representatives

One of the practice's many innovations involves the role of the patient representative, who serves four distinct functions: telephone work, greeter, scheduler, and in-basket manager.

Telephone work. Dr. Burger views the job of answering the telephone as one of the most difficult tasks in a medical office. He has developed a complex computer software tool for the patient representatives called the "triage coupler." When a patient calls and reports his/her symptom, the patient representative uses the coupler to assess the patient's complaint. The coupler contains questions that assess hundreds of symptoms covering the gamut

of primary care. Its function is to allow the patient representative to rapidly determine when and where the patient should be seen, who should see the patient, how much time to allow, and whether other testing should be done before the patient is seen. For instance, a patient with a thunderclap headache or chest pain with nausea and vomiting may be sent directly to the emergency room by ambulance. A patient with cough for a month may be sent for an X-ray prior to the visit. The coupler also has a medication refill function with numerous standard treatment protocols, for example, automatic treatment of a person with strep exposure and sore throat, or treatment of uncomplicated urinary tract infection in females. When uncertainty exists, a clinician is consulted.

This enhanced role of the front office only works because of the intensive training provided to patient representatives. In contrast to many primary care offices which place newly-hired receptionists on the telephone after only two hours of orientation, Dr. Burger's practice trains patient representatives for an average of six weeks before they are ready to answer patient calls. The front desk coordinator does much of the training in a daily one-on-one process.

Greeter. This is a relatively simple job, involving registering the patient, obtaining or updating insurance information, and making sure the patient knows how to fill out his/her medical history.

Scheduler. Patient representatives working as schedulers meet with patients after the visit, schedule diagnostic tests and referrals, and obtain insurance authorizations. However, providers schedule their own follow-up visits, lab tests and simple X-rays in the examination room with the patient, so that many patients go from the exam room directly out the door. (The practice does not do Medicare Part D counseling; community pharmacists have taken on that task.)

The Patient as Team Member

Within Dr, Burger's practice, patients are asked to contribute their part to the functioning of the office. The patient's job is filling out the medical history, both the past medical history and the present illness. Depending on the symptom, the patient accesses one of many present illness questionnaires and enters the answers to the questions. The completed questionnaire goes into the office computer system and is available to the clinician in the exam room. Patients can complete the questionnaires via Internet from home or on a personal computer or electronic tablet in the waiting room.

Upon completion of a visit, patients leave with a printed copy of a visit-progress note and a complete list of medications. The practice did a survey and found that 85 percent of patients read the visit note when they arrive home.

Managing clinicians' in-baskets. Electronic messages come into the practice bringing labs and radiology results, information from other physicians and home care agencies, and messages directly from patients via secure email. In addition, intra-office messages are an important part of team communication. Managing electronic in-baskets is a major and critically important task; if crucial information does not get into the proper hands, serious errors can take place. The volume of in-basket work is high and constant. Moreover, to assure quality care, it is necessary to document what happened to all lab and X-ray studies ordered: Did the patient actually do the study? Did the appropriate person in the office see the results and do something about them? Did the patient get the results? Was a plan made for dealing with abnormal results?

Multiplying this process by all diagnostic studies ordered makes in-basket management a huge project. Dr. Burger's office has developed protocols for who is authorized to handle which kinds of messages and to whom messages should be forwarded. Most

of this work is done by the patient representatives, sometimes with the help of medical assistants; the front desk coordinator is responsible overall for this area of work. Through a protocol, the practice notifies patients of normal and abnormal lab and X-ray results within 24 hours; patient representatives can inform patients of normal or some mildly abnormal results. Second to the telephone triage role, the in-basket work requires substantial training time.

Each patient representative is cross-trained to master all four functions. Depending on the needs of each day, they rotate from one function to another and fill in where needed. Flexibility—the ability to shift gears quickly—is a necessary quality of a patient representative. Further office flexibility is gained through cross-training the medical assistants as patient representatives.

Medical Assistants

Medical assistants have a somewhat expanded role in Dr. Burger's practice. They escort patients to the exam room (called "rooming" patients), check vital signs, may take a more detailed history of the present illness or injury based on the patient-generated questionnaires, and do medication reconciliation. They may also order routine chronic and preventive care studies. MAs are not present during the clinician visit. For a period of time, MAs were trained to actually perform parts of the physical exam. This worked well, but some patients preferred for the clinician to handle that part of the visit. MAs also help the patient representatives with in-basket management. Some of the work previously delegated to MAs—appointment scheduling and test/image ordering—is done directly by the clinician using electronic medical records.

Registered Nurse

The RN focuses on chronic disease management. Dr. Burger's chronic disease model is an RN-planned visit tied to a clinician visit. In this model, patients spend 40 minutes with the RN, who orders lab tests, does foot exams, refers for eye exams, engages the patient in behavior change counseling, and provides patient education. The clinician adds a five-minute visit to complete the physical examination and manage medications. The physician/RN plan for the patient is documented by the RN. The RN also does chronic disease self-management support by telephone, initiates group visits, and works the registry. The registry includes most chronic illnesses and is tied to a central data warehouse, which allows the practice to receive performance data compared with similar data from other practices around the country.

Team Meetings

The practice has institutionalized 15 to 20 minute morning huddles to plan the day's work, as well as hour-long weekly team meetings. Occasionally, the office closes for an afternoon for intensive team-building training. Clinic goals and performance measures are communicated to all staffers by posters prominently displayed in the office.

Summary

Several lessons can be learned from Dr. Burger's smooth-running practice. First, without Dr. Burger's leadership this model practice would not exist. Second, training is critical to success. Third, the typical organization of a primary care practice—front office (receptionist), back office (MA), and clinician—is not necessarily the optimal division of labor. Dr. Burger's practice has patient representatives performing some front office, some back office, and some information management functions, and has delegated some of the history-taking job to patients. Rather than have an MA do both pre-visit and post-visit functions, the MA is responsible for the pre-visit while the patient representatives—in their role as schedulers—perform some post-visit work. Fourth, and perhaps most important, is the way the practice overcomes the major barrier of scope-of-work conceptions. Dr. Burger's practice recognizes that a patient representative is capable of advising a patient, based on the triage coupler protocols, to get a chest X-ray before coming to the office—as long as the patient representative has received training,

mentoring and competency evaluation. Nor does the practice believe there is any good reason why an MA could not be trained to listen to a patient's lungs, since listening to lungs does not require the courses in anatomy, physiology, biochemistry, pathology, or pharmacology that make up medical school curriculum. This practice has gone a long way toward overcoming the innovation-stopping effects of the legal/regulatory system and of professional territoriality that continue to haunt primary care team formation.

3. Clinica Campesina:
Using Space and Financial Incentives to Enhance Team Functioning

KEY ELEMENTS

Type of practice
community health center;
27 clinicians (MDs or APCs)

Locations
three sites, Denver area, CO

Patient population
30,000 patients;
primarily Spanish-speaking;
68 percent uninsured;
70 percent poverty level

Team care innovations
"pod" system with "collocation";
strong continuity of care; high LPN involvement; pay-for-performance bonuses for all staff

Clinica Campesina is a community health center near Denver, Colorado, with about 30,000 active patients, of whom 68 percent are uninsured and 70 percent have incomes below poverty level. Most patients are Latino, many speaking only Spanish. Whereas the clinic initially served many farm laborers, the clinic's patients now—due to demographic changes in the Denver area—tend to work at low-paid service jobs. Clinica Campesina has three sites: Pecos, Lafayette, and Thornton.

Clinica Campesina has been engaged in systematic primary care practice improvement efforts for several years. The clinic was one of the first health centers to participate in the Health Disparities Collaborative of the federal Bureau of Primary Health Care (www.healthdisparities.net), and Clinica Campesina leaders, in particular Cory Sevin, R.N., and Carolyn Shepherd, M.D., (the clinic's medical director) have participated as teachers and mentors for the Institute for Healthcare Improvement. The clinic has given a great deal of thought to the importance of primary care teams and has instituted major organizational and cultural changes in the process of forming its own high-functioning teams. For Clinica Campesina, an overriding value is continuity of care. Everything goes better—for patients, clinicians, and clinical outcomes—if patients see the same clinician at every visit.

In pursuit of continuity of care, each clinician has his or her own panel, of 1,200 to 1,500 patients. Panel size is crucial for same-day (advanced) access, which Clinica Campesina has been successful at achieving and sustaining. Lafayette patients can get appointments the same day, Thornton patients within two days, but for Pecos the wait is seven to ten days. As a result of advanced access, the no-show rate has dropped from 35 percent to 12 percent. It turns out that excess panel size causes the access problem at Pecos. Since 40 percent of Pecos' patients are pregnant, and the physicians handle both prenatal care and deliveries, these patients take a great deal of time.

The "Pod" System

At Clinica Campesina, primary care teams are called "pods"; Pecos has four pods, Lafayette two, and Thornton three. Each pod is denoted by a color, an important patient-centered feature: Patients

with difficulty navigating languages and health systems can be comfortable knowing that they are cared for in the red, blue, or orange pod. Each pod's walls are in the pod's color, and the former paper charts were in folders colored according to pod. Since the 2006 rollout of an electronic medical record system, an icon on the initial screen shows the pod's color.

Each pod has three FTE clinicians—physicians or advanced practice clinicians (APCs, either nurse practitioners or physician assistants). The physicians take hospital calls and deliver babies and are thus not in the clinic full-time. Most APCs work nearly full-time, and are the critical glue providing continuity of care. APCs have their own patient panels and perform the same work as physicians. MAs generally work with a single clinician, contributing to continuity of care. Pods also have LPNs. RNs are almost impossible to recruit.

Pods share a referral case manager, social worker, office manager, and financial screener. The referral case managers, often high school graduates trained by the clinic, relieve clinicians of the time-consuming job of helping patients navigate the specialty system—poorly accessible to uninsured patients—by arranging appointments and negotiating payment deals.

Spatial Collocation

A distinguishing feature of Clinica Campesina's pods is their spatial arrangements, called "collocation." Collocation means that the architecture of the clinical sites is organized so that the people in each pod work in as close and as comfortable physical proximity with one another as possible. Everyone in the pod works in the same open room at the pod's center, from which they can see the patient rooms on a circular hallway around the central room. Everyone has a line of sight to everything that is going on. Pod members can communicate with one another easily; time is not wasted trying to find people. Collocation does not guarantee a high-functioning and happy pod; team players are also needed. But Clinica Campesina believes that physical proximity is critical for teamwork.

Call Routing

Any primary care organization needs to make a key decision regarding incoming calls. In the case of Clinica Campesina, the question was whether calls should come to the pod or to a centralized call center. Clinica Campesina decided to route calls to a call center in order to relieve the pods of appointment scheduling. With advanced access, few triage decisions are needed because patients can access the clinic the same day. Calls with clinical content go to the pod receptionist; because the volume of those calls is not excessive, she has time to contact patients with normal lab results, to check patients in and out of their visits without interruption, and to help manage chronic disease registries.

Outgoing calls are generally made by the LPN or MA, using clinically driven protocols or specific instructions from the clinician; these include informing patients of abnormal lab results and refilling prescriptions. Without the involvement of LPNs and MAs in these calls, clinicians would have an hour or more of extra phone work each day.

MA and LPN Tasks

Overall, MAs do vital signs, room patients, draw blood, and do depression screens. Working with pod receptionists, they manage the chronic disease registries, ordering tests that are overdue. In some pods, the MA is the registry-responsible person, in others the receptionist is. Inputting registry data is often done by someone in the clinic's central administrative apparatus, relieving the pods of that responsibility.

LPNs play a central role at Clinica Campesina. They can treat simple urinary tract infections or upper respiratory infections, obtaining urine cultures, rapid strep, or Chlamydia screens, contacting the patient, and giving appropriate antibiotics by protocol if indicated. But the main work of the LPNs is to serve

MA Panels under Consideration

MAs usually each work with a single clinician, but Clinica Campesina is considering linking MAs to the patient rather than to the clinician. In that case, patients would be assigned to both a clinician and an MA, thereby ensuring continuity with the MA whether or not the patient's clinician is available. Such a change would present scheduling difficulties, but would have the advantage that patients would truly view their caregivers as a teamlet—clinician and MA.

as pod coordinators, keeping an eye on patient flow, expediting things or changing things around; for example, if a clinician had patients in three rooms and another waiting. They also do health education and oversee the MAs. The LPN is are considered the quarterback of the pod.

Clinica Campesina has achieved a high level of performance and patient satisfaction. Continuity of care with the patient's primary care clinician is 90 percent for well care, 83 percent for diabetes care, and 77 percent for acute asthma visits. Prompt access to care has improved markedly and is two days or less for two of the three clinics. Patients have improved HbA1c levels, more patients with persistent asthma are on controller medications, women are entering prenatal care earlier in their pregnancies, and immunization rates are higher.

As a result of the collocation and advanced-access innovations, which were implemented around the same time, the number of patient visits per FTE clinician increased by 21 percent. Not having to look for other people on the team (because everyone sits in the same room) and relying on other team members to handle many clinical issues provides greater support for the clinicians, enabling them to see more patients.

Pay-for-Performance

To reward pods and pod members, the clinic has developed a pay-for-performance-like bonus plan not only for physicians but for everyone. Pods are measured for increased number of visits, continuity of care over 80 percent, and chronic disease measures. For pods that perform well, everyone in the pod receives a bonus. The bonus plan has another feature: For each pod that meets performance goals, all pods receive a bonus, even those that did not meet the goal. Because more performance-based money is paid out if more pods achieve the goals, it is in everyone's interest that all pods succeed. Thereby both the team culture of the clinic and financial incentives have created an atmosphere in which everyone contributes to getting the work done.

4. Harbor-UCLA Medical Center's Family Health Center: A Community-Based *Promotora* Team

KEY ELEMENTS

Type of practice
hospital-based, university-affiliated family health center within a large county health system

Location
single site and off-site, Los Angeles, CA

Patient population
30,000 primary care patient visits per year; 35–40 percent of visits are diabetes-related; high percentage of Spanish-speaking and uninsured

Team care innovations
promotora-based team for obesity prevention/treatment

Raquel Soto, M.D., grew up in the community served by Harbor-UCLA Medical Center, one of the main hospitals in the public Los Angeles County Department of Health Services system. Following medical school, she completed her residency in family medicine at Harbor-UCLA and is on the faculty of the Harbor-UCLA Department of Family Medicine. Dr. Soto has organized a community-based program for the prevention and treatment of obesity utilizing a team centered on *promotoras* (trained community residents).

The Los Angeles County Department of Health Services is one of the largest health care systems in the United States, providing care for about 800,000 patients annually. It includes a huge decentralized primary care system whose patients are 71 percent Latino, 15 percent African American, 10 percent White, and 3 percent Asian/Pacific Islanders. A 2005 survey found that 71 percent of these patients have an annual income under $15,000 and 64 percent are uninsured. Twenty-four percent reported that they went without needed medical care in the past year to pay for food, clothes, and shelter. Only 40 percent describe themselves as being in good or excellent health. Twenty-two percent have diabetes, 34 percent have hypertension, 31 percent have high cholesterol, and 14 percent have depression. Rates of adequate physical activity are low. Sixty-four percent of Los Angeles County Department of Health Services primary care patients are overweight or obese.[1]

One of the five hospitals in the county system, Harbor-UCLA Medical Center is in the southwestern part of the county. The hospital's Family Health Center, staffed by faculty and residents of the UCLA Department of Family Medicine, provides over 30,000 primary care patient visits yearly, with 35 to 40 percent of these encounters related to diabetes.

Dr. Soto began to organize health education sessions in local schools during her third year of residency. During these sessions, it became clear that obesity was a primary health concern. Responding to this concern, as well as to the epidemic of overweight and diabetes among the Family Health Center's patients, the program adopted a focus on the overweight/diabetes

problem. Dr. Soto soon turned the program into a *promotora*-centered community health education project.

Promotoras are community health workers providing health care and social service assistance chiefly to Latino populations. They generally come from the communities in which they work, and their competencies include:

- Helping people and families navigate the health care and social service systems;
- Providing health education in such areas as nutrition, diabetes, asthma, HIV prevention, family planning, and pre/postnatal care;
- Assisting patients in understanding advice provided by physicians; and
- Assisting physicians in understanding the cultural values and beliefs of their patients.

Promotoras may work in the community, in a clinic, or both. They may be trained on the job, in community college certificate programs (California is a state with many *promotora* programs), or in community programs exemplified by highly-regarded Latino Health Access in Orange County, south of Los Angeles.[2]

Of the three *promotoras* working in the Harbor-UCLA program, two were trained by Latino Health Access and by Dr. Soto, and one was trained by Dr. Soto and the other two *promotoras*. Initially, nutrition classes, focusing on the prevention and treatment of obesity and diabetes, were conducted by Dr. Soto. The *promotoras*-in-training attended the classes as participants, then shadowed Dr. Soto leading the classes, and then led the classes themselves with Dr. Soto observing and mentoring them. Currently, the classes are led by two *promotoras* without Dr. Soto.

Classes, most of which are in Spanish, are given at 12 sites including schools, a housing project, a senior center, a boys and girls club, and the Harbor-UCLA Family Health Center. Most classes address adults, with one high school site targeted to adolescents. A number of the patients lose five to ten pounds—sometimes up to 20 pounds—over the ten weeks of weekly sessions; long-term follow-up has not been tracked. Teachers at the high school site report that participants are doing better in school, engaging in more physical activity, and have higher self-esteem. The project has been asked to teach ten weeks of the regular ninth-grade health education class.

