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Discovering a Remedy for Physician Work Stress—Making the Case for Team-Based Care and Physician Leadership in Group Practice

Is your medical practice stressful? Too much to do with too little time? Spending a significant part of your day doing non-doctor work? Are you feeling that you have no influence over your work life? Ready for a different approach?

Remedy: A major solution for physician work stress is found in the linkage of the imperative that all physicians need to be leaders, regardless of job title, with the concept that the most effective work unit is a team rather than an individual.

I’ll make my case for this approach to physician well-being by addressing root causes of work-life stress.

I. Prescription For Stress Reduction—The Case For Health Care Teams Regularly Doing Nonphysician Tasks

Why am I doing this?

The nature of the medical profession is inherently stressful—being responsible for the health of people tends to do that. Although physicians in group and solo practices may incur a significant amount of practice stress, the stressors are somewhat different for each practice setting. Although group practice has successfully managed the intensity of being on call, the frustrations of office management, and, to an extent, economic security, group practice physicians probably have a set of stressors that is not a factor in solo practice. Specifically, solo practitioners typically have surrounded themselves with an office staff (team) who have a strong sense of influence and loyalty and are trained to focus on relieving the physician of all tasks that could be undertaken by another member of the office team. Is there a lesson here?

Only when group practices are organized as teams can innovations be tried to free up doctors to doctor so they are not encumbered with time-consuming activities that can be done by another team member. It takes the dynamics of a strong team to make changes in the scope of responsibilities of all team members; it does not occur just by asking.

Practicing in Isolation

I’m accountable for my schedule regardless …

However, there is one additional significant source of practice stress that neither group practice nor solo practitioners have solved. This is the pressure felt by an individual physician when s/he alone needs to see an entire schedule of patients, regardless of the extent of health complaints or timeliness of the patient for the visit. A review of the literature (see Annotated Bibliography) reinforces what we probably intuitively know that people working alone are more stressed than those working as part of a team.

Here is a specific illustration: If a practitioner (physician, NP, or PA) is behind in seeing their patients, an empowered staff member assesses the situation and may move the chart of a waiting patient to another practitioner who is on schedule.

While you might think of many reasons why this shouldn’t work, this type of team support is being done regularly on KP health care teams in regions throughout the country. Granted, it takes well-trained, empowered team members, and strongly interdependent physicians, but it works.

You want the evidence? I suggest reading “Successful Practices in the Physician Work Environment: We Work Together” in the Fall issue of The Permanente Journal, in which the authors, Karen Tallman, PhD, with Jill Steinbruegge, MD, and Michelle Hatzis, PhD, discuss interviews with physicians from several KP primary care health care teams around the KP Program.

Teams that had high patient satisfaction and high People Pulse scores (“I feel supported …”; “I have influence …”) addressed the daily stresses of busy practice by building on the dynamics of solid teams and by leveraging the members of their health care teams to take the pressure off individual physicians. While there is much work to be done in this area, it is clear to me that a highly functional team alleviates a significant amount of the pressure from practitioners who feel responsible for their scheduled patients.
Influence Over Practice  
I have no control over issues that impact my work life

There is convincing evidence that individuals who feel that they have a high level of influence over their work are more satisfied than those who feel that external forces determine their work environment. This is affirmed by the worksite employment survey of KP (the People Pulse), which repeatedly has identified the level of influence as a primary driver to satisfaction.

Individuals working on a high-performing team have a much greater likelihood of developing a sense of influence over their practice. An isolated practitioner is less likely to feel that s/he has influence as opposed to a team member who is actively involved with the team in addressing issues impacting the work environment.

Conclusion: Remedy for Stress—High-Performing Interdependent Teams  
Along with my team members, we can do this job!

The stages of team development are depicted in Figure 1. Phase 1 includes teams that are geographically together and episodically having meetings but the practitioners are still practicing in isolation. Phase 3 includes teams with a clear focus on patient care and service, which are organized to be totally interdependent. No question—this journey is worth taking. As demonstrated in Tallman’s work, teams in Phase 3 feel in more control of their practice and overall have a much higher sense of professional well-being.

In conclusion, it is my premise that our stress in busy practice settings is best dealt with by using team-based care models. But hold on, there is one fundamental requirement before physicians and staff can set off on this journey.

II. Prerequisite For The Team Solution To Stress—The Case For Physician Leadership

Figure 1 demonstrates three important factors that create a state of readiness necessary before teams can be organized and successfully developed. First, the teams must have practitioner staffing at the levels determined by the organization. Second, no team will make this journey unless an effective physician team leader is at the helm. Third, what is most often ignored in team development is the necessity of having all physicians on board as strong informal leaders.

As readers of The Permanente Journal are aware every issue since Summer 2000 has included a section titled Physicians as Leaders. This is no exception, and on page 68, Dr Philip Tuso shares six universal and timeless characteristics of great leaders. He feels that these characteristics, if mastered, will help you to become a more effective leader.

Why all this hype? Why is it important to you or me if the physicians on our teams are strong informal leaders?

Answer: If you believe we can diminish our daily job stress by being part of a high-performing, interdependent team, then all physicians on the team must be seen as leaders by the team. I’m not aware of a successful team comprised of physicians who are isolationists and individualists, uninvolved in team activities. Success just won’t happen without all physicians on the team modeling high quality patient care and service and team member interpersonal relationships—ie, they are leaders! The Physicians as Leaders section in this issue will define for you what this type of leadership looks like.

III. Summary—Steps To Consider in Diminishing Stress in Your Daily Practice

The journey in developing successful teams starts at the grassroots level by physicians, other practitioners, nurses, and other staff members who want to improve the quality of their work lives while enhancing the patient’s care experience. Organizational leadership is needed to support and encourage, but it is front-line people who will make it work. Here are
specific prerequisites, as summarized in Figure 1:

1. Before you can start on your journey, the practitioner staffing level, as determined by your organization, is essential. If the team is short of practitioners, the mode will be one of survival instead of team development.

2. It is essential to have a physician team leader who keeps the team focused on their prime mission (high service and care for the team’s patients) actively encourages the team members and is considered by team members to be a practitioner role model.

3. All physicians on the team are then asked to be informal leaders.

4. Team development: With these three prerequisites, the team is ready to embark on the journey to becoming a successful team. The various stages of team development are well published, but the vision is essential: a state of daily patient care that is less stressful because physicians are doing less nondoctor work; a staff empowered to make the patient-flow process work, and, overall, feeling a great sense of influence over how work gets done.

I hope you find this helpful and that you now have a reason to pull out your past *Permanente Journal* articles on *Physicians as Leaders* and the Tallman article on the results of the physician interviews.

This is one man’s opinion, and, as always, we welcome yours! ✿

References


Team Structure and the Impact on Job Stress

Annotated Bibliography


People under high levels of stress tend to become isolated. When high-stress events impinge on a person, s/he tends to enter a “survival” mode. As the team develops into a cohesive unit of support, individuals are able to concentrate on adding their talents to the group.


Do people in health care settings who work in teams suffer less stress as a consequence? Effectiveness of teamwork has been positively correlated with job satisfaction and the mental health of the team members. A number of studies suggest that working in a team has a beneficial effect on job satisfaction and a higher sense of professional well-being. An extensive study in primary health care suggested that sustained interventions designed to encourage more effective teams lead to improvement both in team processes and in levels of stress. Another rigorous study demonstrated that those who work in a poorly defined team (pseudo-team) or who do not work in a team are significantly more likely to report higher levels of psychological distress and lower job satisfaction than those who work in a clearly defined team.


Research demonstrates convincingly that social support is the most effective counterbalance to stress.


The workgroup may help mollify stressors that impact any single member of the group, particularly in semiautonomous empowered workgroups.


Organizing people into self-managed teams is a critical component of virtually all high-performance management systems. Numerous articles and case examples as well as rigorous, systematic studies attest to the effectiveness of teams as a principle of organizational design. There is considerable evidence that workers in self-managed teams enjoy greater autonomy and discretion and that this effect translates into intrinsic rewards and job satisfaction.


Observation at Jamestown Advanced Products, Inc, in Jamestown, New York, and their team development and self-directed environment: Employee Comment—“I work harder here than I have anywhere else I’ve worked, but I enjoy it more and that makes it worthwhile.” Working in small teams makes a job more enjoyable and stimulating. It allows for a work structure that gives the team responsibility for a meaningful segment of a task. People can count on the support of their peers. Being part of a successful group is equally stimulating for its members. “Good teams get better.” Team success leads to integration and togetherness of workgroups, which is stimulating.


The patient gets more efficient and understandable care; care given by a group is greater than the sum of individual care; team members have more job satisfaction and cope better. ✿
Reflections on Heart Failure

Almost miraculous therapeutic achievements in cardiovascular medicine and an aging population have combined to produce increased prevalence of the heart failure syndrome. Treatment of heart conditions usually results in prolonged survival but with residual cardiac impairment and risk of ultimate heart failure. Improvement in heart failure treatment over the past 50 years has been both fortunate and gratifying. Current therapy is lucidly presented in this issue with “Evidence-Based Clinical Vignettes from the Care Management Institute: Heart Failure,” by Anthony Steimle, MD, and in the Northern California treatment protocols.

Effective treatment of heart failure, especially acute failure, was available in the 1950s. For acute pulmonary edema, we used morphine, digitalis, mercurial diuretics, oxygen, and rotating tourniquets. Randomized controlled trial data were absent, but observation of dramatic transformation of a pale, cyanotic, bubbling, sweating man or woman, gasping for air into comfortable individuals was convincing evidence that benefit had occurred. Chronic heart failure treatment—consisting of digoxin, diuretics, and sodium/fluid restriction—was less effective and had a 50% expectation of death within a year.

Evolution of heart failure treatment started with better diuretics in the late 1950s. Soon thereafter came aldosterone antagonism with spironolactone; vasodilator therapy was next. Advances in the past 20 years include blockade of the renin-angiotensin-aldosterone and sympathetic nervous systems. We now have controlled trial proof of benefit for all accepted drug treatments except diuretics (universally deemed essential for symptom relief). Polypharmacy rules the day.

Circulatory physiology has long been a focus of intensive research and debate. Heart failure teaching included various dichotomies, “forward” vs “backward,” “right-sided” vs “left-sided,” “high-output” vs “low-output” failure. All can be understood as manifestations of the heart’s inability to pump adequately for the body’s requirements at the time—the definition of heart failure in Dr Steimle’s article. The dichotomies are useful in understanding specific patients, but one fact indelibly drilled into all of us was that left ventricular failure is the commonest cause of right ventricular failure.

The current dichotomy of interest is “systolic” vs “diastolic” dysfunction. The concept is not new; a 1950s description divided heart failure into “primary disorders of filling and primary disorders of emptying.” Echocardiography has shown us that a large proportion of heart failure patients apparently have a primary filling disorder. The diastolic/systolic distinction is often unclear, because both frequently coexist, and many patients progress from the former to the latter. Unfortunately, systolic dysfunction was made an entry requirement for most heart failure treatment trials, leaving uncertainty that the drugs work with diastolic dysfunction. Curiously, the evidence for benefit in diastolic dysfunction is best for digoxin, with which similar reduction occurs in hospitalization risk for patients with systolic as well as diastolic dysfunction.

In recent years, the addition of heart failure case management programs has significantly and economically enhanced patient care. The highly trained, accessible practitioner provides patient education, psychosocial support, expert assessment of the patient’s condition, and medication management.

We will see more advances in treatment of advanced heart failure, but a longer view of the future should look elsewhere. Molecular genetics will continue to cast light upon predisposing factors and prevention of some cases, most notably those due to certain factors of cardiomyopathy. Control of heart failure risk factors, especially hypertension and atherosclerotic coronary disease, would seem obvious keys to progress. We know much about how to do this, but, ironically, we are fighting a growing epidemic of obesity and diabetes in young people. Because increasing numbers of people with damaged hearts will survive into old age, we will be managing heart failure for a long time to come.

References
Abstracts of Articles Authored or Coauthored by Permanente Clinicians

From Southern California:
Sacral neuromodulation as an effective treatment for refractory pelvic floor dysfunction

OBJECTIVES: To determine the long-term efficacy and complications of sacral nerve stimulation as an alternative therapy for pelvic floor dysfunction. Pelvic floor dysfunction is a complex problem that can be refractory to current treatment modalities. Conservative therapy rarely results in a durable cure of patients, and various surgical procedures have significant side effects and less than optimal results.

METHODS: Sixty-four patients, 54 women and 10 men, with various forms of voiding dysfunction for whom other forms of therapy had failed underwent placement of the Medronic Implantable Pulse Generator sacral nerve implant. The mean age was 47 years. The presenting complaint was frequency, urgency, and urge incontinence in 44 patients and chronic nonobstructive urinary retention associated with their voiding symptoms. The mean duration of symptoms was 69 months. All patients underwent percutaneous nerve evaluation before the permanent implant and demonstrated more than 50% improvement of their symptoms. All patients were evaluated at 1, 3, 6, 12, and 24 months, and yearly thereafter. The assessment of the voiding symptoms was done both subjectively by patient symptoms and objectively using voiding diaries recorded for three days. A validated verbal rating pain scale was used to evaluate pain levels.

RESULTS: Eighty percent of the patients had 50% or greater improvement in their presenting symptoms and quality of life after the procedure, with a mean follow-up of 24 months. Patients with frequency-urgency showed a reduction in the number of voids per day with a significant increase in voided volumes. Patients with urge incontinence showed a reduction in leaking episodes from 6.4 to 2.0/24 hr, with a decrease in the number of pads used from 3.5 to 1.2/day. Sixteen of 20 patients with urinary retention were able to void with a residual volume of less than 100 mL. Patients with chronic pelvic pain showed a decrease in the severity of pain from a score of 5.8 to 3.7. Complications were minimal and encountered in 18.7% of the patients.

CONCLUSIONS: Sacral nerve stimulation is an effective and durable new approach to pelvic floor dysfunction with minimal complications. Test stimulation provides a valuable tool for patient selection.


From Northern California:
Discontinuation of use and switching of antidepressants: influence of patient-physician communication

CONTEXT: Although current depression treatment guidelines recommend continuing antidepressant therapy for at least four to nine months, many patients discontinue treatment prematurely, within three months.

OBJECTIVES: To investigate the relationship between patient-physician communication and the continuation of treatment with antidepressants and to explore the demographics, adverse effects, therapeutic response, and frequency of follow-up visits.

DESIGN, SETTING, AND PATIENTS: A total of 401 telephone interviews of depressed patients being treated with selective serotonin reuptake inhibitor (SSRI) therapy between December 15, 1999, and May 31, 2000, were conducted and 137 prescribing physicians completed written surveys from Northern California Kaiser Permanente health maintenance organization outpatient clinics.

MAIN OUTCOME MEASURES: Patient-physician communication about therapy duration and adverse effects; therapy discontinuation or medication switching within three months after start of SSRI therapy.

RESULTS: Ninety-nine physicians (72%) reported that they usually ask patients to continue using antidepressants for at least six months, but 137 patients (34%) reported that their physicians asked them to continue using antidepressants for this duration and 228 (56%) reported receiving no instructions. Patients who said they were told to take their medication for less than six months were three times more likely to discontinue therapy (odds ratio [OR], 3.12; 95% confidence interval [CI], 1.21-8.07) compared with patients who did not discuss them (OR, 0.49; 95% CI, 0.25-0.95). Patients who reported discussing adverse effects with their physicians were less likely to discontinue therapy than patients who did not discuss them (OR, 0.49; 95% CI, 0.25-0.95). Patients who reported discussing adverse effects with their physicians were more likely to switch medications (OR, 5.60; 95% CI, 2.31-13.60). Fewer than three follow-up visits for depression, adverse effects, and
lack of therapeutic response to medication were also associated with patients’ discontinuing therapy.

CONCLUSIONS: Discrepancies exist between instructions that physicians report they communicate to patients and what patients remember being told. Explicit instructions about expected duration of therapy and discussions about medication adverse effects throughout treatment may reduce discontinuation of SSRI use. Our finding that patients with three or more follow-up visits were more likely to continue using the initially prescribed antidepressant medication suggests that frequent patient-physician contact may increase the probability that patients will continue therapy.

From Southern California:
Surgical treatment for stress urinary incontinence with urethral hypermobility: what is the best approach?

A comparative study evaluating the results of three surgical procedures for stress urinary incontinence (SUI) with urethral hypermobility. This is a retrospective study of 189 patients, evaluating the outcomes of the percutaneous needle suspension using bone anchors (PNS), abdominal suspension (AS), and pubovaginal sling (PVS). The mean follow-up was 30.5 months. In our results, the patients were divided into three groups: PNS (49), AS (34), and PVS (106). No differences were found preoperatively. Intraoperatively, PNS had the shortest operative time and lowest estimated blood loss, and it is the only outpatient procedure. However, it had the highest complication rate. PNS had the lowest satisfactory rate (16.7%). This was followed by AS (78%), PVS with cadaveric fascia (90%), and PVS with autologous fascia (94%). In conclusion, PNS is a simple outpatient procedure, but the long-term results are disappointing. Both AS and PVS gave good results. PVS was superior to AS in shorter hospitalization, early recovery and overall patient satisfaction.

Link to http://link.springer.de/}

From the Northwest:
Adapting to psychiatric disability and needs for home- and community-based care
Green CA, Vuckovic NH, Firemark AJ. Ment Health Serv Res 2002 Mar;4(1):29-41

The objective of the study was to describe adaptation strategies and use of formal and informal support by individuals with psychiatric disabilities, to delineate remaining needs, and to determine how home- and community-based services might address those needs. Using in-depth interviews and structured questionnaires, we examined functional status, adaptation, and needs for home- and community-based care among 33 severely mentally ill members of a large health maintenance organization. Despite success in community living, participants had significant functional deficits (physical and emotional), relied heavily on only one or two key informal caregivers, and often needed significant support from mental health professionals. Limited numbers of caregivers and social isolation placed participants at risk of negative outcomes if informal support resources were to be lost. Home- and community-based care interventions that attempt to increase informal support networks and provide instrumental help (cooking, cleaning, transport) on short notice during flare-ups could augment existing (but limited) informal caregiving, help severely mentally ill individuals remain independent, and reduce the likelihood that loss of an informal caregiver would result in unwanted outcomes.

www.wkap.nl/prod/j/1522-3434

From the Northwest:
Steps to Soulful Living (Steps): a weight loss program for African-American women

BACKGROUND: The disproportionate disease burden experienced by African-American women can be explained partially by the higher rates of obesity in this population. African-American women who can benefit from weight loss may be less likely to attempt it and may have relatively less success in using traditional weight loss programs compared to white women. Steps to Soulful Living (Steps) was a pilot study to test the effects of a culturally adapted weight loss program on weight loss in African-American women.

METHODS: Sixty-six African-American women participated in a six-month weight loss program that included weekly group meetings and supervised exercise sessions. Mean baseline body mass index was 39 kg/m2, and mean baseline weight was 107 kg. Cultural adaptations, defined as program adjustments, made in response to women’s preferences as expressed in focus group interviews included changes in intervention format, the content of the group meetings, and the location and format of the exercise sessions.
RESULTS: Seventy-six percent of the participants attended at least 50% of the 26 weekly sessions, and 56% attended at least 75% of the sessions. Average hours of exercise per week approximately doubled during the program in comparison to baseline levels. Mean weight loss at 26 weeks was 3.7 kg, categorizing those who were lost to follow-up as having zero weight loss. Participants who attended at least 75% of the group meetings lost a mean of 6.2 kg at six months. Those who attended fewer meetings lost a mean of 0.9 kg.

CONCLUSIONS: This six-month program was associated with relatively larger weight losses, particularly among participants with high attendance, than have usually been observed in culturally adapted programs for African-American women.

From Colorado:
Meningococcal vaccine use in college students
Kelleher JA, Raebel MA. Ann Pharmacother 2002 Nov;36(11):1776-84

OBJECTIVE: To discuss the role of meningococcal vaccine in prevention of meningococcal disease.

DATA SOURCES: A MEDLINE search (1966-June 2001) was performed to identify key literature. Search terms included, but were not limited to, meningococcal vaccines, meningococcal meningitis, meningococcal infection, and meningococcus. The search was limited to English-language literature and references dealing with humans. The MEDLINE search was supplemented by a hand search of various bibliographies.

DATA SYNTHESIS: The impact of meningococcal disease has caused national and regional organizations to develop recommendations for use of meningococcal vaccine. Even though the meningococcal vaccine can provide benefit, limitations exist. The available vaccine does not cover all meningococcal strains and is not useful in all age groups. The appropriate target groups for prevention of disease through vaccination have been difficult to determine; vaccine use in college students is especially controversial.

CONCLUSIONS: Although a meningococcal vaccine is available, meningococcus causes significant morbidity and mortality. Controversy exists over the meningococcal vaccine and its use. Students entering college who will be living in dormitories should be informed of the increased risk of meningococcal disease and be offered vaccination.

From Southern California:
Health resource utilization of the emergency department headache “repeater”
Maizels M. Headache 2002 Sep;42(8):747-53

OBJECTIVE: To document the health resource utilization of patients who repeatedly use emergency department services for headache care.

BACKGROUND: Patients with headache who frequently use emergency department services may differ from patients with more typical, episodic migraine. Previous studies of health resource utilization have often failed to distinguish the high utilizer as a specific subset of the migraine population.

DESIGN: Retrospective review of urgent care/emergency department charts, clinic charts, and pharmacy rosters.

PATIENTS AND METHODS: Patients who made three or more visits for headache to an urgent care/emergency department (UC/ED) facility for headache over a six-month study period were identified and designated as “repeaters” for this study. Pharmacy pro-

CLINICAL IMPLICATION: Even though meningococcal disease carries a significant risk for morbidity and mortality, not everyone is an appropriate vaccination candidate. An understanding of the vaccine and who is at an increased risk for disease is important in determining who should be vaccinated. In particular, college students living in dormitories are at an increased risk of disease, and therefore, need to be informed of their risk for meningococcal disease, as well as the benefits and limitations of the vaccine. This knowledge can help health care providers, parents, and potential vaccine candidates make more informed decisions about receiving the vaccine. —JK

CONCLUSIONS: Health resource utilization of emergency department headache repeaters is predominantly headache-related acute care. Associated medication overuse is frequently present. Efforts to improve care for patients with headache will benefit from distinguishing the high utilizer as a subset of the migraine population.

CLINICAL IMPLICATION: A bias which prevents the appropriate care of headache patients who present to an Emergency Department is that they are thought of as drug seekers. Over a six-month study period, 518 patients visited the UC/ED 1004 times for primary headache complaints. Fifty-four (10%) repeaters made 502 visits (50%) of total visits; mean 9.3, range 3-50). In the 12 months prior to the study period, 52 of these repeaters made 1832 visits to the UC/ED or clinic (mean 35.2, range 0-178): 1458 (79.6%) were headache related, and 1271 (69.4%) of all visits were to the UC/ED. An estimated 12-month cost for all visits was $183,760. Pharmacy rosters showed use of narcotics in 41 of the 52 patients (annual mean ± SD, 613 ± 670 tablets), benzodiazepines in 30 patients (500 ± 486 tablets), and butalbital products in 27 patients (395 ± 590 tablets). Mean daily use of all symptomatic medications combined was 3.9 ± 3.2 doses/day.

CONCLUSION: Health resource utilization of emergency department headache repeaters is predominantly headache-related acute care. Associated medication overuse is frequently present. Efforts to improve care for patients with headache will benefit from distinguishing the high utilizer as a subset of the migraine population. —MM
Evidence-Based Clinical Vignettes from the Care Management Institute:
Heart Failure

Introduction
Heart failure has emerged as a major public health challenge. The condition is common, affecting from 1.5% of non-Hispanic white women to 3.5% of non-Hispanic African Americans in the United States as well as 6-10% of the US population aged 65 years or older. Approximately 50% of heart failure patients are dead within five years after diagnosis. Heart failure is the most common cause of hospitalization among Medicare beneficiaries and is the single costliest Medicare diagnosis.

Heart failure can be caused by a variety of cardiac conditions, most commonly coronary artery disease. In 30% to 40% of patients with heart failure, ventricular contractility is normal as measured by the left ventricular ejection fraction (LVEF). As many as half of elderly heart failure patients have a normal LVEF.

During the past decade, several forms of therapy have been shown to prolong survival, prevent hospitalization, and improve quality of life for patients with heart failure and reduced LVEF. Because studies have shown that these forms of therapy are often underused, programs have been developed to ensure optimal care for patients with heart failure. Optimal treatment of heart failure requires correct diagnosis, identification of potentially reversible causes, appropriate use of medication, and patient education on self-care.

In this article, a vignette based on a single case presents an overview of the recently updated Care Management Institute (CMI) Heart Failure Management Guidelines, available by request through the CMI Product Information Line, 510-271-6426; by e-mail at CMIproducts@kp.org; or at CMI’s Web site, http://pkc.kp.org.

Vignette
A 78-year-old woman states that for the past two months, she had gradually progressive fatigue; occasional cough; dyspnea during exertion; orthopnea; ankle edema; and a 10-lb (22-kg) weight gain. She denies chest discomfort, fever, or chills. She has hypertension treated with diltiazem, she quit smoking 20 years ago, and she rarely drinks alcohol.

Physical examination shows an afebrile female patient with heart rate 105 beats per minute, blood pressure 130/70 mm Hg, respiratory rate 16 per minute, and oxygen saturation 94% on room air. The jugular veins are elevated with positive abdominojugular reflux. Pulmonary examination shows expiratory wheezing. The heart rate is regular without murmur, and the apical impulse is displaced and sustained. The patient has mild hepatomegaly and 2+ ankle edema. Electrocardiograms show sinus tachycardia and left ventricular hypertrophy. Chest x-ray films show cardiomegaly and pulmonary venous congestion. Levels of thyroid-stimulating hormone, albumin, ferritin, and serum creatinine are normal as are results of complete blood count.

Echocardiography shows moderate left ventricular dilation with global hypokinesis, LVEF of 30%, left ventricular hypertrophy, left atrial enlargement, mild mitral and tricuspid valve regurgitation, and pulmonary artery systolic pressure ranging from 45 mm Hg to 50 mm Hg. Angiography in this patient shows normal coronary arteries and confirms the finding of reduced left ventricular ejection fraction of 30%.

The patient begins a daily regimen of 20 mg oral furosemide, 10 mEq potassium, and 10 mg lisinopril. We phone her after three days to ensure that she is losing weight and improving. At a clinic visit one week later, she has lost 7 lb, and her symptoms have improved. (This typical response to diuretics, ie, weight loss and improved symptoms, is final confirmation that the patient does indeed have heart failure). Despite this improvement, the patient still has orthopnea and elevated neck veins—findings that indicate hypervolemia and a need for additional diuresis and vasodilation. We double her dose of furosemide and lisinopril. One week later, she has lost an additional 3 lb, denies orthopnea, and no longer has elevated neck veins.

After the patient becomes euvolemic, she starts a regimen of low-dose metoprolol (a beta-blocker) at a dosage of 12.5 mg orally twice daily. During beta-blocker...
titration, we monitor her closely for signs of worsening symptoms and weight gain and double the dose of metoprolol every two weeks as tolerated. When the dose of metoprolol is increased to 50 mg twice daily, the patient reports a 3-lb weight gain and return of orthopnea. This decompensation must be addressed before we can further increase the dosage of beta-blockers. Options for therapy include diuresis and increasing vasodilation. We choose to double the dose of furosemide. A week later, the patient has lost 3 lb, and the orthopnea has resolved. Her heart rate is 70 beats/minute, and her blood pressure is 110/70 mm Hg. We increase the dosage of metoprolol to 100 mg twice daily (the maximum dosage).

The patient is now taking lisinopril (20 mg once daily), metoprolol (100 mg twice daily), furosemide, and potassium. Her heart rate is 60 beats/minute, and her blood pressure is 105/70 mm Hg.

**Comment**

**Diagnosis**

What is the diagnosis in the vignette presented? Which findings are most important for establishing the diagnosis? Which tests should be ordered? If the patient has heart failure, what caused it? What treatment should be given?

Heart failure is a clinical syndrome where symptoms occur because the heart is either 1) unable to pump blood adequately to meet the body's needs or 2) able to do so only at high intracardiac pressure. The diagnosis of heart failure is suggested by presence of characteristic symptoms (Figure 1). Because no single symptom or sign is pathognomonic, clinicians must weigh multiple pieces of evidence and must consider conditions that mimic heart failure. However, studies have shown that, when considered together, the patient's medical history as well as results of physical examination, electrocardiography, and chest x-ray imaging can accurately indicate the diagnosis in more than 90% of cases.12

In the vignette presented, the clinical presentation is highly suggestive of heart failure. Results of physical examination and chest x-ray imaging show evidence of abnormal pump function (pulmonary and systemic venous congestion resulting from elevated intracardiac pressure and cardiomegaly). Two of the most suggestive findings for heart failure—an abnormal apical im-
pulse and elevated jugular venous pressure—are often overlooked. If these physical signs had not been sought, this former smoker who was wheezing might have been diagnosed with chronic obstructive pulmonary disease and been treated with bronchodilators. In this case, pulmonary venous congestion caused “cardiac asthma.” More commonly, results of lung examination are normal in patients with chronic heart failure. Rales, sometimes mistakenly believed to be a sensitive indicator of heart failure, are absent in more than 80% of patients with chronic heart failure. Similarly, patients with chronic heart failure may have normal chest x-ray films. Because jugular venous pressure is one of the most useful physical findings for diagnosing heart failure and is essential for assessing volume status in response to treatment, skill in examining the neck veins is important.

**Examining the Neck Veins for Jugular Venous Pressure**

Jugular venous pressure is estimated by measuring the vertical height of the internal jugular vein above the sternal angle (the junction of the manubrium and sternum). In a well-lit room, place the patient at 45 degrees from horizontal. Position the head to relax the neck muscles, and spread the skin smoothly—but not tautly—across the right side of the neck. Locate the pulsations of the right internal jugular vein, which runs between the heads of the sternocleidomastoid muscle (Figure 2). Normal pressure is located less than 4 cm vertically above the sternal angle or only about 1 inch above the clavicle when the patient is positioned at 45 degrees from the horizontal.

Observing the external jugular vein is another way to locate the venous pressure. Although the external jugular vein may be compressed by the neck muscles and thus be falsely elevated, more often the external jugular mirrors the internal jugular vein. The external jugular vein can be located easily by compressing its base (causing the vein to fill) and then observing how the vein collapses when released. Table 1 contains clinical clues that can help differentiate jugular venous pulsations from carotid pulsations.

**Echocardiography Used to Search for Structural Heart Disease**

When heart failure is suspected on the basis of the patient’s medical history and results of physical examination, evidence of abnormality in the heart should be sought. This examination usually consists of echocardiography, which assesses the structure and function of the ventricles and valves. Although heart failure rarely occurs in structurally normal hearts (eg, as occurs with high-output heart failure), abnormal results of echocardiography often provide evidence supporting the diagnosis and help identify the responsible form of cardiac dysfunction and thus allow therapy to be directed accordingly.

### Table 1. Differentiating jugular venous from carotid pulsation

<table>
<thead>
<tr>
<th>Maneuver</th>
<th>Jugular venous pulsations</th>
<th>Carotid pulsations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Diffuse and biphasic, rising and falling with respiration</td>
<td>Sharp, monophasic, unvarying</td>
</tr>
<tr>
<td>Palpate</td>
<td>Nonpalpable</td>
<td>Palpable</td>
</tr>
<tr>
<td>Compress base of external jugular vein</td>
<td>Pulsations higher in neck are obliterated</td>
<td>Pulsations will persist</td>
</tr>
<tr>
<td>Reposition patient</td>
<td>Vary with position of patient</td>
<td>Does not vary with position of patient</td>
</tr>
<tr>
<td>Apply pressure to midabdomen</td>
<td>Pulsations rise. Sustained rise of 4 cm for more than 10-15 seconds of pressure constitutes positive abdominojugular reflex.</td>
<td>No change</td>
</tr>
</tbody>
</table>

... patients with chronic heart failure may have normal chest x-ray films.
be directed appropriately. The normal range for left ventricular ejection fraction (LVEF) is 50% to 70%. Systolic dysfunction is defined as LVEF less than 45%. Valvular dysfunction should be considered a potential cause of heart failure when the echocardiogram shows moderate or severe valvular stenosis or regurgitation. Mildly elevated pulmonary pressure (40-60 mm Hg) is characteristic of heart failure and does not necessarily suggest a separate disease process.

Cardiac dysfunction sufficient to cause heart failure can exist even when the echocardiogram appears normal. This situation is seen most often in diastolic dysfunction. Echocardiography is not mandatory if valvular and left ventricular systolic function has been assessed by other measures, such as by cardiac catheterization.

An Assay Used to Diagnose Heart Failure
Recently, heart failure was accurately diagnosed by using an assay for B-type natriuretic peptide (BNP), a hormone released from the ventricles in response to stretch and pressure overload. The exact role of this assay is still being defined, but the assay will probably be most useful when heart failure is suspected but remains unconfirmed after the medical history has been carefully obtained and physical examination, electrocardiography, and radiography of the chest have been done.

Causes of Systolic Heart Failure
The echocardiogram for the 78-year-old woman in the vignette shows a reduced LVEF (systolic dysfunction) without clinically significant valve disease. Moderate elevation of pulmonary pressure helps to confirm heart failure. After heart failure is diagnosed, the cause must be identified by focusing on a short list of conditions that are common or potentially treatable (Table 2). In addition to basic laboratory tests (Figure 1), measurement of the plasma ferritin level may be used to screen for hemochromatosis, a condition which is relatively common and potentially treatable. Other tests, such as rheumatologic serology, should be obtained only if the medical history and results of physical examination suggest a specific diagnosis.

Screening for Coronary Artery Disease
All patients with heart failure should be screened for coronary artery disease because it is the most common cause of reduced LVEF. However, no consensus exists on the best screening strategy. Options include clinical assessment consisting of medical history, physical examination, stress imaging, or coronary angiography. In general, proceeding directly to angiography should be considered for heart failure patients who have typical angina, flash pulmonary edema, or multiple coronary risk factors (eg, tobacco use combined with diabetes). Angiographic results for the 78-year-old woman in the Vignette—normal coronary arteries and confirmation of the 30% left ventricular ejection fraction—were consistent with nonischemic cardiomyopathy.

Criteria for Hospital Admission
Should this patient be admitted to the hospital? Common reasons to consider admission are listed in Table 3. Admission often depends on how ill a patient appears. In this Vignette of a 78-year-old female patient with gradual onset of symptoms, outpatient management was appropriate.

Treating Systolic Heart Failure: Countering Compensatory Reflexes Gone Astray
Our understanding of the treatment for systolic heart failure has been greatly advanced by understanding its pathophysiology. When ventricular function is compromised, neurohormones (including norepinephrine and the renin-angiotensin-aldosterone system) are activated. These hormones lead to vasoconstriction and
fluid retention—reflexes which are meant to counteract dehydration but which tend to worsen heart failure. Gradually, these neurohormones cause myocyte death and fibrosis, further worsening ventricular function. Untreated ventricular dysfunction tends to progress, causing worsening heart failure and, eventually, death.

Countering these reflexes with diuretic agents and vasodilators has emerged as a main component of heart failure management. Moreover, agents that block the damaging neurohormones have proved more beneficial than agents that merely correct the hemodynamic derangement which occurs in heart failure. For example, angiotensin-converting enzyme (ACE) inhibitors affect survival more favorably than direct-acting vasodilators such as calcium channel blockers. Similarly, norepinephrine-antagonist beta-blockers (formerly contraindicated because of their negative, inotropic effects) actually improve survival more than any other drug class. In patients with systolic heart failure, survival has been improved by three categories of medication, sometimes referred to as “triple therapy”: vasodilators (especially ACE inhibitors, which can lead to a 23% relative reduction in mortality); beta-blockers (which can lead to a 35% relative reduction in mortality); and spironolactone (which can lead to a 30% relative reduction in mortality).

Sequence of Medication Titration

Initially, diuretic agents and vasodilators should be used to stabilize the condition of patients with heart failure (Figure 3). ACE inhibitors are the vasodilators preferred on the basis of multiple clinical trials that showed mortality benefit. Use of angiotensin receptor blockers is an alternative for patients who have intolerance to ACE inhibitors (e.g., because these patients have cough, angioedema, or allergy). Patients with renal dysfunction or hyperkalemia should be treated with hydralazine and isosorbide dinitrate.

After the patient’s condition has stabilized, a regimen of beta-blockers is added. Beta-blockers may initially worsen heart failure and therefore must be initiated at a low dose.

**Figure 3. Management of heart failure with decreased systolic function**

- **Diuretics**: Lowest dose to manage volume overload. Some patients may not require diuretics.
- **Angiotension-Converting Enzyme Inhibitors**: Use if serum creatinine level >3.0 mg/dL and potassium level <5.5 mEq/L.
- **Angiotension-Receptor Blockers**: Use if ACE-inhibitor-intolerant due to angioedema, rash, or cough.
- **Hydralazine and Isosorbide Dinitrate**: Use if serum creatinine level >3.0 mg/dL, potassium level >5.5 mEq/L, or ACE-inhibitors/angiotension receptor blockers contraindicated.
- **Beta-Blockers**: May be added to standard medications at any time to reduce symptoms.
- **Spironolactone**: May be added to standard medications at any time to reduce symptoms.

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and titrated slowly—and only after volume overload is corrected. Patients should be instructed that although beta-blockers may initially worsen symptoms, this effect is almost always transient and correctable. Patients can be told that their long-term quality and quantity of life will be improved. Teaching patients the signs and symptoms of deterioration before beta-blocker titration is begun can help prevent problems during titration.

For patients with LVEF less than 35% and severe symptoms (such as fatigue or dyspnea with minimal activity), spironolactone (an aldosterone blocker) also decreased mortality.20 Renal insufficiency and hyperkalemia are contraindications to spironolactone, and potassium levels of patients receiving spironolactone must be monitored closely.20 When administered at higher doses, spironolactone is a potassium-sparing diuretic; however, in patients with heart failure, spironolactone is used at subdiuretic doses and does not replace furosemide.

Digoxin does not improve survival but has been shown to reduce hospitalization rates slightly.21 Thus, use of digoxin may be appropriate for patients who remain both symptomatic and at risk for hospitalization despite other therapeutic measures.

Monitoring Response to Treatment

During medication titration, the clinician must assess response to treatment, particularly the patient’s volume status. For this assessment, examining the neck veins for jugular venous pressure is crucial. Elevated venous pressure indicates hypervolemia and the need for further diuresis. Orthopnea suggests continued elevation of pulmonary wedge pressure and the need for further diuresis, vasodilation, or both. Treatment can be monitored by phone and occasionally at clinic visits as long as the patient is doing well and has vital signs checked and blood tests drawn.

Has the medication regimen of the patient in the Vignette been finally adjusted? No. Even though she is doing well with the current regimen of furosemide, potassium, lisinopril, and metoprolol, we should increase the lisinopril to the maximum dose of 40 mg if tolerated, because higher doses of ACE inhibitors have shown reduced rates of hospitalization and mortality more effectively than lower doses.20 Spironolactone should then be added if the patient remains substantially symptomatic, because this drug can further decrease mortality.20 Spironolactone’s mortality benefit is uncertain in patients with mild symptoms. Digoxin can be added to the medication regimen if the patient remains substantially symptomatic despite all other measures taken.21

Anticoagulation

Accepted indications for anticoagulation therapy in patients with heart failure include atrial fibrillation, left ventricular thrombus, and previous diagnosis of thromboembolism.23 Routine use of warfarin in patients with severely reduced LVEF has not conclusively shown decreased risk of stroke.22

Patient Education:
Self-Care for Heart Failure

The Vignette illustrates the essential role of patient self-care during medication titration. The patient helped guide medication adjustments by weighing herself daily and by reporting worsening symptoms. The importance of patient education in treating heart failure cannot be overstated. Education alone, independent of any changes in medical therapy, has shown reduced rates of rehospitalization by 39%23 and gives patients a sense of empowerment and control over their health. Among the most valuable teaching points is that sudden weight gain—2 lb (4.4 kg) in one day or 5 lb (11 kg) in one week—is the earliest sign of fluid retention. To prevent hospitalization resulting from bowel edema (which may impair absorption of oral medication), patients with heart failure should respond to fluid-based weight gain by increasing their dose of diuretic agents. Other important components of patient education for heart failure are listed in Table 4.

Table 4. Important educational components for patients with heart failure

<table>
<thead>
<tr>
<th>Component</th>
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</thead>
<tbody>
<tr>
<td>Early recognition of signs and symptoms of decompensation</td>
</tr>
<tr>
<td>Understanding the importance of medication compliance</td>
</tr>
<tr>
<td>Sodium intake ≤ 2 g daily (requires teaching to read food labels)</td>
</tr>
<tr>
<td>Flexible diuretic dosing on basis of patient’s weight (measured daily)</td>
</tr>
<tr>
<td>Physical activity</td>
</tr>
</tbody>
</table>

Considerations for Patients with Advancing Illness

Frank discussion of prognosis is an important aspect of patient education. Heart failure has a high mortality rate, and half of deaths occur suddenly and unpredictably. Therefore, planning for the end of life is essential even when the patient feels well. Patients should be told that heart failure is a serious disease that is often not curable. Although treatment can improve both quality and length of life, many patients die of heart failure
Nonetheless. Health decline in heart failure may be sudden or gradual, and timing of deterioration is often unpredictable; therefore, planning early for advancing illness—including medical, financial, legal, and personal needs—is important.11

**Patients with Refractory Symptoms**

Hemodynamic state should be reassessed in patients who remain severely symptomatic despite medical therapy. Examining jugular venous pressure is an invaluable method of determining the patient’s volume status.15 If the jugular venous pressure is normal (indicating adequate diuresis), additional vasodilation to reduce vascular resistance and to improve cardiac output should be considered. A second vasodilator may be required; however, few clinical trials have examined the long-term effects of adding a second vasodilator, and no studies have found mortality benefit. In fact, in a recent trial of the angiotensin receptor blocker valsartan, mortality rates were increased when valsartan was added to an ACE inhibitor and beta-blocker.24 This finding suggests that all three of these drugs should not be used simultaneously. For patients already receiving an ACE inhibitor and beta-blocker, alternative second vasodilators include hydralazine plus isosorbide dinitrite; or the calcium channel blockers amlodipine or felodipine. Compared with placebo initial therapy with hydralazine and isosorbide has shown improved survival,25 but the combination of hydralazine and isosorbide has not been studied when added as a second vasodilator. Amlodipine and felodipine have no proven effect on mortality.26 Digoxin does not improve mortality21 but should be considered for patients with refractory symptoms, especially patients who are hypotensive.

In patients with persistent hypervolemia, sodium intake should be carefully reviewed. Hypervolemia that persists despite sodium restriction may be caused by decreased renal responsiveness to loop diuretic agents, possibly caused by hypertrophy of the distal nephron and resultant increased sodium resorption distal to the loop of Henle. Adding a thiazide diuretic (such as hydrochlorothiazide or metolazone) to block distal sodium resorption can restore the effectiveness of loop diuretic agents27 but necessitates close monitoring of potassium levels (because potassium loss is exacerbated by addition of the thiazide diuretic agent).

Medication-related causes of refractory or worsening systolic heart failure are listed in Table 5.

**Referral to Heart Failure Programs**

Kaiser Permanente has developed heart failure programs that provide many of the components of management described in this article, including patient education and medication titration. These disease management programs are supervised by physicians, conducted by nurses and clinical pharmacists, and modeled on programs shown to reduce rates of hospitalization while improving quality of care. Interested patients who meet local eligibility criteria should be referred to these programs.

**Heart Failure in Patients with Normal Left Ventricular Ejection Fraction**

The 78-year-old woman in the Vignette was based on an actual patient but was altered in one important respect: The actual echocardiogram revealed normal chamber sizes, left ventricular hypertrophy, mildly elevated pulmonary artery systolic pressure (between 45 mm Hg and 50 mm Hg), and normal LVEF ranging from 70% to 75%.

Was the diagnosis of heart failure mistaken? No. This patient presented with classic heart failure: orthopnea, weight gain, elevated neck veins, and a characteristic response to diuresis. Moreover, moderately elevated

---

**Table 5. Medication-related causes of refractory or worsening systolic heart failure**

<table>
<thead>
<tr>
<th>Medication to avoid in patients with systolic heart failure</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonsteroidal anti-inflammatory drugs and COX-2 inhibitors</td>
<td>May promote fluid retention and worsen renal function</td>
</tr>
<tr>
<td>Calcium channel blockers (except felodipine and amlodipine)</td>
<td>May accelerate heart failure progression and increase exacerbation</td>
</tr>
<tr>
<td>Antiarrhythmic drugs (except amiodarone and dofetilide)</td>
<td>Can increase risk of sudden death</td>
</tr>
</tbody>
</table>

**Use with caution:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td>Must be discontinued when serum creatinine level &gt;1.5 mg/dL (132.6 µmol/L)</td>
</tr>
<tr>
<td>Thiazolidinediones (eg, pioglitazone, rosiglitazone)</td>
<td>Can cause fluid retention (usually mild) requiring additional diuresis</td>
</tr>
</tbody>
</table>
Heart failure is a clinical diagnosis, made after weighing multiple pieces of evidence.

Heart failure with normal systolic function may occur for a number of reasons, such as valve dysfunction or pericardial disease. The most common cause is diastolic dysfunction, impaired ability of the ventricle to fill at normal pressure. Heart failure resulting from diastolic dysfunction may be clinically indistinguishable from systolic heart failure. Abnormal diastolic pressure shown on echocardiograms suggests the diagnosis of diastolic heart failure. However, echocardiography is not completely sensitive for diastolic dysfunction, and heart failure is therefore not excluded by normal results of echocardiography.

Potentially treatable causes of heart failure with normal LVEF should be sought. Common causes are listed in Table 6.

To date, few mortality trials have been done to guide therapy for heart failure when the ejection fraction is normal. Thus, therapy is empirical and is aimed at relieving symptoms and treating exacerbating conditions.

**Table 6. Causes of heart failure in patients with normal left ventricular ejection fraction**

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary artery disease</td>
</tr>
<tr>
<td>Hypertension (especially with left ventricular hypertrophy)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>Valve dysfunction</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
</tr>
<tr>
<td>Cor pulmonale (right-sided heart failure)</td>
</tr>
<tr>
<td>Hypertrophic cardiomyopathy</td>
</tr>
<tr>
<td>Pericardial disease</td>
</tr>
</tbody>
</table>

*contributes to diastolic dysfunction

**Table 7. Treatment of heart failure in patients with normal systolic function**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat fluid retention</td>
<td>Remove excess fluid with loop diuretics.</td>
</tr>
<tr>
<td>Control blood pressure</td>
<td>Treat hypertension aggressively with a goal blood pressure of less than 130/85 mm Hg. Agents are preferred which regress LVH, such as ACE inhibitors (angiotensin-receptor blockers if patient has intolerance to ACE inhibitors), beta-blockers, and diuretics.</td>
</tr>
<tr>
<td>Control heart rate</td>
<td>For patients with atrial fibrillation and heart failure, restore sinus rhythm if possible. To lengthen diastolic filling time, slow ventricular response rate with beta-blockers, digoxin, verapamil, or diltiazem. For patients in sinus rhythm, slow rate to 55 to 75 beats per minute with beta-blockers.</td>
</tr>
<tr>
<td>Treat ischemia</td>
<td>Treat ischaemia with anti-anginal medication, such as beta-blockers, nitrates, or calcium channel blockers. Refer for revascularization when appropriate.</td>
</tr>
<tr>
<td>Educate patients</td>
<td>Self-care education is the same as for systolic dysfunction and is equally important.</td>
</tr>
</tbody>
</table>

Principles of management are listed in Table 7, and key points of heart failure management are summarized in Table 8.

Many patients with heart failure and normal LVEF receive some of the same medications as those with systolic heart failure—loop diuretics, ACE inhibitors, and beta-blockers. However, beta-blockers may be used before ACE inhibitors and may be titrated more rapidly in patients with normal systolic function. Spironolactone has not been studied in patients with normal LVEF and is generally not recommended.

**Conclusion**

The past decade has seen many advances in the treatment of heart failure, and these advances offer our patients improved survival and quality of life. Heart failure is a clinical diagnosis, made after weighing multiple pieces of evidence. Examination of the neck veins for jugular venous pressure is useful both for diagnosing heart failure and for monitoring response to therapy. Once heart failure is diagnosed, treatable causes should be sought.

Three classes of medication—beta-blockers, vasodilators (especially ACE inhibitors), and spironolactone—have shown improved survival in patients with heart failure caused by reduced LVEF. Survival data for patients with heart failure and normal LVEF are lacking, and treatment for these patients is empirical but ultimately includes many of the same medications used to treat systolic heart failure. For all patients with heart failure, education on prognosis and self-care is essential.

**Table 8. Key points of heart failure management**

- **Control fluid**: Remove excess fluid with loop diuretics.
- **Control blood pressure**: Treat hypertension aggressively with a goal blood pressure of less than 130/85 mm Hg.
- **Control heart rate**: For patients with atrial fibrillation and heart failure, restore sinus rhythm if possible.
- **Treat ischemia**: Treat ischaemia with anti-anginal medication, such as beta-blockers, nitrates, or calcium channel blockers. Refer for revascularization when appropriate.
- **Educate patients**: Self-care education is the same as for systolic dysfunction and is equally important.

**Acknowledgments**

The author acknowledges Leslee J Budge, MBA; Jennifer Wright, MS; Julie Lenhart, RPh; Jonathan Allen, MD; Esther Kim, PharmD; Christopher A Lang, MD; and members of the Kaiser Permanente Care Management Institute Heart Failure Guidelines Task Force and the Kaiser Permanente Northern California Heart Failure Guidelines Committee, all of whose hard work made this document possible. David W Price, MD, provided substantive editing.

**References**


Table 8. Key points in diagnosis and treatment of patients with heart failure

| Heart failure is a clinical diagnosis. |
| Examination of jugular venous pressure is important for diagnosing heart failure and monitoring response to therapy. |
| Seek reversible cause. |
| Angiotensin-converting enzyme (ACE) inhibitors, beta-blockers, and spironolactone improve survival in patients with heart failure and decreased left ventricular ejection fraction. |
| Treatment for heart failure patients with normal left ventricular ejection fraction is empirical but uses many of the same medications as for systolic heart failure (except spironolactone). |
| Patient education and self-management are essential components of heart failure treatment. |
# Putting Heart Disease Guidelines Into Practice: Kaiser Permanente Leads the Way

**Abstract**

The recently revised American Heart Association (AHA)/American College of Cardiology (ACC) secondary prevention guidelines for management of coronary artery disease (CAD) patients, which incorporates findings from the latest clinical trials and consensus statements, has the potential for saving tens of thousands of lives annually. In general, however, these guidelines are poorly implemented. This article reviews four programs that have improved implementation of the guidelines by changing the health care delivery system. The programs include the UCLA Medical Center’s Cardiac Hospitalization Atherosclerosis Management Program (CHAMP), the American Heart Association’s Get With the Guidelines (GWTG) program, the American College of Cardiology’s Guidelines Applied to Practice (GAP), and the Kaiser Permanente Northern California (KPNC) Cardiovascular Disease Management Programs. These programs share features including in-hospital multidisciplinary teams led by at least one “champion”; clinician prompts, including preprinted orders and checklists; and feedback to clinicians and hospitals as part of quality improvement.

**Introduction**

In their 2001 update of the 1995 clinical guidelines for prevention of heart attack and death in patients with atherosclerotic cardiovascular disease, the American Heart Association (AHA) and the American College of Cardiologists (ACC) incorporated findings from numerous clinical trials and other consensus statements. In summary, the new guidelines call for

- lipid management consistent with the National Heart, Lung, and Blood Institute’s Adult Treatment Panel III (ATP III) report
- wider use of beta-blockers
- use of angiotensin-converting enzyme (ACE) inhibitors, even in certain high-risk patients without history of an acute cardiac event
- use of clopidogrel in appropriate patients for whom aspirin is contraindicated
- attainment of a lower body mass index (BMI)
- diabetes management consistent with the American Diabetes Association’s guidelines for risk factor management

The guidelines no longer call for use of estrogen replacement therapy in postmenopausal women due to recent findings. Because the guidelines are derived from numerous clinical trials, hospitals that have implemented earlier iterations of the AHA/ACC guidelines for management of acute myocardial infarction (AMI) have found improved patient outcomes. The UCLA Medical Center’s Cardiac Hospitalization Atherosclerosis Management Program (CHAMP) instituted a systematic approach to increasing use of the AHA/ACC guidelines. Before CHAMP, 14.8% of MI patients had recurrent MI or died; after CHAMP, rates of death or recurrent MI fell to 6.4%.

Similarly, Peterson recently presented data from the NRMI-4 Registry that documented a strong relationship between the processes used by hospitals for MI care and patient outcomes. Specifically, hospitals that more closely followed AHA/ACC guidelines had significantly lower overall inhospital mortality than did hospitals that delivered care less consistent with the guidelines (Eric Peterson, MD, MPH, personal communication, October 15, 2002).

A pilot study from the Cooperative Cardiovascular Project provided additional support for the observation that patient outcomes improve when clinical guidelines are implemented in medical practice. That study showed a decrease in long-term mortality for a sample of elderly patients with myocardial...
### Figure 1. AHA/ACC secondary prevention for patients with coronary and other vascular disease: 2001 update

<table>
<thead>
<tr>
<th>Goals</th>
<th>Intervention recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking:</td>
<td>Assess tobacco use. Strongly encourage patient and family to stop smoking and to avoid secondhand smoke. Provide counseling, pharmacological therapy, including nicotine replacement and bupropion, and formal smoking cessation programs as appropriate.</td>
</tr>
<tr>
<td>BP control:</td>
<td>Initiate lifestyle modification (weight control, physical activity, alcohol moderation, moderate sodium restriction, and emphasis on fruits, vegetables, and low-fat dairy products) in all patients with blood pressure ≥130 mm Hg systolic or 80 mm Hg diastolic. Add blood pressure medication, individualized to other patient requirements and characteristics (ie, age, race, need for drugs with specific benefits) if blood pressure is not &lt;140 mm Hg systolic or 90 mm Hg diastolic or if blood pressure is not &lt;130 mm Hg systolic or 85 mm Hg diastolic for individuals with heart failure or renal insufficiency (&lt;80 mm Hg diastolic for individuals with diabetes).</td>
</tr>
<tr>
<td>Lipid management:</td>
<td></td>
</tr>
<tr>
<td>Primary goal LDL &lt;100 mg/dL.</td>
<td>Start dietary therapy in all patients (&lt;7% saturated fat and &lt;200 mg/d cholesterol) and promote physical activity and weight management. Encourage increased consumption of omega-3 fatty acids. Assess fasting lipid profile in all patients, and within 24 hours of hospitalization for those with an acute event. If patients are hospitalized, consider adding drug therapy on discharge. Add drug therapy according to the following guide:</td>
</tr>
<tr>
<td>Secondary goal if TG ≥200 mg/dL, then non-HDL should be &lt;130 mg/dL. If TG ≥150 mg/dL or HDL &lt;40 mg/dL: Emphasize weight management and physical activity. Advise smoking cessation. If TG 200-499 mg/dL: Consider fibrate or niacin after LDL-lowering therapy. If TG ≥500 mg/dL: Consider fibrate or niacin before LDL-lowering therapy. Consider omega-3 fatty acids as adjunct for high TG. If lipid control is inadequate, consider combined drug therapy.</td>
<td></td>
</tr>
<tr>
<td>Physical activity: Minimum goal 30 minutes three to four days per week - Optimal daily.</td>
<td>Assess risk, preferably with exercise test, to guide prescription. Encourage minimum of 30 to 60 minutes of activity, preferably daily or at least three or four times weekly (walking, jogging, cycling, or other aerobic activity) supplemented by an increase in daily lifestyle activities (eg, walking breaks at work, gardening, household work). Advise medically supervised programs for moderate- to high-risk patients.</td>
</tr>
<tr>
<td>Weight management: Goal BMI 18.5-24.9 kg/m²</td>
<td>Calculate BMI and measure waist circumference as part of evaluation. Monitor response of BMI and waist circumference to therapy. Start weight management and physical activity as appropriate. Desirable BMI range is 18.5-24.9 kg/m². When BMI ≥25 kg/m², goal for waist circumference is ≤40 inches in men and ≤35 inches in women.</td>
</tr>
<tr>
<td>Diabetes management: Goal HbA₁c &lt;7%</td>
<td>Appropriate hypoglycemic therapy to achieve near-normal fasting plasma glucose, as indicated by HbA₁c. Treatment of other risks (eg, physical activity, weight management, blood pressure, and cholesterol management).</td>
</tr>
<tr>
<td>Antiplatlet agents/anticoagulants:</td>
<td>Start and continue indefinitely aspirin 75 to 325 mg/d if not contraindicated. Consider clopidogrel 75 mg/d or warfarin if aspirin contraindicated. Manage warfarin to international normalized ratio = 2.0 to 3.0 in post-MI patients when clinically indicated or for those not able to take aspirin or clopidogrel.</td>
</tr>
<tr>
<td>ACE inhibitors:</td>
<td>Treat all patients indefinitely post MI; start early in stable high-risk patients (anterior MI, previous MI, Killip class II [S, gallop, rales, radiographic CHF]). Consider chronic therapy for all other patients with coronary or other vascular disease unless contraindicated.</td>
</tr>
<tr>
<td>β-Blockers:</td>
<td>Start in all post-MI and acute ischemic syndrome patients. Continue indefinitely. Observe unusual contraindications. Use as needed to manage angina, rhythm, or blood pressure in all other patients.</td>
</tr>
</tbody>
</table>

BP indicates blood pressure; TG, triglycerides; BMI, body mass index; HbA₁c, major fraction of adult hemoglobin; MI, myocardial infarction; and CHF, congestive heart failure.  