The approach used in the classes combines hands-on learning about nutrition with behavior-change goal setting. Using food models, participants learn about calorie counting, food label interpretation, and portion size reduction. During each class session, participants set their own goals, making weekly *promesas* (pledges) to improve their eating and physical activity behaviors in realistic doses. At each class session, participants share with one another how well they achieved their promesas. For example, one participant drank three liters of soda per day, made promesas each week to cut down, and when the classes ended was down to one glass every other day; she lost 20 pounds during the ten weeks. Another example was a promesa to switch from whole milk to 2 percent milk, then to 1 percent. In the housing project class, participants had a buddy system, checking up on each other's promesas during the week.

Promotoras have been teaching family medicine residents how to lead the classes, and in 2007 will be working with the residents in the Family Health Center. The *promotoras* will help coordinate patient visits and provide health education and follow-up with patients, making sure they understand and are following the physicians' instructions.

The Harbor-UCLA project provides several lessons. First, *promotoras* can be important members of the primary care team, particularly in low-income and minority communities. Second, primary care teams can base their activities not only within the primary

care site, but also in the communities from which the patients come. Finally, primary care cannot optimize patient care by channeling all its tasks into the 15-minute physician visit; specialization is needed within primary care. Other well-functioning primary care practices offer specialized services through women's health afternoons, HIV clinics, planned diabetes visits, nutrition classes, and other programs focusing on primary care issues with high prevalence among the practice's patients. Traditionally, specialization has been seen as contrary to primary care's mission of integrating care for individuals and families. More realistically, a balance is needed within primary care between integration and specialization.

5. San Francisco General Hospital:
The Family Health Center Teamlet Project

KEY ELEMENTS

Type of practice
public hospital-based, academic-affiliated family health center; full-time staff, four nurse practitioners, part-time UCSF faculty physicians and residents

Location
single site, San Francisco, CA

Patient population
8,000 patients;
40,000 patient visits per year;
60 percent non-English as their first language;
high percentage of Medicaid-insured and uninsured

Team care innovations
language-concordant health workers in teamlet with physician for chronic care

The Family Health Center at San Francisco General Hospital

cares for over 8,000 patients, delivering almost 40,000 outpatient visits per year. The great majority of patients are uninsured or covered by Medi-Cal (California's Medicaid program); 60 percent speak a primary language other than English. The Family Health Center is staffed by family medicine resident physicians, University of California at San Francisco family medicine faculty members, and four nurse practitioners. In this teaching facility, many of the clinicians see patients only two to three half-days per week, making continuity of care a challenge. One response to this challenge is the dividing up of the Family Health Center's clinicians and staff into four large teams—red, blue, green, and gold; patients receive most of their care within one of these teams.

In spite of the high quality and caring culture of the clinicians at the Family Health Center, the experience of patients and clinicians leaves much to be desired: many patients are not language-concordant with their clinicians, which substantially increases the length and complexity of visits; clinicians often see patients not on their own panels; many patients have multiple acute and chronic medical conditions exacerbated by psychosocial problems related to recent immigration and poverty; clinicians' complicated schedules make it difficult for patients to contact their clinicians between visits; and the demand for appointments exceeds the clinic's capacity to offer appointment slots.

The Teamlet Project

In July 2006, the Family Health Center initiated a small pilot project to address some of these problems. The project consists of health workers participating in clinician visits and meeting with patients in post-visit sessions to discuss issues related to chronic disease self-management. The pilot is called the "teamlet" project, the term referring to a one clinician/one health worker teamlet, as distinguished from the larger Family Health Center red, blue, green, and gold teams. Several health workers (called "community health workers" or *"promotoras"* in other organizations) are involved in the project; they speak a variety of languages (Cantonese, Vietnamese, Laotian, Spanish, Russian, and Bosnian) and come

from the same cultural backgrounds as many Family Health Center patients.

The goals of the project are to improve the patient experience at the Family Health Center by giving patients more time and attention than the clinicians can provide, to improve the work life of clinicians by training health workers to assist them in meeting some of the patients' needs, and to fully utilize the skills of the clinic's health workers.

A typical patient encounter in the teamlet project begins when a patient is identified who has one or more chronic conditions that are not in optimal control. A health worker who speaks the patient's first language asks the patient's permission to become involved in the patient's care, then takes part in the visit with the clinician, usually acting as translator. The health worker and clinician briefly discuss which issues would be fruitful to address in the post-visit, in which the health worker and patient spend 15 to 45 minutes. The health worker also arranges with the patient for a between-visit phone call to check on the patient's progress.

To prepare for participation in the teamlet project, health workers are trained for several hours in a number of patient self-management support skills:

- Giving basic information on common chronic conditions such as diabetes, hypertension, and elevated cholesterol;
- Asking patients to re-state what they heard in the clinician visit to make sure that the patient understands what took place in the visit;
- Working with the patient to find out whether the patient understands and is taking the medications prescribed by the clinician, and if not, why not;
- Checking to see if the patient agrees with the advice given by the clinician;
- Assisting patients to make action plans to change their behavior and help them achieve their goals;
- Navigating the complexities of San Francisco General Hospital and the various pharmacy options available to patients depending on their health insurance status.

Health workers sometimes initiate their post-visit discussions by asking the patient, "Is there anything you would like to talk about that you did not have a chance to say in your visit with the doctor?" Because patients may have questions that the health worker is not trained to answer, a Family Health Center faculty physician is available to assist. Faculty physicians are also responsible for the daily mentoring of health workers in order to refresh and deepen their training. In addition, health workers may need to discuss with the teamlet clinician what to do when patients do not agree with the clinician's advice or medication prescriptions.

The teamlet project is of limited scope because each health worker is available to participate only half a day per week. By January 2007, the health workers had seen 72 patients and completed 40 between-visit phone calls. Many of the patients had poorly controlled diabetes, blood pressure, or lipids. A number of post-visit discussions uncovered important information leading to improvements in patient care (see "Teamlet Vignettes" on the following page).

Teamlet Vignettes

Post-visit, first-language discussions between patients and teamlet health workers can reveal telling information crucial to help the patient set effective self-management goals. Follow-up contact can help the patient meet those goals. Some examples are:

- A patient with diabetes for ten years and an HbA1c of 13 did not know that glucose is the same thing as sugar and had little understanding of behaviors that would improve glycemic control. The patient was not yet ready to reduce his caloric intake. So, the health worker and patient agreed on an action plan that the patient would count the number of tortillas and pieces of bread he ate each day, and write it down.
- A patient with diabetes smoked ten cigarettes per day. The action plan was to cut down to seven cigarettes per day. On the follow-up phone call, the patient had been unable to reduce the number of cigarettes, but two months later at a repeat visit, the patient pledged to stop smoking. On a follow-up phone call, the patient had stopped.
- A health worker discovered that a patient with a cholesterol level of 317 was part of a family that owned a bakery; she ate unsold pastries every day. Her action plan was to stop eating pastries; in a follow-up phone call the patient proudly reported that she had stopped. Several weeks later her cholesterol had dropped substantially.
- A patient on several medications admitted to the health worker that she often does not take her medications; she was too embarrassed to tell her doctor.
- A patient with impaired fasting glucose (pre-diabetes) admitted to the health worker something the patient had not told the physician—that he drank 12 Cokes a day. An initial action plan was made to reduce the Cokes to six per day and later they were cut to three.

The small pilot project has shown that health workers can be trained in a short period of time to engage in post-visit discussions with patients and can uncover important information that clinicians—who may have seen the patient multiple times—have not found out. Health workers have their greatest success negotiating behavior-change action plans with patients. Follow-up phone calls are crucial to check up on patients' progress in carrying out their action plans and to encourage patients to continue healthy choices. Patients failing to make behavior changes after one health worker discussion may begin to initiate healthy choices over time. Moreover, patients involved in teamlet encounters begin to trust both their clinician and their health worker. Language and cultural concordance between health worker and patient is the key to success in the teamlet project. Teamlet pilots are not difficult to initiate and can begin easily and inexpensively to address the inadequacies of the 15-minute clinician visit in primary care.

6. Santa Clara Valley Health and Hospital System:
A Planned Care Center for Chronic Conditions Supports Primary Care

KEY ELEMENTS

Type of practice
separate chronic care center to support large county health facilities; staff of eight care managers (pharmacists, RNs, and dietitian); MD available for consultation

Locations
four sites, Santa Clara County, CA

Patient population
9,000 active patients; 350–450 new referrals per month; high percentage of non-English as their first language; high percentage of Medicaid-insured and uninsured

Team care innovations
non-MD staffed referral center for chronic care management

The widely accepted chronic care model calls for a redesigning of primary care for patients with chronic conditions,[3] arguing persuasively that planned chronic care visits are needed to improve outcomes. One solution to the failings of traditional primary care is to create a team within primary care practices, or easily accessible to primary care sites, whose sole responsibility is care of patients with chronic conditions. Such a team could offer longer planned visits to provide education, self-management support, monitoring of intermediate outcomes such as HbA1c, LDL-cholesterol, and blood pressure for patients with diabetes, hyperlipidemia, and hypertension, and medication management by protocol. In addition, a chronic care team related to primary care but separated from the daily stream of acute appointments could assess the chronic care management of an entire population of patients by reviewing registry data and reaching out to patients with overdue studies or poorly controlled disease.

The Santa Clara Valley Health and Hospital System is a public, county-run integrated health care system providing care to residents of Santa Clara County, in the region at the southern end of the San Francisco Bay most famous for its Silicon Valley. Through its full-service teaching hospital, multi-specialty outpatient department, and satellite primary care clinics, the Valley system is chiefly used by uninsured patients and those on Medi-Cal. A major innovation created by this health system is the Center for Diabetes and Metabolism, which assists primary care physicians by offering planned visits focused on chronic disease for primary care patients throughout the system.

The Center for Diabetes and Metabolism began in the early 1980s as an anti-coagulation clinic, staffed by RNs and pharmacists. Patients whose warfarin management was performed by the anti-coagulation clinic were 12 times less likely to suffer from complications (chiefly bleeding from excessive warfarin doses or strokes from inadequate doses) than patients managed in traditional primary care. The clinic performs anti-coagulation management for 95 percent of the system's patients on warfarin.

In 1999, under the leadership of general internist Dr. Pat Kearns, the anti-coagulation clinic was expanded to become the Center for

Diabetes and Metabolism. Since 1999, the center has assisted in the management of 14,000 patients with diabetes. With its large Latino population, Santa Clara County recognizes diabetes as a major and growing health problem. The center's diabetes mission was funded by the county's governing board (called "board of supervisors") and has been strongly supported financially by the Valley Health and Hospital System's leadership team and by Santa Clara County's public Medi-Cal managed care plan. If patients with diabetes have fewer emergency department visits and hospital admissions, the Medi-Cal plan saves dollars and the health and hospital system reduces expenditures on the uninsured.

The center began its diabetes work with patient education visits. Yet from the beginning, Dr. Kearns intended that RNs and pharmacists conduct planned visits for patients with diabetes, including managing their medications using protocols for metformin, glyburide/glypizide, glitazones, insulin, aspirin, statins, ACE-inhibitors, and the prevention of hypoglycemia. In order to overcome the resistance of some physicians, Dr. Kearns set up a referral form that allows physicians to choose from a menu of options when referring patients to the center. On the form, primary care physicians can check education only, diabetes management, lipid management, stroke prevention, aspirin use, and/or ACE-inhibitors. The physician's signature on the referral form is viewed as an order that is carried out by the center's care managers. Lab work and prescriptions are written in the name of the primary care physician, who is kept in the loop regarding the care manager's work. The model, then, has the primary care physician/patient relationship at the center, with care managers playing a supporting role. Over time, physicians found that patients referred to the center were achieving lower HbA1c and LDL-cholesterol values, and that the center relieved the physicians of a considerable amount of work. The center has an endocrinologist to provide backup to the RN and pharmacist care managers.

The Center for Diabetes and Metabolism's main site is on the campus of the main hospital and outpatient facility, but not directly within the space occupied by primary care. Three other center sites are within three satellite primary care clinics in the community, one in a predominately Vietnamese neighborhood, another serving mainly Latino patients. The care managers at those sites speak Vietnamese and Spanish, respectively. Overall, the center has eight FTE care managers of whom three are pharmacists, one is a dietitian/certified diabetes educator, and four are RNs. Somewhat separate from the center but utilizing the same planned care model is a pediatric asthma program with two RN care managers. A congestive heart failure care manager is beginning to work with patients who have been hospitalized with the illness, attempting to improve their care and reduce readmissions.

The center receives 350 to 450 new referrals per month. New patients with diabetes are provided with four education modules: the basics of diabetes, how to do home glucose monitoring, how to adjust medications based on home glucose monitoring, and complications of diabetes. Those with HbA1c levels greater than 9.5 generally receive one-on-one visits with a care manager. Those with levels below 9.5 might be entered into a group. After about six months, or when sugar and lipid levels are in reasonable control, the patients return to primary care, but continue to be contacted by the center to make sure that they are getting periodic lab tests and eye exams. The center does not have sufficient staff to continue providing care management for every patient on a permanent basis.

Each care manager sees eight patients per day and does four follow-up phone calls. Visits are 45 minutes, providing sufficient time for patient education in self-management skills and medication management, though 45 minutes is not always sufficient for patients with psychosocial problems or for those starting on insulin. The waiting time for new patients is one to two weeks, far shorter than the many weeks required for a new primary

care appointment. For that reason, about 40 percent of new referrals are patients without a primary care physician, generally sent from the emergency department or urgent care clinic, or following hospital discharge.

Care managers are taught to work with patients in a collaborative manner rather than to tell patients what they should do; the goal is an informed and activated patient who learns the skills to self-manage his/her diabetes. For example, care managers do not consider it sufficient for patients to do home glucose testing as a rote exercise. Patients are asked to call in to report their home glucose values and are then asked, "What are you planning to do about that glucose level?" The informed, activated patient knows the significance of high or low glucose values and how to change medications depending on the blood sugar value.

The Center for Diabetes and Metabolism manages a large diabetes registry containing demographic and clinical data for 14,000 patients, about 9,000 of whom are active with the center. Active means that they are under the care of a care manager, have received diabetes education, or have graduated from care management but continue to be sent reminders if overdue for laboratory studies or eye exams. The center is conducting a pilot program in which two care managers meet regularly with four primary care physicians to go over the cases of those physicians' patients with diabetes and to make plans for patients no longer receiving care management by the center.

Patients with diabetes who have received care at the center have shown definite improvement in disease control and reductions in emergency department and hospital use. A study is under way to compare center patients with patients receiving only usual care.

The Santa Clara model of a planned care center, as part of primary care but separate from the 15-minute physician-visit convention, is an effective way to deliver state-of-the-art chronic care while delegating substantial clinical responsibility from physicians to RN and pharmacist care managers.

7. Cambridge Health Alliance:
Using Multilingual Health Workers for Population Management

KEY ELEMENTS

Type of practice
multisite primary care within integrated health system

Locations
20 primary care sites, northern metro area of Boston, MA

Patient population
80,000 active primary care patients

Team care innovations
chronic care management through planned care teams and population management by trained community residents

Cambridge Health Alliance is an integrated health system that provides care in the northern part of Boston's metropolitan area, mainly Cambridge and Somerville. The system has 20 primary care sites and serves about 80,000 active primary care patients. A key innovation of the Cambridge Health Alliance is the creation of a new personnel category, "planned care site coordinators," trained community residents who implement population management of chronic disease. The alliance has focused much of its improvement work on chronic disease care, which is called "planned care." Different sites implement chronic care management in different ways.

Cambridge Family Health Site

One example of chronic care management comes from the alliance's Cambridge Family Health primary care site. Cambridge Family Health has eight clinicians caring for 8,000 to 10,000 patients. Each of several primary care teams has its own panel and regular personnel including physicians, RNs, and medical assistants. Physician panel sizes range from 800 (with many geriatric patients) to 1800. Most of the time, an MA works with a single clinician.

For the chronic care and prevention aspects of their work, primary care teams are supplemented by additional personnel, making up a planned care team. This team meets regularly to determine which patients need outreach, to review performance reports, and to figure out how the work should get done.

The planned care site coordinator for Cambridge Family Health reviews the registry, which began with data regarding diabetes and asthma but now includes data for all chronic conditions and health maintenance. The registry lists of patients with their process and outcome indicators are called "dashboards." Part of the dashboard work is to determine which patients are past due for health maintenance items such as Pap smears and mammograms and for chronic care studies such as HbA1c, LDL-cholesterol lab work, or eye exams. The planned care team meeting decides who will contact which patients, who would benefit from a planned visit with an RN or dietitian, and which patients need lab work or mammograms.

At planned care team meetings, performance reports from the registry are reviewed to determine in which areas the clinic is not up to par—for example, in ordering urine microalbumins, prescribing steroid inhalers for all patients with persistent asthma, or engaging patients in discussions of behavior-change goals. Concrete plans are made about how to engage patients who tend not to show up for chronic and preventive care management.

Broadway Site

Another Cambridge Health Alliance primary care practice, the Broadway site, has been the pilot clinic for several chronic care initiatives and for implementation of the Epic electronic medical record system. Once-a-week team meetings focus on chronic care, including going through dashboards to determine which patients need what. Goal-setting—engaging patients in making behavior-change action plans—is part of the Quality Allies (New HealthPartnerships) project at Broadway and some other sites. At Broadway, patients fill in a goal-setting questionnaire and then discuss action plans with the clinician. At some sites, medical assistants have goal-setting discussions with patients.

Planned care Site Coordinators

Cambridge Health Alliance has six planned care site coordinators. These are non-clinical team members who reach out to patients with chronic health conditions and to those needing preventive services. Most speak a second language—Spanish, Portuguese, and/or Haitian Creole—commonly spoken by Health Alliance patients. They work with the dashboards, which provide reports on patients with diabetes who are overdue for eye exams or whose HbA1c levels exceed 9. In addition, they facilitate team meetings and provide performance reports. The coordinators are the bridge between the patient and the clinical care team.

Coordinators maintain a "TLC list" of patients who need frequent touches. Each coordinator has 50 to 60 patients on this list; they call the patients, see the patients after their clinician visits, or arrange one-on-one visits. Coordinators check to see if patients understood what happened in the clinician visit, reinforce advice given by the clinician, and make sure that all indicated tasks are being completed. For TLC patients, coordinators at some sites collect blood sugar levels from the patients' home glucose testing and transmit the data to the clinician so that medications can be changed between visits to improve diabetes control. Patients with multiple chronic diagnoses and difficult psychosocial problems may also be followed by RN care managers. Performance data by clinical site are made available to each site, a motivator for improvement. Primary care sites with planned care site coordinators have demonstrated improved performance measures compared with sites lacking these population-focused health workers.

In addition to planned care site coordinators, volunteer health advisers are available to support patients and their clinical care teams. These volunteers speak the four primary languages spoken by alliance patients. The volunteers contact patients, help organize diabetes group visits, lead support groups (in the appropriate primary language) for patients with diabetes and HIV, and assist patients to navigate the system.

The Cambridge Health Alliance has moved from disease-specific registries to a homegrown, Web-based, patient-centered registry, covering all chronic conditions and clinical preventive services. The registry is linked to Epic in such a way that diagnoses, lab values, and other data can be exported from Epic to the registry.

Those sites with one of their own staffers as planned care site coordinator did not require that person to change job description in order to become a coordinator. Alliance leadership felt that a mandatory change in job description breeds resistance and that people not interested in assuming different responsibilities will not do a good job. Staff members at some sites were offered the opportunity to become

coordinators and, generally, those who volunteered have worked out well, after a period of training.

Cambridge Health Alliance has worked with two important national quality improvement projects, Pursuing Perfection and, more recently, Quality Allies, which has 20 sites around the nation focusing on activating the patient to become a better self-manager. The Quality Allies work has stimulated Cambridge Health Alliance to engage patients in behavior-change action plans.

Cambridge Health Alliance occasionally closes clinical sites for meetings or retreats, for example, to discuss improvements in primary care team cohesion or to clarify how the planned care site coordinators will work with the sites.

In developing primary care teams, Cambridge Health Alliance has placed major emphasis on management of chronic illness. The planned care site coordinator, a new category of team member, is wholly dedicated to both population and individual management of chronic conditions. This approach contrasts with that of many primary care organizations that—sometimes unsuccessfully—add chronic care responsibilities on top of other tasks.

8. Kaiser Permanente Northern California:
A Team Role for Panel Management

KEY ELEMENTS

Type of practice
two medical centers within a large regional health system

Locations
several sites in Contra Costa, Solano, and Napa counties of Northern California

Patient population
about 30,000 patients with cardiovascular disease and diabetes

Team care innovations
population management assistant job category for cardiovascular risk management

Kaiser Permanente, with 8.5 million patients, 13,000 physicians, 37 medical centers, and 400 medical offices, operates in nine states and the District of Columbia. The Northern California region's 4,400 physicians provide services to 3.1 million patients at 17 medical centers and numerous medical offices.

Over the past decade, Kaiser Permanente's Northern California region has been a national front-runner in the care of patients with chronic conditions. In 1997–98, Kaiser Permanente Northern California initiated programs in asthma, cardiac conditions, diabetes, heart failure, and hyperlipidemia. In 2000 and 2002, programs were added for complex chronic conditions, chronic pain, and hypertension. The model stratifies the populations of patients with these conditions into Level 1 (fairly good control), Level 2 (poor control), and Level 3 (complex problems with multiple diagnoses). Level 1 patients were managed in primary care, Level 2 patients received planned visits by care managers (frequently RNs, pharmacists, or respiratory therapists), while Level 3 patients received intensive case management by RNs and social workers within the primary care setting. Kaiser Permanente Northern California's 17 medical centers implemented this model in a variety of ways. Over a few years, hospitalization and emergency department visits for some of these conditions dropped, and clinical outcomes impressively improved.[4]

More recently, Kaiser Permanente Northern California adopted an ambitious cardiovascular prevention program named PHASE —Prevent Heart Attacks and Strokes Everyday. PHASE focuses on patients with the following diagnoses: diabetes, coronary heart disease, transient ischemic attack, stroke, abdominal aortic aneurysm, peripheral arterial disease, and chronic kidney disease. The strategy utilized is panel management, not only of individual patients but also of each physician's entire panel of patients with these seven diagnoses.

While Kaiser Permanente chronic conditions programs have shown great success, two problems have surfaced: First, since only about 10 percent of chronic patients received Level 2 care manager services, most patients with chronic illness depended on primary care for their management, but primary care physicians could

not always provide optimal chronic care within the traditional 15-minute visit. Second, care managers were expensive, with savings from reduced hospital and emergency department utilization in the 15-minute visit barely paying for the program.

Richmond

The Kaiser Permanente medical center in Richmond—a San Francisco Bay Area community with a large proportion of low-income residents—was lagging behind other medical centers in its chronic illness performance. The physicians are well-trained and well-intended but needed help, and that help had to come from outside the bounds of the 15-minute visit.

Dr. Alan Whippy is a physician leader at Richmond. She worked with a quality improvement team that pioneered the concept of the "population management assistant" to assist Richmond's physicians in managing patients with cardiovascular risk factors including diabetes. The population management assistant was an entirely new category of personnel, a person whose sole responsibility was to assist primary care providers in the management of their entire population of these patients. In their focus on populations of patients, the assistants have functions similar to those of planned care site coordinators at Cambridge Health Alliance (see case study 7).

In Dr. Whippy's words, "In every practice there is an MA with whom all the doctors want to work. There's always a star. We sought out the star and made her the first PMA, not only to pilot the calls to patients but to serve on the committee that redesigned the work. She told us what worked and what didn't."

At the start of Richmond's population management assistant program, 15-minute slots were periodically cleared from each physician's appointment schedule. During that cleared time, the physician would meet with the assistant and go over the "panel management tools" for 10 patients. These tools are printouts with the patient's lab values, blood pressure, and medications on the first page and a list of treatment options on the second page: lab orders, scheduling a phone or office visit, asking the patient to take a new medication, confirming that the patient should continue an existing medication, coming in for a blood pressure check with a medical assistant, and the date for the next tool-based review. The physician checks off what the assistant should do and the assistant carries out these tasks, including calling patients and entering into the computer system when the next review should take place.

As the kinks in this program were sorted out, the Richmond site posted additional population management assistant positions as a new category of employee. Skills required were MA-level medical competence, some computer abilities, and communication skills with patients and physicians. It turned out that the new assistants hired were all Richmond MAs. The first assistant trained the new ones. The program was initially supported by an innovation fund and ultimately by shifting resources from other programs. Richmond currently has about five population management assistants for 30 primary care clinicians—each works with a group of about six doctors. In addition to handling diabetes patients and those with cardiovascular risk in the PHASE program, the assistants make sure that patients receive mammograms and other preventive services. Professional care managers continue to see patients in very poor control, particularly those starting insulin or those with language barriers.

The assistant's sole responsibility—unencumbered by daily MA tasks—is to work on the tools of all relevant patients, talking with physicians, calling patients, and making sure that no patient falls through the cracks. This system allowed more than 13,000 such reviews to take place outside the physician visit in the first two years, and most diabetes patients get a comprehensive review of care several times a year. Since the PMAs call patients as representatives of the physician—"Hi, this is Monica calling from Dr. Smith's office. He asked

me to give you a call about your diabetes"—the physician-patient relationship is reinforced.

Over time, the assistants have required fewer meetings with the physicians; they have recently begun ordering overdue labs by protocol before the tools come up for review, thereby allowing physicians to make more timely medication adjustments. As Kaiser Permanente Northern California moves into adoption of the Epic electronic medical record, much of this work will be done electronically rather than with paper tools.

As a result of the population management assistant innovation, the Richmond medical center moved quickly from having some of the poorest performance measures in the Northern California region to strong performance. More PHASE patients are on all the right medicines at Richmond than in any other Kaiser Permanente facility in Northern California. The new system allows every patient at risk to receive a focused comprehensive review several times a year, greatly leverages physician time, and costs much less than traditional care management methods. All Northern California medical centers have adopted versions of the Richmond program, as have other Kaiser Permanente regions.

Napa-Solano

Kaiser Permanente's Napa-Solano medical center—at its four sites in the northeastern portion of the San Francisco Bay Area—has implemented PHASE panel management somewhat differently than has the Richmond medical center. Napa-Solano's care management team includes a chronic conditions management project manager, ten care managers (nurses, dietitians, and pharmacists, all of whom are certified diabetes educators), and four program assistants who support the care managers.

The Napa-Solano program assistants do not work directly with the primary care physicians as the Richmond population management assistants do, but support the care managers both by performing panel management tasks and by assisting with the many group education sessions led by the care managers. The project manager of the care management team performs the key function of creating the panel management tools. She divides Napa-Solano's 23,000 PHASE patients into several categories and creates a panel management tool (list) for each category for each physician. For the 12,000 patients with diabetes, the categories include (1) patients with HbA1c below 7 who need only reminders to get periodic lab work, (2) patients with HbA1c between 7 and 9 who have not received maximal oral medication therapy, (3) patients with HbA1c between 7 and 9 who have received maximal oral therapy and require insulin, and (4) patients with HbA1c greater than 9 who require intensive care management.

PHASE patients without diabetes mainly require treatment of blood pressure and cholesterol. Physicians are provided with lists of non-diabetes PHASE patients whose LDL-cholesterol is above 100. The physicians use this list to adjust patients' medication doses or to initiate lipid-lowering medications. Physicians can use any of the generated lists to follow their patients' blood pressures, with medical assistants helping them to contact patients by phone or mail to inform them of changes in medications. Algorithms are provided to physicians for medication management of HbA1c, LDL-cholesterol, and blood pressure.

For category 1, the program assistants create letters reminding patients to get their regular lab tests. For category 2, each physician goes through the list, makes oral medication increases based on protocol, with MAs informing the patients by phone. For category 3, the physician calls the patients advising them of the importance of starting insulin. The patients learn how to use insulin in a group education session run by a care manager. Category 4 patients are referred to care managers. In this way, a large number of patients can receive optimal management with relatively few physician visits.

Napa-Solano, along with all Kaiser Permanente Northern California medical centers, will be using this system to meet the region's 2007 targets: 75 percent of patients of all ages with hypertension with blood pressure below 140/80, 50 percent of all diabetics with blood pressure less than 130/80, 56 percent of PHASE patients with LDL-cholesterol levels below 100, 47 percent of patients with diabetes with HbA1c levels below 7, and 83 percent of patients with diabetes with HbA1c levels below 9.

Conclusion

The experience of Kaiser Permanente teaches that panel management is a critical primary care function. Many primary care practices do not recognize the panel management function as an important part of their responsibility. Panel management requires a team of designated personnel and complex systems that risk-stratify the patient population and create appropriate protocols to reach the patients in each risk stratum with the least possible use of physician time.

9. St. Peter Family Medicine Residency Program:
Training Medical Assistants as Diabetes Care Managers

KEY ELEMENTS

Type of practice
university-affiliated hospital-based family medicine clinic with resident training

Location
single site, Olympia, WA

Patient population
50 percent Medicaid insured;
10 percent Medicare insured;
10 percent uninsured;
30 percent privately insured

Team care innovations
multi-level teams with enhanced role for MAs, and mini-group visits, both for diabetes care

The family medicine residency program at Providence St. Peter Hospital in Olympia, Washington has spawned two major innovations in primary care team functioning: the use of well-trained medical assistants as diabetes care managers and the "mini-group visit." The accomplishments of this remarkable primary care teaching practice result from the leadership of Devin Sawyer, M.D., Shari Gioimo, M.A., and Jan Wolfram, R.N., CDE.

The St. Peter Family Medicine residency program is affiliated with the University of Washington and emphasizes physician training for small town and rural practice, with special attention to poor and vulnerable populations. In 2003, the program joined the "Advancing Diabetes Self Management" initiative of the Robert Wood Johnson Foundation. The Advancing Diabetes Self Management project at St. Peter centered on expanding the training of the provider–medical assistant teamlet and engaging patients in their care. More recently, St. Peter joined the national Quality Allies program, in which Dr. Sawyer and Ms. Gioimo are faculty members.

Clinic Organization

Scheduling of clinicians in primary care teaching clinics is enough to drive crazy even the most experienced clinic manager, as residents move between inpatient, emergency department, labor and delivery, and clinic rotations while faculty members are balancing their clinical, teaching, and, at times, research duties. First-year residents tend to be in the clinic only once a week, while second- and third-year residents have more clinic time.

The St. Peter clinic addresses, if not solves, this problem by making use of team care. The clinic is divided into three teams, each of which includes a business service representative (receptionist), four MAs, one RN (who also serves as the team's manager), one nurse practitioner, two family practice faculty members, and six residents (two from each of the three years of the residency program). The faculty and resident physicians work in the clinic only part of the time. Within each team are teamlets composed of one MA working with three clinicians (most of whom work part time). On any given day, a 1:1 ratio between MA and clinician is likely.

To allow MAs to act as diabetes care managers, the clinic leadership determined that having separate one-MA/one-clinician dyads was not workable. Rather, two MAs work with two clinicians, allowing one MA to perform standard duties of rooming patients and organizing patient flow while the other MA conducts planned chronic care visits with patients. Within this work arrangement, the clinic management tries hard to have the same people always working on each team, so that patients begin to identify their care with the team rather than only with their physician (who is usually not present during the planned visits).

The RN on each team triages patient phone calls and drop-ins, does telephone advice, may see patients for uncomplicated problems, and handles warfarin management for patients on anti-coagulation. RNs do not do planned visits for patients with chronic illness; that responsibility belongs to the MAs.

Medical Assistant Training

With the advent of the Advancing Diabetes Self Management program, Dr. Sawyer had to face the problem that St. Peter residents' complex and varying schedules meant that they did not spend a great deal of time in the clinic; moreover, the clinic had only three RNs. By far the greatest number of caregivers available to assist patients in self-managing their diabetes came from the MAs. So, Dr. Sawyer, working with Ms. Wolfram, set about to train the MAs to become diabetes care managers. One MA, Ms. Gioimo, became a key leader in this practice transformation. Even though some MAs were more enthusiastic about the job description change than others were, the diabetes work became the responsibility of all MAs. The ultimate goal is for MAs to move beyond diabetes work to become care managers for all patients with chronic conditions.

Many clinicians do not trust MAs to engage in the clinical care of patients, but view MAs as scantily trained nonprofessionals who are limited to concrete tasks such as checking patients' blood sugars, performing EKGs, drawing blood, and informing pharmacies about medication refills approved by the clinician. In fact, the only difference between the traditional MA and the diabetes care manager MA—who is engaged in the clinical care of patients—is training. At St. Peter, Wolfram assumed responsibility for creating the training curriculum in diabetes and leading the training. The total amount of time spent in training an MA to become a diabetes care manager is about 40 hours.

The MA diabetes curriculum has three parts:

1. Eight hours of basic orientation to diabetes. In essence, MAs learn what patients with diabetes learn. This basic curriculum includes pathophysiology, complications, treatment, practice guidelines, behavior-change goal setting with action plans, use of the registry, engaging patients on the telephone, conducting a planned visit, and organizing a group visit.
2. On-the-job training, in which Gioimo and other well-trained MAs mentor newer MAs. This training emphasizes use of the diabetes registry, conducting planned diabetes visits, and arranging mini-group visits.
3. Once-a-year, four-hour update sessions involving role plays that instruct how to support willingly activated patients and how to engage more challenging passive patients. The training emphasizes the limits as well as the possibilities of self-management support to help the MAs recognize when to suggest an action plan versus when to back off.

Medical Assistants as Diabetes Care Managers

St. Peter has constructed diabetes care as a self-management goal cycle which, using physician-generated standard orders, transfers important aspects of diabetes care from the clinician to the MA. Prior to a scheduled visit with the clinician, the MA goes through the diabetes registry, determines which studies or tasks are overdue, orders those studies (using standing orders), and asks the patient

MAs Mentor Resident Physicians

By the time they have completed their training and have worked in the St. Peter Family Medicine clinic for several months, some MAs know more about diabetes care than the residents in the family medicine training program do. Experienced MAs such as Shari Gioimo teach the physicians-in-training how to do planned visits and other aspects of diabetes care. The lesson is clear: It does not matter what educational degree a caregiver possesses; what matters is what training the caregiver has received.