4 The use of resin is relatively contraindicated when TG >200 mg/dL.  

5 Non-HDL cholesterol = total cholesterol minus HDL cholesterol.

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infarction treated in hospitals that participated in a quality improvement program using evidence-based forms of therapy. 

Moreover, analysis of treatment patterns from the observational NRMI registries that collected treatment data during the past decade from more than 1.5 million patients with myocardial infarction showed improved adherence to the AHA/ACC guidelines for management of AMI and a 16% reduction in early mortality. 

**Need for Wider Implementation of Evidence-Based Clinical Guidelines**

Despite evidence that following these guidelines will improve patient outcomes, overall implementation nationally is far from optimal (Figure 2). However, this shortfall in implementation cannot be attributed to a lack of physician awareness of the guidelines. For example, in a large-scale study, 95% of clinicians were aware of the National Cholesterol Education Program (NCEP) guideline for lipid management, yet only 18% of their patients with coronary heart disease were treated to LDL goal. The more likely explanation for poor implementation of evidence-based guidelines is that the guidelines are generally not well integrated into the health care delivery system. Recently, at least four documented efforts were implemented to solve this problem: the UCLA Medical Center’s Cardiac Hospitalization Atherosclerosis Management Program (CHAMP), the American Heart Association’s Get With the Guidelines (GWTG) program, the American College of Cardiology’s Guidelines Applied to Practice (GAP) program, and Kaiser Permanente Northern California’s (KPNC) Cardiovascular Disease Management Program.

**Cardiac Hospitalization Atherosclerosis Management Program (CHAMP)**

The CHAMP program, begun in 1994 and still in use, focuses on implementing guidelines that call for prescribing aspirin, cholesterol-lowering medication, beta-blockers, and

---

**Table 1: New goals and intervention recommendations introduced by the 2001 update of the AHA/ACC guidelines for secondary prevention of heart attack**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Goals added in 2001 update</th>
<th>Intervention recommendations added in 2001 update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>Assess tobacco use; avoid secondhand smoke; provide bupropion as part of pharmacological therapy.</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure Control</td>
<td>Control blood pressure in diabetic patients to &lt;130/80 mm Hg</td>
<td>Emphasize consumption of fruits, vegetables, and low-fat dairy products in all patients with blood pressure ≥130 mm Hg systolic or 80 mm Hg diastolic; in diabetic patients, add blood pressure medication if blood pressure is not &lt;80 mm Hg diastolic.</td>
</tr>
<tr>
<td>Lipid management</td>
<td>Promote weight management; encourage increased consumption of omega-3 fatty acids; in patients with an acute event, assess fasting lipid profile within 24 hours of hospital admission and consider adding drug therapy at discharge from hospital. Add drug therapy according to the following guide:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For LDL &lt;100 mg/dL (baseline or on-treatment), consider fibrate or niacin if low HDL level or high triglyceride level.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For LDL 100-129 mg/dL (baseline or on-treatment), consider therapeutic options:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Intensify LDL-lowering therapy (statin or resina).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fibrate or niacin (if low HDL level or high triglyceride level).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Consider combined drug therapy (statin + fibrate or niacin) (if low HDL or high TG).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For LDL ≥130 mg/dL (baseline or on-treatment), consider therapeutic options:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Intensify LDL-lowering therapy (statin or resin²).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Add or increase drug therapy with lifestyle therapies.</td>
<td></td>
</tr>
<tr>
<td>Physical Activity</td>
<td>Optimal goal: daily.</td>
<td>Encourage activity preferably daily or at least 3 to 4 times weekly.</td>
</tr>
<tr>
<td>Weight management</td>
<td>BMI 18.5-24.9 kg/m²</td>
<td>Monitor response of BMI and waist circumference to therapy. Desirable BMI range is 18.5-24.9 kg/m². In women, goal for waist circumference is ≥35 inches when BMI ≥25 kg/m².</td>
</tr>
<tr>
<td>Antiplatelet agents/anticoagulants</td>
<td>Continue indefinitely aspirin 75 to 325 mg/day if not contraindicated. Consider clopidogrel 75 mg/day in post-MI patients when clinically indicated or for those not able to take clopidogrel.</td>
<td></td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>Treat all patients indefinitely post-MI. Consider chronic therapy for all other patients with coronary or other vascular disease unless contraindicated.</td>
<td></td>
</tr>
<tr>
<td>β-blockers</td>
<td>Start in all post-MI and acute ischemic syndrome patients. Continue indefinitely.</td>
<td></td>
</tr>
</tbody>
</table>

BMI = body mass index; MI = myocardial infarction.

¹ Use of resin is relatively contraindicated when triglyceride level >200 mg/dL.

²Non-HDL cholesterol = total cholesterol minus HDL cholesterol.
ACE inhibitors in conjunction with counseling about diet and exercise before CAD patients are discharged from the hospital. Implementation of this program includes use of focused treatment guidelines, standardized admission orders, educational lectures, and tracking and reporting of adherence to the evidence-based treatment guidelines. Compared with the two-year period preceding implementation of the program, CHAMP increased adherence to treatment guidelines (Table 2). These improvements were also sustained at one-year follow-up—a finding demonstrating that therapies begun in the hospital are more likely to be continued. CHAMP patients also had better clinical outcomes (Table 3).9

Although these findings are impressive, they must be interpreted with regard to the fact that the study was observational only and lacked a concurrent control group.

**Get With the Guidelines (GWTG) Program**

CHAMP results inspired the American Heart Association to develop Get With the Guidelines,14 an in-hospital program that standardizes discharge protocols for CAD patients. Its centerpiece is a Patient Management Tool that is available online as a one-page form. The form includes a checklist of medications recommended by the AHA/ACC guidelines and reminds the discharging clinician to refer the patient to smoking cessation, nutrition, and physical activity counseling as appropriate. The provider who is responsible for discharge clicks in the appropriate boxes to record medications and referrals given to the patient. The online Patient Management Tool also includes “pop-up” explanations and evidence-based justification of each recommendation in the guidelines. To increase the likelihood that when discharged from the hospital patients will follow a plan consistent with AHA/ACC guidelines, the AHA encourages health care practitioners to complete the online form immediately at discharge instead of retrospectively. To reinforce continuity of care, the Patient Management Tool can generate a discharge note for the patient and for the medical chart and can fax a discharge letter to the patient’s primary care practitioner. The tool can also store data that the hospital can transmit to third parties, which can include the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) to satisfy requirements for reporting core measures. The data collected by the Patient Management Tool can also be relayed back to clinicians and hospitals in a graphic format for convenient comparison with national performance on adherence to guidelines. Offering regular performance feedback using this benchmarking tool has been shown to drive improvements to systems of care.

GWTG was piloted in four hospitals in New York City in 1996. CHAMP was piloted in four hospitals in New York City in 1998. Both were designed to improve the quality of care for patients discharged with CAD. CHAMP focused on modifying medical care for CAD patients through effective implementation of secondary prevention guidelines. GWTG was piloted in four hospitals in New York City in 1996, the AHA encourages health care practitioners to complete the online form immediately at discharge instead of retrospectively. To reinforce continuity of care, the Patient Management Tool.

**Figure 2. Implementation statistics**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rate</th>
<th>Optimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA</td>
<td>85%</td>
<td>100%</td>
</tr>
<tr>
<td>β-Blocker</td>
<td>72%</td>
<td>100%</td>
</tr>
<tr>
<td>ACE-I</td>
<td>71%</td>
<td>100%</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td>40%</td>
<td>100%</td>
</tr>
<tr>
<td>Lipid lowering</td>
<td>37%</td>
<td>96%</td>
</tr>
</tbody>
</table>

* HCFA, 1998
* NRMI 2nd Q 2000

**Table 2: Pre-CHAMP and post-CHAMP treatment rates at discharge from hospital and at one-year followup**

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Pre-CHAMP At discharge</th>
<th>One year At discharge</th>
<th>Post-CHAMP At discharge</th>
<th>One year At discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>78%</td>
<td>68%</td>
<td>92%*</td>
<td>94%*</td>
</tr>
<tr>
<td>β-Blocker</td>
<td>4%</td>
<td>16%</td>
<td>56%*</td>
<td>48%*</td>
</tr>
<tr>
<td>Nitrates</td>
<td>62%</td>
<td>42%</td>
<td>34%*</td>
<td>18%*</td>
</tr>
<tr>
<td>Calcium blocker</td>
<td>68%</td>
<td>58%</td>
<td>12%*</td>
<td>6%*</td>
</tr>
<tr>
<td>ACE inhibitor</td>
<td>4%</td>
<td>16%</td>
<td>56%*</td>
<td>48%*</td>
</tr>
<tr>
<td>Statin</td>
<td>6%</td>
<td>10%</td>
<td>86%*</td>
<td>91%*</td>
</tr>
</tbody>
</table>

* p < 0.05; pre- vs post-CHAMP at discharge from hospital and at one-year followup.

**Table 3: Pre-CHAMP and post-CHAMP clinical events the first year after discharge for myocardial infarction**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 256)</td>
<td>(n = 302)</td>
<td></td>
</tr>
<tr>
<td>Recurrent myocardial infarction</td>
<td>20 (7.8%)</td>
<td>10 (3.1%)*</td>
</tr>
<tr>
<td>Heart failure</td>
<td>12 (4.7%)</td>
<td>8 (2.6%)</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>38 (14.8%)</td>
<td>23 (7.6%)*</td>
</tr>
<tr>
<td>Sudden death</td>
<td>3 (1.2%)</td>
<td>2 (0.6%)</td>
</tr>
<tr>
<td>Cardiac mortality</td>
<td>13 (5.1%)</td>
<td>6 (2.0%)*</td>
</tr>
<tr>
<td>Noncardiac mortality</td>
<td>2 (0.8%)</td>
<td>2 (0.6%)</td>
</tr>
<tr>
<td>Total mortality</td>
<td>18 (7.0%)</td>
<td>10 (3.3%)*</td>
</tr>
</tbody>
</table>

* p < 0.05.
England, and results showed that the program improved smoking cessation, lipid measurement and treatment, blood pressure control, and referral to cardiac rehabilitation. The American Heart Association is introducing GWTG in California, beginning with the southern part of the state (in 2001).

The Guidelines Applied to Practice (GAP) Program

The ACC’s GAP program for acute myocardial infarction provides another illustration of how adherence to clinical guidelines improves when the system is changed so that guidelines are integrated into the tools of practice and thus become institutionalized. GAP uses a toolkit which includes standard orders, a clinician pocket guide, a clinical pathway, patient education materials, chart reminders, and examples of how to report performance. GAP has increased use of aspirin (81% vs 87%, p = 0.02) and beta blockers (65% vs 74%, p = 0.04) at admission to the hospital; and use of aspirin (84% vs 92%, p = 0.002) and smoking cessation (53% vs 65%, p = 0.02) at discharge from the hospital. Adherence to other quality indicators was improved, although improvement did not reach statistical significance.15

KPNC Cardiovascular Disease Management Programs

KPNC’s approach toward development of clinical guidelines and critical pathways has been truly visionary. Systematic efforts to implement evidence-based cardiovascular guidelines have been in place at KPNC since the early 1990s to reduce mortality in CAD patients. The program is supported at each KPNC facility by a multidisciplinary team of champions including cardiologists, intensivists, emergency department physicians, internists, critical care nurses, and pharmacists. KPNC’s horizontal and vertical integration of health care delivery facilitates systematic implementation of guidelines.

Standing orders and preprinted discharge sheets promote adherence to secondary prevention guidelines during inpatient care. After patients are discharged from the hospital, MULTIFIT and the Cholesterol Management Program assure that patients continue to receive recommended care.

MULTIFIT is an individualized, nurse-managed program intended to reduce risk through lifestyle changes and adherence to medications. Patients recovering from heart attack who choose to enroll in MULTIFIT receive their first consultation with the nurse-manager while still in the hospital. These patients receive counseling about smoking cessation, lipid management, medication use, proper nutrition, and other risk-reduction strategies. After patients return home, they receive continuous encouragement and guidance for making lifestyle changes at scheduled phone calls with the MULTIFIT nurse and by receiving written progress reports by mail. Patients participate with MULTIFIT for a period ranging from six months to a year, depending on progress. The MULTIFIT program currently serves approximately 3100 patients per year.

Patients who have completed MULTIFIT or who declined enrollment in MULTIFIT can enroll in the Cholesterol Management Program (CMP), which addresses both primary and secondary prevention of CAD. Priority is given to four groups of patients: CAD patients whose plasma lipid levels are not at goal (plasma LDL level <100 mg/dL [2.59 mmol/L]); patients who have high triglyceride levels; MULTIFIT graduates; and diabetic patients whose plasma lipid levels are not at goal. Through phone calls, mailings, and referrals to health education programs, a nurse-manager or pharmacist-manager helps patients to change their lifestyles as needed. With the aid of a computer program, the case manager assesses each patient’s risk and tracks results of lipid tests as well as medication use. The CMP currently serves 65,660 patients per year.

Outreach is facilitated by the Patient Integrated Log and Outpatient Tracking (PILOT) system, which searches KPNC’s CAD registry to identify (and mail letters to) patients who must return to the clinic for lipid tests, medication management, and other follow-up care. The CAD registry also supports a Population Care Registry, which generates a Member Summary Sheet for the clinician at the time of a patient visit. The summary sheet is placed on the face of the patient chart by the medical assistant and contains patient-specific information (eg, medication prescribed, dates of lipid tests taken and scheduled, smoking status) and prompts the clinician about needed tests and medication adjustment. The CAD registry is also one of the databases used to generate the Preventive Health Prompt, a patient-focused strategy in which patients registering for a health care visit are given a receipt that includes a record of screening examinations given and due. For patients listed in the CAD registry, the receipt shows the date when lipid levels should next be tested.

These strategies have improved patient outcomes. For example, in KPNC, LDL control (ie, plasma LDL level <130 mg/dL [3.36 mmol/L]) in CAD patients improved from 22% (in 1996) to 81% (in 1999). In 1997, the rate was 97% among eligible patients recovering from myocardial infarction (MI) who received beta-blockers at discharge from the hospital. Adjustments are made for age and sex, mortality from heart disease is 30% lower in the KPNC population than in the non-KPNC population in California. Of the 16 Northern California hospitals recognized by the Office of Statewide Health Planning and Development as having significantly lower-than-expected rates of mortality from acute MI, nine were Kaiser Permanente facilities.

Conclusions

These programs share three important similarities. First, recognizing that system change must be driven by strong intent, each program uses in-hospital multidisciplinary teams led by at least one “champion.” Second, each program uses prompts (eg, preprinted orders and checklists) to ensure that following guidelines is not dependent on clinicians’ memory. Third, as part of continuous quality improvement, each program provides feedback to clinicians and hospitals regarding their per-
formance. The KPNC model adds an outpa-
tient component that assures patients con-
tinue recommended care.

*Duke Clinical Research Institute, Durham, NC.

Acknowledgments

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Far From Discouraging

Every day you may make progress. Every step may be fruitful. Yet there will stretch out before you an
ever-lengthening, ever ascending, ever-improving path. You know you will never get to the end of the
journey. But this, so far from discouraging, only adds to the joy and glory of the climb.

—Winston Churchill, 1874-1965, British Statesman
How Shall We Manage Isolated Systolic Hypertension in Older Adults? Case Example and Suggestions

Introduction
Isolated systolic hypertension (ISH) accounts for approximately 70% of hypertension in the population aged 60 years and older. The occurrence of ISH in older adults is believed to reflect decreased arterial compliance observed with advancing age. Epidemiologic studies suggest that systolic blood pressure—or, more specifically, a widened pulse pressure—is a more robust risk factor for myocardial infarction, heart failure, stroke, and cardiovascular mortality than is diastolic blood pressure. Elevated systolic pressure places additional metabolic demands on an already stressed myocardium, whereas decreased diastolic blood pressure reduces coronary artery perfusion. We present a typical case, its diagnosis, and suggested treatment.

Case Example
A colleague asks your advice on management of blood pressure (170/70 mm Hg) in a 78-year-old woman with a history of stroke. Elevated blood pressure measurements are repeatedly confirmed at examinations done by your colleague and by clinic nurses. The patient is asymptomatic.

Discussion
Diagnosis
Because this patient shows evidence of end organ damage caused by hypertension, she is unlikely to have "pseudohypertension," a condition in which a discrepancy exists between blood pressure measurements obtained using indirect methods (such as with a sphygmomanometer) and direct intraarterial measurements. In addition, this patient is unlikely to have "white coat hypertension" (a condition commonly seen among older patients), because similar blood pressure readings were obtained by different clinical personnel. This patient appears to have ISH.

Treatment of Isolated Systolic Hypertension in Older Adults
Several large randomized controlled trials have documented that treatment of ISH in older adults results in reduction in incidence of stroke, coronary heart disease events, and vascular causes of death. Controversy exists, however, as to what optimal blood pressure should be. Moreover, whether systolic hypertension represents a cardiovascular risk factor among patients aged 80 years and older (ie, patients older than the patient described here) is not clear. Most clinicians would agree that patients with systolic blood pressure above 160 mm Hg and no other comorbid conditions should receive treatment. Patients with blood pressure above 140 mm Hg who concurrently have diabetes or other risk factors for atherosclerotic vascular disease also should be treated. In elderly high-risk patients, reduction of diastolic blood pressure to below 65 mm Hg should be avoided, because organ perfusion may decrease, thus leading to symptoms of hypotension, angina, or renal insufficiency.

Generally Applicable Treatment Suggestion 1: Lifestyle Modification
Because this patient is currently asymptomatic and may be taking other medications, a reasonable initial approach is to advise nondrug lifestyle modifications to lower blood pressure. Recently, the Trial of Nonpharmacologic Interventions...
How Shall We Manage Isolated Systolic Hypertension in Older Adults? Case Example and Suggestions

in the Elderly (TONE) Study\(^6\) showed that rigorous sodium restriction (ie, limiting sodium intake to 80 mEq/day, or 1.8 g of sodium/day) and weight reduction (by about 3.5 kg/week) eliminated both recurrent hypertension and medication use in 44% of obese elderly patients, compared with 16% of the control population at 30 months. This level of sodium restriction may be unrealistic except in a controlled setting; however, a diet in which sodium is moderately restricted (ie, to 100-125 mEq/day, or to 2.3-2.8 g of sodium/day) may reasonably be advocated. In contrast to younger patients, older subjects tend to have a greater decrease in blood pressure in response to sodium restriction, a response suggesting that hypertension in older patients has a clinically significant volume-dependent component. In addition to sodium restriction, moderate and graded aerobic exercise, smoking cessation, and limited alcohol intake all have beneficial effects on blood pressure. Nonsteroidal anti-inflammatory drugs (NSAIDs), commonly used by older adults, induce sodium retention and enhanced venous pooling. In contrast to younger patients, elderly women in particular are prone.

Suggestions

### Specific Treatment

In this patient, a trial of sodium restriction may be attempted. She should be asked about NSAID use; if she is taking these drugs, she should stop or minimize the dose. If her blood pressure remains elevated despite sodium restriction, a small dose of hydrochlorothiazide (12.5 mg/day) or a fixed-dose combination with a potassium-sparing diuretic may be sufficient. Hypokalemia should be avoided. Alternatively, long-acting dihydropyridine calcium channel blockers (eg, nifedipine, felodipine, or amlodipine) have been beneficial.\(^6\) For patients with concurrent illness (eg, previous myocardial infarction, diabetes mellitus, or angina), beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, or nitrates have been successfully used.\(^9\)

### References


### Generally Applicable Treatment Suggestion 2: Medical Therapy

Several randomized controlled studies\(^8\) of elderly patients with ISH have shown that compared with placebo, medical treatment reduces rates of stroke, cardiovascular events, and cardiovascular mortality without causing major adverse effects. However, owing to diminished hepatic metabolism, reduced renal excretion, and decreased volume of distribution, elderly patients are more sensitive to medications than are younger patients.\(^7\) Moreover, incidence of orthostatic hypotension is higher in older patients because of autonomic dysfunction and enhanced venous pooling.

For these reasons, any antihypertensive medical therapy should be initiated cautiously, and the patient must be carefully monitored. For ISH, small doses of diuretics (such as hydrochlorothiazide 12.5 mg a day) or fixed-dose combinations with a potassium-sparing diuretic may be sufficient. Hypokalemia should be avoided. Alternatively, long-acting dihydropyridine calcium channel blockers (eg, nifedipine, felodipine, or amlodipine) have been beneficial.\(^6\) For patients with concurrent illness (eg, previous myocardial infarction, diabetes mellitus, or angina), beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, or nitrates have been successfully used.\(^9\)
soul of the healer

Dr Shearn's home was high on a hill overlooking the San Francisco Bay; he could frequently see spectacular sunsets out of the front window.

More of Dr Shearn's artwork can be seen on the cover and page 61.
Care of Common Medical Conditions in a Managed Care Program for Uninsured Adults

A preliminary analysis of this material was published as an abstract as follows: Swaney RE, Price DW, Goodspeed JR, Steiner JF. Quality of care in a managed care program for the medically indigent. J Gen Intern Med 1999;14(suppl 2):124.

Abstract

Context: The effects of organized care on management of chronic health conditions in uninsured adults are unknown.

Objective: To evaluate the impact of a primary-care-based, managed care pilot program on uninsured adults with asthma, diabetes mellitus, or hypertension at a university hospital.

Design: Retrospective cohort study.

Main outcome measures: Measures of medical utilization (eg, number of outpatient visits), outcome of care (eg, glycosylated hemoglobin levels) and clinical processes (eg, peak flow monitoring) were examined for a cohort of previously uninsured adults who had asthma, diabetes mellitus, or hypertension and who received care in the pilot program compared with matched cohorts of adult Medicaid patients and continually uninsured adults.

Results: Only 17.1% of patients who had a study condition maintained the same payer and were seen in the university hospital system during both study periods; because these were all criteria for inclusion in this study, sample sizes were small. Primary care visits for enrollees in the managed care program increased significantly across all conditions, by 1.5 to 3.1 visits per capita (p < 0.0001). Few statistically significant differences were present in process or outcome measures.

Conclusions: More intensive enrollment efforts or a longer enrollment period may be necessary to statistically support improved quality of care for uninsured adults in a primary-care-based, managed care program. High mobility and frequent changes in insurance status are critical barriers to improving care for this population.

Background

In 1998, more than 32 million adults in the United States were medically uninsured.¹ The uninsured population has increased by an average of 1 million people per year since 1987.² Most uninsured adults are from working families that do not qualify for Medicaid but cannot afford private health insurance.³ Although more than half of uninsured Americans are white, minority groups are disproportionately represented.¹ Many trends contribute to the growing number of uninsured people, including rising costs of health insurance, workers shifting into low-wage or part-time positions where health benefits are not provided, and increased sharing of healthcare costs with employees.³

The majority of uninsured patients desire health coverage. In 1995, only 8% of the uninsured said they did not want or need health insurance; uninsured adults were four times more likely than insured adults to report that they did not receive medical care they believed was necessary.⁴ In 2000, more than a third of uninsured, nonelderly adults postponed medical care.¹ In 1995, a quarter had not filled a prescription due to cost.² Most uninsured adults have no consistent source of care; one in six consider an emergency department their regular source of care.¹ The uninsured are much less likely to receive preventive services¹ or early intervention services⁵ than their insured counterparts, and uninsured people are more likely to be hospitalized for “avoidable conditions”⁶,⁷ and to suffer adverse outcomes⁸ as a result of delayed care.

Interest in managed care delivery systems for disadvantaged patients has been stimulated by these patients’ need for improved access to preventive and early intervention services and by the increasing costs of care delivered in emergency departments and hospitals. As of 1993, 36 states either had or were developing managed care programs for their Medicaid recipients.⁹ As of June 30, 1992, 3.6 million Medicaid beneficiaries were enrolled in managed care plans.⁹ Evaluation of

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Medicaid managed care programs have demonstrated reduced use of subspecialists and emergency departments but little change in numbers of primary care visits, quality of care, or overall health care costs.10-22

Recent legislation has improved access to care for uninsured children by expanding Medicaid programs, developing new insurance mechanisms, and providing incentives to enroll children in private health care systems.23,24 However, few initiatives have been developed to improve access to care for uninsured adults. Kaiser Permanente (KP) of Colorado found that 326 previously uninsured children and adults who were enrolled in a program providing subsidized insurance coverage had similar medical utilization and moderately increased costs of care compared with an age- and sex-matched control group of commercially insured patients.25

To our knowledge, however, clinical process and outcome of care measures in other types of managed care programs for uninsured adults have not been systematically evaluated.

In this study, we assessed clinical process and outcome of care measures in a primary-care-based, managed care pilot program for uninsured adults with one or more of three common chronic conditions in adults: asthma, diabetes mellitus, and hypertension. We hypothesize that this program would improve process and outcome of care measures for these patients through enhanced access to primary care services.

**Program Description**

The Colorado Resident Discount Program (CRDP) was implemented in 1983 to provide access to care for uninsured Colorado residents who fail to qualify for federal entitlement programs. The program was intended primarily to provide funds for emergency and hospital care; any remaining funds were to be used for outpatient services, including primary care. Historically, CRDP patients used emergency departments rather than primary care or preventive services for the majority of their care, a pattern that resulted in little continuity of care. At University Hospital (UH) in Denver, Colorado, some limited access to primary care for CRDP patients was provided in resident clinics. Direct referrals from the emergency department to subspecialty clinics were common, and little continuity or coordination of care existed. UH costs for CRDP patient care escalated rapidly, but there was little information on outcome of care for these patients. In 1992, UH, the School of Medicine at the University of Colorado Health Sciences Center (UCHSC), and KP of Colorado began developing a primary-care-based, managed care pilot program for CRDP patients who already received care at UH. The program, named CU CARE, began in June 1995.

CU CARE patients were mainly from the five suburban counties surrounding Denver. Two family physicians, two general internists, and four nurse practitioners provided care for almost 12,000 patients at the peak of the program, until market and financial pressures forced a 50% decrease in funding and rapid downsizing in December 1996. More than 90% of CU CARE patients were age 19 through 64 years. Sixty-six percent were white, 57% were female, and 44% were single or never married. The program characteristics, demographics, and chronic disease burden of the CU CARE population have been described elsewhere.26,27

**Figure 1. Patient selection process for establishing study cohorts**

<table>
<thead>
<tr>
<th>Eligible patients</th>
<th>Excluded by claims information</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 622 total)</td>
<td>(n = 1029)</td>
</tr>
<tr>
<td>(n = 452 HTN)</td>
<td>Change in payer status</td>
</tr>
<tr>
<td>(n = 262 DM)</td>
<td>(n = 134 asthma)</td>
</tr>
<tr>
<td>(n = 134 asthma)</td>
<td>Lack of visit in both study years</td>
</tr>
<tr>
<td>(n = 3642)</td>
<td>(n = 1991)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MC cohort</th>
<th>Uninsured cohort</th>
<th>Excluded at chart review</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 84 HTN)</td>
<td>(n = 138 HTN)</td>
<td>(n = 230 HTN)</td>
</tr>
<tr>
<td>(n = 84 DM)</td>
<td>(n = 105 DM)</td>
<td>(n = 73 DM)</td>
</tr>
<tr>
<td>(n = 56 asthma)</td>
<td>(n = 47 asthma)</td>
<td>(n = 31 asthma)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUC cohort</th>
<th>MI cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 79 HTN)</td>
<td>(n = 59 HTN)</td>
</tr>
<tr>
<td>(n = 40 DM)</td>
<td>(n = 65 DM)</td>
</tr>
<tr>
<td>(n = 30 asthma)</td>
<td>(n = 17 asthma)</td>
</tr>
</tbody>
</table>

**Key:**
- MC = Medicaid
- CUC = CU CARE
- MI = medically indigent not enrolled in CU CARE
- HTN = hypertension
- DM = diabetes

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* Patients may have had more than one study condition
* Due to inaccurate diagnosis or missing chart
* Including 66 MC patients not selected on a random sample of MC hypertensives
Methods
Study Design
We designed a retrospective cohort study to examine change in medical utilization and clinical process and outcome of care measures for adult (aged 18-64 years) CU CARE patients with common chronic health conditions. Randomization was not possible because of UH's desire to rapidly enroll patients in CU CARE. We chose two concurrent comparison groups: 1) UH Medicaid patients, and 2) eligible, but not enrolled, UH uninsured adult patients.

Despite anticipated differences in income and medical comorbidity, Medicaid patients' access to UH primary care services was comparable to access by medically indigent patients, but their access was unaffected by the CU CARE program. We compared medical utilization, clinical process measures, and outcome of care measures for Medicaid (MC) patients to that for medically indigent patients who had made at least one visit to the CU CARE program in its first year (CUC). We used the same factors to compare care of CUC patients to the population of medically indigent (MI) patients who received care from other clinics within UH but who were not yet enrolled in the CUC program. The MI cohort included both patients who were not reached by CUC enrollment personnel and a few patients who declined to be enrolled.

Study Conditions
Three common chronic medical conditions (asthma, diabetes mellitus, and hypertension) were chosen as index conditions for this study on the basis of their prevalence in adult primary care populations, their impact on patient health and medical utilization, and their inclusion in the quality improvement programs of other managed care organizations.

Patient Selection and Study Groups
The approach to selection of patients for this study is shown in Figure 1. Patients who had a UH outpatient ICD-9-CM billing claim for one or more of the index conditions between January 1, 1994 and June 30, 1996 and who were eligible for Medicaid or were rated medically indigent during the entire time were identified (n = 3642). Patients who changed payor class (CUC, MC, or MI) during this period were excluded from the study (n = 1029). All eligible patients received care from a UH outpatient clinic or emergency department between January 1, 1994 and December 31, 1994 (the calendar year prior to the program) and between July 1, 1995 and June 30, 1996 (the first fiscal year after initiation of the program). Patients who received care in only one of the study years (n = 1991) were thus excluded. Six hundred twenty-two (17.1%) of the patients originally identified by billing claims met both criteria.

We reviewed medical records for all eligible MC, CUC, or MI patients who had diabetes or asthma, all eligible CUC and MI patients who had hypertension, and a convenience sample of eligible MC patients who had hypertension. Patients with more than one of the index conditions were reviewed for each condition separately. Patients whose records showed no evidence of any index condition, who had a new diagnosis of the index condition during either study year, or whose medical records could not be retrieved were excluded. Of the 452 patients with hypertension, 66 MC patients were excluded because their medical records were not sampled, and 164 other patients were excluded due to inaccurate diagnosis or a missing chart. Overall, of the 3642 patients initially identified as potentially eligible for inclusion on the basis of billing data alone, chart reviews were completed for 76.9% of patients with asthma, 72.1% of patients with diabetes, and 49.1% of patients with hypertension. Using billing data for initial patient identification undoubtedly failed to detect some patients who had an index condition. However, the patient selection system we used identified cohorts of continuous us-

<table>
<thead>
<tr>
<th>Table 1. Demographics and comorbidity of study groups</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Hypertension</td>
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<tr>
<td>Patients enrolled in CU CARE (n = 79)</td>
</tr>
<tr>
<td>Medically indigent patients (n = 59)</td>
</tr>
<tr>
<td>Medicaid patients (n = 84)</td>
</tr>
<tr>
<td>Patients enrolled in CU CARE (n = 65)</td>
</tr>
<tr>
<td>Medically indigent patients (n = 65)</td>
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<tr>
<td>Medicaid patients (n = 84)</td>
</tr>
<tr>
<td>Patients enrolled in CU CARE (n = 30)</td>
</tr>
<tr>
<td>Medically indigent patients (n = 17)</td>
</tr>
<tr>
<td>Medicaid patients (n = 56)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Median age, year (5th percentile, 95th percentile)</td>
</tr>
<tr>
<td>54.0 (37.0, 62.0)</td>
</tr>
<tr>
<td>52.0 (26.0, 63.0)</td>
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<tr>
<td>54.0 (36.0, 64.0)</td>
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<tr>
<td>54.5 (35.0, 63.5)</td>
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<tr>
<td>40.0 (20.0, 63.0)</td>
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<tr>
<td>47.0 (22.0, 63.0)</td>
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<tr>
<td>39.0 (20.0, 66.0)</td>
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<tr>
<td>36.0 (21.0, 60.0)</td>
</tr>
<tr>
<td>37.0 (21.0, 58.0)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Women, %</td>
</tr>
<tr>
<td>64.6 66.1 69.1</td>
</tr>
<tr>
<td>67.5 46.4 83.3</td>
</tr>
<tr>
<td>73.3 70.6 92.9</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>White, %</td>
</tr>
<tr>
<td>67.1 64.4 50.0</td>
</tr>
<tr>
<td>55.0 67.2 57.1</td>
</tr>
<tr>
<td>66.7 88.2 64.3</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>≥ 1 comorbid Condition, %</td>
</tr>
<tr>
<td>13.9 27.1 33.3</td>
</tr>
<tr>
<td>75.0 56.9 69.1</td>
</tr>
<tr>
<td>16.7 0 12.5</td>
</tr>
</tbody>
</table>

Medically indigent patients not enrolled in CU CARE.

a % indicates percentage of patients.
b Comorbid conditions considered for hypertension and diabetes were congestive heart failure, renal failure, stroke/transient ischemic attack, and coronary artery disease; additional comorbid conditions considered for diabetes included hyperlipidemia, neuropathy, foot disease, and hypertension; comorbid condition considered for asthma was chronic obstructive pulmonary disease.

c p = 0.003, compared with diabetic patients enrolled in CU CARE (Wilcoxon rank sum test used).
d p = 0.02, compared with diabetic patients enrolled in CU CARE (Wilcoxon rank sum test used).
e p = 0.01, compared with asthmatic patients enrolled in CU CARE (chi-square test used).
f p = 0.03, compared with hypertensive patients enrolled in CU CARE (chi-square test used).
g p = 0.004, compared with hypertensive patients enrolled in CU CARE (chi-square test used).
ers of the UH health care system, which was necessary for methodologically sound evaluation of the effects of the CU CARE program.

**Selection of Dependent Variables**

Measures of quality of care for each index condition were chosen from important clinical processes (eg, home peak flow monitoring for patients with asthma), intermediate outcomes (eg, glycated hemoglobin values in patients with diabetes) and available measures used by other organizations. Detailed chart reviews or UH claims data were used to evaluate each measure. Long-term outcomes, such as cardiovascular complications of diabetes or of hypertension, could not be assessed because of the short duration of the pilot program.

**Statistical Analysis**

Patients were grouped into cohorts by payer (ie, CUC, MC, or MI) for the preprogram (1994) and program (FY1996) years, and cohorts were compared to determine difference in care for patients with each index condition, by payer group. CUC and MC cohorts were compared to assess care of CUC patients in relation to a group of patients who had lower socioeconomic status and higher chronic disease burden but better baseline access to health care. CUC and MI cohorts were compared to assess the effect of CUC enrollment on patients in the population eligible for the program.

Descriptive statistics of demographic characteristics and outcomes were produced. Median and selected percentiles were reported for count data and nonnormally distributed continuous data. Mean and 95% confidence intervals were reported for normally distributed continuous data. Statistical significance was defined at p < 0.05. Proportions were reported for dichotomous variables. Baseline characteristics of patients—including age, gender, race, and comorbidity (presence of more than one index condition, complications from an index condition, or commonly occurring coexisting medical conditions)—were compared between payer cohorts using the Wilcoxon rank sum test and the chi-square test. Patient age, race, gender, and comorbidity were entered as covariates in all analyses. Because of patient-related clustering effect across years, mixed models were created for outcomes of interest. When a variable or its proper transformation was normally distributed (eg, weight and mean systolic blood pressure), a linear mixed model with different intercepts and slopes for payers was fitted.\(^{26,29}\) Change of an outcome (during the study years) within a group was tested for significance by examining whether the slope was zero, and the difference of change between groups was tested for significance by examining whether the difference in slopes between groups was zero. Nonlinear mixed models\(^{20,31}\) were fitted for count data (eg, number of clinic visits) and for dichotomous data (eg, eye examination).

All analyses were conducted using SAS, Version 8.2 (SAS Institute, Inc, Cary, NC).

**Results**

Table 1 shows demographic and comorbidity data for the study groups. CUC diabetic patients were significantly younger than both MI (p = 0.003) and MC (p = 0.02) diabetic patients. Significantly more MC (than CUC) patients with asthma were female (p = 0.01). Significantly fewer MC than CUC hypertensive patients were white (p = 0.03), and more MC than CUC hypertensive patients had one or more comorbid medical conditions (p = 0.004).

**Patients with Asthma**

Preprogram and program year data for patients who had asthma are shown in Table 2. Compared with MC patients, CUC patients had significant increases in number of outpatient (p = 0.02) and primary care (p = 0.0007) visits and significantly fewer specialty visits (p = 0.016). CUC patients also were more likely to do peak flow monitoring at home (p = 0.011) and to be prescribed inhaled steroids (p = 0.008) compared with MC patients.

Compared with MI patients, CUC patients showed trends toward increased primary care and decreased specialty care visits, although neither reached statistical significance. CUC patients were more likely than MI patients to do peak flow monitoring at home (p = 0.012).

**Patients with Diabetes**

Preprogram and program year data for patients with diabetes are shown in Table 3. Compared with MC patients, CUC patients with diabetes had significantly increased numbers of outpatient (p = 0.0016) and primary care (p = 0.0052) visits and showed a trend toward more nurse visits. CUC patients with both hypertension and diabetes were more likely to be taking angiotensin-converting enzyme inhibitors (p = 0.02) than were MC patients with both hypertension and diabetes.

Compared with MI patients with diabetes, CUC patients with diabetes had significantly increased numbers of outpatient (p < 0.001), primary care (p < 0.001), specialty, (p = 0.042) and nurse (p = 0.0014) visits. CUC patients with diabetes were also more likely to have glucose readings recorded in their charts (p = 0.053). CUC patients with both hypertension and diabetes were more likely to be taking angiotensin-converting enzyme inhibitors (p = 0.01) than MI patients with hypertension and diabetes.

CUC patients with diabetes had greater improvement in HgA1c values in the program year than did MC patients (p = 0.052) or MI patients (p = 0.0047).

**Patients with Hypertension**

Preprogram- and program-year data for patients with hypertension are shown in Table 4. Compared with both MC and MI patients, CUC patients had significantly increased numbers of outpatient (p = 0.007, p = 0.0013) and primary care (p = 0.0007, p < 0.0001) visits. CUC patients were less likely than were MI patients to have a specialty care visit (p = 0.016). However, compared with MC patients, a significantly lower percentage of CUC patients had diastolic blood pressure readings <90 mm Hg at the end of the program year (p = 0.019).

**Results Across Cohorts**

The CU CARE cohort overall increased the number of visits to the UH facilities by 1.5 to 3.1 visits per capita.

Table 5 shows improvements in 7 of 16 utilization measures for CUC patients compared with MC patients, and 9 of 16 utilization measures for CUC patients compared with MI patients. However, only a few improvements in clinical process or outcome of care measures for CUC patients compared with the MC or MI cohorts (4 of 27 clinical process or outcome measures in each comparison). In one measure—percent-
age of hypertensive patients with diastolic blood pressure $<90$ mm Hg—the MC cohort did better than the CUC cohort ($p = 0.019$).

Discussion

In this evaluation of a primary-care-based, managed care pilot program for uninsured adults, CU CARE, we found a short-term increase in utilization of primary care services for enrolled patients who had asthma, diabetes mellitus, or hypertension. Clinical process or outcome-of-care measures for CU CARE patients improved only marginally compared with patients receiving Medicaid or compared with uninsured patients who were not enrolled in CU CARE. These results are consistent with published analyses of Medicaid managed care programs, where short-term effects on quality of care were modest.10-22

However, several findings deserve further comment. The increase in visits by CUC patients with hypertension may have been driven both by decreased blood pressure control (the percentage of these patients with mean systolic BP $<140$ mm Hg and mean diastolic BP $<90$ mm Hg decreased during the study) as well as by increased access to care. Improved glycosylated hemoglobin levels for the CU CARE diabetic patient cohort may result from regression to the mean, and we cannot exclude the possibility that the patients in the three diabetes cohorts differed in duration of illness. The small number in the MI cohort of patients with asthma ($n = 17$) may have limited the ability of the analysis to detect additional differences between CU CARE and MI asthmatic patients. The percentage of patients with more than one emergency department visit or hospital admission was not significantly different between CUC and MI cohorts or between CUC and MC cohorts of patients who had diabetes or asthma. However, in a different study, we found overall significantly decreased emergency department visits and hospital admissions in the entire CU CARE cohort compared with a matched MC cohort and a matched cohort of “self-pay” patients who were not enrolled in the Colorado Resident Discount Program for medically indigent patients.32

Perhaps the most important finding of our study was the difficulty we experienced in identifying a stable population of patients who had no private health insurance and who could be used to assess effectiveness of the CU CARE program. As shown in Figure 1, only 17.1% of patients with a billing claim for asthma, diabetes, or hypertension used the UH system and maintained the same payer over the entire 30-month study period.

<table>
<thead>
<tr>
<th>Table 2. Medical utilization and clinical process measures for asthmatic patients in baseline year (1994) and in study year (FY1996)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients enrolled in CU CARE (n = 30)</td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Medical utilization</td>
</tr>
<tr>
<td>No. of outpatient visits*</td>
</tr>
<tr>
<td>No. of primary care visits*</td>
</tr>
<tr>
<td>No. of specialty care visits*</td>
</tr>
<tr>
<td>&gt; 1 emergency department visit, %</td>
</tr>
<tr>
<td>&gt; 1 hospital admission, %</td>
</tr>
<tr>
<td>Clinical process measures</td>
</tr>
<tr>
<td>Primary care visit with peak flow reading, %</td>
</tr>
<tr>
<td>Home peak flow monitoring, %</td>
</tr>
<tr>
<td>Using inhaled steroid, %</td>
</tr>
<tr>
<td>Influenza vaccination during FY1996, %</td>
</tr>
<tr>
<td>Pneumococcal vaccination before or during study, %</td>
</tr>
<tr>
<td>Smoking cessation efforts, %</td>
</tr>
</tbody>
</table>

FY1996 = July 1, 1995 through June 30, 1996. Medically indigent patients not enrolled in CU CARE.

* Statistical significance in linear and nonlinear mixed models.

* Values are median (5th percentile, 95th percentile).

* % indicates percentage of patients.

--- indicates missing data or statistical analysis not done due to missing data and small sample size.
### Table 3. Medical utilization, clinical process measures, and outcome measures for diabetic patients in baseline year (1994) and in study year (FY1996)

<table>
<thead>
<tr>
<th>Patients enrolled in CU CARE (n = 40)</th>
<th>Medically indigent patients (n = 65)</th>
<th>Medicaid patients (n = 84)</th>
<th>p values, change between 1994 and FY1996</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of outpatient visitsb</td>
<td>2 (0, 9.5)</td>
<td>4.5 (0, 11)</td>
<td>2 (0, 8)</td>
</tr>
<tr>
<td>No. of primary care visitsb</td>
<td>0.5 (0, 7)</td>
<td>2.5 (0, 9)</td>
<td>0 (0, 3)</td>
</tr>
<tr>
<td>No. of specialty care visitsb</td>
<td>0 (0, 5.3)</td>
<td>0 (0, 6.5)</td>
<td>1 (0, 8)</td>
</tr>
<tr>
<td>&gt; 1 emergency department visit, %c</td>
<td>15.0</td>
<td>20.0</td>
<td>9.2</td>
</tr>
<tr>
<td>&gt; 1 hospital admission, %</td>
<td>10.0</td>
<td>15.0</td>
<td>10.8</td>
</tr>
<tr>
<td>No. of nutritionist visitsb</td>
<td>0 (0, 1.5)</td>
<td>0 (0, 1)</td>
<td>0 (0, 1)</td>
</tr>
<tr>
<td>No. of nurse visitsb</td>
<td>0 (0, 2)</td>
<td>0 (0, 4.5)</td>
<td>0 (0, 1)</td>
</tr>
<tr>
<td>No. of clinical pharmacist visitsb</td>
<td>0 (0, 0)</td>
<td>0 (0, 1.5)</td>
<td>0 (0, 0)</td>
</tr>
</tbody>
</table>

**Medical process measures**

| Smoking cessation effort, %          | 40.0                                 | 46.7                      | 51.9                                  | 57.9                                  | 59.0                                  | 46.2                                   | 39.1                                  | 0.54                                  | 0.50                                   | 0.58                                   | 0.98                                   | 0.41                                  |
| Foot examination, %                  | 75.0                                 | 50.0                      | 75.0                                  | 73.8                                  | 70.3                                  | 65.2                                   | 0.036                                 | 0.87                                  | 0.52                                   | 0.14                                   | 0.16                                  |
| Eye examination, %                   | 45.0                                 | 47.5                      | 44.6                                  | 44.6                                  | 45.2                                  | 50.0                                   | 0.80                                  | 0.84                                  | 0.48                                   | 0.74                                   | 0.84                                  |
| Lipid panel, %                       | 57.5                                 | 60.0                      | 52.3                                  | 55.4                                  | 58.3                                  | 56.0                                   | 0.69                                  | 0.87                                  | 0.75                                   | 0.83                                   | 0.61                                  |
| Urinalysis, %                        | 67.5                                 | 65.0                      | 66.2                                  | 55.4                                  | 72.6                                  | 66.7                                   | 0.80                                  | 0.17                                  | 0.32                                   | 0.51                                   | 0.71                                  |
| Glucose level measured in clinic, %  | 89.3                                 | 76.3                      | 70.5                                  | 66.7                                  | 92.2                                  | 85.5                                   | 0.14                                  | 0.33                                  | 0.20                                   | 0.52                                   | 0.71                                  |
| Home glucose level recorded in chart, % | 50.0                              | 63.2                      | 81.8                                  | 69.1                                  | 65.6                                  | 68.1                                   | 0.17                                  | 0.16                                  | 0.58                                   | 0.053                                  | 0.41                                  |
| Glycosylated hemoglobin level measured, % | 52.5                        | 55.0                      | 61.5                                  | 46.2                                  | 51.2                                  | 46.4                                   | 0.80                                  | 0.055                                 | 0.49                                   | 0.16                                   | 0.55                                  |
| Creatinine level measured, %         | 75.0                                 | 82.5                      | 61.5                                  | 55.4                                  | 76.2                                  | 75.0                                   | 0.38                                  | 0.32                                  | 0.85                                   | 0.20                                   | 0.40                                  |
| Hypertensive patients using ACE inhibitors, % | 47.8                   | 91.3                      | 55.6                                  | 63.0                                  | 67.4                                  | 77.1                                   | 0.0016                                | 0.41                                  | 0.1                                     | 0.01                                   | 0.02                                  |

**Outcome measures**

| Mean glycosylated hemoglobin level (CI), % of total hemoglobin | 12.5 (10.7-14.4) | 8.2 (7.4-9.0) | 10.0 (9.2-10.9) | 8.8 (7.9-9.7) | 10.9 (9.9-11.9) | 8.6 (7.9-9.3) | <0.0001 | 0.1 | 0.0005 | 0.0047 | 0.052 |
| Glycosylated hemoglobin level <8.0, % | 9.5 | 40.9 | 22.5 | 50.0 | 22.5 | 50.0 | 0.03 | 0.02 | 0.051 | 0.54 | 0.33 |
| Mean weight (CI), lb | 176.1 (158.6-193.6) | 188.9 (175.0-202.6) | 181.9 (168.5-195.3) | 177.5 (162.2-192.9) | 191.7 (177.7-205.7) | 188.8 (175.5-202.3) | 0.70 | 0.14 | 0.96 | 0.21 | 0.73 |
| Mean systolic blood pressure (CI), mm Hg | 130.2 (123.9-136.5) | 134.4 (129.5-139.2) | 122.0 (117.9-126.2) | 127.0 (121.4-132.7) | 127.0 (122.4-131.5) | 127.1 (123.2-131.0) | 0.039 | 0.25 | 0.69 | 0.41 | 0.13 |

ACE = angiotensin-converting enzyme; CI = 95% confidence interval.

* Statistical significance in linear and nonlinear mixed models.

b Median (5th percentile, 95th percentile).

c % indicates percentage of patients, unless otherwise noted.

**Why did the Program Fail to Show Substantial Improvement in Care?**

Several factors may have contributed to the lack of overall improvement in clinical process and outcome of care measures in CU CARE enrollees, despite an increase of 1.5 to 3.1 health care visits per capita. The program year (FY1996) was the first year of CUC operations, and although enrollment increased rapidly (from 1500 to 9000 patients), only a minority of the targeted population was identified and enrolled so most patients were not enrolled for the full year. New clinicians, unfamiliar with a managed care environment, were hired and oriented. Many new systems (eg, data tracking...
systems, referral guidelines and authorization systems, medication formularies, practice guidelines, and team-based care) were developed and implemented at different times throughout the program year. A formal quality improvement program was not initiated until March 1996. Although these systems were designed to be part of the CUC program from the outset, their implementation was staged, and clinicians had to learn about them and learn how to incorporate them into their practice during the program year. A one-year observation period may be insufficient to detect change in primary care practice or change in process or outcome of care measures.

Despite the sliding copayment schedule, many patients (particularly those with higher copayments) may not have been able to afford prescription medications, a barrier which could have reduced their adherence to a medication regimen. In addition, affecting patient lifestyle takes time, and a lag time from lifestyle changes to improved outcome occurs. The period of analysis was probably too short to reflect an effect from change in patient behavior.

Limitations

One important limitation of our study is the inability to generalize our findings to the much larger population of patients without private health insurance and who have one of the study conditions. Only a small proportion of the initial group of patients identified who had these common health conditions was eligible for record review, because we required a UH visit for the study condition in each year and a consistent payer class to establish study eligibility. The same criteria necessary for methodologically sound program evaluation proved hard to satisfy for this population, who often seek care sporadically or from multiple sites. As a result, the small sample sizes limited the statistical power of the study to detect differences in process or outcome of care measures. The results may also not be generalizable to other medically indigent populations, which may differ from our study population in demographics, prevalence or severity of illness, local system of health care for the uninsured, or primary care provider mix (eg, family practice or internal medicine; physician or nurse practitioner).

The analysis was retrospective, and patients were not randomized into different cohorts. Inclusion in the CUC cohort may have been subject to selection bias, because indigent patients visiting the emergency department were “targeted” for enrollment into the CU CARE program at the time of their visit. The MI cohort included patients who were not

<table>
<thead>
<tr>
<th>Table 4. Medical utilization, clinical process measures, and outcome measures for hypertensive patients in baseline year (1994) and in study year (FY1996)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients enrolled in CU CARE (n = 79)</td>
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<tr>
<td>-----------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Medical utilization</strong></td>
</tr>
<tr>
<td>No. of outpatient visits</td>
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<tr>
<td>No. of primary care visits</td>
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<tr>
<td>No. of specialty care visits</td>
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<tr>
<td><strong>Clinical process measures</strong></td>
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<tr>
<td>Smoking cessation efforts, %</td>
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<tr>
<td>Electrolyte levels measured, %</td>
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<tr>
<td>Lipid levels measured, %</td>
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<tr>
<td><strong>Outcome measures</strong></td>
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<tr>
<td>Mean systolic blood pressure (CI), mmHg</td>
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<tr>
<td>Mean diastolic blood pressure (CI), mmHg</td>
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<tr>
<td>Mean systolic blood pressure &lt;140 mmHg, %</td>
</tr>
<tr>
<td>Mean diastolic blood pressure &lt;90 mmHg, %</td>
</tr>
</tbody>
</table>

CI = 95% confidence interval. Medically indigent patients not enrolled in CU CARE.

* Statistical significance in linear and nonlinear mixed models

1 Median (5th percentile, 95th percentile)

2 % indicates percentage of patients
reached by CUC enrollment personnel as well as a few who declined to be enrolled in CU CARE. This distinction is important, because patients who declined enrollment may have differed in health status or views on health care from patients who were not reached. Table 1 shows some demographic and clinical differences between CUC enrollees and the control group of MC patients. Unmeasured differences may well have existed between groups as well. For example, CUC patients may have sought care at other institutions, thus making it difficult to control for the potentially confounding influence of lack of continuity of care. Because claims data were used to identify patients who had the study conditions, some patients who had one or more of these conditions but who did not have an ICD-9-coded visit for that condition would have been excluded from the study. However, lack of feasibility of a randomized trial in this setting realistically reflects the constraints in assessing program effectiveness in practice. We therefore believe our findings are relevant to policymakers who are considering systems of care for the medically uninsured.

The analysis did reveal some statistically significant improvement in process and outcome of care measures, although because of multiple comparisons, some of the improvement could possibly have occurred by chance alone. However, the purpose of this analysis was to look for trends in care of adults with chronic conditions, and no short-term systematic trends toward improved process or outcome measures were evident for any of the three health conditions studied. The possibility still exists that with a longer period of analysis, a larger sample size, and a more mature delivery system, significant improvements may be realized.

**Conclusions**

Table 6 summarizes the important conclusions from this study. Our evaluation showed that the CU CARE program increased utilization of primary care services by uninsured adults who maintained continuity of care within the UH system. However, CU CARE did not lead to consistent short-term improvement in process or outcome of care measures for patients with three common medical conditions. CU CARE program personnel were unable to reach most of the people who may have benefited from enrollment because of high mobility and frequent transition of insurance status in the uninsured population. We conclude that increases in primary care utilization alone do not automatically lead to short-term improvement in quality of care for medically indigent populations, which is consistent with the results of quality-of-care assessment in Medicaid managed care programs.14b

Programs providing primary care to uninsured populations should recognize that their efforts to improve process and outcome of care measures may need to be continued for prolonged periods to demonstrate benefit. Such programs should also consider strategies for reaching beyond the small proportion of patients who have one or more specific health conditions and who maintain continuity of care into the larger population of people who have the health condition or conditions of interest. In fact, high mobility of the patient populations that programs such as the CU CARE program attempt to serve, lack of continuity of care, and inability to enroll many eligible patients remain fundamental obstacles to improving quality of care for these populations.
Acknowledgments

Funding for the CU CARE program evaluation was provided by University Hospital, University of Colorado Health Sciences Center, Denver, Colorado.

Paul H Barrett, Jr, MD, MSPH, assisted with development and oversight of the project. The authors wish to thank the providers, staff, and project team of the CU CARE program for their hard work in caring for the underserved.

References


One of the most distinguished and creative physicians of the Kaiser Permanente Medical Care Program (KPMCP), Dr. Martin Shearn played a major role at the Oakland facility starting in 1955. He developed the first KP House Staff Training Program (Residency), which flourished under his direction for the next 25 years. Many of the hundreds of physicians it graduated became Staff Physicians in the KPMCP. He served as Chief of Medicine at Oakland for four years, from 1982 until his retirement in 1986, during which he instituted a Personal Physician program that was later adopted program wide. He authored or coauthored more than 80 articles or book chapters, regarding disseminated lupus erythematosus or Sjogren’s syndrome—subjects on which he was known internationally as an expert. Other (usually in collaboration with his wife Lori) concerned topics of medical historical interest, with titles such as “Madame de Pompadour—Impaired Courtesan” and “Doctor Joseph Guillotin—Saint or Villain?” A partial list of his honors includes several elections as an outstanding teacher at KP Oakland and University of California hospitals; honorary Brazilian citizenship (awarded during a year of service as Chief of Staff of the USS Hope); selection as a Distinguished Practitioner of Medicine of the National Academies of Practice; and the respect and affection of thousands of colleagues, students, and patients who benefited from his knowledge and wit.