Because their diabetes training emphasizes a collaborative approach (caregiver and patient jointly agree on how the patient will manage a chronic condition), in contrast with the traditional directive approach (physician tells the patient what to do), the MAs possess caregiver skills that go beyond diabetes. Thus, MAs can participate in clinical visits with first-year residents and model to the residents how they interact with patients.

to come for a planned visit. Because few patients want to make a separate trip for a planned visit, St. Peter ties the MA-planned visit to the blood draw for laboratory tests.

At the planned visit, the MA again makes sure all recommended studies have been done, reinforces patient education, engages the patient in goal setting, and for smokers, discusses ways to help them quit. MAs do not make medication changes, though they may inform the clinician if a patient is not taking a prescribed medication (since many patients are reluctant to provide that information to the clinician). Self-management goals—such as agreeing to take medication regularly—and action plans are entered into the electronic medical record. The clinician visit takes place after the lab tests are back, perhaps a week after the lab draw/planned visit. Approximately two weeks after the clinician visit, the MA calls the patient to offer support, check on the progress of action plans, and address any barriers the patient is encountering. This cycle is repeated every three to four months.

Expanding these planned visits beyond diabetes care is in the planning stage at St. Peter. Possible areas include HIV and depression, as well as having the MA conduct a pre-physical exam planned visit in which the MA performs many preventive care tasks, thereby giving the clinician more time for talking with the patient and building a meaningful patient-clinician relationship.

Mini-Group Visits

As part of Advancing Diabetes Self Management, St. Peter Family Medicine organized large group visits—up to 20 participants—for patients with diabetes. But the program concluded that the administrative effort required to organize the group visits was excessive and that patients did not always attend. In response, Dr. Sawyer came up with a novel idea: the mini-group visit. Rather than seeing two or three patients with diabetes in separate 20-minute physician visits, he sees two or three patients with diabetes together. A two-patient mini-group visit is scheduled for 40 minutes, a three-patient group for an hour. The scheduling and preparation work for these mini-group visits is minimal; patients need to agree to be seen together with one or two other patients. If, after the initial meeting, the patients are comfortable with one another, the same mini-group may continue to see Dr. Sawyer together. If the patients are not compatible, the groupings are changed. Mini-group visits take place about a week following an MA-planned visit. Depending on what took place in the MA-planned visit, the mini-group visit with the physician may be spent in medication management, patient education, goal setting/problem solving, and allowing patients to set the agenda and talk with Dr. Sawyer and with one another about their concerns (which may not be directly related to diabetes). More recently, family medicine residents have begun to engage in mini-group visits.

Conclusion

A visit to the family medicine residency program at Providence St. Peter Hospital makes one feel that innovation in primary care is so easy and logical, one just has to do it, and things get better for patients, physicians, and staff. Naturally, it isn't that easy. Dedicated leadership, talented individuals, trial and adjustment, and hard work have brought the St. Peter Family Medicine program to where it is now, and the work is continuing.

In primary care, whether a small private office, a community clinic, a hospital outpatient department, or a large group practice, medical assistants are ubiquitous. But so often, professionals and administrators discount the potential of these caregivers to become the engine of improvement in primary care. The work of St. Peter Family Medicine clearly affirms the idea that medical assistants, as key players in the primary care team, should be part of the solution to primary care's dilemmas.

10. Palo Alto Medical Foundation:
Optimal Utilization of the RN in Primary Care

KEY ELEMENTS

Type of practice
private multi-specialty physician group

Locations
15 sites, San Francisco Bay Area

Team care innovations
team nursing pilot project with expanded RN role

Palo Alto Medical Foundation is a not-for-profit multi-specialty group in the San Francisco Bay Area with more than 600 physicians in 15 locations. The organization was created in 1930 as one of the first multi-specialty medical groups in the nation. In 1993, PAMF affiliated with Sutter Health, a health care network operating throughout Northern California. The foundation contracts with most insurance plans in the region and provides more than 1.7 million patient visits per year.

Palo Alto Medical Foundation's family practice department, along with many primary care practices employing RNs, has been debating how best to utilize the RNs' highly developed clinical skills. Fifteen years ago, an RN was teamed with a physician; the RN roomed patients and assisted the physician in a variety of ways. When that model became too expensive, MAs took over the rooming function and RNs spent considerable time performing triage—deciding which patients calling for appointments needed to be seen the same day, and which could wait. When the foundation adopted advanced-access scheduling in 2002, allowing all patients to be seen on the day they call, the triage function became less important. Thereafter, a number of RNs shifted their function to that of telephone advice nurse.

Over the past two years, the foundation has been experimenting with several models of primary care team development. One of these models—the team nursing pilot project—is taking place in the family practice department at the medical group's main campus in Palo Alto.

The RN Role in the Team Nursing Pilot Project

An important innovation of the family practice team nursing pilot project is a different role for the RN in the primary care team. Rather than assigning the RN to a telephone advice pool, in which any RN may handle phone calls from any patient, the team nursing pilot project gives an RN responsibility for assisting with the care of a distinct panel of patients. By doing so, the nursing team fosters continuity of care not only with the physician but also with the RN. Over time, the RN comes to know many of the patients she shares responsibility for, allowing her to do a better, more efficient, and more satisfying job.

The single RN on the family practice department's team nursing pilot project has been at Palo Alto Medical Foundation for six years. At first, part of her job was similar to that of a medical assistant, rooming patients for a physician; she also did advice calls when she had time. She did not always work with the same physicians; before the pilot project, there was little concept of a stable team. Later, a stable MD/MA team evolved, and most RNs spent their time doing phone triage (prior to advanced access) or phone advice.

Because she was working with the family practice physicians who initiated the team nursing pilot project, this RN's work changed dramatically. She is now a crucial player assisting with the care of the patients of the four physicians on the project team. She attempts to handle as many clinical issues as possible by herself, consulting the physician only if necessary. Unlike RNs in a general advice pool who must respond to any patient of a primary care practice, she does not have an endless stream of calls to handle because she is responsible only for the patients of four physicians. She can spend more time with those patients with multiple needs, thereby avoiding unnecessary physician or emergency department visits. She also supervises and mentors the MAs who work on the pilot project team.

Team Nursing Pilot Project Trying Expanded MA Roles

The team nursing pilot project is also experimenting with an expanded MA role in the rooming process pre-visit, and is having MAs review post–visit summaries with patients. In addition, the project is trying out having RNs or MAs doing medication reconciliation with patients over the phone prior to patient visits. Like the RN in the nursing pilot project, MAs are being teamed up with particular physicians, allowing them to bond with that physician's patients, adding to the continuity of care, which is a major goal of the team nursing pilot project.

There is no typical day for the team nursing pilot RN—each day's activities depend on the needs of the four physicians' patients. Among her regular tasks are:

- Fielding electronic messages on the Epic medical records system from all four physicians asking her, for example, to call a patient about an abnormal lab test or to check on how a patient is doing with a new medication;
- Receiving messages from MAs to return calls from concerned patients of the four physicians;
- Doing a clinical assessment of a walk-in patient;
- Providing self-management education for a patient with a chronic condition;
- Exercising her responsibility for population-based care, for example, checking the diabetes and anti-coagulation registries for the patients of the four physicians and reaching out to those overdue for laboratory studies;
- Adjusting warfarin doses according to protocol for patients who do not attend the anti-coagulation clinic.

The nursing pilot project RN likes the new structure of her job because it has allowed her to come to know many of the patients on the team panel, and these patients have come to trust her. In contrast with the eight RNs in the family practice department's advice nurse pool, who often handle calls from patients they do not know, she can develop meaningful relationships with many patients and has the autonomy to help patients with more complicated issues solve the clinical and social problems they face.

Team Nursing Pilot Project Response to Epic-Generated Physician Work

Implementation of the Epic computerized record and messaging system at Palo Alto Medical Foundation, as in other primary care practices, has created sea changes in team functioning. On one hand, electronic messaging is an efficient communication tool among team members and between patients and the team, and keeps an electronic trail that makes each team member accountable for his or her tasks. On the other hand, Epic tends to push work back to the physician. Whereas pre-Epic, physicians could scribble "OK" on a pharmacy fax so the MA could refill a prescription, physicians using Epic have to perform this function with multiple mouse clicks. In addition, all laboratory and X-ray results enter the physician's Epic in-basket.

One team nursing pilot project innovation, consistent with its general goal of keeping tasks away from the physician, is setting up rules for the flow of Epic messages. Prescription refill protocols have been developed that allow RNs to handle many prescription refills without needing to consult the physician.

Time Studies

Over the past few years, two RNs at the foundation have been conducting detailed observations on how physicians and RNs spend their time. These studies have uncovered important inefficiencies and have proven invaluable in addressing the central challenge of primary care team-building: Who does what? In several departments, both primary care and specialty, MDs and RNs have been observed for close to 250 hours. Using a template with a menu of tasks a physician or nurse may be performing, the RN observers follow their subject for four to eight hours, documenting how long each activity takes. For example, their observation logs might list "room setup–345 seconds," "check voice mail–135 seconds," "huddle with MD–20 seconds," or "patient call–220 seconds plus 50 seconds writing Epic message to physician about the call."

The observations are bundled into larger categories, creating a pie chart of how each person spends his/her day. In the case of one RN, 25 percent of the time was spent in patient contacts by phone, 32 percent in patient contacts in the office, 18 percent messaging or documenting on Epic, 16 percent doing office work, 8 percent in huddles, and 1 percent supervising MAs. The observations are then divided into work the RN should be doing versus work the RN is doing but an MA could do. In two cases, 46 percent and 40 percent of the RN's time was spent performing functions that an MA could perform. For many physicians, 20 percent of their time (more than 1½ hours per day) was spent doing work that someone else could do.

In the team nursing pilot project, job descriptions were changed based on the time studies. For example, patient phone calls previously answered by the advice pool nurses are now answered by MAs, who forward the calls to the advice pool only if the call has clinical content. Most dramatically, on repeat observation the RN who had been spending 46 percent of her time doing MA-level work was now doing MA work only 8 percent of the time and RN-level work 92 percent of her day.

The RN time studies produced another profound, though not unexpected, finding: An RN working on a small team who knows a patient can provide much faster direct assistance to that patient compared with an RN who does not know the patient. In the family practice department, RNs in the nurse advice pool spend longer advising patients than the nursing pilot project RN, who often knows the patient. Moreover, the advice-pool RNs, because they are limited by protocol requirements, need to send messages to physicians more often than does the nursing pilot project RN who is given more leeway to use her judgment. When advice-pool RNs send a message to a physician, the physician in turn is required to send a message back to the RN, who then calls the patient back. A different study of RN advice pool nurses concluded that the "generic" advice nurses were having patients come in more often than

necessary, as judged by retrospective chart review and feedback from the physicians. The enormous value of continuity of care from one RN turns out to be an important lesson.

Lessons

Palo Alto Medical Foundation's team nursing pilot project is pioneering a continuity-of-care role for the RN that is distinct from that of the advice-nurse pool utilized by many large primary care practices. The RN who is familiar with a patient can do much more, much more quickly, than the advice pool RN who does not know the patient. The foundation has also demonstrated the great value of time studies—observing precisely what different team members do each day and changing team roles so that all team members are doing work corresponding to their level of training and expertise.

11. Harvard Vanguard Medical Associates:
Innovations in Team-Building and Chronic Care

KEY ELEMENTS

Type of practice
private multi-specialty group

Locations
14 sites, Boston area, MA

Patient population
300,000 patients

Team care innovations
"Toyota model" primary care team (one site); planned chronic care visits led by APCs

Harvard Vanguard Medical Associates is a large multi-specialty group practice in the Boston metropolitan area. The organization's origins date to 1969, when Harvard Community Health Plan, a staff-model health maintenance organization, was founded. In 1994, Harvard Community Health Plan merged with Pilgrim Health Care to become Harvard Pilgrim Health Plan, a mixed staff-model and independent-practice-association–model HMO. In 1997, the staff model group practice left the health plan to become a separate group practice, Harvard Vanguard Medical Associates. It cares for 300,000 patients.

During the late 1990s, Harvard Pilgrim and Harvard Vanguard experienced difficult financial challenges and Harvard Vanguard was unable to sustain some of the innovations, particularly in the area of chronic disease, that it had pioneered. Over the past three years, Harvard Vanguard Medical Associates—whose performance on patient satisfaction and chronic disease measures needed improvement—entered into a new era of innovation, including a focus on primary care teams.

Harvard Vanguard has particular lessons to teach about primary care team formation. One lesson involves the analysis of patient panels and the management of chronic conditions. Another concerns the use of nurse practitioners and physician assistants in the primary care process. A third derives from an unusual effort at team building.

Improving Chronic Care

In 2003, Harvard Vanguard initiated a campaign to improve preventive and chronic care. It began by dividing patients into four categories and setting up four work groups to discuss care for patients in each category. One work group was for healthy people who needed advice on improving their health-related behaviors such as diet, physical activity, and smoking. Another work group was responsible for people with chronic conditions. A third work group made plans for patients with multiple comorbidities. A final work group considered care for people at the end of life. This campaign was developed utilizing a top-down model in order to achieve results quickly.

Harvard Vanguard scoured medical literature on ways to improve preventive and chronic care and condensed these ideas into what seemed the most reasonable approaches, conducted pilot projects at three sites, then rolled the projects out to all 14 sites. The essence of the improvements boiled down to two concepts, both components of the chronic care model: population-based care with registries and planned visits.

Population-based care. Each physician has a registry (dashboard) of his/her patients with diabetes; the dashboard eventually will include other chronic conditions and preventive services. The dashboard lists patient demographic data, co-morbidities (complications and smoking status), core monitoring values (HbA1c, LDL-cholesterol, blood pressure, and body mass index), and medications. Each primary care team—including physicians, advanced practice clinicians (APCs—physician assistants and nurse practitioners), RNs, MAs, and receptionists—decides who is responsible to work the dashboard, i.e., to make sure that each patient has received all recommended studies in a timely fashion and to offer planned visits to those in poor clinical control.

Based on dashboard reviews, patients are identified in three groups: those who are missing key monitoring information, those who need improved medication management, and those who, despite proper care, are unable to achieve clinical control. In a typical team, the MA might have the task of notifying patients needing lab studies or eye exams while the APC would handle medication management and provide intensive planned visits. Each quarter, teams review their dashboards, revise the patient stratification, and repeat outreach.

APC-directed planned visits. Planned visits are encounters whose only agenda item is management of the patient's chronic condition(s). At Harvard Vanguard, these visits are provided primarily by advanced practice clinicians for patients with cardiovascular disease, hypertension, hyperlipidemia, diabetes, chronic pulmonary disease, asthma, and depression. The most intensive planned visits last 40 to 60 minutes, involving patient education, motivational interviewing, action plans to encourage healthy behaviors, and medication management. APCs conduct follow-up phone calls to check on the patients at periodic intervals. When the chronic conditions are in better control, the visits continue but with less intensity. Patients are invited to planned visits based on analyzing the dashboards for those in poorest control. About 30 percent of those invited participate in the planned-visit process.

To jump-start its chronic care improvement work, Harvard Vanguard identified its advanced practice clinicians as the most qualified caregivers to lead the campaign. APCs have always played a major role at the group, and while APCs did not formally have their own patient panels, many of them functioned in a manner identical to a panelized physician, with a population of patients who each viewed the APC as their primary care provider. To initiate the planned visits program, a number of APCs were trained as chronic care managers. In particular, the APCs receive substantial training in how to conduct planned visits, attending four one-hour sessions on motivational interviewing, skills to help patients self-manage their chronic conditions, and refresher sessions on medication management. Once the APCs are trained, they are on their own; there is no mentoring of their work with patients.

Much of the APC's time in this program is spent on planned visits for patients with chronic conditions in poor clinical control. This was a change from their previous role, which often involved tasks similar to those performed by physicians. In contrast to APCs, many RNs continued to focus on acute care issues, such as triaging phone calls and performing telephone nursing advice.

By mid-2006, all 14 Harvard Vanguard Medical Associates sites were using the dashboards and 11 were conducting planned visits. As of mid-2006, an average of 25 to 30 patients in each primary

Varied Use of APCs among Practices

Different primary care practices use APCs in dramatically different ways. In some practices and clinics, APCs are nearly indistinguishable from physicians. They see a great variety of patients, including ones who are very sick, and as one observer has noted, "A good advanced practice clinician is a lot better than a lousy doctor." In other practices, patients are triaged so that APCs perform preventive services, less complicated acute care, and routine chronic care; complex cases are channeled to physicians. Another variety of APC utilization allows APCs to specialize within the primary care practice so that one APC may focus on diabetes, for example, another on congestive heart failure, and another on orthopedic problems.

care physician's panel—those with poor disease control—were participating in the planned visit program. Analysis of diabetes data, discussed below, demonstrates that the APCs conducting planned visits are highly effective in improving diabetes control.

HVMA's improved diabetes care performance. Over the past three years, since the initiation of its chronic care program, the group has made substantial improvements in its diabetes performance measures. Based on 90 percent of its population of patients with diabetes (close to 12,000 patients), its positive composite screening scores (a difficult-to-reach process standard) improved from 51 percent in 2004 to 58 percent in 2006; to achieve a positive composite screening score requires that patients receive two HbA1c tests, one LDL-cholesterol, and one blood pressure reading per year. For the (even harder to reach) positive composite intermediate outcome score, Harvard Vanguard went from 13 percent to 17 percent between 2004 and 2006; this score requires patients to have an HbA1c level of less than or equal to 7, LDL cholesterol less than or equal to 100, and systolic blood pressure less than or equal to 130—all three outcomes must be achieved to generate a positive score. Harvard Vanguard prefers to use the far more stringent composite scores as its main performance measure. On individual measures, scores are far higher; for example, the percent of their diabetes patients with a systolic blood pressure less than or equal to 130 is 54 percent, which is considerably higher than the national average.