A graduate of Ohio University and New York Medical College, Dr. Shearn trained at Bellevue Hospital in New York, where he practiced and taught for several years. He did a Cardiology Fellowship at Stanford University Medical Center. He was a Fellow of the American College of Physicians. He married Lori in 1951; they have three children and five grandchildren. Two of their three children (David, Director of Physician Education and Development at Oakland, and Wendy, an Internist at Terra Linda) are KP Physicians; the third (Bobbi) teaches music. Dr. Shearn died September 23, 2002, several weeks after the “Living with Alzheimer’s” article (page 38) was written.
A Tribute to Martin Shearn, MD

An announcement in 2002 noted that Dr Martin Shearn had died and that he had been Chief of Medicine at the Kaiser Permanente (KP) facility in Oakland. Physicians of TPMG and across the country deserve to know more about Marty. Even though many of them were not members of our group or perhaps not even physicians when he retired 13 years ago, they owe much to Marty’s professional brilliance and pioneering innovations and leadership.

When Marty and I joined TPMG almost 50 years ago, in the mid fifties, we were under fire from the national and local medical professional organizations, which banned us from membership as a “socialist” organization and the enemy of fee-for-service practice. The press wasn’t friendly either, and the general public conception was that although KP was cheap, the physicians were not up to the fee-for-service standard and you got what you paid for. As a counterbalance, we knew that we were good, and we had a loyal and growing patient membership. Our emphasis was on economic survival and on keeping up with the clinical demands of our members. Marty added the dimensions of education and professional excellence. As Director of Medical Education, he took a moribund residency program with few applicants and transformed it into one of the leading and most desirable clinical training programs in the country, receiving multiple applicants for each available position. He talked the Health Plan into sponsoring annual medical symposia featuring famed speakers, including a number of Nobel Laureates. He was a model of academic excellence as well as a caring and productive practitioner. He became a noted rheumatologist, a Clinical Professor at the University of California San Francisco; and the author of many medical publications including a classic monograph on Sjögren’s syndrome. He was a stimulating teacher and had a prodigious memory. Many of his residents joined TPMG and themselves became department chiefs and leading practitioners. They held him in awe and kept in touch with him—some were at his funeral.

Marty was my closest friend and best man at my wedding. He was funny and stimulating with boundless energy. He excelled at anything he tried—whether it was music, painting, tennis—or even graphology. He was a loving husband and father.

Robbie Pearl calls attention to the unparalleled level of care and professional excellence of today’s TPMG. It was people like Marty Shearn who got us here. We should remember that.

Edgar J Schoen, MD, is senior consultant in pediatrics and director of regional perinatal screening in the genetics department for TPMG. He joined TPMG in 1954. E-mail: edgar.schoen@ncal.kaiperm.org.

It was people like Marty Shearn who got us here. We should remember that.
Living with Alzheimer’s

By Lori Shearn

We live too long, perhaps. Medicine has performed such miracles in our day, but when an illness such as Alzheimer’s strikes, there is little to be done but wait.

Martin and I have been married for over 50 years. We have been partners, filling various roles in each other’s lives and in society. Now, however, we have had to adopt new roles.

Who are we? He is a husband, father, grandfather, a physician, an honored teacher, a professor, and a mentor for a generation of rheumatologists. He has written myriad learned articles for the medical literature as well as books and a number of lighthearted, joyous celebrations of special and often-entertaining observations.

I am a wife, mother, grandmother, an immigrant from Hitler’s Europe, and a college graduate. I have been the financial officer for the Oakland Symphony, a docent at the California Academy of Science, a counselor for Planned Parenthood, and a speaker for the Holocaust Center. But my new role is that of “caregiver” for my beloved’s new role of Alzheimer’s patient.

The word “caregiver” feels ambiguous. It does not begin to describe the magical life that Martin and I shared, the adventures we experienced, the occupations and professions we pursued, or the encomiums we earned—together and individually.

Martin made his own diagnosis about ten years ago, when he became aware of failures in his memory. Memory had been his proudest gift. Suddenly, he discovered a glitch in this retrieval process, and it was terrifying to him.

“Some forgetting happens to everyone as we get older,” we said because it felt reassuring. For him, the first defense was secrecy: No one must know of this “shameful” loss. But a very few were quietly asked for their impressions: Medical friends and doctors who were not friends were invited to do a clinical evaluation. The favorite explanation was “it’s definitely not serious; it’s pseudodementia and can be cured by an antidepressant. Start today, and in two weeks you will be better.” We wanted to believe. He wanted to believe. As soon as the first dose was taken, he was “better” and happier. But, of course, the gains were not sustained. More testing was needed. And more. And more.

We finally decided to do complete psychological testing because “he feels so bad about retiring from medicine.” The results pointed to early dementia, and, for the first time, the “A word” was mentioned. This prospect was grim, but initially we were able to make adaptive changes in our life. We worked diligently to introduce some new activities: Teaching medicine to laymen, presenting workshops on poetry, and discussing biographies at senior centers. It made us both feel better. But the memory

Lori Shearn is the wife of Martin Shearn, MD. She has volunteered with the Oakland Symphony, the California Academy of Science, Planned Parenthood, and currently speaks at the Holocaust Center.
problem was clearly getting worse. He would get angry, even with me—a totally new phenomenon. He didn't want to talk about it. He began living an insular existence.

And then, a fabulous gift was unwrapped. He discovered within himself a passion for painting. He created remarkable images and was lauded by all for the amazing range of his talent and for the beauty of his colors, his composition, and his imagery. The pictures depicted large, fantastic skyscapes of great intensity or nostalgic reminders of another time with life-sized nickelodeons featuring some of the songs of our youth, and ice cream sodas of enormous size, recalling happier days without worries about cholesterol.

Years passed. Martin continued to be athletically active, involved with family matters, and creative. Sadly, his fervent passion for medicine had vanished. Relentlessly the mental deterioration became more debilitating—clearly more widespread, more pronounced and noticeable. He had ways of coping. While reading, he took notes. When he couldn't understand his notes, he became angry. He blamed others—a distinct change in personality.

We went back for more testing, this time to a research center for Alzheimer's; the deficits were documented. By the end of that visit, we acknowledged the diagnosis we had known for a long time. The certainty required a new attitude. Privately, Martin accepted the diagnosis, but he did not feel comfortable discussing it with anyone. He withdrew from old friends for fear of what they might think. We saw no colleagues, avoided medical meetings, rounds, and most friends; only a few who pursued us succeeded in reaching him.

There were legal issues to be attended to, and Martin clearly expressed his wishes in writing that he did not wish to live if his brain ceased to function. He contemplated a life with greater and greater losses. My personal loneliness was exacerbated by his unwillingness to discuss our fate with friends or with family. Of course, our children knew, but he didn't want to talk about it with them either. I needed to tell those who love us—our friends and relatives—but he did not want to burden them. Also, I guess, he was embarrassed.

Eventually, my insistence brought us to the Alzheimer's Association, and we joined a support program, but still Martin was not willing to share his feelings. I continued alone and found a most supportive group. Aside from that, we were alone.

When he could no longer make sense of reading, he took a shocking action. He destroyed some favorite books. He snatched them off the shelf, cut the pages into pieces, and threw them away. "There was nothing in them," he said.

And yet, I am not crying out in anguish; nor am I in a state of denial. It is as if I have gotten used to this disease's huge presence in our life. I can remember what we had. We shared the most amazing and satisfying years. The thrills and excitement of our mutual discovery of each other empowered both of us to considerable accomplishments. His thinking was always original, dependable, and multifaceted. He had found it possible to take an idea, turn it upside down, and then state it in a better way. It has given us both so much delight to write articles on subjects that had never been explored before, or to expand studies to give a new slant on an old issue. So, even though Martin's memory is gone, I still have mine. And we have his writings, his files, and his pictures. We often look at our past life in this way. Martin's sense of humor remains, though now more like a child's. Although his words are most often clear, comprehension and meaning are no longer there.

We have been so blessed to be together as we raised our children in a medium of love, intellectual stimulation, and the games of the mind. He was always able to translate his role as a serious teacher of medicine to that of a very playful father, joyfully detaining the perversions and contradictions of humanity in a difficult and cruel world. He inspired our son, David, and daughter, Wendy, to become physicians and both are with The Permanente Medical Group (TPMG). Our daughter Bobbi became a physical therapist and is now a musician.

Martin has always been compassionate. His patients adored him because he truly searched for the spot in their lives he could understand—to which he could connect. We sometimes reread their letters of appreciation. I knew that his students would remember too. This, then, became a possibility of return to sociability, I felt. Without his permission, I contacted selected former medical residents and suggested that they visit him and that they pass the word around. His diagnosis was no longer a secret. It was liberating for me. Martin didn't need to talk about it. Many of his admiring ex-residents came to visit, and he basked in their warmth and friendship. They didn't talk medicine. He was interested in their lives and families. There were lots of laughs. It was a marvelous interlude.

As his cognitive skills continued...
to decline, his emotional side came more fully to the fore. His love for me is expressed a thousand times a day, though I detect a desperate dependence—every minute, every day, everywhere.

As language skills have diminished, the brain centers of emotion and whatever controls the arts have expanded. He no longer has the ability to paint on his own. Initiative seems to have dried out. But he still loves art, and he now has an art therapist to help him—one-on-one—create newer, simpler pieces. He is rapt with attention as they work, and he enjoys the process and what he creates. He continues to love listening to music and has expressed an earnest desire to play the piano. He can no longer read music, but he can sing and play all the old songs by ear. He can’t remember the words. We have a music therapist who works with him, and he thoroughly enjoys that activity.

He now has caretakers—other than me, who come daily, eight hours a day, and he enjoys their attention, nature walks, the birds and flowers that flourish around us—and he chats with all the dogs and babies in the neighborhood. It is heartbreaking for me to note that, instead of conversations with Nobel Prize winners, he now counts or comments on the caw of the crows. He is extremely sociable with all strangers. He is no longer aware of the diagnosis. He feels lucky that he is healthy, and he agonizes over the dilemma of others who have been afflicted by debilitating diseases. He likes to play and to pun and to laugh. He seems incredibly happy most of the time—joyful and sweet and kind.

Our grandchildren are amazingly attuned to his abilities and often involve him in their games. But they are noisy and wild, and he feels excluded when conversation does not center directly on him.

I try to concentrate on the pluses and not the minuses. I will continue to do so. I will not allow myself to wallow—not in despair, not in simple pessimism—at least not very much. My mind works. My children are helpful and kind and near and contribute greatly to my day-to-day comfort and pleasure. My grandchildren are a joy and they too are sweet and kind and near. Perhaps I’ll get busy with a new project, or I will write, or I will travel. Somehow I will contribute. My life is not empty. I play the piano. I read. I attend classes. And I address children’s classrooms to talk about my Holocaust experience.

Our devoted children are ever-present. Martin seems to know who they are, but maybe he doesn’t. They now worry more about their mother’s well-being than their dad’s. Perhaps we all have to learn to step away a bit more to save ourselves. They have lives of their own, and they must live them. We are beginning to have family gatherings without dad. The first of these, a few months ago, was most traumatic for me. I felt that a new chapter of my life had begun—without my love. Everyone listened when Bobbi, our daughter, played a song on her violin that she had written. It wailed and throbbed with feeling, and it broke the dam of my self-control. I was dissolved in tears, surrounded by my family, who care so deeply about us both. The full impact of my terrible loss engulfed me.

I have benefited enormously from Martin’s loving. We have appreciated so much in each other—strength, athleticism, writing ability, giving to others of our own bounty—that it surely has spurred me on to better performance as a person. Fate can be cruel, but this new stage is part of our life—though not together in the old way. We must go forward toward the unknown abyss, and we will both attempt to be pacific.
Finally, the words just disappear. Alzheimer’s erases them from the brain so completely that the names of mundane objects like “pen” or “watch” cannot be spoken. As his illness began and progressed, before diagnosis, Dr Shearn turned more and more to painting. A burnished sunset stretched across a sleepy, rugged landscape (page 26). A glossy eye unflinchingly stares back. Sixteen hands (page 61)—opened, emptied, suspended in motion. The primordial beginning of life (cover).

He speaks in tones of blues and greens and pinks and reds, and he transcribes the internal images with brushstrokes across canvas. He reaches through the fog of his dementia, where the glorious words he had once mastered are obscured, and he connects still—in this inventive way, through this new medium. He continues to do what he has always done as a physician and researcher, venturing beyond the conventional limits of language and medicine to discover and communicate new constructs.

It would be preposterous to pretend knowledge of Dr Shearn’s creative intention or process, impossible to propose an understanding of his art derived from medical theories of disease. Still, much has been written about the relationship between neurocognitive states and artistic expression, and the urge to speculate on that relationship arises here too. After all, we physicians are consummate diagnosticians who daily seek scientific explanations for our patients’ subjective complaints, and we constantly filter those complaints through a focus on pathology. We believe that we can—and even should—discriminate the voice of mind from the voice of body when our patients speak about suffering and distress.

We read medical literature that associates creativity with prefrontal dementias, analyzes Willem deKooning’s abstract expressions through the influence of his Alzheimer’s dementia, or interprets Ernst Josephson’s paintings through his schizophrenia. The new genetics fascinate us and lure us into believing that heredochemical factors might explain our personalities, proclivities, and aesthetics. As physicians, we uniquely wander and wonder about the mysterious nexus between mind and body, health and disease, living and dying.

And still, with every available diagnostic tool in hand, we cannot locate human creativity. We cannot tell where it resides in our system of propositions for health and disease, our medical notions about personhood and agency. Looking carefully and analytically at artwork created by people in demented or psychotic “states” does not reveal the vast, inscrutable internal worlds from which this creativity originates.

No matter how hard we have examined the human brain—rummaging through thick clumps of tangled neurons or searching under the dark crusts of a thousand cortical scars—we do not know how people create and why they must. Creativity flows from a source of their being that artfully defies our medical investigation and scientific discourse. Creativity humbles us in our quest to become masters of the psyche and body, and it “re-minds” us of our astounding incapacity to understand the most rudimentary element of our patients’ lives: their exquisite, fundamental aliveness.

I suspect that Dr Shearn was drawn toward the mystery. I imagine that he ventured purposefully into it, with whatever tools he possessed, to create something new—much as he had always done—in his unique fashion and radical, enduring aliveness.

Kate Scannell, MD, is an internist, rheumatologist, and geriatrician at the KP Oakland Medical Center. She is author of the book, “Death of the Good Doctor” and a columnist for the Oakland Tribune/ANG Newspapers. She also edits Ethics Rounds for Kaiser Permanente. E-mail: kate.scannell@kp.org.
Kaiser Permanente (KP) has a 50-plus-year tradition of providing our members affordable, quality health care that is delivered by caring and committed professionals. This patient-focused sensibility can be credited largely to physician-co-founder and health care innovator Sydney A Garfield.

In 1987, to honor his memory and achievements, the Board of Directors of Kaiser Permanente established the Sydney A Garfield Memorial Fund (GMF). The fund’s mission is to continue Dr Garfield’s legacy by encouraging innovation and exploration into new models of care that will result in improved health care, not only for KP members, but for the community-at-large as well.

During the past 15 years, the GMF has developed many projects (Table 1) and has gained national recognition and respect as a champion and sponsor of innovative approaches to health care delivery.

The Sydney A Garfield Legacy—A Tradition of Caring

By Edward Thomas, RN, MBA; Annie Wing, MBA

Table 1. Garfield Fund current portfolio of projects

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>Home Health Care</td>
<td>Providing care in the home setting to promote recovery and reduce hospital readmissions.</td>
</tr>
<tr>
<td>Chronic Disease Management</td>
<td>Developing strategies to manage chronic conditions effectively.</td>
</tr>
<tr>
<td>Preventive Care</td>
<td>Implementing evidence-based practices for preventive care.</td>
</tr>
<tr>
<td>Patient Safety</td>
<td>Enhancing patient safety through various initiatives.</td>
</tr>
<tr>
<td>Health Informatics</td>
<td>Utilizing technology to improve health outcomes.</td>
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The Garfield Memorial Fund (GMF): Its Operations and Focus

The GMF operates under a very simple premise—to fund research by KP employees and Permanente physicians that will result in improved health care for our members.

To ensure that GMF goals and plans are aligned with and reflect the overall vision and strategic direction of the KP Medical Care Program, the Board Chair and Director (Table 2) make a concerted effort to maintain ongoing dialogue with the various arms of KP.

Table 2. GMF Board

- Board Chair Jed Weissberg, MD, Permanente Federation
- Edward Thomas, RN MBA, Director
- Allen Bredt, MD, SCPMG
- Bob Crane, Health Plan Program Office
- Phil Madvig, MD, TPMG
- Joanne Shottinger, MD, SCPMG

Edward Thomas, RN, MBA, (left) has been, since 1997, the Director of the Garfield Memorial National Research Fund for Kaiser Permanente and The Permanente Federation. E-mail: edward.thomas@kp.org.

Annie Wing, MBA, (right) is a San Francisco-based writer who serves as an independent consultant for the Garfield Memorial Fund and the Kaiser Permanente Innovation Program as well as for Blue Shield of California and the County of Marin. E-mail: anniewing@aol.com.
Consequently, we’ve been able to forge strong, yet independent, relationships with the Permanente Medical Groups, Kaiser Foundation and affiliated hospitals, and the Kaiser Foundation Health Plan. We also have collaborated with well-respected KP groups, such as the KP Care Management Institute and the Care Experience Council. Additionally, we’ve worked closely with the various KP research centers, including the Division of Research, the Center for Health Research, and the Research and Evaluation Programs in Colorado, Southern California, and Georgia.

We’ve partnered with external entities in both the private and public sectors that have recognized the weight and impact of our efforts and have demonstrated their support by cosponsoring and/or cofunding GMF research projects. Such alliances include groups such as the Visiting Nurses and Alzheimer’s Associations; government research agencies such as the National Institutes of Health (NIH), the Agency for Healthcare Research and Quality (AHRQ), and the Centers for Disease Control (CDC); philanthropic organizations like the Robert Wood Johnson Foundation and the John Hartford Foundation; and employer groups like the Washington Business Group on Health and General Motors.

**Funding Projects**

The GMF offers a more streamlined application and approval process than other, more formal research-funding organizations such as the NIH. Basically, the GMF provides the necessary start-up or seed money (that might not otherwise be available) for research by KP clinical and non-clinical staff across the eight regions. To receive funding, applicants must explain how their research will improve quality of care and service in a cost-effective manner, while enhancing member satisfaction. They also must outline replication and dissemination plans.

**Launching An Initiative—An Investment In Our Members’ Health**

The emphasis on initiatives offers many obvious advantages. The large-scale, single-theme focus directs researchers’ attention and resources to more immediate, organizationwide (and often national) health care issues. This focus encourages collaboration among individual researchers from KP’s different geographic areas by allowing them to contribute a regional perspective on the issues. And, since an issue frequently reflects a national concern as well, it often attracts outside interest, support, and funding.

The GMF Board relies on both internal intelligence and external information to determine development of a particular initiative. Often, the medical groups present health care concerns identified by KP clinicians in their treatment of certain patient types (e.g., the elderly) or conditions (e.g., mental health). Or we may respond to a national health care issue (e.g., patient safety) that has been brought to the forefront by external agencies.

The board and expert reviewers examine the merits of each application and consider it for approval according to the following:

- Potential for successful implementation
- Demonstration of requisite management commitment and support
- Potential for wide and successful dissemination
- Potential for sustainability
- Potential for demonstrating results in the near term.

**Current GMF Initiatives**

To date, the GMF has launched five major initiatives (Table 3). Each one has generated numerous projects (see Table 1 for a list of projects).

<table>
<thead>
<tr>
<th>Table 3. Current GMF initiatives</th>
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<td>• Depression Initiative (DI)</td>
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<td>• Care Experience Initiative</td>
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<td>• Clinician-Patient Communication Research Initiative (CPCRI)</td>
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<td>• Palliative Care Initiative</td>
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Many of the findings have resulted in new or revised models of care for our members.

We introduced the first of our current initiatives, the Depression Initiative (DI), in 1998, which was followed by the Care Experience Initiative, the Patient Safety Initiative, and the Clinician-Patient Communication Research Initiative (CPCRI) in 2000, and the Palliative Care Initiative in 2001. In 2002, we launched our latest initiative, the Clinical Information Research Network (CIRN) Initiative.

In 2000, we also formed the Consortium for HIV/AIDS Research (CHAIR). Although not a formal initiative, it is an example of the GMF supporting clinicians and researchers who might not otherwise have access to funding.

Each initiative is ongoing in that prospective researchers may submit RFAs at any time for consideration. As new projects commence, active ones are completed each year.
The Depression Initiative (DI)
http://www.dor.kaiser.org/content/projects/depin/index.html

Now in its fourth year, the DI seeks to “improve the lives of people affected by depression, by creating alliances to conduct and support research into how we recognize, treat, and prevent depression.” The DI initially encompassed 18 projects covering six critical areas of inquiry: 1) new models of care; 2) consumer satisfaction; 3) screening and outcomes measurement; 4) cost-effectiveness; 5) access to care; and 6) special populations, including women, people of color, children, adolescents, people with disabilities, and the elderly.

This successful undertaking has garnered national attention as well as outside support and additional funding that has significantly extended the original contribution from the GMF. DI research has been reported widely in peer-reviewed articles in nationally recognized publications and has been presented at more than 20 national conferences.

The DI’s influence on primary and specialty care has provided a unique opportunity to expand its focus to broader mental health issues beyond depression. In addition, by collaborating with schools, employer groups, and unions, the DI has been able to create nationally recognized programs and products, such as the timely and well-received “Flight Attendants Coping with Trauma.”

The GMF encourages and supports such collaboration.

Care Experience Initiative
http://kpnet.kp.org/permfed/Quality/CEC_intro.html

The Care Experience Initiative goal is to enhance our members’ overall care experience in medical centers, physicians’ offices, and members’ homes by investigating and understanding how the members’ care and satisfaction level may be affected either positively or negatively by specific individual actions or events initiated by KP.

The Care Experience Initiative projects implemented to date continue to demonstrate that collaboration between KP’s operational leaders and researchers is vital to building cross-interests and incorporating research rigor into operational evaluation.

Patient Safety Initiative

The Patient Safety Initiative arose in response to a national alarm about patient safety with respect to medical error. With this initiative, we joined the national effort to deliver reliable, effective, consistent, and safe care to our members and to the communities we serve.

We invited researchers to submit project designs that included interventions in one of the following four areas: 1) Safe Culture, focusing on education and training; 2) Safe Care, focusing on continuity of the patient’s care throughout the system; 3) Safe Support Systems, focusing on quality assurance or risk management programs to monitor for and report on potentially adverse outcomes; and 4) Safe Patient, focusing on communications.

Clinician-Patient Communication Research Initiative (CPCRI)
http://kpnet.kp.org/cpc/index.html

We launched the Clinician-Patient Communication Research Initiative (CPCRI) to support more thorough, rigorous, and innovative research on how communication works in a health care setting and how we can make it work better for our clinicians, our patients, and their caregivers.

The CPCRI invites practicing clinicians, communications experts, and seasoned researchers to explore the relation between communications and the health care delivery system in the following five content areas: 1) Patient Safety, 2) Physician Satisfaction and Well-Being, 3) Technology, 4) End-of-Life Care, and 5) Best Practices.

The CPCRI is an overarching initiative that touches on all the other initiatives. Communication has been identified as the major link in all aspects of health care delivery, management systems, and day-to-day professional interaction. Under guidance of the Interregional Clinician-Patient Communication (IRCPC) Group, the CPCRI has funded four initial projects and has several others in development. With the GMF’s support, the IRCPC is taking the lead to develop a North American research consortium.

Palliative Care Initiative—Improving Care at the End of Life

The goal of the Palliative Care Initiative is to promote comprehensive care of members with serious illnesses as they approach the end of life.

The Kaiser Permanente Aging Network (KPAN) and GMF sponsor this joint initiative. KPAN, which replaced the Interregional Committee on Aging (IRCOA), focuses on leveraging KP’s integrated structure to provide a more formalized strategic approach to the care of our older adult members.

Besides focusing on palliative care, KPAN, in collaboration with the CMI and the GMF, has adopted...
a strategy to include all areas of care for older adults. Under the guidance of a national leadership and strategic planning group, KPAN is nearing completion of a comprehensive Domains of Care/Core Competencies document. The regions will be able to measure and evaluate their current programs against these core competencies to identify and address any shortfall.

And, KPAN, guided by a nationally recognized group of external experts, is outlining a strategy to develop Centers of Excellence for the care of our older adult population. The scope of this work also includes individual regional evaluation and assessment consultation by KPAN, CMI, and GMF.

**GMF: Today and Tomorrow**

A major goal in 2002 was to launch the Clinical Information Research Network (CIRN). Throughout the years, because of its integrated structure, KP has compiled a vast and powerful database of information. A key question or area of inquiry is “How can or does KP effectively use this knowledge?”

This initiative will examine the benefits of the emerging national KP Clinical Information System (CIS) and our numerous computer information systems that serve the organization and our members. This large-scale venture has the potential to yield exciting, far-reaching, and policy-forming decisions that will affect how we deliver health care to and communicate with our members in the future.

In the near term in 2002-2003, our primary focus is to concentrate on further developing and refining our existing initiatives. We believe much more work must done in each of these areas, particularly in building or testing and in implementing new models of care that will benefit our members.

A long-term goal is to develop each GMF-sponsored initiative into an independent, broader-based program with its own infrastructure (ie, management, staffing, and resources) with the ability to acquire its own funding (from GMF and external sources) to support further research studies and to pilot new models of care.

With Dr Garfield’s legacy as our motivating force and the members’ best interest always in mind, the GMF will continue to play an integral role in contributing to the Kaiser Permanente Promise to deliver “care with a personal touch.”

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**Reference**


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If you would like more information, contact GMF Director, Ed Thomas at 510-271-6394 or edward.thomas@kp.org.

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**An Optimal Contribution**

No individual or group can make an optimal contribution to create a sustainable solution in health care by primarily focusing on his or her own agendas or needs.

— Jack Cochran, CPMG Executive Medical Director

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Paul Ackerman, MD, is a psychiatrist/psychoanalyst. He is the father of Douglas Ackerman, MD, who is in the Department of Urology at the Mount Talbert Medical Office, KPNW. Dr Ackerman, senior, started painting when he was a teenager and picked it up again four years ago. He usually takes his painting gear on vacations and this piece was painted in memory of a trip to Spain.

More of Dr Ackerman's artwork can be seen on page 77.
The Graying of Kaiser Permanente

Summary
Permanente physicians and staff are part of a new phenomenon: Kaiser Permanente (KP) has never had so many older members living so long and with so many medical conditions. The logarithmic growth in technology and the concomitant heightened public expectations have created a menu of seemingly endless diagnostic and intervention choices. The practice implications of these numerous advances are not yet defined but are already being felt. Physicians are summing up the impact on their practice in an exclamation that echoes throughout KP: “I cannot do it all in 15 minutes.”

The metaphors “Age Wave” and the “Graying of America” describe the changing demographics of both KP and America. Our KP Program currently has 830,000 members older than age 65 with 55,000 of them older than age 85. This number is expected to double in the not-too-distant future. Medical care for this population has economic, ethical, and social implications that seem overwhelming. What can KP do to prepare before this change is upon us, especially in the context of finite resources?

This article will describe what the Kaiser Foundation Health Plan (KFHP) and the Permanente Medical Groups are doing to address this challenge. Elder Care leaders at the regional and medical center levels, in collaboration with the programwide efforts of the Care Management Institute (CMI) Elder Care Initiative and the Kaiser Permanente Aging Network (KPAN), are taking steps today to help prepare the organization for the reality of tomorrow.

The Role of Older Adults in KP’s Success
KP opened its doors to the general public the same year that the first baby boomers were born. This influential generation, born between 1946 and 1964, is currently gaining firsthand experience in the challenges associated with aging as they assume more responsibility for the care of their aging parents. They are simultaneously acquiring their own age-related conditions and functional limitations. There is strong consensus that “boomers” behave very differently from their parents in seeking health care and will demand new, better, and different kinds of health care for themselves as older adults. This generation transformed the way women give birth in this country; it is likely they will transform the way health care is delivered to older adults and the way they die.

KP’s ability both to meet changing member expectations and to manage effectively the demands placed on the system by the sheer number of aging boomers seems inextricably linked to the long-term success of KP. Each year, Permanente physicians have more than 6 million office-based contacts with older adult members. Older members represent a disproportionate number of hospital days as well as a significant portion of ambulatory surgery, pharmacy, diagnostic, durable medical equipment, skilled nursing facility (SNF), home health, and hospice services. KP’s over-65 membership currently comprises only 10% of total membership, but their care accounts for about 30% of costs. Membership, costs, and revenue vary across the KP Program and within its regions. In the KP Ohio Region, the percentage of membership comprised by over-65 members already is approaching 20% (Figure 1). In some service areas and medical offices in other parts of the KP Program, membership is already in the high teens. At some offices, older adults daily comprise more than 70% of visits. Ophthalmology, orthopedics, urology, neurology, dermatology, and many other specialty areas provide care for these members.

As a program, KP must influence policy, maximize revenue, and manage care, costs, and quality for...
today’s members. At the same time, KP must redesign core aspects of health care delivery for a membership that will soon grow to 20% of KP total national membership. Uncertainty about future Medicare products and revenue makes this work extremely challenging—but all the more important.

**Diversity of Function and Need**

Older adults exhibit a diversity that goes beyond the more traditional concepts of ethnicity, gender, culture, and race. Biology, cognition, physical functioning, functional reserves, social roles, support systems, finances, and worldviews are some of the characteristics that contribute to the richness of their diversity. This diversity requires varying levels of support and interaction with family, friends, community, government, society, medical care, and care coordination. Traditional medical delivery, with its evolution as an acute and reactive model, is inadequate for the complex needs of many older adults.

**Innovations in Elder Care**

KP has a rich history of building and testing new models of care for older adults. In 1967, the US Public Health Service funded a demonstration project at the KP Northwest Region’s Center for Health Research on the use of post-hospital nursing home care and home health services. By demonstrating how people without financial resources could be brought into group care, this project led to the prepaid Medicare program. In the mid 1980s, Kaiser Foundation Health Plan (KFHP) and KP leaders formally acknowledged the importance and implications of the impending demographics and established the Interregional Committee on Aging (IRCOA). They charged IRCOA to develop strategies and approaches to organizing and managing care for the projected increasing numbers of older adult members. IRCOA made many contributions that continue to serve as the foundation for current work. IRCOA’s work focused on clinical care, financing, and policy, and its membership included leaders from KFHP and from KP. IRCOA was among the first groups to think in terms of populations and the approaches necessary for population management; and developed an identified network of committed and innovative leaders and clinicians throughout KP by sponsoring three Geriatric Institutes during the 1990s. IRCOA developed and recommended a “Model of Care for Elders” built on the principles of screening, assessment, and care coordination. IRCOA’s continuing role came into question when its co-leaders, Mitch Greenlick, PhD, from the Center for Health Research, and Toby Cole, MD, Executive Medical Director of CPMG, both retired.

**A Priority Population for the Care Management Institute**

In 1999, the Care Management Institute (CMI) identified older adults as a high-priority population. This approach was novel for CMI; its earlier work focused on populations that were united by conditions or diseases. CMI had to expand the more traditional, evidence-based approach for several reasons:

- The disease model did not adequately address the diversity described above;
- No easily accessible automated metrics existed to monitor performance improvement;
- Older adults often had multiple serious comorbidities; and

CMI’s focus on older adults was in ascendancy at the same time that IRCOA’s future became uncertain. CMI polled the regional leaders of IRCOA, and a strong consensus emerged that the existing work and the Elder Care Network were valuable assets that needed to be preserved and expanded. IRCOA looked to CMI to coordinate this work.

Two major phases of work emerged in CMI’s Elder Care Initiative. The first phase addressed the following areas: population screening and follow-up interventions, compassionate end-of-life care, and skilled-nursing-facility care. Work on care at points of transition was briefly addressed but was not developed, because of paucity of evidence and lack of promising models. Instead, work focused on medications that have special risks for older adults because of their association with cognitive impairment or falls. The *Elder Care Source Book* is the published result of this work.*

CMI’s second phase of work in elder care more fully developed end-of-life care by identifying promising programs and models for managing advanced illness and by documenting those programs in the *Palliative Care Source Book.*4 In addition, rigorous evidence review

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* CMI resources for elder care

- Elder Care Source Book
- Palliative Care Source Book
- CMI Dementia Guidelines
- CMI Dementia Care Program

You can find these resources on the Permanente Knowledge Connection at: [http://pkc.kp.org/](http://pkc.kp.org/).
Key Points for Dementia Diagnosis and Management

- Early diagnosis matters
- There are things you can do to help
- Caregivers need support and assistance

**Screening:**
Although routine screening of all older adults is not warranted, use of a quick, sensitive screening tool like the clock-drawing test or Mini-Cog can be used for older patients with a suspicious clinical presentation or for “older old” patients (i.e., ≥ age 80). These can be completed in a minute or so and can establish a baseline for later comparison. If a patient fails screening, further assessment is warranted.

**Assessment/Diagnosis:**
Assessment for dementia involves gathering information over time to rule out other causes and to identify possible etiology. Full evaluation should be done for people who fail a screening test and for those who have a complaint of memory problems. Patients and their families must be informed about the process and what the different steps will tell. The assessment includes:

- **History** - including symptoms, medical conditions, medications, family and social history
- **Clinical Exam:**
  - **Physical exam**—pay attention to patient appearance/behavior, focal neurologic signs (gait, balance, strength), hypertension, and extrapyramidal signs
  - **Functional status assessment**—measure using a tool like the FAQ (Functional Activities Questionnaire)
  - **Cognitive status assessment**—assess using a tool like the MMSE (Mini-Mental State Exam)
- **Laboratory Tests**—including CBC, sodium, potassium, creatinine, calcium, glucose, thyroid test (TSH first), vitamin B12
- **Neuroimaging**—Noncontrast CT is an option for all and is recommended for those under age 65 or for those over 65 who have atypical presentation, rapid deterioration, history of head injury, etc.

**Management and Plan of Care:**
Once the diagnosis of dementia is made, clinicians should
- Educate the patient and family about the diagnosis and management approach.
- Discuss how the disease will progress, and ensure that the patient completes an advance directive and designates a decision maker. This planning should be approached in the context of establishing preferences and goals.
- Refer patients and families to internal or community resources for additional education and support.

Acetylcholinesterase inhibitors, such as donepezil (Aricept®), may be useful for temporarily and modestly improving function in some patients with mild to moderate Alzheimer’s disease. Patients receiving these agents should be reevaluated after 8-12 weeks, then every 3-6 months, to determine if the drug is adding any value. If benefits (including improvement or slowed decline) are not seen, the drug should be stopped.

No other agents (estrogen, NSAIDs, vitamin E, ginkgo biloba, statins) have been proven effective either in prevention or management of Alzheimer’s disease or other types of dementia.

❖ Consider alternate diagnoses—including depression and delirium.

For a more complete summary of the key components of screening, assessment, and management of dementia, go to http://pkc.kp.org to see the full text of the guidelines, or request a copy of the short summary trifold “Guide to Dementia Diagnosis & Management in Primary Care” from the CMI Product Line (CMIproducts@kp.org or 510-271-6426).

Also refer to the discussion of dementia guidelines in the Spring 2002 issue of The Permanente Journal (Vol 6, No. 2), “Evidence-Based Clinical Vignettes from the Care Management Institute: Alzheimer’s Disease and Dementia.”
was conducted regarding diagnosis and management of dementia, including evidence on the use of acetylcholinesterase inhibitors. This review resulted in publication of the *CMI Dementia Guidelines* (a technical review of the guideline recommendations and evidence) and of the *CMI Dementia Care Program,* which contains information on key principles of caring for people with dementia and on models for optimal management of these patients.

**Kaiser Permanente Aging Network: Leveraging our Integrated Model of Care**

In 2000, KP and KFHP leadership developed a proposal to create a jointly sponsored entity, which eventually became known as the Kaiser Permanente Aging Network (KPAN), whose work formally started in January 2001. KPAN’s codirectors come from KFHP and from The Permanente Federation and are accountable to the CMI Board. This organizational structure allows easy blending of CMI and IRCOA functions as well as development of new work. KPAN has a leadership team of KP Program and Regional leaders who guide KPAN’s work. The KPAN Strategy and Implementation Council, consisting of regional clinical and business stakeholders and leaders, informs and reflects KPAN’s work and focuses on operationalizing CMI and KPAN work at a local level.

KPAN’s vision is to optimize the health and function of older adult members. Its aim is to leverage KP’s integrated model to create, implement, and evaluate effective and efficient clinical and business strategies to realize its vision. KPAN will

- Work to set standards by working with experts and stakeholders;
- Empower local providers to facilitate improvements;
- Inform through development of pilot programs, quality improvement initiatives, and formal research projects;
- Involve all participants by establishing formal groups of business and clinical leaders; and
- Unify all voices by creating a community of stakeholders with common goals and vision.

To support KP regions in their efforts to refine practices and services for older adults, KPAN has been engaged in invitational regional consultations to the KP Northwest, Hawaii, Ohio, Mid-Atlantic, and Colorado Regions. Consultations consist of focused hospital record reviews, meetings with regional business and clinical leaders and managers, review of the organization and accountabilities for Elder Care services, and discussion of best practices and promising models in use at KP. Recently KP regions received a region-specific “Elder Care Profile,” which consolidates multiple sources of data on this population. Regions are in different stages of development of their programs, but a common finding in reviews is a pattern in which multiple interventions are aimed at multiple problems of older, chronically ill members but lack an explicit unifying goal. This situation presents a KP Programwide opportunity for improving care of people with advanced illness.

**Palliative Care Initiative**

To begin to address that opportunity, KPAN has leveraged the CMI work on palliative care and has partnered with the Garfield Memorial Fund to issue the Palliative Care Initiative. This research aims to build and test models of care for members with serious, advanced, life-limiting illness. The initiative is currently supporting

- Development of an Advanced Illness Index to assist in identifying older adults at risk for dying within three years;
- A randomized controlled trial in Hawaii and Denver that will further testing and dissemination of the home-based palliative care program developed in the KP Southern California Region. This program offers hospicelike services to members who are not eligible for hospice care because of the prognosis or because they do not want to give up attempts to modify their disease;
- A randomized controlled trial of inpatient palliative care teams in Portland, Denver, and San Francisco. This program focuses on communication, on symptom management, and on setting patient-centered goals;
- A randomized controlled trial of an office-based intervention that uses a nurse or social worker to help patients make decisions about treatment options.

Photo by TL Max McMillen
Looking Ahead

Recognizing the size, complexity, and importance of our older adult population today, KP is taking steps to prepare to manage this cohort successfully into the future. One of the first steps is to define successful management of this population, and what structures and systems are required. To that end, KPAN has codified the “core competencies,” or goal states, for several key domains, including:

- Organization/Structure
- Integrated Clinical and Business Planning and Decision Making
- Quality/Performance Improvement
- Clinician Attitudes, Knowledge, and Skills
- Member/Caregiver Participation and Activation
- Core Services for the Geriatric Population
- Internal and External Collaboration

Linked to the KP Promise, each of these domains and the associated core competencies outline key aspects of KP regional operations needed to effectively manage this population. The domains are intended to help KP regions and local areas map out plans for structural growth and develop skills for both the short and long term.

Work toward achieving competency in each of the domains outlined above may seem daunting. But throughout KP, model programs and successful systems and practices already exist and can be further developed and expanded to address additional needs. Building on our strengths (such as coordinating care in skilled nursing facilities (SNF) and providing group appointments) and expanding systems and programs that have demonstrated success (such as a single point of contact and 24-hour/7-day-a-week telephone access for vulnerable populations) will enable us to make steady strides over time. The importance of meaningful, reliable measures to track progress over time will be essential.

Some of our future advances and improvements in caring for older adults will be supported by the automated medical record (AMR) that the KP Program implements. The potential benefits for capturing information and for using medical terminology consistently, for enabling decision-support technology, and for gathering data on the older adult population are enormous. In places where it exists across the continuum of care, the AMR is showing value by supporting continuity of care and goals for older adults who travel between hospital, home health, SNF care, and the ambulatory setting.

Many physicians and staff at KP touch the lives of our older adult members and their families in some way. Given the nature of this cohort’s needs and the demographic realities of an aging population, the combined efforts and collaboration of every one of those physicians and staff will be needed to provide superior care to these members. Many of the baby boomers have relied on KP for their health care needs for decades, and they will expect continued excellent care as their needs change in later life. By tapping into the expertise inside and outside the organization, by building on our strengths and proven successes, and by striving to achieve common core competencies throughout the KP Program, we will be ready for this population.

Wearing Out Life

You always wear out life long before you exhaust the possibilities of living.

— The Bear, William Faulkner, 1987-1962, 1949 Nobel Prize winner
Spending Time on the Other Side of the Doctor-Patient Relationship

For 16 years I have been a family physician, the last six with Kaiser Permanente (KP) in Colorado. Most of my first decade in medicine was spent as a solo family physician. Although I thought of myself as a physician who was very sensitive to patients’ feelings and needs, I have learned many lessons during the last seven months as the result of spending time as a patient.

My Accident
February 19, 2002, was the last day of a relaxing five-day weekend spent at a friend’s mountain cabin. On my way home, I decided to stop for a few runs at the Winter Park ski area, where there were four to six inches of fresh powder. I had planned to ski for many decades and had only taken up the sport since moving to Colorado. I am at best an intermediate skier, so my routine was to take it slow and easy, avoiding trees and moguls. Despite this, I had what I thought was a minor fall, slipping and falling backwards. My helmeted head struck hard against the icy ground under the new powder. I thought I had simply “rung my bell.” The next day, I developed vertical diplopia and then—over the next two days—a few cognitive problems, agitation, and significant insomnia. Thus started my journey into the world of a patient in the KP system—and the lessons began.

Transportation and Appointment Challenges
I was told during the first visit with my cognitive therapist at an outpatient neuro-trauma rehabilitation unit, “If you are used to being in control, get over it.” Never has this been more relevant for me than in the area of transportation. Since having my driving privileges revoked, I have had to rely on others for transportation. Where I live, there is a nonprofit organization called Special Transit, which provides transportation for those unable to drive. This service has been a lifesaver for me. The difficulty is that the service is limited, only available three days a week between my home in Longmont and Boulder, a neighboring town and the location of several of my medical providers and the outpatient neuro-trauma rehabilitation center. No transportation is available to Denver, where I had appointments for imaging and with several other specialists. The system is set up so that you cannot call more than a week in advance for your transportation request—problematic since transportation is provided only on a first-come, first-served basis. This timing creates a problem because the provider may run late so you have to allow extra time, as they will only wait five minutes for you after your scheduled pickup time. Therefore, a 20-minute appointment might use up to three hours of a day. Even with the buffers built in, on occasion you are dropped off late for your appointment.

Because I am used to being early for appointments, initially getting picked up late with subsequent late arrival to an appointment caused me significant agitation. Fortunately, the majority of my late arrivals were to see my rehabilitation specialist. She and her staff understood the transportation system and were quick to let me know that everything was fine: it was not a problem that I was late. I know some providers within our KP system might have required me to reschedule the appointment, magnifying all the associated logistic problems and adding to my stress. If I had been asked to reschedule appointments when late through no fault of my own, I would have felt as though my care providers and their staff had little regard or understanding for my feelings and needs. I have learned that we need to treat all of our patients as we would want our valued family members or friends treated.

Cheryle Sullivan, MD, is a Family Physician and the Physician-in-Charge of the Longmont KP Facility in Colorado. She has been a Family Physician since 1986, spending most of her first ten years in solo private practice in Michigan. She joined KP Colorado in May 1996. E-mail: cheryle.l.sullivan@kp.org.
The Importance of a Good Social History

“Married, divorced, widowed, single?” As we learn more about providing culturally competent care, it will be important for us to develop inclusive history-taking skills. This practice would let the patients know that we provide a safe and comfortable environment for them to have open discussions with us. For example, when routinely asked this routine marital status question, I never felt comfortable relating my lesbian status. This discomfort had major implications, since I did not feel comfortable sharing additional social information and essentially did not disclose details of my home life. It is of great importance that I did not have a discussion about my lack of a local support network with any of my clinicians. I did not reveal that I had changing symptoms, including significant fatigue and short-term memory problems that resulted in missing most of my meals in the first week or more. I did not reveal that I lived alone and could not drive. I did not disclose that, at the time, I was in a fog mentally and unaware of potential personal safety issues. As I look back now, I think the information about my lack of support at home was potentially very important, and yet I did not feel comfortable in relaying the information.

What I have learned is that a better social history option could include: “Are you married, partnered, divorced, widowed, or single?” or “Do you have a spouse/partner?” or “Who lives in your home?” Another option is “What kind of support system do you have?” This would gather information about family, friends, and church in a supportive and nonjudgmental fashion.

Minimizing and Invalidating

I cringe when I reflect on how, before my brain injury, I responded as a physician to patients’ concerns about difficulties with memory. So often we tell the patient that we have experienced the same problem, such as not remembering what we intended to do, or forgetting where we put something, or not being able to remember a word we needed in a sentence. But we really don’t know what it is like! The occasional forgetfulness we all experience is in no way comparable in frequency or severity to that experienced by the brain-injured. Understandably, I never experienced this from those who work on a regular basis with the brain-injured. In the future, I will try to be more empathetic and will agree with the patient that these difficulties are frustrating and bothersome, instead of invalidating or minimizing the patient’s concerns by saying that I have the same problem and I know exactly how s/he feels.

“Any Other Questions?”

Physicians often shudder a little when we ask this question at the end of the visit. Because, at times, we may not have enough time with patient encounters during our busy days, we may ask this question insincerely. Body language may send a major message to the patient if, after asking this question, clinicians appear rushed, making it obvious they do not have the time to address the patient’s additional concerns. As a brain-injured patient with memory, attention, and information-processing problems, I had difficulty understanding what had been presented and was not able to process the information adequately or even to remember it well enough to ask needed clarifying questions. At times, I was able only to grasp portions of what was said and was not able to handle the amount of material discussed throughout a visit. I would often bring questions to my appointment but forget to ask them or would not think of obvious questions until hours later.

I have learned that when dealing with patients with cognitive problems, it is helpful to have them repeat back the pertinent information in their own words or have them bring along someone to help them understand the information. It has been easy for me to relate to the clinicians who are comfortable and familiar with the care of brain-injured patients because these people write down the pertinent information for me to take home. This courtesy is always appreciated.

Getting Lost in the System

As a family physician, I believe in the concept of each patient having a primary care physician. However, since following my ski injury, I entered the system through the emergency department and then had most of my follow-up visits with specialists. I basically bypassed the primary care system. Being a physician probably did not help either,

In the future, I will try to be more empathetic and will agree with the patient that these difficulties are frustrating and bothersome...
because, I suspect, people thought
I knew more than I did about what
was going on with my injury. It is
also difficult to admit you are hav-
ing cognitive problems when you are
accustomed to your role as a physi-
cian and manager. I floundered in
our system, seeing one specialist af-
fter another. I did not understand
what was happening to me or what
the expected course and longer-term
plans were. In my confused and for-
getful state, I was trying to decide
what I should do next. Thankfully,
my story was relayed to our case
managers of brain injury patients,
who contacted me through our lo-
cal senior care coordinator. It felt
as if I had been provided a life raft.
I have learned that, as clinicians, we
need to advocate for our patients and
be sure that someone is managing
their care and providing support
when things are too complicated and
confusing for the patient.

Closing Comments
By the end of November, I had
had my 100th medically related ap-
pointment since my traumatic brain
injury more than nine months ago.
Despite some pitfalls, the quality of
my care has been excellent. I chose
to stay within the KP system when-
ever possible, to take advantage of
the excellent physicians and other
providers, and to experience the
beneﬁts of the EMR (Electronic
Medical Record). All my Permanente
providers have up-to-the minute
access to my medical records, al-
lowing more efﬁcient and accurate
medical care. Most of my learning
from my experience has had more
to do with quality of service and
has increased my understanding of
how a physician can take the
patient’s care experience to another
level. I remember being told early
in my medical training that if doc-
tors had to be patients and had to
experience what we put our patients
through, we would be much better
doctors. Most brain injury patients
say they are not the same after-
wards. I hope this result is true for
me because I want to be a better
physician than I was. When I am
ready to return to my patient care
duties, I will remember these and
other lessons I have learned while
I was on the other side of the doc-
tor-patient relationship.

The Problem
Doctors see patients because of disease.
Patients see doctors because of anxiety.
Therein lies the problem between the two.

— The Doctor, His Patient, and the Illness, Michael Bolint, MD
Application of the Cooperative Health Care Clinic Model for Delivery of Complementary/Alternative Medicine (CAM) Care

By Charles Elder MD, MPH, FACP

Abstract

Context: Patient demand, physician practice patterns, and legislative pressures collectively mandate continuing attention toward determining the most sensible means of providing complementary/alternative medicine (CAM) services and integrating such care within the conventional delivery system at Kaiser Permanente (KP).

Objective: To assess feasibility of implementing—and customer satisfaction with—an internal, physician-directed, referral-based natural medicine clinic at KP based on the cooperative health care clinic (CHCC) model.

Design: Cross-sectional survey.

Main Outcome Measures: Responses to a set of three questionnaires administered to patients and to referring clinicians for clinic visits occurring between February 1, 2001 and September 30, 2001.

Results: Since inception of the natural medicine clinic in July 1999, the volume of referrals to the clinic has progressively increased, doubling from approximately nine per month during the first eight months of operation to 18 per month during the pilot study. Fifty-six new patients completed the survey instrument by the conclusion of the study; 88% of these 56 patients were either somewhat or highly satisfied with their clinic visit.

Of 38 patients seen for follow-up visits, 21 returned a second questionnaire by mail; 88% of these 21 patients reported finding the clinic somewhat or very useful and described improvement in disease-specific symptoms and energy level as well as an enhanced sense of control over their medical condition. Referring physicians reported that the clinic filled a valuable need for them as well as for their patients.

Conclusion: The CHCC model may be a viable mechanism for delivering CAM services at KP.

Introduction and Background

The complementary/alternative medicine (CAM) phenomenon remains a highly visible and complex issue. Patient demand,1 physician practice patterns,2 and legislative pressures collectively mandate continuing attention toward both determining the most sensible means of providing CAM services and integrating such care within the conventional delivery system at Kaiser Permanente (KP). In considering these issues from the vantage point of a group model health maintenance organization (HMO), emphasis has been placed on contracting with established networks of licensed CAM providers, such as chiropractors and acupuncturists. Outside referrals to network practitioners for provision of CAM products and services can then be approved as treatment for select clinical disorders.

This model offers several advantages that enable an HMO to substantially meet existing demand for CAM services while maintaining control over costs and, at the same time, monitoring quality. However, this model has several drawbacks as well. When a patient is referred outside of the HMO system, effective communication between the referring physician and the CAM clinician may become difficult or impossible; and this problem is only exacerbated by preexisting differences between the groups in terms of training, vocabulary, and treatment paradigm. In addition, the dollars spent on outside network care do not build the practice or infrastructure at KP. In addition, many patients and clinicians who advocate an increased role for CAM do so in an attempt to augment the holistic value of the health care experience—a goal that a priori cannot be accomplished through outside referral. For these reasons, models of care must be considered that allow provision of some CAM services by clinicians within our own KP clinical network.

Charles Elder, MD, MPH, FACP, is Clinical Investigator at Kaiser Permanente Center for Health Research, NWP. E-mail: charles.elder@kpchr.org.
The group outpatient visit model—also known as the Cooperative Health Care Clinic (CHCC)—may be a viable mechanism for integrating CAM into the KP practice setting. The CHCC has been previously used within the KP system as an alternative to the conventional, brief, one-to-one patient care encounter. CHCC appointments typically consist of a two-hour session attended by seven to ten patients and the physician. The CHCC offers several attractive features. First, patients are afforded the opportunity for extended contact with the physician. Second, the physician can efficiently provide more detailed information to more patients than is feasible in a brief one-to-one visit. Third, patients have the opportunity to socialize with and learn from other participants in the group.

Implementation of the CHCC model has also improved service, quality, and cost when offered to select patients in the managed care setting. In one study, Beck and colleagues8 randomized 321 KP Colorado geriatric patients to either a CHCC intervention or to usual care. After a one-year follow-up period, patients who attended the CHCC sessions reported significantly greater satisfaction with overall care than controls did (p = .019). CHCC patients also had fewer emergency department visits (p = .009), subspecialty visits (p = .028), and repeat hospital admissions (p = .051) than the control group. Cost of care per member per month was $14.79 less for the CHCC than for the control patients.8

The purpose of this pilot project was to assess feasibility of implementing as well as customer satisfaction with an internal, physician-directed, referral-based group natural medicine clinic within KP, patterned after the CHCC model. Specifically, we sought to answer the following questions: 1) Is provision of CAM services logistically feasible at a KP primary care clinic? 2) Would KP clinicians refer patients to such a clinic? 3) What type of patients would come to the clinic? 4) Would patients be satisfied with the experience? 5) What clinical results, if any, would patients report?

Methods

Referral to the Group Natural Medicine Clinic

The clinic was organized to meet once or twice monthly and was open to KP Northwest members referred from another clinician. Through a series of paper-based and electronic mail announcements, clinicians were notified of existence and availability of the clinic. Referrals were generated through the patient’s electronic medical record by using the same mechanism used to generate subspecialty referrals. Clinicians were notified that they could refer any patient with a chronic or subacute medical condition who desired a natural or holistic approach as a supplement to usual care. At referral, patients were informed that to benefit from the clinic, they would need to be highly motivated and to modify their diet and lifestyle.

After receiving a referral, a two-page “Daily Routine Questionnaire” was mailed to patients for completion. The questionnaire elicited information regarding diet, digestion, elimination, sleep, and exercise. After completing and returning this questionnaire, patients were scheduled for a two-hour group clinic attended by both a physician and a nurse and structured to accommodate seven to ten patients.

Clinic Content

The group clinic had an interactive didactic format designed to provide patients with a cognitive framework for evaluating and integrating CAM modalities. The clinic was designed also to offer patients practical ideas for diet, daily routine, and behavior modification that could be implemented immediately.