Isolating those patients who participated in planned chronic disease visits with APCs, positive composite screening scores rose from 57 percent in 2004 to 83 percent in 2006, compared with 58 percent in 2006 for Harvard Vanguard as a whole. The positive composite intermediate outcome scores for patients with APC planned visits increased from 11 percent in 2004 to 20 percent in 2006 compared with 17 percent in 2006 for the group as a whole. These data indicate that the strategy of using dashboards to manage populations has been successful, and that the strategy of using dashboards plus APC chronic care managers has been even more successful.

Forging Cohesive Primary Care Teams

One site, the Kenmore center's internal medicine department, is experimenting with profound changes in the primary care team and its work flow. Kenmore internal medicine has several teams, each consisting of a physician, MA, and secretary. One APC and one RN are shared by three teams. RNs spend much of their time on phone triage and nurse advice, while APCs focus on chronic care planned visits. MAs and medical secretaries perform traditional front-office and back-office functions. Until recently, these teams had not coalesced into cohesive entities.

Team formation at Kenmore began with the chief of internal medicine initiating team-building meetings with all primary care caregivers. The team formation process was based, in part, on the Toyota management approach with its focus on creating value for the customer; respect and support for the employee; and elimination of overburden on individuals and unevenness in work processes. Some observers have oversimplified this model as solely a waste-reduction or variation-reduction model;

however, the Toyota model—as understood by the Kenmore management team—is far more. In this view, the essence of the Toyota method is respectfully seeing employees as quality improvement experts and creative innovators, and engaging front line employees to improve their own work processes.

The team formation process at Kenmore is based on what its chief of internal medicine has termed "operationalizing" respect: engaging and challenging the clinical and nonclinical staff to make the processes of patient care easier to accomplish, for the express purpose of improving the patient care experience and outcomes. The three principles that the management team has utilized in its team formation approach at Kenmore are: (1) Respect. Respect each other and the patients. (2) Support. The management team supports the staff. "What resources and training do you need to achieve the highest level of performance in your job?" (3) Expectations. Set expectations for excellence.

One Harvard Vanguard leader has expressed its team philosophy as follows: "We all are responsible for improving the patient experience, which means demonstrating an improvement in quality metrics and patient satisfaction scores. This is not a responsibility that solely rests on the chief, the management team, or the administrators. Each and every one of us is responsible for assuring the highest delivery of patient care across the continuum of the patient's experience. And, this responsibility extends beyond the boundaries of our siloed functions so that we can ensure seamless, integrated, and synergistic care."

Once these foundational cultural changes of respect for all employees and shared responsibility have been adopted, Toyota tools are helpful because in most workplaces, there is tremendous waste. To reduce waste, Toyota promotes observation, root cause analysis, application of countermeasures to observed problems, and measurement of changes.

At Kenmore, team building began with listening. Teams meet regularly. In one exercise conducted to stimulate listening, understanding, and coordination, team members listen to their colleagues describe their workday in detail. Some teams have continued to utilize this approach while others discuss more concrete events that occurred on a given day. During the workday, team members may ask patients to recount how it feels to receive care at Kenmore's internal medicine department; these stories are then brought into team meetings. Team members are encouraged to talk about what they believe in, how they feel helping their patients, and what challenges come up during the day.

On a parallel track, the department chief facilitates conversations across professional groups to hear ideas on how patient care work can be improved. Groups that have met include RNs, MAs, and APCs. Talking about what each does in a day helps to build understanding and respect for one another's work.

Another significant management change was to introduce systematic observation. The management team, in collaboration with the clinical teams, began to observe actual work flows and engaged team members to observe, deconstruct, and measure their work activities, reflect upon what these observations reveal about underlying problems, collectively generate solutions, and immediately implement them.

As team members began to build trust and respect, share patient experiences with one another, and understand what other team members do each day, the team began to make improvements. Building on this foundation, management created a highly supportive and collaborative environment in which the clinical teams felt empowered and engaged to change the way they worked. Even beyond the improvements that were made, what was remarkable was how clinicians and staff members began to embrace change.

Although it may be too early to realize the full benefits of its team-building approach, the Kenmore internal medicine group has already witnessed some improvements. Over the past year, the group achieved a significant increase in the patient "willingness to recommend their physician" score on the Consumer Assessment of Healthcare Providers and Systems survey—from the 66th percentile to the 92nd. Additionally, the Kenmore internal medicine practice was the only practice within the Harvard Vanguard Medical Associates system to demonstrate an improvement in the three most critical scores of the survey—communication, knowledge of patient, and willingness to recommend. This achievement is underscored by the fact that the Kenmore internal medicine patient population is in the top three within the Harvard Vanguard system in terms of patient disease/morbidity rankings. This increase in patient satisfaction was also achieved with a concomitant increase in physician productivity (encounter rate) of approximately 6 percent.

Conclusion

Harvard Vanguard Medical Associates is going through a major change process. Initially, the changes were primarily top-down, because the organization's leaders felt that they needed to improve performance measures quickly. More recently, improvement in team functioning is coming from the bottom up.

Excessive physician workload remains a challenge at Harvard Vanguard, as in most primary care practices. With APCs focusing on chronic care management, physicians are somewhat freed up to spend more time building interpersonal relationships with their patients. Thus far, the additional demands on physicians for improving their patients' experience of care may be greater than the relief they get from having less responsibility for chronic care. Not only are physicians charged with improving their relationships with patients, but they are also supposed to increase the number of patients seen. On average, an FTE primary care physician (working nine half-day sessions) has 68 to 69 patient visits per week; the organization hopes to increase this to 75 to 76. The average age-adjusted panel size per physician is somewhat over 2000, though panels vary widely in chronic disease prevalence. It may be that the efficiencies and efficacies gained through some of the myriad innovative changes being tested at Harvard Vanguard hold promise not only in leading to improved patient care experience and health outcomes, but also in creating a more manageable and satisfactory physician work environment.

12. Group Health Cooperative of Puget Sound:
New Team Roles in a Computerized Primary Care Environment

KEY ELEMENTS

Type of practice
primary care clinics within private multi-specialty system

Locations
20 sites, western Washington state

Patient population
570,000

Team care innovations
multiple-staff primary care teams with expanded roles for MAs and LPNs; chronic care management utilizing refined computerized data

Group Health Cooperative of Puget Sound is an integrated financing and delivery system in Washington state with two regions, Puget Sound and eastern Washington. Primary care teams in the Puget Sound region are the focus of this study.

Group Health's Puget Sound region has 20 primary care clinics in western Washington. The smallest clinic serves approximately 6,000 patients; the largest about 45,000. Puget Sound region has approximately 800 physicians, a third of whom practice primary care medicine.

During the 1990s, Group Health—the organization at which Ed Wagner was developing the chronic care model—was the nation's standard-bearer for improvements in chronic care. However, Group Health experienced financial difficulties and was unable to sustain many of its chronic care improvements. The years 2002–03 were particularly difficult, forcing Group Health to lay off a number of advanced practice clinicians and some physicians, and to reduce the number of RNs by attrition.

Physician payment, which had been based entirely on salary, took on some productivity and quality incentives. In 1999, Group Health entered into an association with Kaiser Permanente and the Group Health medical staff formed a separate organization, Group Health Permanente. While the Group Health–Kaiser affiliation never developed into a tight bond, Group Health continues as an affiliate of Kaiser Permanente.

In the past two years, Group Health has recovered financially and is again showing itself to be a national leader in chronic care improvement. An essential feature of that improvement is the forging of high-functioning primary care teams.

Primary Care Teams

During the1970s, each Group Health physician was paired with an RN as a support person. RNs would room patients, take vital signs, deal with phone calls, and care for patients with uncomplicated problems without physician input, using protocols. Medical assistants were not used in Group Health during that time.

The RN strike of 1976 caused RN salaries to rise, after which Group Health introduced medical assistants and LPNs. Teams in primary care became two physicians, one to two APCs, one RN, and one MA or LPN for each clinician. In the 1990s, the use of APCs decreased. Patient surveys indicated that though many patients loved their APCs, they wanted access to physicians as more expert clinicians. Moreover, APCs did not do hospital rounds or night calls and were thus considered "less valuable" than physicians were. The ratio of APCs to physicians fell from about 1:2 to 1:5.

By the 1980s, RNs, no longer rooming patients, were either conducting planned visits for patients with chronic problems or handling phone calls and acute illnesses. As Group Health reduced the number of RNs, physicians became comfortable with LPNs, many preferring LPNs to MAs. LPNs, but not MAs, gave injections, and LPNs could do incoming telephone triage.

In the past few years, Group Health has moved to define and standardize the roles of its primary care team members. The typical Group Health primary care team is five physicians, one APC, two RNs, and 7.5 MAs or LPNs. The essential subunit of the team is the 1:1 relationship between the physician and the MA/LPN. Each FTE physician is linked with one MA/LPN and as much as possible, the physician works with that same MA/LPN.

Group Health has separated some primary care functions from the physician and MA/LPN dyad at its primary care sites. In these "core treatment areas," RNs and LPNs provide wound care, intravenous infusions, chemotherapy, immunizations, and other injections. Core treatment areas also handle drop-in patients in order to prevent drop-ins from disorganizing the primary care schedule, as happens in so many primary care practices. RNs assess drop-in patients and treat minor problems such as uncomplicated urinary tract infections or strep throat via protocol without having to consult a physician. Besides anchoring the core treatment areas, RNs in primary care spend much of their time handling calls with clinical content.

The Role of Epic

From 2003 to 2005, Group Health rolled out the Epic electronic medical record system throughout the organization. Overall, people working in primary care at Group Health feel that team functioning would be extremely difficult without Epic, which allows everyone to see all patient information. Thus an RN answering a call from a sick patient can quickly pull up any information needed to respond appropriately; in order to request that an RN, LPN, or MA perform a task (e.g., notify a patient of a lab result, inform a patient to change a medication dose, ask a patient to make an appointment for a diagnostic study or specialist), a physician can quickly send an email via Epic to that person's in-basket. Also, the after-visit summary created by Epic is a great help in reminding patients of what took place during the visit. Communication with patients over Group Health's secure messaging system is often more efficient than use of the telephone.

In order to specify which team members are responsible for which functions, it is necessary to develop policies on what information goes to whose Epic in-basket. Do normal lab results go to the physician, RN, or LPN? Do email messages from patients go to physicians, RNs, LPNs, or MAs? If a physician wants a patient contacted for a particular reason, does he/she send a message to the RN, LPN, or MA in-basket? Without clear policies on who receives which types of messages, the electronic messaging would make for lesser rather than greater efficiency.

A challenge created by Epic involves physician overwork. As one Group Health physician described it, "Epic is a great system but not doctor-friendly. The in-basket adds two hours of work per day. As soon as a message comes in, a red light comes on and there is pressure to deal with it in real time. I get all abnormal labs, all X-rays, all pharmacy requests, prescription refills, and messages about phone calls

from RNs or LPNs. There is the expectation to deal with the in-basket right away. Epic pushes a lot of stuff back to the doctor. The medical assistant doesn't have the clearance to go into parts of Epic." Some doctors report leaving the clinic at six o'clock, having dinner, putting their kids to bed, and then accessing Epic from home to finish documenting the days' patient visits or plowing through the 20 unread in-basket messages. Ordering lab tests and prescriptions, which may require multiple clicks of the mouse, often takes longer than it did with paper records. Because of this tendency for Epic to push more tasks to the physician, Group Health is working to rechannel some of those tasks to other team members.

Communicating with Patients

Group Health has developed procedures for incoming and outgoing messages to and from patients, whether by phone or email. Patients phoning Group Health can decide whether to call the patient care receptionist on the primary care team, or the consulting nurse service that is available 24/7. The consulting nurse, but not the patient care receptionist, can make medical decisions and do triage. If calls to the receptionist have clinical content, they are routed to the Epic in-box of the team's LPN; the LPN consults with the RN only if necessary. For teams with MAs but no LPN, the calls go to the RN's in-box. In general, LPNs use their clinical judgment rather than protocols to handle incoming calls. RNs but not LPNs can prescribe protocol-based treatment for uncomplicated acute problems such as urinary tract infections.

A major task is informing patients about lab and X-ray results. Normal labs can be sent directly to patients by email or to the patient's personal Web page on Group Health's patient portal; physicians do not see normal results unless they choose to. For abnormal labs, physicians send a message with specific instructions to the RN, LPN, or MA to call the patient. For example, for a patient with a slightly low potassium value, the MA or LPN would call the patient to increase the potassium intake (dietary or with pills) and repeat lab work in one week. For more complex or sensitive issues, the call is made by the RN.

Pre-Visit and Post-Visit

With Group Health's emphasis on team development, MA/LPNs typically are responsible for considerably more functions than the traditional MA. During the rooming process, they prepare the visit (making sure that all the information the physician needs is on hand, including from chronic disease registries), take vital signs, queue orders on Epic for overdue preventive and chronic care tests, and use Epic to address medication reconciliation. After the visit, the MA/LPN asks the patient if there are any questions about the after-visit summary that Epic creates during each visit and checks to see if the patient needs help navigating the system (arranging referrals or diagnostic tests). Generally, since Group Health primary care sites have in-house pharmacies, helping the patient navigate the pharmacy system is done by pharmacists rather than by the MA/LPN.

Chronic care Management

Group Health's program for patients with chronic care utilizes population-based care through registries and planned care. Group Health developed its own electronic chronic disease registries some years ago, but it now primarily uses Epic, which has a screen for each patient showing which studies are needed for optimal preventive and chronic care management.

Refining Epic information. In addition, Group Health has developed a "reporting workbench," which some, though not all, teams use to take information from Epic, sort it by disease, and indicate which studies are overdue. This allows practice sites to sort patients by disease, by overdue work, and by laboratory values, thereby identifying which patients need to be contacted to bring quality measures up. MAs are trained to use the workbench to make sure that overdue studies are ordered. Group Health recently hired 12 MAs to utilize population-

based data to contact patients who are overdue for recommended studies and to order those studies.

Planned care visits with RNs. In contrast with Harvard Vanguard Medical Associates (see case study 11), which has put major resources into planned chronic care visits by APCs, Group Health has given major responsibility for planned visits to RNs. Ideally, the two RNs supporting five physicians divide the work, one focusing on phone medical decision making and triage plus helping out with acute problems occurring on the team, the other offering planned visits to patients with chronic conditions, educating patients, and conducting self-management support. In practice, however, the phone and acute care work is so all-consuming that time for planned visits often is not available. As one physician described it, "RNs are so busy with phone calls that there isn't time for planned care." The "tyranny of the urgent," Ed Wagner's characterization of the acute-chronic-preventive 15-minute physician visit, has also come to haunt the primary care team.

Most planned care with RNs that does take place involves patients with diabetes; a number of the RNs know more about the management of diabetes than many physicians. In spite of that expertise, RNs are not authorized to start new medications without consulting the physician, but are allowed to change medication doses (including doses of insulin). A diabetes expert team can be consulted to assist clinicians and RNs. Group Health has not trained many caregivers in self-management support activities or healthy behavior-change counseling. Group Health does offer the Stanford Chronic Disease Self Management Program classes, but many RNs are not specifically trained in behavior-change counseling. All RNs are expected to have competence in both acute and chronic care.

Primary care RNs also work with patients newly discharged from the hospital. The hospital discharge nurse contacts the RN from the patient's team at the time of discharge, and the primary care RN is responsible for calling the patients and following up on discharges.

Building cohesive teams. Building cohesive teams is primarily a function of defining who does what and making sure all team members are well trained to carry out their responsibilities. Group Health believes that teams also need to work on interpersonal issues that can hamper teams from optimal functioning.

Primary care teams generally meet once a week, chiefly to discuss concrete issues generated by Group Health's central leadership or the team's leaders. Group Health has utilized a team-building technique called Courageous Conversations (www.courageousconversations.net). Often focusing on the MD/MA relationship that is central to the primary care process, this program trains team members to speak honestly with each other. In any primary care practice, tensions can develop between physicians and MAs who are so different in their levels of training but who must work together minute to minute, day after day. Also, two Group Health primary care teams participate in the Optimizing Healing in Primary Care Project.

A number of primary care practices around the country have adopted the "huddle" as a communication device within teams. Huddles are short meetings (perhaps 3 to 5 minutes) every morning or afternoon to review the day's schedule and make plans to optimize efficiency and service quality. These huddles have not been institutionalized at Group Health. Instead, quick informational exchanges, for example between physician and MA/LPN about a particular patient, are utilized frequently throughout each day. Group Health leaders feel that these mini-huddles, each of which may last 30 to 60 seconds, are more productive than a scheduled huddle at the start of the day.

Conclusion

Group Health has emerged from years of financial instability and is moving forward rapidly to regain its national prominence as a high-quality, innovative institution. The organization of its primary care practice has become more standardized and team-based, with team members having clearly defined roles based to a considerable degree on the work flow created by Epic. But Group Health is still grappling with a problem that besieges most primary care practices: physician stress. Epic pushed work back to the physician at a time when demands on primary care have intensified. To confront this problem, Group Health is planning some pilot projects that would reduce physicians' patient panels while having non-physician team members play an increased supportive role.

13. HealthPartners Medical Group:
Pre-Visit, Visit, Post-Visit, Between-Visit Care

KEY ELEMENTS

Type of practice
large, private multi-specialty group (50 percent of 580 MDs do primary care)

Locations
23 primary care clinics, Minneapolis/St. Paul metro area, MN

Patient population
420,000 patients

Team care innovations
care model process with expanded RN and MA roles

HealthPartners Medical Group is a large multi-specialty group practice in the Minneapolis/St.Paul metropolitan area of Minnesota. About 60 percent of the medical group's 420,000 patients are members of HealthPartners' insurance plan. The medical group provides about 1.5 million patient visits per year, of which 24 percent are by Medicare and 15 percent by Medicaid patients. The medical group features 23 primary care clinics. One-half of its 580 physicians practice primary care; the rest are specialists.

A HealthPartners Medical Group primary care internist sees an average of 20 to 22 patients per day; family physicians see 22 to 24; and pediatricians see 24 to 26. Without substantial support from the other team members, these numbers would not be sustainable for a quality-focused organization because, on their own, clinicians cannot do all needed acute, chronic, and preventive care for that many patients in one day. Moreover, a recent survey demonstrated that many of the group's physicians were unhappy about the number of clinical hours they were spending. So, delivering high-quality primary care in a manner that always meets patients' needs, but which also enhances physicians' work life, is the central challenge of the medical group's current improvement work.

Improvement Work Begins

Until the mid-1990s, HealthPartners Medical Group was a typical multi-specialty organization in which physician autonomy was the prevailing culture. Physicians were salaried, with no incentives to measure the quality of their care. Some advanced practice clinicians (called advanced practice providers) functioned as primary care providers with patient panels; others would see patients when the patient's regular physician was not available. Registered nurses, licensed practical nurses, and medical assistants had various tasks, depending on what their physicians asked of them. RNs spent much of their time doing phone advice and triage.

The mid-1990s marked the beginning of a series of impressive organization-wide improvement efforts which continues to grow and intensify. The improvement work involves leadership structure, physician reimbursement, advanced-access patient

visits, an electronic record system, and care model process team development.

Leadership structure. While the organization was learning how to improve care for its entire patient population through the example of a focus on diabetes care, leadership development began. Previously, medical directors of clinical sites were not seen as leaders shouldering responsibility for access and quality performance at their sites. One of the first system-wide improvements made during this period of changes at HealthPartners Medical Group was the establishment of a system of dyadic leaders—physician and administrative—for each subregion and each clinical site, with the leadership becoming responsible for that subregion's and site's performance.

Physician reimbursement. In 2000, physician payment changed from salary to reimbursement based on productivity. Later, a quality component was added. These reforms gave physicians the incentive to see more patients and—particularly for primary care physicians—to pay even greater attention to their patient panels' preventive and chronic care measures. However, these changes may also have contributed to pressuring primary care physicians to provide more services to patients while having less time for each patient. This intensification of primary care physicians' work (a national phenomenon not confined to the group) became a problem that—along with improving patients' timely access to appointments and bettering preventive and chronic care performance—required the organization's further attention.

Advanced-access scheduling. In 2000, the leadership of HealthPartners Medical Group initiated the organization's most ambitious reform to date: advanced access in all clinics by January 1, 2001.[5,6] Experts were hired to assist in the transformation, and an internal collaborative process was put in place to teach and inspire site leaders and front-line clinicians to embrace this project. Results were immediate and impressive: After one year, the mean time to obtain an appointment was reduced from 17.8 to 4.2 days. While some physicians resisted the change as a reduction in their scheduling autonomy, the organization has markedly reduced patient wait times and sustained this improvement.[7] In addition, from 1999 to 2001, the period during which advanced access was implemented, continuity of care (patients seeing the same physician for at least 50 percent of their visits) in primary care also improved.[8]

After advanced access had been achieved, 110 interviews were conducted with site leaders and front-line physicians about the process.[9] The most successful clinics had strong leadership that provided training, team building, meetings, and encouragement. Paying physicians by productivity rather than salary was a key facilitator, since physicians who had to work harder to achieve advanced access were remunerated for their work. Clinics with large patient panel sizes per physician, however, had a more difficult time.

Epic electronic records system. During the same years that it introduced advanced access, the group was gearing up to computerize its entire operation. The organization conducted a pilot project on the Epic electronic medical record system in one site as early as 1996, and conducted two more pilots in 2001. In 2003–04, the entire primary care division went digital, adopting the Epic system, which transforms the flow of information in an ambulatory care organization.

While Epic solves a number of problems, it also creates difficulties of its own. Ninety percent of group physicians feel that Epic improves quality, but most report that Epic increases physician work and adds to the length of the work day. In a 2006 internal survey of group physicians, 60 percent self-rated their Epic proficiency as high, with 40 percent rating it low. As far as quality of care performance measures are concerned, patients with diabetes in primary care sites that were early adopters of Epic did not have better HbA1c or LDL-cholesterol levels

than patients in sites that had not yet rolled out Epic.[10]

Care Model Process

With the success of advanced access, medical group leaders turned their attention to the growing national movement to improve the care of chronic illness. The chronic care model was becoming widely accepted, but the model did not clearly prescribe how to implement chronic care improvement. The receipt of a Pursuing Perfection grant gave some impetus to the group's chronic care effort, but the lack of well-functioning primary care teams was a barrier to making the kind of dramatic improvement achieved in advanced access. The medical group's leaders realized that to improve chronic care, they had to fix primary care. The chronic care model calls for a prepared practice team to interact with an informed, activated patient. HealthPartners Medical Group lacked prepared practice teams. So, the organization set about to create such teams.

In 2004, the group initiated an organization-wide care model process campaign. The essence of the care model process is to move from physician care to team care, with team members receiving standardized training and job descriptions that would allow every patient to receive all recommended preventive and chronic care services without loading work onto already stressed primary care physicians. The campaign attempts to have the right person do the right thing at the right time for the right patient, with care delivered in a framework of four linked encounters: pre-visit, visit, post-visit, and between-visit. This formulation is not new in medicine; surgeons have long divided their care into pre-op, surgery, and post-op. For primary care, however, HealthPartners Medical Group's idea represents a significant breakthrough.

The campaign was a pilot project in three clinical sites and was spread to the entire organization in April 2005. Detailed manuals delineated precisely who should do which tasks, everyone was trained, and front-line employees took proficiency exams to ensure that they had mastered their jobs.

Primary Care Teams

Under the care model process, the primary care team consists of clinicians (physicians and advanced practice providers), RNs, medical office assistants (receptionists), and rooming nurses who are mostly LPNs with some MAs. A primary care site with 20,000 patients might have 10 to 12 teams. Each team would generally include one physician FTE (which might be one full-time, two half-time, or a mix of part-time physicians) and one rooming nurse per FTE physician. The great majority of the time, the same rooming nurse works in a teamlet with the same physician(s), thus enhancing the patient's view of the rooming nurse. Each receptionist and each RN works for three teamlets; the number of RNs has dropped in recent years for cost reasons.

The care model process reform entails major changes in job descriptions and in organizational culture. It requires clinicians to trust non-clinician members of their team to take responsibility for specified tasks—for example, ordering laboratory tests and giving immunizations—under protocols, but without a patient-specific clinician order. Non-physician team members are expected to deepen their relationships with patients, attempting to take patient trust in the physician and broaden it to the team.

Team Help from Pharmacists

Several pharmacists rotate among primary care clinical sites and are authorized to manage medications, including changing doses, for such chronic conditions as hypertension, hyperlipidemia, chronic obstructive pulmonary disease, and asthma. Pharmacists also regulate warfarin doses for patients on anti-coagulation regimens, and work with patients taking multiple medications, attempting to rationalize what is sometimes excessive polypharmacy.

Enhanced Role of RNs

With the care model process, RNs manage medication refills based on standing orders, engaging the clinician only if absolutely necessary. Before refilling chronic medications, RNs make sure the patient is up to date on clinician visits and laboratory studies. Also without consulting a clinician, RNs can treat uncomplicated upper respiratory infections, sinusitis, and urinary tract infections using standing orders.

A major part of RN work is triage and advice: determining which patients who contact a HealthPartners Medical Group clinic need to be seen right away and which can be treated or given advice by the RN. Increasingly, nurse advice is by email rather than phone. Nurses also contact patients about abnormal lab tests.

Another major task for which RNs are trained is to manage clinicians' Epic in-basket, which contains emails from patients, from the laboratory and X-ray delivering results, from other clinicians, and from ancillary personnel. RNs handle many of these emails, thereby reducing the huge number of emails that would otherwise be waiting for each clinician; this RN function is crucial in reducing the length of the clinician's workday. Ideally, RNs would also offer planned visits—including patient education and self-management support—for patients with chronic conditions, but they seldom have time for this additional activity.

The Linked-Encounters Framework

The pre-visit, visit, post-visit, between-visit formulation chiefly impacts the work of the rooming nurse (LPN or MA). In formalizing this formulation, HealthPartners Medical Group began by focusing on the details of the pre-visit. (Development of post-visit and between-visit functions are in more preliminary stages.)

Pre-Visit

The group begins pre-visit work a few days prior to the visit. The LPN/MA working with a clinician reviews the patient's health maintenance screen, which highlights which preventive and chronic care services are due or past due; the patient is called and asked to obtain these services (which may be lab tests or mammograms) prior to the visit if the patient so chooses. The LPN/MA sends in the order for the needed services, removing that responsibility from the clinician. If the patient has called for a same-day appointment, these functions are performed during the rooming process.

A Typical RN Day

A typical day for a HealthPartners Medical Group RN starts with logging into the Epic in-basket and listening to voice mail. Then, the RN calls patients back, refills prescriptions, and answers 30 to 40 emails. As the day unfolds, new voice and email messages appear from patients and clinicians. Many emails are lab results, all of which need some action. Some clinicians want to see all lab results; others only want abnormal ones. Normal results are forwarded to MAs who inform patients by mail or email. For abnormal results, clinicians may instruct the RN on what action they want taken. For some patient calls or emails, the RN can arrange to see the patient, or treat the patient by phone or email; uncomplicated upper respiratory and urinary tract infections are examples, with protocols embedded in Epic "smartsets." A seemingly never-ending array of messages takes up the RN's day. But if the RN were not doing this work, clinicians would go home at 11 p.m. or, more likely, the work would not be done and patients would wait.

For prescription refills, RNs use their clinical expertise. For example, if the patient wants a new diuretic prescription, the RN checks to see if potassium has been measured, and if not, she orders it. Or, if the patient is on a chronic medication but has not been seen for a long time, the RN may refill one month's supply with a message that the patient needs to come in before getting more. For statins, the RN checks that the patient has had liver function tests drawn, and for diabetic medications, she makes sure the patient has done all indicated lab work. For patients recently started on insulin, RNs do follow-up calls to check how they are doing.

Making sure that recommended services are performed was traditionally the clinician's responsibility. The care model process reform attempts to take that responsibility from the clinician and transfer it to the LPN/MA. The success of this transfer varies depending on the clinician's trust in his/her LPN/MA. Appointment schedulers at the centralized call center also review health maintenance screens and ask if patients wish to schedule mammograms or other preventive services.

In traditional primary care offices, the MA rooms the patient and provides a few services during that process, generally taking vital signs, perhaps asking the patient the reason for the visit, and obtaining a urinalysis if the patient complains of urinary symptoms. HealthPartners Medical Group's pre-visit, in addition to the pre-visit phone calling, adds to these functions. The LPN/MA again checks Epic's health maintenance screen and orders all needed services prior to the clinician visit. The LPN/MA also gives necessary immunizations during the pre-visit, taking that time-consuming item off the clinician's plate.

Some LPNs are familiar with cholesterol goals for patients with hyperlipidemia and with HbA1c goals for patients with diabetes; depending on the wishes of the clinician working with that LPN, during the pre-visit process the LPN could discuss how the patient is doing in meeting those goals. Rooming nurses can also perform domestic violence screening, depression screening using the PHQ 9 instrument, well-child histories, and pre-operative histories. These assessments are entered into the Epic system so that the clinician can review them during the visit.

An important pre-visit function is medication reconciliation, which is carried out in part by the LPN/MA. This involves finding out what the patient is taking, why the patient may not be taking medications ordered by the clinician (cost; lack of insurance coverage; side effects; patient did not understand the prescription, etc.), and whether the patient is taking medications or herbal remedies from other practitioners. The LPN/MA informs the clinician, using Epic, of medication discrepancies but usually does not advise the patient what to do about them; that function is generally left to the clinician. For patients with multiple medications, this process can be time-consuming; this pre-visit work can save the physician several minutes. In addition, the process improves quality because the medication list on Epic ends up more accurate than before.

Post-Visit

The group is initiating the post-visit component of the care model process reform. As with pre-visit work, the aim is to improve patient outcomes while leveraging work away from clinicians. One large quantity of post-visit work is following up on laboratory and radiology test results, work traditionally done by the physician. Many primary care practices do not inform patients about normal lab results. But in the initial phase of post-visit work under the reform, LPNs communicate all normal results to patients by letter, phone, or through the MyChart Web-based patient portal (based on the patient's preference). Clinicians inform patients of abnormal results or advise the RN or LPN what to tell the patient. For example, the physician may tell the nurse what a patient with low potassium should do; the nurse would inform the patient and, if medication is needed, contact the pharmacy. All patients are supposed to receive all lab results within seven days.

Another potential for post-visit LPN work involves the after-visit summary feature of the Epic system. The after-visit summary, printed out at the end of the visit, lists all the advice the clinician has given during the visit; it is the patient's reminder to make lifestyle and medication changes, and to arrange diagnostic tests and referrals, as decided upon with the clinician during the visit. The medical group is working on how the LPN/MA can best utilize the after-visit summary in the post-visit. In addition, the post-visit is an ideal time for patient education. A challenge to this potential added feature is scheduling pre-visit and post-visit services performed

by the LPN/MA when the ratio of LPN/MA to clinician is 1:1. The LPN/MA would not always have time to perform both pre- and post-visit services without slowing down the rhythm of the day's patient flow. Because of this time pressure, to date the LPN/MA does not discuss the after-visit summary with the patient.

Between-Visit

At some sites, the group has organized between-visit services, mostly making sure that no diabetes patients fall through the cracks in receiving needed services. Each month, MAs go through diabetes registry lists and contact patients, also ordering labs if recommended services are overdue. Physicians are not involved. If this population-oriented process proves effective, it may be expanded to patients with congestive heart failure, coronary heart disease, and other chronic conditions. Between-visit services might also involve RNs calling patients with high PHQ9 scores who were started on antidepressants, to see how they are doing. Warfarin management is also a between-visit issue.

Typically, between-visit functions would be conducted by phone or email. The LPN/MA would call patients to make sure they truly understand the after-visit summary and to check how patients are doing with behavior-change goals. Except for post-hospital discharge services, the medical group has not initiated this follow-up. However, the fact that it is considering implementing between-visit care puts the group ahead of most primary care practices in conceptualizing how teams can improve care while leveraging clinician time.

Transition Care

HealthPartners Medical Group is considering a fifth component to be added to the pre-visit, visit, post-visit, between-visit construct, which is transition care. A huge drop-off in care intensity occurs following most hospital discharges. Unless post-discharge home care is arranged, many patients go from total care in the hospital to self-care at home. This dramatic reduction in intensity of care is responsible for many re-admissions for patients with congestive heart failure, chronic obstructive pulmonary disease, and other chronic conditions. Often, patients discharged from the hospital are unable to obtain a prompt post-hospital primary care visit. Particularly with the advent of hospitalists, primary care clinicians do not place their post-hospital patients on the top of their priority lists.

The medical group recognizes that post-hospital care is a primary care responsibility—making sure that the patients have the strength and activities-of-daily-living capabilities to handle the home environment, understand their diagnosis and the hospital discharge plan, are able to obtain discharge medications and know how to take them, receive needed laboratory tests and have them interpreted promptly, and obtain a prompt primary care appointment or home visit. The medical group initiated an RN-run proactive transition care pilot project for patients with congestive heart failure and reduced re-admissions. The organization is rolling out transition care for all patients hospitalized on medical and surgical services.

The Start of an LPN's Day

Bev, an LPN, works in a teamlet with Dr. S, a primary care internist. Bev had been Epic-trained in the past and received two extra days of training before starting her primary care job. She starts her day by going through the Epic in-basket. Ten new emails had arrived since she left the previous evening. For emails reporting normal labs, Bev prepares a letter to the patient and emails it to Dr. S for approval. With one click, Dr. S. has the letter sent out.

Bev is trained to regulate warfarin doses for patients on anticoagulation. If the blood ratio report in her in-box is normal, she contacts the patient to continue the same dose. If the ratio is high or low, she consults her algorithm and changes the dose without having to check with Dr. S. (Bev does not deal with medication refill emails; they go to an RN.)