The content of the didactic segment was based substantially on the Vedic Medicine paradigm, a version of the traditional Indian system that has been adapted to conform with contemporary, evidence-based standards. The concepts of physiologic balance and body typing were introduced and were then further developed into

<table>
<thead>
<tr>
<th>Table 1. Reason for referral</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Condition</strong></td>
</tr>
<tr>
<td>Menopause</td>
</tr>
<tr>
<td>Irritable bowel</td>
</tr>
<tr>
<td>Allergies/chronic sinus</td>
</tr>
<tr>
<td>Cancer/well-being</td>
</tr>
<tr>
<td>Anxiety/depression</td>
</tr>
<tr>
<td>Fibromyalgia</td>
</tr>
<tr>
<td>Arthritis</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>Back pain</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>Patient request</td>
</tr>
<tr>
<td>Lipid levels</td>
</tr>
<tr>
<td>Infertility</td>
</tr>
<tr>
<td>Inflammatory bowel</td>
</tr>
<tr>
<td>Vertigo</td>
</tr>
<tr>
<td>Headache</td>
</tr>
<tr>
<td>Eczema</td>
</tr>
<tr>
<td>Obesity</td>
</tr>
<tr>
<td>Prostatism</td>
</tr>
<tr>
<td>Multiple problems</td>
</tr>
<tr>
<td>Health maintenance</td>
</tr>
</tbody>
</table>
Table 2. Synopsis of questionnaire responses from new patients

<table>
<thead>
<tr>
<th>Question</th>
<th>No. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>How useful was the information presented in the clinic?</td>
<td>“not very” “neutral” “very”</td>
</tr>
<tr>
<td>How satisfied are you with the experience you had at the clinic?</td>
<td>1 6 48</td>
</tr>
<tr>
<td>Was the information about body types and “doshas” clearly presented and easy to understand?</td>
<td>2 10 44</td>
</tr>
<tr>
<td>Was the information about diet and lifestyle modification clearly presented and easy to understand?</td>
<td>3 5 48</td>
</tr>
<tr>
<td>Would you be interested in participating in a meditation course if it were offered as a covered benefit?</td>
<td>7 10 33</td>
</tr>
</tbody>
</table>

Open-ended questions and their answers

<table>
<thead>
<tr>
<th>Question</th>
<th>No. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why did you come to the clinic?</td>
<td></td>
</tr>
<tr>
<td>To learn about holistic and alternative remedies</td>
<td>14</td>
</tr>
<tr>
<td>To learn about health maintenance and disease prevention</td>
<td>9</td>
</tr>
<tr>
<td>To find out about alternatives to pharmaceuticals</td>
<td>8</td>
</tr>
<tr>
<td>What did you like most about the clinic?</td>
<td></td>
</tr>
<tr>
<td>The subject matter: learning about Ayurveda, doshas, and body types</td>
<td>15</td>
</tr>
<tr>
<td>The availability of a new and creative approach</td>
<td>13</td>
</tr>
<tr>
<td>What should be done to improve the clinic?</td>
<td></td>
</tr>
<tr>
<td>Improve access</td>
<td>8</td>
</tr>
<tr>
<td>Improve handouts</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 3. Synopsis of questionnaire responses from returning patients

<table>
<thead>
<tr>
<th>Question</th>
<th>No. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>How useful has your experience been with the Natural Medicine Clinic?</td>
<td>“not very” “neutral” “very”</td>
</tr>
<tr>
<td>How satisfied are you with the experience you have had at the Natural Medicine Clinic?</td>
<td>0 3 16</td>
</tr>
<tr>
<td>To what extent have you made changes in your lifestyle and diet as a result of attending the clinic?</td>
<td>3 4 11</td>
</tr>
<tr>
<td>To what extent has your condition improved as a result of what you have learned through the clinic?</td>
<td>4 5 8</td>
</tr>
</tbody>
</table>

Open-ended questions and their answers

<table>
<thead>
<tr>
<th>Question</th>
<th>No. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please provide details related to any changes you have made in your diet and lifestyle:</td>
<td></td>
</tr>
<tr>
<td>simple dietary measures, such as favoring warm beverages and taking the main meal at noon</td>
<td>10</td>
</tr>
<tr>
<td>changes in daily routine, such as regular exercise or meditation</td>
<td>5</td>
</tr>
<tr>
<td>What about your condition has improved?</td>
<td></td>
</tr>
<tr>
<td>improvement in specific symptoms:</td>
<td></td>
</tr>
<tr>
<td>skin rashes</td>
<td>2</td>
</tr>
<tr>
<td>chronic abdominal pain</td>
<td>2</td>
</tr>
<tr>
<td>hyperlipidemia</td>
<td>2</td>
</tr>
<tr>
<td>other</td>
<td>3</td>
</tr>
<tr>
<td>improvements in general health:</td>
<td></td>
</tr>
<tr>
<td>improved energy level</td>
<td>3</td>
</tr>
<tr>
<td>enhanced sense of control over the illness</td>
<td>2</td>
</tr>
<tr>
<td>What did you like most about the clinic?</td>
<td></td>
</tr>
<tr>
<td>the natural and holistic approach</td>
<td>6</td>
</tr>
<tr>
<td>the effort on the part of the physician</td>
<td>5</td>
</tr>
<tr>
<td>What might we do to improve the experience?</td>
<td></td>
</tr>
<tr>
<td>improve access</td>
<td>8</td>
</tr>
</tbody>
</table>
specific recommendations for patients in four areas: diet, exercise, daily routine, and behavior modification. Information related to community resources in yoga, meditation, and stress management was provided. Patients were extensively educated and coached regarding safety issues related to herbal supplement use.

When the group ended, patients were advised to attempt at least one or two changes in diet and lifestyle based on the group clinic content and were invited to attend a six- to eight-week individual follow-up appointment with the physician. The follow-up visit consisted of medical history; physical examination; and individualized recommendations encompassing diet, daily routine, behavior modification, exercise, meditation, and (in some cases) herbal supplements.

**Data Collection**

Data were collected by reviewing the patient’s electronic medical record and responses to three questionnaires administered to patients and their referring clinicians. The questionnaires asked about visits to the clinic occurring between February 1, 2001 and September 30, 2001. The first questionnaire was distributed to new patients at the end of the group visit and was completed before the patient left the clinic. The second questionnaire and a self-addressed, stamped envelope were mailed to returning patients approximately two weeks after the individual follow-up visit. The third questionnaire was distributed to referring clinicians by electronic mail at the end of the pilot period.

**Discussing Herbal Supplements with Patients**

A considerable amount of our clinic’s resources are directed toward answering patients’ questions about herbal supplements. The group clinic format is ideally suited for this purpose, because the complexity of the issues often requires patient education well beyond that which can be accomplished within the framework of the conventional brief office visit. Four issues in particular require frequent attention.

Taking too many supplements is perhaps the most common mistake we encounter among patients. Patients may come to the appointment with a lengthy list or a large bag of vitamins, herbal extracts, homeopathic remedies, and other products, expecting that we will validate appropriateness of their use. In most instances, we encourage patients to discontinue such a program, because, simply stated, no possible way exists to sort through all the potential effects, toxicities, drug interactions, and other issues. Instead, patients are encouraged to focus on diet, exercise, daily routine, and stress management—perhaps with targeted use of a limited number of supplements within that context.

A second important issue relates to evidence. We see our role as educating patients about the types of evidence that do (and do not) exist for particular herbal products. Our role is to assist patients to make appropriate, well-informed, responsible health decisions. In some instances, this assistance may be relatively straightforward, as, for example, with products such as saw palmetto or St John’s wort: Randomized controlled trial (RCT) data exist pertaining to readily available standard extracts of these two substances. Many herbs, however, are supplied as combination products, for which no specific RCT data may be available. In such instances, some conclusions can be drawn by reviewing evidence from controlled trials, observational studies, and animal experiments using the main active ingredients. In addition, Ayurvedic and Chinese medicine formulations have a very long history of use dating back thousands of years. Common sense dictates that such voluminous anecdotal experience should be neither blindly accepted nor casually dismissed but weighed as another piece of evidence to be judiciously factored into each patient’s decision.

A third concern relates to authenticity and labeling. Special rigor is required here to assure patient safety, particularly given the lack of federal regulation in this area. Herbal manufacturers must be asked important questions: Who formulates the products, and what are their credentials? Is the content of the products validated not only by experienced herbalists but also by appropriate laboratory analysis, such as high-pressure liquid chromatography? Are rigorous laboratory modalities applied to screen for pesticides, heavy metals, and biological contaminants? Does the manufacturer have certification from an established external reviewer as confirmation of good manufacturing practice? The procedure in our clinic is to direct most patients who wish to purchase herbal products to a single, well-established, ISO-9001-certified supplier that we have selected on the basis of these criteria. This practice has enabled us to establish and monitor quality through our own research, inquiry, and clinical experience and to obtain validation from a highly respected international standardization organization.

Herbal supplements can be useful in management of some cases when certain conditions are met:
- Safety issues must be addressed, including verification of good manufacturing practices.
- Benefits must reasonably outweigh risks from the standpoint of the patient’s clinical condition, including potential for herb-drug interactions.
- Conventional therapy must have been adequately considered or tried.
- A reasonable constellation of evidence must support efficacy.
- Use of herbal supplements must be consistent with the patient’s own desires and beliefs.

Even when these conditions are met, however, we commonly raise a final concern when consulting with patients in our clinic. For patients who come to us seeking an herbal “magic bullet” because they believe the pharmaceutical “magic bullet” is undesirable or ineffective, we must provide a reminder that herbs can reasonably be expected to supplement—but not to replace—regular exercise, a wholesome diet, and a sensible daily routine.
Results

Descriptive Data

Since inception of the CHCC in July 1999, volume of referrals to the clinic has progressively increased, doubling from approximately nine per month (during the first eight months of clinic operation) to 18 per month (during the pilot study). During the eight-month pilot period, the group clinic logged 59 new patient visits and 38 follow-up visits. Of the 59 patients who attended the group, 49 were female and 10 were male. Median age of the patients was 54 years (range, 23 years to 83 years). The most frequent reasons for referral were menopausal problems and irritable bowel (Table 1).

The 59 patients seen in the group clinic were referred by 40 different clinicians, 32 of whom were physicians and 8 of whom were allied health professionals. Of the 40 referring clinicians, 24 were female, and 14 were male; 31 provided primary care services (internal medicine or family practice); and 9 provided specialty care in gynecology, oncology, dermatology, genetics, general surgery, or emergency medicine.

Survey Results

Fifty-six patients completed and submitted the questionnaire at the end of the group visit, and 21 of 38 returning patients mailed back the follow-up questionnaire. Patients were asked to rate their impressions on a scale from 1 to 5. For analysis, responses were collapsed into three categories: Responses of “4” or “5” were interpreted as positive; responses of “1” or “2” were interpreted as negative; and responses of “3” were considered neutral. Most patients—new and returning—were highly receptive to previous unfamiliar concepts introduced in the group sessions and that a substantial number of patients reported modifying their diet and lifestyle as a result of attending the clinic.

When asked how the clinic might be improved, responses generally focused on access. Return patients were asked to comment both on lifestyle changes that they had implemented and clinical improvement that they had experienced as a result of attending the clinic. The most commonly implemented changes were dietary, whereas reported improvement tended to be disease-specific. Results are detailed in Tables 2 and 3.

In a survey sent by electronic mail, referring clinicians were asked a set of open-ended questions about utility of the clinic for them and for their patients. Nine clinicians responded to the survey. Respondents expressed support for the clinic as a useful resource for patients interested in CAM methods of treatment.

Discussion

Our experience confirms the feasibility of providing CAM services internally at KP, under physician direction and based on the CHCC model. These results suggest that the CHCC model may be a viable mechanism for delivering CAM services in an HMO setting. The clinic has now operated successfully for more than two years, the number of referrals has progressively increased, and a high degree of satisfaction has been reported both by patients and by physicians. In addition, many patients who attended the clinic reported clinical improvement as a result of this attendance (Table 3). This finding is especially encouraging to us when we consider that, for many patients who attended the clinic, conventional modes of treatment used previously had failed or were unsatisfactory for other reasons.

A prevalent theme in patient questionnaire responses was an interest in holistic care. In this context, we note that patients were highly receptive to previously unfamiliar concepts introduced in the group sessions and that a substantial number of patients reported modifying their diet and lifestyle as a result of attending the clinic. We were not surprised that patients’ suggestions for improving the clinic focused strongly on access; this finding reflected the limited resources currently available to the clinic.

A strong economic case can be made in support of providing CAM care via the internal CHCC mechanism. National survey data suggest that CAM availability is an important consideration for two thirds of consumers when selecting a health plan. The CHCC represents a mechanism for meaningfully accommodating this demand within the culture of the group model HMO while introducing efficiency that was previously associated with group clinics.
Acknowledgment

I would like to thank Nancy Vuckovic, PhD, for her valuable suggestions in the preparation of this manuscript. This research was partially supported by a grant (AT00076) from the National Center for Complementary and Alternative Medicine.

References


It’s Really Pretty Simple

It’s really pretty simple from the members’ perspective. It amounts to this: “Answer the phone; meet my needs; and treat me with dignity and empathy.”

— Jay Crosson, MD, quoted by Jon Stewart in Improving the Health Care Value Equation: Access, the Care Experience and Resource Management. The Permanente Journal Winter 2000
This is another in Dr Shearn's experiments with pictures that can be viewed upside down or sideways. He sometimes referred to this piece as 80 fingers.

More of Dr Shearn's artwork can be seen on the cover and on page 26.
Fulfilling the Potential of Clinical Information Systems

By Robert M Crane, MPA; Brian Raymond, MPH

Introduction

Since the late 1950s, health care visionaries have predicted an information technology (IT) revolution within medical care delivery—a revolution that would transform the health care industry as it had the finance and retail sectors. The early pioneers of medical informatics—the study and use of computers and IT in health care—formulated a vision for literally transforming modern medicine through use of clinical IT systems. Many examples exist that show how such systems support management of health care outcomes, drug interaction checking, order entry, and electronic capture of a patient’s vital signs as well as clinical notes made by health care practitioners. Key advances in clinical IT can be a catalyst for early intervention in disease processes, improvement in health care outcomes and care management, reduction of medical errors, and increases in both administrative efficiency and patient satisfaction.

Early estimates of the time needed to realize the promise of clinical IT applications in the United States were optimistic. In 1991, the Institute of Medicine’s Committee on Improving the Patient Record set a goal of making computer-based patient records a standard use of IT in health care by 2001. To date, however, the clinical IT revolution has eluded much of the US health care system, and the high expectations of past visionaries remain largely unfulfilled.

Today, a few health care delivery systems have positioned themselves to overcome barriers to implementing clinical IT applications and have pioneered their use in US health care. For example, health care delivery systems such as LDS Hospital, the Mayo Clinic, Beth Israel Deaconess Medical Center, Brigham and Women’s Hospital, Kaiser Permanente, and the Veterans Health Administration (among others) have successful systems in place that represent multimillion-dollar investments made over many years—or decades. However, most health care practitioners and institutions in the United States are not well positioned either financially or in terms of organizational readiness to deploy clinical information systems.

What is a Clinical Information System?

Clinical information system is an umbrella term that has been applied to a broad range of clinical information technology and to various configurations of clinical application components. Additional terms are used to describe information systems that support delivery of health care: electronic medical record system, health information system, and computer-based patient record system are a few. In the past, these systems have typically been clinically oriented, homegrown applications designed on legacy platforms and were used primarily by larger hospitals and health care provider organizations to focus on practitioners’ need for information.

Use of IT applications in health care is rapidly evolving beyond what was considered a clinical information system. Clinical IT now encompasses new tools and services that are delivered or enhanced by the Internet and by other advanced networking technologies, including telemedicine, wireless handheld devices, speech recognition systems, and home monitoring devices. Many of these new products and services are both component-based and “off-the-shelf” instead of being custom-made by each end-user. As emerging IT applications are introduced into the health care industry, the term “clinical information system”—and even the current MeSH (Medical Subject Heading) term “hospital information system” used by the National Library of Medicine—becomes increasingly inadequate to describe these technologies. A new term will probably be...
developed as this technology continues to evolve.

The commercial marketplace for clinical IT products has evolved dramatically in recent years through corporate mergers, acquisitions, and other challenges to fledgling startup companies. Cerner Corporation and Eclipsys Corporation, two vendors of clinical IT solutions, have acquired the greatest share of the market. Other major participants include Epic Systems Corporation (Madison, WI), IDX (Burlington, VT), McKesson (San Francisco, CA), Siemens Medical Solutions (Erlangen, Germany), and Meditech (Westwood, MA). Industry analysts estimate that only 5% of the health care IT market has been penetrated, and this estimate has led to optimistic growth forecasts for vendors of clinically focused IT products as the market continues to mature. Most customers will build an initial foundation of database and data entry capabilities that are gradually supplemented with additional components, such as those featured in Table 1.

A Bridge to a New Health Care Paradigm

Evidence-based medicine provides an explicit framework of scientifically validated information for medical decision making and is the cornerstone for a paradigm shift in health care. Evidence-based medicine supports implementation of cutting-edge programs for health care management and can lead to improved health outcomes as well as to cost-effective care. Yet, despite exponential increase in the biomedical knowledge base and revolutionary advances in technology, the health care industry continues to rely on a clinical information distribution framework that has changed little over the past century. We might call this framework the “old paradigm.”

The practice of medicine has grown almost unmanageably complex. The limitations of the health care system at the beginning of the 21st Century are such that the old medical care paradigm is less viable and emergence of a new way of practicing medicine is almost inevitable. Four signs suggest that the traditional medical paradigm is not well suited for the 21st Century: nonviability of paper-based systems for supporting clinical care; increasing unreliability of medical practice that depends on human memory; business need for capturing clinical data; and increasing consumer expectations for improved health care.

Nonviability of Paper-Based Systems for Supporting Clinical Care

Paper-based information systems are not a viable long-term option for meeting the changing demands of health care delivery settings. Clinical decision making should be driven by point-of-care information accessed by providers in real time. Paper-based systems for information storage and retrieval have high failure rates that can lead to duplication of service, delays in treatment, increased length of hospital stay, and increased risk of morbidity and mortality.

Table 1. Components that are often featured in Clinical Information Systems

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practitioner order entry</td>
<td>A way to help clinicians complete clinical tasks (eg, ordering laboratory tests, prescription drugs, diagnostic imaging, consultation requests). Decision support and alerts are typically integrated into order entry capabilities.</td>
</tr>
<tr>
<td>• Laboratory Management System</td>
<td></td>
</tr>
<tr>
<td>• Pharmacy Management System</td>
<td></td>
</tr>
<tr>
<td>• Diagnostic Image Management System</td>
<td></td>
</tr>
<tr>
<td>• Referral Management System</td>
<td></td>
</tr>
<tr>
<td>Integrated view of patient data (eg, electronic medical record)</td>
<td>A repository of information about patients that presents an appropriate view of patient information to health care practitioners.</td>
</tr>
<tr>
<td>Documentation management</td>
<td>A way that uses either coded data entry or free-text input to allow practitioners to record their diagnostic, case management, and treatment actions. Such an application could collect data, such as nursing notes, physician progress notes, or even the medication administration record.</td>
</tr>
<tr>
<td>Clinical decision support</td>
<td>Alerts based on current data from the electronic medical record, from evidence-based practice guidelines, or from more complex artificial intelligence engines for diagnostic support and provided when the clinician assesses the patient’s condition and makes ordering decisions.</td>
</tr>
<tr>
<td>Administrative data</td>
<td>Access to administrative data (eg, admission, discharge, and transfer records; surgery schedules; demographic data; room assignments) used to track patient movement and often needed to allow accurate generation and delivery of clinical alerts and reminders.</td>
</tr>
<tr>
<td>Integrated communication support</td>
<td>Tools that positively affect effectiveness and efficiency of communication among team members working to improve continuity of patient care during transition between multiple clinicians.</td>
</tr>
<tr>
<td>Access to knowledge resources</td>
<td>Online information (eg, reference materials or journal articles) used in case management of specific patients when decisions or orders are being made.</td>
</tr>
</tbody>
</table>
medical errors caused by absence or inaccessibility of data.

**Increasing Unreliability of Human-Memory-Based Medicine**

Health care practitioners are bombarded with changing clinical decision factors and are challenged to stay abreast of an ever-increasing knowledge base in specific areas of expertise. New clinical practice guidelines, research findings, pharmaceutical products, and medical devices surface daily. So much information is now being published that practitioners lack time to read the latest information. In 1966, about 100 articles were published each year from randomized controlled trials; in 1995, nearly 10,000 such articles were published.9 Current medical practice relies heavily on the unaided mind to recall a great amount of detailed knowledge—a process which, to the detriment of all stakeholders, has repeatedly been shown unreliable.7

**Capturing Clinical Data: A New Business Imperative**

As costs of health care continue to rise, purchasers are increasingly impatient with the health care industry’s inability to accurately account for its expenses. Now, when other industries develop extensive cost data and detailed accounting systems, the health care industry is finding it increasingly difficult to avoid responsibility for capturing clinically derived information needed for various purposes. As a growing number of provider organizations begin to offer consumers online services for scheduling appointments, refilling prescriptions, and retrieving test results, health care organizations are being subjected to market pressure to invest in clinical data capture.8 Because disease management programs must stratify chronically ill patients by risk to achieve cost-effective outcomes, these programs are becoming increasingly dependent on clinical information systems. In addition, organizations that fail to invest in systems offering real-time access to clinical information may soon be at a competitive disadvantage when recruiting health care practitioners.

**Rising Consumer Expectations for Improved Health Care and Services**

Consistent with the trend toward consumerism in health care, people are looking for customized care that fits their lifestyles and health care needs. IT tools can facilitate delivery of convenient, personalized care. Technology such as the electronic patient record can give practitioners a better understanding of a patient’s medical history, health status, allergies, vaccination history, and personal preferences—and this understanding may lead to more appropriate care as well as to improved compliance and clinical outcomes. As consumers learn more about clinical IT, they will appreciate its contribution to improving safety and quality of care while increasing opportunity for patients to participate in their health care in partnership with their clinicians. Like other advances in medical technology, clinical IT will raise consumer expectations of what is possible and what should be made available.

**Evidence of Benefits from Clinical Information Systems**

Since the 1960s, researchers from universities, health care systems, and the federal government have attempted to show the value of clinical information systems. The Kaiser Permanente Institute for Health Policy was established in mid-1999 to provide a focus and resources for Kaiser Permanente to better participate in shaping the nation’s health policy agenda. Working in collaboration with foundations, policy institutes, research programs, policymakers, and other organizations, the Institute seeks to develop unbiased information about policy issues and alternatives. To better understand the body of evidence about clinical information systems, the Institute reviewed many of the published studies regarding use of information technology in delivery of health care. This review included the following highlights:

- Particularly in an outpatient setting, reminder systems and order entry systems have repeatedly been shown extremely effective for improving compliance with guidelines for preventive health and disease management.9-11
- Ample evidence shows that clinical information tools can improve prescription drug administration and patient safety by improving drug dosing, by reducing the number of adverse drug interactions, and by promoting more appropriate pharmaceutical utilization.10,12-13
- We confirmed what at least one other review of literature has found: Studies have shown that specific aspects of clinical information systems are beneficial in small-scale demonstration projects but that few studies provide compelling evidence of this benefit.14
- Few studies contain substantial documentation of improved productivity, efficiency, service, or major cost savings in nonclinical areas. However, studies of ad-
verse drug interactions and improved formulary usage have shown cost savings.\textsuperscript{15}

Although the literature review suggests real promise from these systems, documenting evidence of benefits remains difficult for a number of reasons:

- Two phenomena—1) process changes associated with IT implementation and 2) human variability—complicate the process of attributing positive outcomes solely to any clinical information system.
- Because much of the research in the area has been done at individual sites on systems customized by an individual end-user, results are difficult to generalize.
- Most studies—such as that of Health's Clinical Center—have focused on individual computerized processes in isolation;\textsuperscript{16} few studies focus on entire care delivery systems. Clinical and economic benefits will probably be shown more easily after systems have been fully implemented and additional processes have been computerized.\textsuperscript{17}

Roadblocks to Implementation of Clinical Information Systems

Unlike other information-rich industries, health care—the largest service industry in the US economy—has not fully benefited from the information revolution. Why have health care providers failed to migrate to clinical information technology?

Part of the answer lies in decisions regarding IT resource allocation. In the 1970s, 1980s, and 1990s, IT investments made by health care organizations focused primarily on financial and administrative systems.\textsuperscript{12} Applications for patient registration and accounting were introduced to improve efficiency of workflow and billing processes. Avoiding the anticipated Y2K crisis occupied the health care IT agenda during 1998 and 1999. Most health care organizations postponed new IT investment and instead focused resources on preventing projected Y2K problems in financial and administrative applications.\textsuperscript{18} Today, a variety of nonclinical IT solutions compete with clinical information technology for the scarce capital funds of health care organizations. These competing technologic applications include practice management applications, supply-chain automation, and Web-based customer relations software.

The high cost of basic infrastructure of clinical information technology is a substantial hurdle for many health care organizations, many of whose income margins have deteriorated after years of decreasing reimbursement (from Medicare and other sources) and whose access to capital for new medical technology is extremely scarce. Diversity of products as well as lack of standards and common architecture further complicate these circumstances. Financial instability and scarce capital resources for IT infrastructure similarly affect small to mid-sized independent practice associations (IPAs) and independent physician offices, the practice venues for most physicians in the United States.

Decisions regarding IT investment are often painstakingly evaluated by health care organizations on the basis of measures such as cost-per-doctor-per-month, cost-per-member-per-month, and short-term return on investment. Return on investment for a clinical information system is neither easy to measure nor necessarily the most appropriate indicator of its success. Benefits such as provider convenience, patient satisfaction, and service efficiency can substantially affect health care operations but are not easily documented as increased revenue, decreased expenses, or expenses avoided. This difficulty has made many health care organizations unable to justify major resource investment in clinical IT without either a strong business case or market forces that dictate such investment.

Beyond resource constraints, other barriers to widespread implementation of clinical information systems exist in the United States:

- Data security and patient privacy (intensely and increasingly scrutinized by both the US Government and the health care industry).
- Time and cost required to choose, buy, and implement or build a health informatics system. In addition to explicit costs, hidden costs occur, such as initial reduction in productivity.
- Integration of legacy systems: Integrating legacy systems with new clinical information systems is a challenge for organizations hesitant to abandon their large IT investments.
- Clinician resistance (particularly if the system is counterintuitive to physicians' practice methods and preferences).
- Lack of industry standards and interoperability across the continuum of care in outpatient and inpatient facilities.\textsuperscript{19}
- Risk aversion, particularly in this era of shrinking income...
Public Policy Needed to Enable Implementation of Clinical IT Systems

In the near term, clinical IT is unlikely to be adopted widely in the absence of sound public policy. In our review of these issues we have identified four policy recommendations that deserve serious consideration:

- The federal government should provide leadership to encourage development of a standard clinical vocabulary, standards for exchange of clinical information, and other standards for interoperability. Without established standards, health care organizations will be less likely to implement information technologies because of the difficulties in sharing clinical information among providers or concerns that systems will need to be altered once standards are established.

- State and federal privacy policy should avoid establishing barriers to the legitimate development and use of clinical information technology. A balance must be found between the public’s right to privacy and a clinician’s ability to coordinate quality medical care in a fragmented delivery system and to perform research that broadly benefits society.

- The cost of health information technology should be shared among those who benefit from it. Public investment is needed to encourage adoption of important technological applications.

- Research and development focused on implementing and effectively using health information technology should be encouraged and supported. Leadership dynamics, organizational issues, cultural factors, and lessons learned from clinical IT implementations need more focused study.

Conclusion

Despite modest uptake of clinical IT systems in medical practice, growing evidence shows that such technology has substantial potential for positively benefiting delivery of health care. Increasing evidence shows also that the automated medical record and other emerging tools for managing clinical information will lead to a new paradigm of evidence-based, patient-centric health care. Review of the health care literature and experience gained by various health care organizations support the conclusion that such a system can improve clinician performance, enhance clinical outcomes, and decrease medical errors. Many of these applications and the benefit they produce will probably become the “community standard of care” during the next decade and should consequently improve both patient care and patient satisfaction. Thus, health care organizations must encourage broader implementation of this technology, and policy makers must develop sound public policy that identifies and overcomes current barriers and disincentives to implementing clinical IT systems.

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References


health systems

Fulfilling the Potential of Clinical Information Systems


The Truly Wise Person

An optimist is a person who sees a green light everywhere, while a pessimist sees only the red stoplight … The truly wise person is color-blind.

— Albert Schweitzer, 1875-1965, philosopher, musician, 1952 Nobel Peace Prize winner
The Physician as Leader

Introduction

“Leaders understand that activity is not necessarily accomplishment.”
– John C. Maxwell

All physicians are leaders. We are leaders in the operating room, the emergency room, and the executive boardroom. Because many of us have not received formal training in leadership, it is important for us to understand what it is to be a leader as well as how we can mentor other physicians to be leaders. Supporting the development of all physicians as effective leaders is the key to our success. The future of our medical group and the quality of care and service we provide our patients will depend on the effectiveness of physician leadership.

I will share six universal and timeless characteristics of great leaders. These characteristics are principles of life and, if mastered, will help you to become a more effective leader.

Share in a Vision

“The empires of the future are the empires of the mind.”
– Winston Churchill

The first characteristic of a great leader is vision. Our physician-leaders must understand the vision of Permanente Medicine. Our medical group, through physician leadership, provides high-quality care and service at an affordable price. Accomplishing these goals requires assimilating information in business, quality improvement, and customer service. Failing to understand the big picture or believing that the goals or objectives of the medical group are unattainable are examples of attitudes that will demoralize our medical group.

The first step in developing a good vision is to be boundaryless. Try not to think of vision in terms of the restriction of the status quo, but, instead visualize the potential of your medical group without boundaries. “Boundaryless” means no boundaries. We do not let bureaucracy or job titles get in our way of solving a problem. An example would be a frontline physician making a suggestion to the medical director and the medical director implementing the idea immediately throughout the region. Once we agree to insist on excellence and be intolerant of bureaucracy, then boundaries will just be a minor roadblock to the medical group’s success.

Boundaryless does not mean that we cannot face reality. We all live in a world that is bound by budgets and time. We cannot afford to waste time and money trying to solve a particular problem. Boundaryless means that we eliminate those barriers (bureaucracy) that prevent us from implementing a good idea that will help our team to succeed. Finally, the vision must have metrics and targets. Without a scoreboard, we will not know where we stand.