Bev checks on Dr. S's upcoming appointments to see who needs a pre-visit phone call. She makes those calls when she has a few minutes available, checking the patients' Epic health maintenance screen and ordering services that are due or past due—cholesterol labs for patients on statin drugs, diabetes labs as indicated, mammograms, etc. If a patient takes a statin, she orders a lipid panel and liver function studies. For a patient coming for a pre-operative check, she enters orders for pre-op labs and EKG. These orders are reviewed by Dr. S, who can send them with one click of the mouse.

Bev reviews Dr. S's schedule for the day. If, for example, a patient is scheduled for pneumonia follow-up and Dr. S is running behind, Bev might ask the patient to get a chest X-ray before seeing the doctor. She does oxygen saturations on all patients with respiratory problems, cleans wounds for patients as needed, does rapid strep tests for patients with sore throats, obtains urinalysis and culture for patients with urinary tract symptoms, and teaches patients with asthma how to use their inhalers. When patients complain of depressive symptoms, she might administer the PHQ 9 depression screen. If domestic violence is a possibility, she might pursue a set of questions to explore that issue. In other words, Bev organizes the day for herself and Dr. S, using her clinical judgment and experience.

When Dr. S's first patient, Mr. J, arrives, she greets him and brings him into the exam room for the pre-visit encounter. She opens Mr. J's Epic chart and takes his vital signs, telling him if his blood pressure and weight have changed since the last visit. If health maintenance services are due and not ordered during the pre-visit phone call, she explains and orders them. If the patient agrees, she also administers any immunizations that are due.

Bev proceeds to medication reconciliation, determining whether Mr. J is actually taking the medications Dr. S has prescribed. It turns out that Mr. J is not taking several medications on his Epic list, and Bev crosses those medications off the list, which allows Dr. S to see the meds not being taken. Mr. J is not sure about one of the meds on the Epic list, and Bev enters into Epic a brief note to Dr. S about this.

At the end of the encounter, Mr. J thanks Bev and tells her that he considers her to be an important part of his health care team, evincing a level of trust in this LPN which might not have been developed prior to the teamlet innovation.

Team Building

How are HealthPartners Medical Group's teams encouraged to adopt the new culture by which non-clinicians have greater responsibility and new job descriptions, and clinicians give up some of their autonomy? In part, team-building is an informal process with team members, including physicians, getting together for lunches, birthdays, and other occasions. In addition, the group has conducted some formal team building exercises in which clinical site leaders are trained in a team-building process and meet with site personnel once a month. These exercises encourage team members to bring into the open conflicts or behaviors that are seen as dysfunctional to the patient-centered goals of the teams. Of course, team building does not work for everyone; inevitably, when job descriptions and responsibilities change, some people are unhappy and leave the organization.

Central to team-building is training. Rooming nurses (LPNs/MAs) need to learn how to interpret health maintenance screens and how to persuade patients over the phone to obtain the recommended services. LPNs/MAs also need to master medication reconciliation. RNs who have not done medication refills need training on this function. Training is also needed on the interpretation of lab results and how to inform patients of these results.

In general, the group uses a "train the trainer" approach; for example, training some LPNs/MAs centrally and having them train all other rooming nurses in their sites. LPNs may train not only other LPNs and MAs but also physicians in new team functions. The medical group has created detailed training materials and proficiency tests to determine individuals' ability to perform new functions reliably. In addition, it has provided training in the overall care model process concept, starting with centralized training of site leaders and a site team, who return to their sites to initiate training for everyone else, though the actual training is not always done by the leaders—peer-to-peer training is encouraged. (Clinicians and RNs receive continuing education credits for time spent in trainings.)

Performance Measures

Over the course of the first years of its team-building care model process, HealthPartners Medical Group has managed to post some impressive performance measure improvements.

According to performance reports, primary care visits for which pre-visit planning was done rose from about 5 percent prior to May 2005 to more than 81 percent in September 2006. During the same period, the percentage of primary care patients with an accurate health maintenance record grew from under 60 percent to 94 percent, and the percentage of primary care patients with all health maintenance needs planned or provided rose from about 35 percent to 50 percent.

The group is using a very strict benchmark (the optimal diabetes care measure) which financially rewards clinics for the number of patients who simultaneously meet all of the following standards:

- HbA1c tested and result less than 7;
- LDL-cholesterol tested and result less than 100;
- Systolic blood pressure below 130;
- Aspirin use for diabetic patients over 40 years of age, and;
- Patients do not smoke.

For patients age 18 to 75 with two or more ambulatory visits in the past 12 months, those who met all five standards went from 10.3 percent to 16.6 percent in the third quarter of 2006. The highest performing primary care clinic reached a level of 27.5 percent, and one physician achieved 42.9 percent.

HealthPartners Medical Group has also created an ambitious benchmark for preventive services, which measures patients according to whether the following age- and gender-appropriate services have

been performed: Chlamydia screening, cholesterol screening, colorectal screening, mammography, and Pap smears. This comprehensive preventive services measure increased slightly during 2005, from 65.8 percent to 67.3 percent. Five physicians achieved levels greater than 90 percent.

Over the past year, the percentage of patients with a new diagnosis of major depression that underwent a PHQ9 assessment grew from 34 percent to 67.8 percent (third quarter 2006). The percentage of adults in primary care with a documented body mass index rose from 42.8 percent to 74.9 percent over the same time. The highest-performing clinic on the body mass index measure achieved 92.1 percent and the highest-performing physician hit 99.7 percent.

Studying the Improvement Process

Not only has HealthPartners Medical Group become a leader in primary care innovation, it has also distinguished itself by studying its own improvement process through the HealthPartners Research Foundation. Some of the foundation studies were conducted solely within medical group sites; others included other organizations as well. This body of research is briefly summarized here.

Advanced access and physician incentives. At HealthPartners Medical Group, two major changes took place in 2000: The method of physician pay went from salary to productivity (amount of physician work measured by work-relative value units), and advanced-access scheduling was introduced. The effect of these two reforms was a 38 percent increase in physician productivity from 1998 to 2002, a 20 percent increase in primary care physician pay, and a 20 percent decline in the total costs (per relative value unit) of running the clinics. Patient satisfaction was unchanged over this period, but quality of care for patients with heart disease, diabetes, and depression improved. Physicians worked more days per year and more hours per day after these changes were made; physician satisfaction varied markedly from one physician to another, some liking the changes and a small number leaving the group.[11]

Diabetes care. From 1995 to the present, the medical group has implemented a series of improvements in the care of patients with diabetes, without the use of outside disease management vendors. The improvements focused on primary care practices and included greater continuity of care, intensification of medication use, use of nurse and dietitian educators providing planned visits, outreach to high-risk patients facilitated by registries, physician training, leadership commitment, and financial incentives to primary care clinics. The results of these changes were significant. Mean HbA1c levels improved from 8.3 in 1994 to 6.9 in 2003. Mean LDL-cholesterol levels dropped from 132 to 97 mg/dL during those years, while referrals to endocrine specialists did not increase.

During 2001–02, performance declined slightly; in those years, resources for planned visits were reduced, registry use waned, and electronic medical records were implemented. In 2002–03, renewed leadership prioritization of diabetes care quality, redesigned registry tracking, improvement in primary care practice teams, and financial incentives for diabetes performance resulted in a further downward trend of HbA1c and LDL-cholesterol.

Some conclusions of this seminal study are:

- Diabetes care can be markedly improved by the internal investment of resources in primary care rather than the siphoning off of funds to outside vendors;
- Continuity of care is significantly related to better diabetes care;
- Clinicians need to overcome clinical inertia by intensifying pharmacotherapy when glucose, cholesterol and blood pressure are not well-controlled;
- If improvements are not aggressively sustained, they will wane;

- Adoption of electronic medical records is not necessarily associated with care improvements, and the energy required to launch the process disrupts routine chronic care services; and
- Financial incentives to physicians can contribute to improvement in diabetes care, (although most of the improvement from 1994 to 2003 took place prior to the institution of financial incentives).[12]

Some primary care interventions are associated with reduced costs of care for patients with diabetes while others are associated with higher costs. Group clinics with regular clinician meetings to discuss patients, and clinics using registries, had lower overall costs of care while interventions focusing on pharmacy use for patients with diabetes and other comorbidities were associated with higher costs.[13]

Chronic care model. A study of 17 primary care sites before adoption of the care model process examined the relationship between adoption of chronic care model components and clinical outcomes for patients with diabetes, coronary heart disease, and depression. Only one chronic care model component—redesigning the delivery system—was associated with improved HbA1c and LDL-cholesterol levels.[14,15]

Continuity of care. Increased continuity of care (the proportion of a patient's visits being with the same physician) was found to be associated with some improvement in the care of patients with depression.[16] Also, a study of patients with chronic conditions found that the adoption of advanced access at the medical group in 2000 improved their continuity of care, increased their proportion of visits made to primary care physicians, and reduced urgent care visits, but did not reduce emergency department visits, hospital admissions, or total costs of care.[17]

A comparison of the group's implementation of advanced access versus its adoption of chronic care improvement found major differences between the two initiatives. For advanced access, the organization provided clear, simple guidelines on how clinics should design the change and agreed on a few simple measures to guide performance. In contrast, chronic care improvement did not have standardized operations for all clinical sites, a defined timeline, or clear lessons from pilot sites. This study was conducted prior to the care model process campaign—with the pre-visit, visit, post-visit, and between-visit care model—in which the organization's leaders have focused the organization on one major change package and have provided clinical sites with a clear change design and resource support.[18]

Conclusion

To fix the broken primary care structure requires substituting alternative modes of clinician-caregiver encounters in place of the long-dominant 15-minute physician visit. HealthPartners Medical Group is a national leader in attacking the 15-minute visit syndrome in at least two major ways: Giving RNs a great deal of autonomy in interacting with patients electronically to provide medical advice, communicate lab test results, refill prescriptions in a clinically responsible manner, and treat uncomplicated conditions; and giving resources to and training teamlets of MA/LPNs with physicians to provide pre-visit, visit, post-visit, and between-visit care as an expansion and improvement over the sole 15-minute physician visit. HealthPartners Medical Group has also recognized that improving chronic care requires fixing primary care.

14. University of Utah Hospitals and Clinics:
Utilizing Medical Assistants Throughout the Patient Encounter

KEY ELEMENTS

Type of practice
university-based health system with both teaching and non-teaching clinical sites

Locations
11 sites (nine teaching and two non-teaching)
Salt Lake City and northern Utah

Team care innovations
care team model (Utah model) with medical assistants performing greatly expanded roles, including assisting clinicians in the patient visit

If one is looking for a profound redesign of primary care, the place to go is Salt Lake City. The University of Utah Hospitals and Clinics health system is creating a fascinating model that fully utilizes the skills of well-trained medical assistants to enhance the patient experience while improving physicians' work life.

In 1998, the University of Utah acquired nine practices from MedPartners, a physician practice management company on the verge of bankruptcy. Seventy-five percent of the revenue of these practices came from capitation contracts. But by 2000, most capitation had given way to fee-for-service, a change for which the system's billing system was unprepared. The practices lost over $21 million in fiscal year 2000.[19] System leaders, including Dr. Michael Magill, chair of the university's department of family and preventive medicine, prepared a business turnaround plan that not only targeted financial matters but also envisioned changes in primary care practice design.

By 2005, the system had become profitable overall, due to improved revenues and increased efficiency in specialty care and pharmacy, laboratory and optical services. Primary care's financial performance was improved but not yet in the black. A 2006 analysis emphasized that increased physician productivity was an important factor in the financial turnaround. Practice redesign based on adequate staff support and patient-centeredness was an important contributor to success.[20]

The primary care system includes nine non-teaching clinics in various neighborhoods and communities of northern Utah plus two teaching sites for family medicine residents and medical students. After getting the business back on track, leadership moved in three phases to redesign its primary care sites. Phase 1 was advanced access (called "appropriate access," giving patients the choice of making appointments in advance or same day). This was successfully implemented in many of its clinical sites. Phase 2 involved transformation of the primary care team. Phase 3, now in its inception, focuses on planned care for patients with chronic conditions. This study focuses on Phase 2.

The Care Team Model

In February 2004, the university opened a new primary care clinic in South Jordan, near Salt Lake City. Rather than creating a traditional practice, leadership, including South Jordan medical director Dr. David Owen, decided to build a patient-centered and physician-efficient practice. Their care team model, now called the "Utah model" by some people outside the state, is being implemented in all University of Utah non-teaching primary care sites and will then be spread to the more-difficult-to-change teaching clinics.

How does the care team model work, in its purest expression at the South Jordan Health Center? The centerpiece is the medical assistant, called in this system the "medical practice assistant." Rather than the usual ratio of one assistant to one physician, the model requires five assistants to two physicians. The clinic has no receptionist, lab technician, or X-ray technician. Medical practice assistants are trained to do everything. When a patient arrives, an assistant greets the patient, brings the patient to the exam room, and performs an extensive pre-visit, which includes the assistant taking the patient's history using a physician-written series of symptom-specific questionnaires (about 120 different questionnaires, for headache, abdominal pain, sore throat, back pain, etc). The assistant enters the history into the Epic electronic medical record, may order health maintenance or chronic condition management studies that are due, performs medication reconciliation for new patients and those with multiple prescriptions, and informs the physician by walkie-talkie that the patient is ready.

The assistant remains in the exam room for the physician visit, assisting the physician. The physician, who has reviewed the MPA's history, asks follow-up questions to deepen the history and proceeds to the physical exam. The physician states the physical findings out loud and the assistant records the exam in Epic, which facilitates ordering diagnostic studies, making referrals, and emailing prescriptions to the pharmacy. The situation uncovered at Harvard Vanguard Medical Associates (see case study 11) —the physician spending 49 percent of the visit time at the computer and only 13 percent talking with the patient—is solved at South Jordan Health Center by having the assistant be responsible for the Epic operations. When the physician is finished diagnosing, treating, and talking with the patient, he/she leaves the room and the assistant completes the Epic chart including billing codes. Physicians finishing their charting late at night after putting the kids to bed—as happens with some physicians at Group Health Cooperative of Puget Sound (see case study 12)—is not a problem under the care team model.

Following the physician visit, the assistant conducts the post-visit, including printing out the after-visit summary. Assistants do not specifically "close the loop"[21]—that is, ask the patient to repeat advice given by the physician to see if the patient understands—for each item on the after-visit summary, but they do ask if the patient understands what the after-visit summary says. The assistant does not yet engage patients in behavior-change goal-setting in the post-visit, but the University of Utah has initiated training of all staff members in behavior-change techniques. The assistant also draws blood for lab work, does EKGs, gives injections, and takes X-rays if indicated. In this model, the assistant—who, except for additional training, is no different from medical assistants in traditional practices—performs functions that other practices might assign to RNs or LPNs/LVNs.

Essentially, the assistant delivers the encounter. From the time a patient enters the clinic to the time he/she leaves, the assistant is with the patient. On average, the physician is with the patient 15 to 20 minutes while the assistant stays with the patient for 30 to 35 minutes. One observational study found that the assistant saves the physician between five and five-and-a-half minutes per visit, amounting to over two hours per day.

The 5:2 assistant/physician ratio is essential to allow the smooth flow of patients without downtime for physicians. In the care team model, any assistant may work with any patient and any physician. The first assistant who finishes a patient encounter is available to greet the next patient who enters the clinic. Since different physicians work with different assistants during a day, the work of the assistant needs to be standardized. If an assistant is involved with a patient with complex issues, who might require over an hour for the pre-visit, visit, and post-visit, the remaining four assistants handle the other patients. Even with the 5:2 ratio, scheduling can be a delicate dance requiring close communication between assistant and physician. When assistants have some time between patients, they answer or route messages from their Epic in-basket, do prescription refills approved by the physician, send referral letters, and inform patients of normal lab results.

Patients, assistants, and physicians appear to like the system, with satisfaction markedly up. The main downside is the amount of time and resources needed to train the assistants, meaning that turnover is costly for the system. Training includes several days on Epic, a considerable amount of time learning X-ray technician skills, and mastering how the care team model works. Formal training takes a few days. Shadowing other assistants takes a few more days, followed by on-the-job mentoring. Being in the room during the exam is an important part of training and development: because the assistants listen to the physician during the visit, they pick up a great deal of medical knowledge. As a result, as assistants gain experience, they become able to answer some patient questions during pre-visit, between visit, and post-visit encounters, without having to refer the question to a physician.

The care team model, in which the assistant provides major support to the physician, could have been used to increase physician productivity, with more visits per day. The University of Utah has chosen not to overemphasize productivity but to focus on "getting the physicians off the hamster wheel." Most physicians are full-time (36 hours of scheduled patient contact per week) or close to full-time. Family physicians generally aim for two 15-minute and one 30-minute visits per hour, adding up to 24 patients per day. With "appropriate access," the no-show rate is a low 3.5 to 4.9 percent. By and large, physicians working with assistants can see 24 patients per day, leave the clinic by 5:30 pm, and not bring Epic work home.

At one of the larger primary care sites, the six physicians and 30 assistants are divided into three pods, each with the 5:2 assistant/physician ratio when measured in full-time equivalents. Larger sites may have RNs to supervise the assistants, do wound care and uncomplicated acute visits, and triage drop-in patients. Health educators circulate to all the clinics for patient education and diabetes classes.

Conclusion

The University of Utah Hospitals and Clinics health system, pioneering the care team model, comes close to implementing a profound transformation of primary care. As is discussed in this report's Epilogue on the teamlet model, transforming primary care requires elimination of the 15-minute physician visit as the central feature of medical practice. The care team model has transformed the 15-minute physician visit into a physician/medical practice assistant pre-visit/visit/post-visit encounter. For primary care innovators who wish to understand the details of a transformed primary care encounter, the University of Utah is the place to go. The university offers periodic "learning days" to help others learn in depth about the care team model.[22]

15. Neighborhood Healthcare:
Utilizing Medical Assistants in the Patient-Clinician Visit

KEY ELEMENTS

Type of practice
community health center (FQHC)

Locations
seven primary care sites;
San Diego County, CA

Patient population
64,000 patients;
98 percent low-income

Team care innovations
2:1 ratio of medical assistants to clinicians

Neighborhood Healthcare is a community health organization with seven primary care sites scattered throughout San Diego County. Founded in 1969, Neighborhood Healthcare began as an all-volunteer clinic in Escondido and is now a Federally Qualified Health Center providing services to 64,000 people with more than 200,000 annual visits. Ninety-eight percent of patients have incomes below 200 percent of the federal poverty level. The organization has 350 staff members including physicians and nurse practitioners; 75 percent of funds come from the federal, state, and county governments. Chief medical officer is James Schultz.

Neighborhood Healthcare has made two impressive innovations in primary care team formation: primary care teamlets with clinicians and medical assistants, and diabetes teams in partnership with another community organization, Project Dulce.

Primary Care Teamlets

In contrast to larger teams involving several clinicians, RNs, pharmacists, health educators, medical assistants, and receptionists, teamlets are teams of two people—a clinician (physician or nurse practitioner) and an MA. Neighborhood Healthcare's teamlets feature an expanded role for the MA in the primary care encounter.

Neighborhood Healthcare recently undertook a primary care redesign initiative, based on the work of Roger Coleman's patient visit redesign consulting group. With Coleman's team assisting in the redesign of one site, the Neighborhood Healthcare leadership spread this improvement to all sites. As a result of the redesign work, cycle time—the time between the patient's arrival and departure from the clinic—dropped from an average of 114 minutes to 30 to 45 minutes for patients with appointments and under 60 minutes for drop-ins. Almost all visits are scheduled for 15 minutes, with three appointments scheduled each hour, leaving one slot per hour for drop-ins. Monday mornings, Friday afternoons, and winters more slots are left open for drop-ins. Clinicians see about 24 patients per day.

Going far beyond the usual redesign process, Neighborhood Healthcare decided that MAs should become directly involved in patient care, taking on tasks that clinicians formerly performed

but that do not require professional training. This teamlet approach is similar to that of the University of Utah (see case study 14).

Four primary care sites have been fully redesigned to support the teamlet approach. These sites have adopted a staffing ratio of two MAs to each clinician (physician or nurse practitioner). The leadership experimented with 1:1 MA/clinician ratio and three MAs for each two clinicians. They found that the model only works with a 2:1 ratio. With two MAs for each clinician, a clinician can see one extra visit each day, which—given the augmented Medi-Cal payments afforded federally qualified health centers—pays for the additional MAs. As much as possible, the same clinician works with the same two MAs. Close to 60 percent of patients are Spanish-speaking, with all MAs bilingual in Spanish. MAs perform pre-visit, visit, and (informally) post-visit functions.

During the pre-visit, the MA does the usual vital signs and other activities (blood glucose checks, urine dipsticks, peak flows) based on the patient's diagnoses or symptoms. MAs perform a portion of the medication reconciliation work, noting on the paper-chart medication list which medicines are being taken and which are not. They do not usually inquire why patients are not taking all their medications. At the conclusion of the pre-visit, the MA calls the clinician. If the clinician is ready, he/she joins the MA in the exam room; if not, the MA may do another task such as a phone call, making sure rooms are stocked with all needed materials, or looking for lab or X-ray results that may not be in a patient's chart.

When the clinician enters, the visit begins; the MA translates if needed, fills out lab, X-ray and referral forms, makes referral appointments for the patient, and may assist with prescription refills. Different clinicians work with MAs in different ways. For example, some call out their physical exam findings and have the MA check the appropriate boxes on the physical exam form. Clinicians have found that they have less paperwork and fewer phone calls at the end of the day, and are getting home earlier. They are very happy with this system; one nurse practitioner moving to another state couldn't imagine how she could go back to the old way of doing things.

Neighborhood Healthcare has not organized a formal post-visit session, but patients may ask the MA some questions or provide additional information after the clinician leaves the room. The MA may need to check back with the clinician if significant issues emerge.

The MAs are trained to schedule appointments for patients, to make referrals to specialists, and to work with clinicians in a flexible manner, depending on what the clinician wants. The training is on-the-job. The MA turnover rate is 20 to 30 percent per year, but some stay many years.

Diabetes Teams with Project Dulce

Primary care sites with insufficient trained personnel can partner with other community organizations to create teams with the proper skill mix. Neighborhood Healthcare has created such a partnership with Project Dulce, a highly-regarded diabetes program sponsored by the Whittier Institute for Diabetes.

Project Dulce is a diabetes care and education program that, since 1997, has addressed the needs of underserved, ethnically diverse populations. The program offers two services: diabetes education groups led by *promotoras* (many of whom have diabetes) and a diabetes care management team consisting of an RN/certified diabetes educator), MA, and dietitian. Seventy-two percent of patients who have utilized one or both of Project Dulce's services are Latino, 68 percent have annual incomes below $10,000, and 51 percent have an eighth-grade education or lower. Project Dulce's patients have achieved significant improvements in HbA1c, blood pressure, and lipids measured against a comparison group and the national average.[23]

At Neighborhood Healthcare sites, a Project Dulce care management team of an RN/certified diabetes educator and two MAs comes on certain days, providing planned diabetes visits with Neighborhood Healthcare patients in close coordination with the patient's primary care clinician. Some of these planned visits are with one patient; in other cases, they involve group visits, generally with 10 to 12 patients at a time. As part of the group process, clinicians see their patients individually.

In summary, Neighborhood Healthcare has leveraged both its internal resources (MAs) and external resources (Project Dulce) to create teams that both improve care and enhance clinician work life. This model of partnering to gain expertise not available in a primary care site is particularly useful for small private primary care practices and community clinics.

Epilogue:
The Teamlet Model of Primary Care

For me, as a primary care physician, the process of creating this report has been a personal transformation. After visiting or speaking by telephone to the 112 people who contributed to the report, and while attempting to integrate in my mind the lessons learned from the case studies featured here, I have constructed my own model of a reorganized and reenergized team-based primary care practice. In this Epilogue, I describe this teamlet model. Many components of the model can be found in primary care practices around the United States, but to my knowledge, it has never been implemented in full.

The primary care practices featured in this report have all developed teams. While the personnel on the team varies dramatically with the size and type of primary care practice, one feature is constant as the central subunit of the team in most primary care settings: the clinician/medical assistant dyad.

The teamlet model builds on, but profoundly changes, this universal clinician/medical assistant relationship. The transformed dyad is called the "teamlet," both because it is only part of the total primary care team and because it is small (like Piglet in *Winnie the Pooh)*. But the teamlet model is not a small change; it represents a fundamental transformation of primary care practice. On the other hand, the model can be implemented gradually, starting with one clinician and a couple of MAs or community health workers.

Why Transform Primary Care into a Teamlet Model?

This report's first volume makes clear why primary care needs a drastic overhaul: It would take 7.4 hours per working day to provide all recommended preventive care to the average primary care panel, plus 10.6 hours to adequately manage chronic conditions; 42 percent of primary care physicians report not having adequate time to spend with their patients; and 50 percent of patients leave the office visit without understanding what advice their physician gave. In sum, primary care physicians in the 15-minute visit can no longer do what is expected of them.

A Description of the Teamlet Model

The teamlet model proposes that the 15-minute physician visit be replaced by an encounter featuring a clinician and a health coach (an MA or other caregiver with considerable training and responsibility) providing pre-visit, visit, post-visit, and between-visit care. It should be noted, however, that not all patients need all elements of pre-visit/visit/post-visit/between-visit care; those with less complicated problems do not require a full level of service intensity.

Each larger primary care team has several teamlets; small practices might have only one or two teamlets and no larger team. A teamlet consists of one clinician with two health coaches. Different organizations might have different names for the health coaches: medical practice assistants, community health workers, or *promotoras.* The larger team might also have a team coordinator, an RN, a health educator, a pharmacist, and perhaps other team members

The essence of the teamlet transformation is that two caregivers (clinician and coach) are responsible for each patient encounter, and that the 15-minute visit is expanded to HealthPartners' (see case study 13) conception of pre-visit, visit, post-visit and between-visit care. As the University of Utah (see case study 14) and San Diego's Neighborhood Healthcare (see case study 15) have learned, this model only works in practices creating a staffing ratio of at least two MAs (health coaches) for every one clinician. Some practices may find that—due to the complex logistics of scheduling and patient flow—it works better to have four or five health coaches working with two clinicians (as the University of Utah has done) without pairing two coaches with one clinician.

How Does the Teamlet Function?

Pre-Visit

Pre-visit functions are an expansion of what medical assistants currently do. The health coach, who has huddled briefly with the clinician before each encounter, negotiates a visit agenda with the patient, (see the study cited in the introductory volume of this report showing that patients were interrupted after an average of 23 seconds describing their symptoms and that 25 percent were never able fully to express their concerns to their clinician). Having the health coach negotiate the agenda helps to minimize the unequal power relationship between physicians and patients.

The health coach may take and record the patient's history (see the examples of Dr. Burger in case study 2, and University of Utah in case study 14). The coach orders preventive or chronic care studies, based on practice guidelines, that are overdue and that the patient agrees to do. The coach also performs medication reconciliation—documenting which medications the patient is taking and if not taking everything that's been prescribed, why not.

Visit

The clinician and health coach perform the visit together (see University of Utah, case study 14, and Neighborhood Healthcare, case study 15). The health coach documents (writes in the paper chart or enters into the electronic medical record) the clinician's physical exam findings, fills out forms, orders labs, X-rays, and referrals, sends electronic prescriptions to the pharmacy or writes the prescriptions for the clinician to sign, looks for items not in the exam room, etc. The health coach performs these relatively routine tasks that prevent the clinician from doing what he/she is trained to do: think about diagnosis and management and build a relationship with the patient. Coaches are not necessarily in the exam room for uncomplicated visits that do not require a post-visit, or if the patient is uncomfortable having the coach in the room.

Post-Visit

This is an extremely important part of the encounter. When physicians write diagnostic and treatment orders for hospital inpatients, an array of RNs, LPNs/LVNs, lab and X-ray techs, orderlies, pharmacists, dietitians, physical therapists, and others are available to make sure the orders are carried out. In stark contrast, for ambulatory patients in primary care, the patients themselves are responsible for carrying out most of the advice given by the clinician. Yet few patients are given the detailed explanations or taught the skills needed to carry out the multiple items of advice that a clinician may give during a visit. The result is that much of that advice is never carried out, or is done so incompletely or improperly—whether making appointments for diagnostic tests and referrals, taking medications correctly, or engaging in healthy behaviors.

Ideally, primary care RNs are available and affordable to conduct the post-visit. In many organizations this is not possible, though in some primary care settings with underutilized RNs it could be done. If RNs are not available, the post-visit is conducted by the health coach, who needs considerable training and mentoring. The visit ends with an after-visit summary, as currently takes place in practices using the Epic electronic medical record. In the post-visit, the health coach goes over the after-visit summary point by point, using the technique of "closing the loop," i.e., asking the patient, in a respectful way, to repeat how the patient understands the advice given by the clinician. The importance of this process is underscored by the disturbing statistic that 50 percent of patients leave the office visit without understanding what they are supposed to do. A recent study showed that when closing the loop is done, the patient had initially understood the advice incorrectly 47 percent of the time. The process of closing the loop allows the caregiver to correct the patient's misunderstanding. Moreover, for patients with diabetes, those whose clinicians closed the loop had lower HbA1c levels compared with those who had not been asked to close the loop.[24] The health coach also engages the patient in behavior-change goal-setting, negotiating an action plan regarding diet, exercise, taking medications, or other domains of the patient's life.[25]

Between-Visit

It is well known that regular follow-up is key to sustained healthy behavior change and medication adherence.[26] Between visits, the health coach contacts patients to see how they are doing, addresses difficulties they are having, reinforces items on the after-visit summary, and acts as a liaison with the clinician if the health coach is unable to handle patients' concerns.

Training Health Coaches

Health coaches might have previously been working as medical assistants, community health workers, or LVNs/LPNs. They require training in agenda setting, medication reconciliation, history taking, using the electronic medical record (if one exists), navigating the health system, engaging patients in behavior-change goal setting discussions, closing the loop, and helping patients solve problems through follow-up phone calls. Because traditional health professional schools do not teach many of these skills, each organization must make its own training plan. Over time, more and more health professionals (clinicians, nurses, health educators, social workers, behavioral health professionals) will be able to conduct this training.

Stratifying the Population

In the past, primary care was supposed to care for the needs of all varieties of patients in the 15-minute physician visit. That is no longer possible; hence, the expanded teamlet encounter. However, the teamlet encounter cannot satisfy all the diverse needs of an entire population of patients. Primary care must internally specialize to meet these diverse needs.

Among the strata of the population that primary care needs to serve are:

- People who need same-day care for acute problems;

- Healthy people who need preventive care;
- Women who need pregnancy and infant care;
- People with chronic conditions;
- People with multiple complex chronic conditions;
- People with mental health/substance use problems; and
- People who need care at the end of life.

In small practices with the entire primary care team being the teamlet, the teamlet needs to handle the majority of these categories of patients, with a coordinating institution—for example, an independent practice association or hospital—to provide support for the care of population sectors not adequately handled by the small practice.

In larger practices, at least two specialized units are needed: a health-promotion team to ensure that the entire population receives all recommended chronic and preventive care and that as many people as possible are given the opportunity to become skilled self-managers of their chronic conditions, risk factors, or preventive care needs; and a same-day team to guarantee same-day care for acute conditions. Both these teams need to work closely with each patient's teamlet.

The Health-Promotion Team

The health-promotion team is responsible for panel management and planned visits. The Santa Clara Valley Diabetes and Metabolism Center (see case study 6) and the chronic care planned visits by advanced practice clinicians at Harvard Vanguard Medical Associates (see case study 11) are examples of health-promotion teams. The health-promotion team might include a panel management assistant, similar to those at Kaiser Permanente (see case study 8) or to the planned care site coordinators at Cambridge Health Alliance (see case study 7), who works the chronic and preventive care registries to ensure that the entire panel of patients receives reminders and encouragement to carry out all evidence-based preventive and chronic care tasks.

The health-promotion team works closely with the teamlet health coaches.

The health-promotion team also includes professionals trained in self-management support, patient education, and medication management of chronic conditions. Depending on the practice, these might be RNs, health educators, nutritionists, pharmacists, or behavioral health providers. The health-promotion team offers classes, group visits, patient education materials, and/or other activities designed to assist patients to be informed and active participants in the management of their chronic conditions. In small practices, self-management support is the responsibility of health coaches.

The Same-Day Team

A same-day team is responsible for ensuring that all patients are guaranteed same-day access for acute medical problems. Practices that achieve and sustain advanced access (same-day scheduling) could handle this essential service through their teamlets. Particularly in safety-net clinics, however, advanced access is difficult to sustain and a separate drop-in function is often needed. The same-day team requires 24/7 coverage in order to eliminate inappropriate emergency department visits and to catch serious acute illnesses early to prevent hospitalization. The same-day team might consist of an RN advice phone line, physically separate "minute clinics" organizationally connected with the practice, or urgent care drop-in within the practice.

Small practices would need to band together to organize same-day services for their patients. Even though both prompt access and continuity of care are essential features of primary care, it is impossible to provide both of these feature for all patients at all times. Whereas continuity is particularly important for patients with chronic illness, particularly those with multiple diagnoses or at the end of life, prompt access is often more important than continuity for acute care.

Financial Sustainability of the Model

For most practices, the teamlet model is not financially viable under current primary care payment policy. Payment is relatively low for primary care, is usually provided only for clinician services, and is chiefly based on productivity (quantity of visits provided).

The model is financially sustainable only if a practice can demonstrate to payers (Medicare, Medicaid, commercial health plans) that the model can reduce total health care costs (hospitalizations, emergency department visits, and specialty consultations) for high-cost patients and payers will share those savings with the primary care practice, or if the model can increase productivity under fee-for-service payment. Pilot demonstrations of this model, with an evaluation component, are needed to see if the model can create savings for payers. If payment reform is not forthcoming, the model's financial sustainability requires that clinicians supported by health coaches can see more patients per day (as Neighborhood Healthcare—see case study 15—has succeeded in doing).

Conclusion

The teamlet model is meant to be adapted to the particular circumstances of each primary care practice; its only essential feature is the expansion of the 15-minute visit into a more intensive and satisfying encounter. The model differs from all 15 case studies featured in this report in placing major emphasis on patient self-management of chronic illness. Practices wishing to move in this direction can adopt one or more components of the model—adding functions to the traditional pre-visit, launching a regular post-visit, or providing regular between-visit phone calls or electronic communication. Ultimately, the team-building innovations featured in this report provide a wealth of ideas on how to transform primary care practice into a smooth-functioning institution offering quality, accessible health care for the patient population while ensuring a satisfying work experience for all caregivers.

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