Surround Yourself with Great People

“It’s lonely at the top so you’d better take someone with you.”
– John C. Maxwell

Strong leaders surround themselves with strong people. Great leaders understand that it is a myth that one person can do something great. They realize the benefit of strong interdependence. Great leaders realize early in their careers that by surrounding themselves with other strong individuals, they can maximize their strengths and minimize their weaknesses. Primary care physicians are often overloaded with messages from patients. Even the most effective physician can be overwhelmed in trying to review lab results, to see patients, and to answer all of his/her messages before the day is complete. The nursing staff can help the physician by organizing messages by topic (medication refill, lab review, or “needs appointment”). The nursing staff may proactively order charts that may help the physician answer his/her messages. The result is that the staff helps minimize a perceived weakness and strengthens the team’s ability to return messages before the day is complete.

You may be a great coach, but if you do not surround yourself with talented people, you may lose to a
The Physician as Leader

The success of the team is on your shoulders. Realize that teams win together and lose together. There is no “I” in “TEAM.”

Focus on Perfection

“The gem cannot be polished without friction, nor man perfected without trials.”

— Chinese proverb

Great leaders focus on perfection. Perfection is not easy and requires work and focus. One can only think of the great teams produced by coach John Wooden. How did he get the teams to play with perfection? John Wooden always preached that if he could get each of his players to play to their potential, it did not matter what the other team did on the basketball court. The UCLA Bruins controlled their own destiny. The focus was on effort, not on winning. This process does not need to be complicated. As a rule, keeping it simple results in the best outcomes.

To be perfect, you must focus. Physician-leaders can often lose focus by taking on too many projects at one time. Few leaders can take on many tasks without one of the tasks suffering from lack of attention. As a team leader, you must stay focused on developing your team. You need to learn to say no to projects that will take you away from focusing on your team’s success.

Develop Emotional Intelligence

“The significant problems we face cannot be solved at the same level of thinking we were at when we created them.”

— Albert Einstein

Emotional intelligence is defined as leadership competencies that deal with the ability to handle ourselves and our relationships with others. The term emotional intelligence has been associated with the concept of self-development before attempting to develop other people. Emotional intelligence is a skill that can be learned. Physicians are not born with emotional intelligence. Before developing others, we first must be competent with our own development.

There are four dimensions of emotional intelligence. These include self-awareness, self-management, social awareness, and relationship management. Self-awareness means having a good understanding of one’s emotions as well as of one’s strengths and weaknesses. Great leaders focus on developing their strengths and minimizing their weaknesses. For example, a physician who...
is a great general surgeon may benefit the medical group by focusing on surgery and trying to develop a center of excellence in his/her field of expertise. Leaders must understand where they belong.

Self-management means that one understands one’s own emotions and does not let emotions control his/her actions. Great leaders understand that between stimulus and response there is a space. This space is where self-management skills allow you to control your negative emotions and focus on the task at hand. Self-management allows you to see situations clearly.

After acquiring the skills of self-awareness and self-management, resonant leaders develop the skills of social awareness and relationship management. Social awareness means that we have empathy. We sense others’ emotions and understand their perspective. Physicians should be empathetic to their patients. But are we empathetic to our business team members? Social awareness and empathy build on self-management. Empathetic leaders are experts at reading body language and understand the “flow of a meeting.” They want to hear what people have to say. They are good listeners and respond appropriately to the concerns expressed by other people. Empathy is the key to retaining talented individuals in the medical group.

Relationship management is the final dimension of emotional intelligence. Here we find the most visible tools of a leader. These tools include persuasion, conflict management, influence, and cooperative team building. Relationship management is the ability to move people in a positive direction. For example, great leaders understand that it is more important to develop people than programs. After months or years of investment, a program will come along that needs the consensus of many physicians to succeed. If the relationships are not developed over time, the program might not gain the momentum needed to succeed. Relationship managers understand that anything important to the medical group does not get done alone.

Learn to Multiply

“A man with knowledge and great moral principles is a great man.” — Dwight D Eisenhower

The potential of our medical group depends on the growth of our leadership. Every leader in our medical group should make leadership development one of his/her highest priorities. Residency training is built on this concept. Young physicians learned from more experienced physicians who later trained less experienced physicians. The old house officer rule also applies to leadership development: See one, do one, and teach one. Your colleagues will see how effective you are in managing teams and your patient population. They will want to be like you. You will have an obligation to train them into being effective leaders like yourself.

Once we understand and implement this principle of multiplication, we will see a progressive, positive change in our medical group. If a medical group has poor or self-centered leadership, the group will eventually fail. If a medical group has strong leadership and they keep reproducing themselves, the group will get stronger. A great example of this process of reproduction is the case of General Electric under the leadership of Jack Welch. Before Jack’s retirement, General Electric had become one of the best companies in the world. The company prided itself on leadership development. When Jack Welch finally passed on his leadership role to Jeff Immelt, the two other executives who were competing for the CEO job immediately were offered CEO jobs at other companies. Another example of leadership multiplication can be seen in the case of professional football coaches. In a very competitive business, more than ten National Football League coaches have been mentored by the same person, Bill Walsh. Bill Walsh was the head coach of the multiple Super Bowl Champion San Francisco 49ers.

Jack Welch and Bill Walsh are great leaders. They developed a culture of leadership development. They knew what it took to succeed, and they passed this knowledge on to other leaders. Their law of multiplication: know one, show one, and grow one.

Conclusion

The great physician-leader is the individual who will help good medical groups become great medical groups. They are catalysts for success and perfection. The physician-leader is responsible for developing future physician-leaders. The great leader models, mentors, monitors, motivates, and multiplies.

I have been in leadership positions for more than ten years. I am convinced that the future success of our physicians, as leaders of their teams, will depend on
how well we identify and train physicians in the art of leadership. Our growth and success will depend on strong leadership developing a culture of strong leadership. The physician as leader carries responsibility. We have a responsibility to ourselves and to our medical group to continue the success of Permanente Medicine. We will succeed because we will identify, develop, and reward the best physician-leaders. 

❖ Personal communication, Oliver Goldsmith, MD, CEO, and Chairman of the Board, Southern California Permanente Medical Group

References

Great Responsibility

With great power comes great responsibility.

— Uncle Ben, as portrayed by Cliff Robertson, to his nephew, Peter Parker, as portrayed by Tobey Maguire, in Spider-man, The Movie, 2002
“You’ll Never Get Off the Table”

By Tom Janisse, MD

“Doctor, it’s Carla in ER, the Tyler police just called. Medic 3, Tony’s rig, is rolling in Code 2 with a suspected leaking abdominal aortic aneurysm. That’s what Tony said the patient said. They’re twenty minutes out.”

“A triple A! Why not Code 3?” said Stewart from the sleep room.

“Patient said not to. Police don’t know any more. Tony’s probably hoping he can go straight to his mortuary.”

“Why are the police calling?”

“You don’t know Tony,” she said. “He’s always hated this medic stuff. In the sixties, back before EMTs, he’d just cruise out to the accident scene in his Cadillac hearse to pick up bodies. Turned on siren and lights to blast through traffic. Not really legal.”

“Does he always call the police?” asked Stewart.

“They might have been at the patient’s house. Tony calls whoever and whenever he wants, to avoid taking Medic radio orders. He’d still rather go straight to his mortuary than the ER. But doctor … he drives like Mario Andretti!”

“Some story, Carla,” Stewart said.

“I’m going on a bit to make sure you’re awake. Tony wants to go Code 3 speed, but doesn’t want to give Code 3 care. You need to be here when Tony gets here. No telling the patient’s condition.”

“What time is it?”

“It’s 3:15.” Carla hung up.

“Thanks,” Stewart said to the dial tone. “Good, not another drunken 19 year old. Wrecked his car. You wonder, when they go off the road on a straight stretch, like last night. Switching tapes? No turns to keep him awake? Unconscious suicide attempt? Middle-of-the-night stuff irritated Stewart. A Houston physician, on a research year in residency, he worked in any ER that needed a doctor on the weekend. Tyler County Hospital needed one because the hill town doctors were exhausted seeing patients day and night, in their office, in the hospital, in the ER, quick questions at the flower shop, consultations in the hardware. Even home visits for some old folks.

“Doc, you up? Medic 3 called back. Tony’s rounding the corner by the bank. It’s Barry Colton. You don’t know him but he’s got a history of an abdominal aneurysm. Half the town knows. He’s 84. Tony says they can’t hear the blood pressure now … because of road noise.”

“Okay, be there before you can hang up.” Stewart slept in his clothes. Gave him an extra minute. He struggled to drag himself out of the deep sleep that he’d fallen back into. His black ruffled hair flowed over his ears and onto his neck. In contrast his mustache was trimmed into a trapezoid. He had an incessantly twitching left upper eyelid. It made him nervous because it meant he was nervous.


“Hello, Mr Barry Colton? I’m Dr Eddie Stewart. Are you all right? Do you hurt?” Stewart scanned his face and belly for clues. Barry had this eerie look of painful calm on his round face. His ashen hair curled under his ears, matted with sweat against his neck.

“Hurt’s here.” He points mid-abdomen. “Deep. God, it’s intense! I gotta have something for pain, doc. I’m dying from the pain.”

“Okay, Mr Colton, but let’s see what it is first.” Stewart started palpating his belly with his hands one on top of the other, fingers pressed tightly together creating a blunt instrument. “On a one-to-ten scale, how much pain now?”

“Eleven. Christ!”


“His blood pressure is 70 over 50,” Carla said. “Rate’s 130.” She spoke to him across the bed while plunging the puncture end of the IV line through the soft port in the second bag of saline. As she slid the top slit in the bag over the metal hook, the pole rattled in its base. Carla had a square face, traditional stiff nursing cap pinned on, starched white uniform, nursing pin exactly horizontal on her left lapel. Always adjusting it to make sure.

“Start another large bore line,” Stewart said, looking straight into Carla’s eyes. “Turn up the oxygen, call EKG, call blood bank for six units, get labs, call Dr Sovitch, call the OR crew in. Get the floor supervisor down here. And draw up ten of morphine.”

“Done.” Carla turned to Jimmy, the lab tech who had just run into the room, carrying his basket of color-coded tubes tinkling in little wire cages, and said to him, “You hear those orders?”

“Got ’em. Know the drill from car wrecks.” Jimmy pulled out red top, purple top, and green top tubes, a syringe, and tourniquet.

“Mr Colton,” said Stewart, “we’re drawing up your pain medicine right now. This looks serious.” Stewart, six feet tall, reached down and touched his shoulder. “You know you have an aortic aneurysm?”

“Yes, doc. It’s it, isn’t it? That’s what I told Tony.”

“Sure looks like it.” Stewart looked up, for the first time noticing Tony leaning against the supply cabinet. He didn’t look 60. He was tall and lean with his head down writing his ambulance ticket for the transport down the hill. He wore a navy blue uniform top that zipped up the front. After replacing his call log into his waist pocket, he clicked his ballpoint, twirled it to see the “Hill Country Mortuary” logo on it, then clipped it alongside the log. Tony cured olives every season and brought jars around to everyone he worked with. He even gave Stewart a jar of green ones yesterday. Reminded Stewart of his dad who made little tile trivets and gave them to neighbors. He died last year. Cancer. Stewart felt he should have helped him along, as a doctor.

For all the olives he cures and eats, smoking must dictate his weight. Did leave his face with creases … visible because he’s clean-shaven. Reminds me of a saying, “There are more old lungers than there are old doctors.” After smoking ten years … wonder how many lung units I have left? Dad never smoked. Still died.

“Tony,” said Stewart, now over in the corner close enough to talk to him softly, “Can Medic 3 take him to Houston? We can’t get him to Houston faster than anyone in the county. Cops each side for good balance. You know what I’m good at. I can sets of lift tracks in the back. Bart and Barry need to stay on the fog for ground.

“Bart’s gassin’ ‘er up now, doc,” said Tony. “But doc … don’t order CPR in the back. It’d be a fail at high speed. He has two sets of lift tracks in the back. Bart and Barry need to stay on each side for good balance. You know what I’m good at. I can get him to Houston faster than anyone in the county. Cops know the Cad. It’s like flyin’ a jet under radar. And doc, he doesn’t want us doing anything anyway.”

“How long?”

“Under 40 minutes with lights ‘n siren. The Cad’s made for this trip. Cuts through the air like a fish through water.”

“Doc, talk to my wife first,” Barry interjected, overhearing the exchange. He motioned Stewart over. “Sara should be here. She followed the ambulance in.” He paused to take a breath. “I’m not going anywhere ’til you talk to her. She’ll tell you what we decided. Hurry doc. This pain is killin’ me!”

“His pressure’s up,” Carla said, “now that we’ve got some fluid in … 98 over 70.”

“Give him the ten of morphine then. Add five if you need to.” Stewart spun around, and took three steps into the hall where he stood along a wall of soft cream tiles across from a tall, slight, 80 year-old woman wearing a long, coat-like, gray woolen sweater. Her reddened eyes emitted tears on a face long in grief, like a window dripping after the rain. A quality of calm accompanied her sadness. “Hello, Mrs Colton, I’m Dr Eddie Stewart.” The tone of his voice sought resonance with her feelings. “I’m sorry about your husband. He said you knew what to do.” Like the wisp of a wing in flight his fingers touched her forearm.

“Dr Stewart … it’s his aneurysm?” She clutched her small black embroidered purse. She knew but didn’t want to.

“Yes, Mrs Colton.”

“Oh dear … we knew it would happen.” She blinked, blinked again, then looked down and away, as if searching through the fog for ground.

“We have a plan though, Mrs Colton,” Stewart said, eyelid twitching.

Sara looked around Stewart into the trauma room and saw the people fussing around Barry. She saw Tony. “Is he going somewhere?”

“To Houston. It’ll take a team of vascular surgeons to operate on his aneurysm. As a back up, Dr Sovitch is on his way in. Honestly, even a great general surgeon couldn’t save him in Tyler. It’s a very complicated operation.”

“It’s leaking then?”

“I think so, yes, Mrs Colton.”

“Dr Stewart, he’ll never make it through surgery. He’s 84, and he’s got a bad heart.”

“The best thing for his heart could be to fix his aneurysm.”

“Dr Gibon, his family doctor … do you know him?”

“Yes, I met him last month.”

“He’s Barry’s family doctor … always has been. Dr Gibon told us it was coming; we just didn’t know when or where. He said we could either wait and panic or we could prepare and flow with it. After many talks we agreed to no heroics … no tubes.” Sara searched for Stewart’s reaction.

“We’re definitely not there yet, Mrs Colton, though I’m an emergency doctor.”

“Dr Stewart, I don’t want you to be that kind of doctor,” said Sara, “I want you to be Barry’s doctor.” She cupped his elbow in her hand and turned him toward the trauma room.

“Let’s go in by my husband.”

“Hi Barry honey, how are you?” she said, as she grasped his hand in both of hers.
“I’m hurting real bad, Sara. Dr Gibon didn’t talk about this part.” Barry looked at Stewart and said, “Doctor, I gotta get some relief. This is no way to go. Have some compassion for an old man.” Barry’s face and forehead glistened with beads of sweat. Sara looked at Stewart, then back to Barry.

Carla pressed up against the other rail of the gurney and blotted the sweat over Barry’s eyes, then pushed in the last three milligrams of morphine. “That’s 15, doctor. I gave it all.” She took down the empty bag of saline, replacing it with the unit of blood Jimmy had handed her.

“I’ll never get off this table if I don’t get some relief! Give me somethin’ more for this pain, please. It’s all that matters now.”

“Carla, give him another 15 of morphine, please. Carefully. His pressure.”

“Hurry, doc! This dyin’s hell!”

“Stewart,” said Ginny, one of the OR nurses who’d popped into view in the hall doorway, “we’ve got the OR ready. All the trauma trays are open, blood’s in the OR fridge, and Dr Sovitch is getting out of his car.”

“Thanks,” Stewart said, turning back to Sara. “Could I please talk to you for a minute?”

“Yes.” She looked to Barry. “We’re going to stay together, Barry.”

Stewart took her arm and guided her into the hall. “Mrs Colton, this is very serious. This is life or death.”

“Yes, we’re ready. Only surprise has been the pain.”

“What do you think we should do?” Stewart looked to her imploring for resolution.

“As long as he’s comfortable when he goes. That’s all that matters.”

“Yes, we’re doing that. But usually we make every effort. Surgery could save him. We can do that here. Everyone’s ready.”

“Doctor, he’ll never get off the table.” She looked annoyed.

“That’s easier to say than do,” Stewart said.

“Once you took him into the OR I’d never see him again. We planned to be together at the end.” She reached for his hand. “Your work now is to relieve his suffering.”

“I’ll call off surgery then. Tell Dr Sovitch and the crew. I’ll call Dr Gibon. He’ll be awake. We can take good care of Barry right here.”

“Thank you.” Her face lightened with a faint smile. “Barry said when he passed he’d wait for me. He always does.” Looking down and away, like a heron tucking its head in its wing, she stood motionless.

Dad thought of mom the same way … when she wanted to give him a pill … he accepted … it was the end.

Stewart’s mother was poised at his dad’s bedside at home to place a pain pill on his dry tongue, water in hand, saying, “Conrad, here ….”

“Margaret,” he responded, “I don’t have pain anymore, but I’ll do it for you.” He swallowed it, and stopped breathing. His eyes widened as if he was seeing beyond, as if he saw friends waiting in the light, drawn to it. He died in that instant. It was a joyous moment, until the reality of death struck her heart.

“His pressure’s down to 70 over 40. That’s the second unit of blood hanging there, almost in.” Carla reached up and squeezed the bag. “We’ve finished our third liter of saline. And he’s got PVCs now. Is it the table … or the Cad, Dr Stewart? Table … or Tony?” Impatient, she wanted action.

Tony caught Stewart’s eye and started wheeling over his lift. Stewart stood silent, arms hung at his sides. His eyelids hung still. The green EKG tracing blipped rapidly across the blue screen. Oxygen hissed through the nasal tube. Mr Colton’s eyelids hung heavy leaving only a slit of white. His bulging belly had smoothed out the waves in his gown patterned with turquoise diamonds.

Duty … science or heart? Barry wanted it … Sara did, and Gibon agreed. Never get off … the table … or the bed. The table or the bed. Go … no, not you, it’s about Barry … at peace with death … but with pain? … hope now. Dad said, “This is no way to live,” before I knew he’d decided … slipped off … I was already gone … planning on Christmas together: Sara’s here, Barry’s here. Their town hospital … and Gibon … their friend too … right here. I’m in the way. Losing him. Not sure … morphine could knock out breathing. Advanced age … pouring in fluid … heart failure. Hope he doesn’t arrest in the ER. Reflex reaction to V Fib near impossible to suppress … a circus. Jump on him, thump his chest, press his sternum, slap on a mask and pump the bag. A wild primitive dance to restore life. What it would take now. Easy to say, “Do nothing” …. Not sure we relieved pain, or oversedated. Either way, it’s good. Sometimes best we can do … technical training, how’s it help? Breathing’s slowing. Don’t stop breathing here, Barry.”

Stewart suddenly saw Tony across from him. Tony held his lift’s side rail behind him with his left hand; his right hand floated above Barry’s rail. Stewart called Tony off with a slight wave of his hand and shook his head back and forth several times messaging a no go.
“Let’s get him down to his room,” Stewart said to Tony, Carla, and Jimmy, all still anticipating action. “Come on, let’s go. We’re admitting him to treat his pain.”

“Doctor,” Carla said, while snapping the wheel lock with her foot, “I haven’t notified the floor yet.”

“Call ahead and find an empty room,” said Stewart. “I’ll take him and Mrs Colton.”

Finally got him in bed … only a slight grimace.

They were in a single room at the end of the wing that looks out over the hillside through the oaks to the pines up on the ridge. Private. Peaceful. Daybreak. No nursing station calls. “Mrs Colton, here, let’s pull this chair up for you alongside his bed. He looks comfortable now. Resting.” She sat on the edge of the chair leaning toward Barry as if looking for signs of distress to relieve, and cupped his hand with her hands.

God, he’s snoring! Sounds awful. Could lead to an obstructed airway … struggling breaths … long, drawing … pulling for air … could just stop breathing trying … then a guttural release of air. Such noises. Quietly … has to go quietly … best for her.

“Hand me an oral airway please,” Stewart requested Betty, the floor nurse now at bedside.

“Number four alright?” she asked.

“Yes, thanks.”

“Betty, I’m so glad you’re here,” said Sara.

“We’ve known you since you were seven. Knew your mom.” Betty smiled. Offered her presence.

It worked … tongue up … obstruction’s gone. Breathing quietly. So undignified, that square plastic protrusion from his dry lips. Could gag him. If terminal gasps, even more pleasant. Guess this airway’s better.

“I’m sorry, Mrs Colton. I wish we could do more.”

“It’s all right, doctor.” She turned to Stewart long enough for a meaningful connection. “You did the right thing.” Sara slid a hand out from Barry’s to touch Stewart’s.

Warm, firm grasp. She is thankful. Knows now she’ll go home alone. Doesn’t want to let go. Touching the dying … touching the living … the dying’s fading.

Stewart turned away, hearing someone.

“Doctor, there’s a sick baby in ER,” Carla said, reappearing in the hospital room. “Can you come now?”

“Yes, soon as Dr Gibon arrives.” Stewart turned back to Sara, now stroking her husband’s forehead.

She’s with him. I wasn’t with dad. “He’ll be fine, Mrs Colton.”

Stewart hesitated. Sara said, “I’d rather be alone with him.”

Barry’s breathing quietly now. Hardly breathing … seems so much better somehow. Slip his lids shut. Rest his eyes. No chance to shave. Looks unkempt … whiskers, clammy pale skin exuding sour scent, matted hair, mucous visible in his nose, drool sliding off the corner of his mouth. Wipe it … find something … the sheet. How can it matter to a dying man? Mrs Colton doesn’t mind. Dying at the end of summer’s better than the middle of winter. Was for my dad. Winter’s a cold death. This was really a warm death. Though he probably felt colder the more his pressure dropped. Maybe he didn’t notice with the morphine.

Sara seemed to breathe with Barry. She turned half her face to Stewart looking out the window, and said, “I called our children, but they live too far away to come this quick.”

Took us so long to relieve his suffering. Dad suffered too. My plea to his doctor for more morphine … sounded like asking a doctor’s favor. Dad said it was fine … didn’t want to bother anyone. Heroic—this saving life at any cost. Training … the right thing … no liability … no family emotions. Too busy to sit with them. Barry didn’t suffer too long. Would’ve going to Houston. OR … the table … ICU … a bed like the table … the vent. Die alone … strange place … the last hour.

Still staring out the window, Sara started when the oak leaves moved in the wind, and said to Stewart, “I wish we were home … but … we’re here.”

“Dr Gibon. Thanks for coming.” Stewart shook out the rev-erie then took the hand of the doctor who had guided them. He had a full head of gray hair, and was dressed in a white shirt, blue and burgundy striped tie, and charcoal sport coat. At 5:00 in the morning! He had posed the inevitable dilemma for the Coltons. How to act when the quality of your life hangs in balance with the quantity of your life. “In the crisis, Dr Gibon, I tried to understand and follow your plan.”

“Yes, Dr Stewart,” said Dr Gibon, “We talked about it, but you carried it out.”

“Sara, how are you?” said Dr Gibon, bending down close to her face, hand on her shoulder. “I’m so sorry. Barry looks peaceful.”

“Oh yes,” said Sara. “Thank you for coming out in the middle of the night.”

“Dr Stewart, the baby,” said Carla, reappearing. “It’s crying.”

“Yes. Right away.” Stewart backed away from the bed, turning toward the door. While his eyes lingered on Sara and Dr Gibon, left to complete their relationship with Barry, his heart felt the presence of his dad. ❖
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Watercolor

By Paul Ackerman, MD

Paul Ackerman, MD, is the father of Douglas Ackerman, MD, who is in the Department of Urology at the Mount Talbert Medical Office, KPNW. Dr Ackerman, senior, started painting when he was a teenager and picked it up again four years ago. He usually takes his painting gear on vacations. This piece was painted when four medical school buddies had a reunion at a fly fishing camp in Maine. The weather was hot; the water warm; they didn’t catch many trout, but had a great time.

More of Dr Ackerman's artwork can be seen on page 46.
Transmitting useful medical information to patients is acknowledged as important for gaining their cooperation with treatment. Information transfer is also acknowledged as difficult: Typically, the material to be conveyed is foreign to the patient-recipient, whose situation is frightening; and most physicians are less skilled at information transfer than are advertising copywriters, whose stock-in-trade is using words to elicit intended responses and behaviors to an information-filled message.

Dr. Marc Silver has written a book that is helpful for improving this situation for clinicians and patients discussing a diagnosis of congestive heart failure. The book is written in informal language that will be readily understood by any patients who want to improve their condition and are not emotionally blocked from doing so (e.g., by depression or denial). *Success with Heart Failure* starts with a well-written anatomy lesson that describes systolic and diastolic heart failure more simply and clearly than any source I have seen, and this description is followed by an interesting discussion of how heart failure develops. Woven into these descriptions is a preventive thread that helps translate information into action; but the simplicity of the writing style does not prevent Dr. Silver from helpfully discussing sophisticated details like the role of B-natriuretic peptide levels or the clinical significance of the ejection fraction and how it is measured.

A chapter titled “How Attitude and Emotion Affect Heart Failure” includes an excellent section on sexual dysfunction in congestive heart failure and how this dysfunction can fuel hopelessness and depression. A subsequent chapter explains how various foods and drugs affect absorption or excretion of cardiac medications. The functions, interactions, and side effects of these medications are well thought out and are described clearly and usefully. The section on treatment concludes with a chapter on heart transplantation and various mechanical assistive devices. Perhaps best of all is the chapter “Food and Heart Failure”: I have never before seen such a well-written, interesting discussion of the physiologic role of sodium in cardiac health and how to translate this information into healthful behaviors—shopping right, cooking right, eating right, and recording body weight every day.

In conclusion, *Success with Heart Failure* gives voice to an excellent concept: that patients must understand their health status and how to participate meaningfully in treatment. The book is clearly, practically, and interestingly written; positive and encouraging, it recommends related books and reliable Web sites. Physicians who recommend the book to patients and their families are likely to improve control of congestive heart failure and generate more satisfaction among patients and their families. Although the book could use more careful editing, *Success with Heart Failure* does an important job well and currently has little competition. Recommending the book to patients with congestive heart failure would be a sensible choice for clinicians.

Vincent J Felitti, MD, has been with the Southern California Permanente Medical Group since its opening in San Diego in the late 1960s.

Easy Reading

Easy reading is damned hard writing.

— Nathaniel Hawthorne, 1804-64, American novelist and short-story writer
For every eight women who live to an advanced age, one faces breast cancer in her lifetime. By providing methods of early detection (mammography and clinical breast examination), you—the health care practitioner—are doing all you can to reduce the likelihood that women will die of the disease. Yet most of our medical advances have not touched on the psychosocial and spiritual needs of women who are trying to heal themselves after having breast cancer.

Susan Rosen, a breast cancer survivor and yoga instructor at Kaiser Permanente’s Positive Choice Wellness Center in San Diego, has created a special video, “Yoga and the Gentle Art of Healing: A Journey of Recovery After Breast Cancer.” This video helps women heal after breast cancer surgery or after radiation treatment. Rosen presents yoga in a nurturing and supportive way; women need not bend like pretzels or be in particularly good physical condition to benefit from using this video.

Rosen starts by briefly sharing her own story of discovering yoga 14 years ago, when she was seeking relief from shoulder pain. After she had studied yoga for many years and become a yoga teacher, breast cancer was diagnosed. After giving her personal introduction, Rosen gently and clearly guides participants through various yoga poses.

The video is organized into various types of poses to enable each woman to easily choose exercises for which she feels ready. Each section of poses (including gentle wall poses, chair poses, floor poses, and relaxation) opens with information on what a woman needs for assuming the pose. Rosen is practical, using blankets and items found easily in the home. Her instructions are delivered in a tranquil, reassuring voice while soft music plays in the background to add a sense of being nurtured. The poses are simple and soothing, allowing a woman who may have postsurgical pain to begin the process of emotional and physical healing. For example, one pose begins with lying on the back with arms extended out to the sides and gently supported on blankets. This pose opens the chest area, aids circulation, and relaxes the body.

The day I reviewed this video, a dear friend of mine, Jane, was starting radiation therapy after having surgery for breast cancer. I gave Jane the video, hoping that it would be useful to her.

The timing was perfect: Jane was very glad to have the support. Here is the letter she wrote me several weeks later:

Dear Kathy,

Thank you for sharing Susan Rosen’s yoga video with me. The journey of recovery after breast cancer proved to be more challenging than I expected.

Although I was feeling good and my energy was returning, my ability to raise my arm and do normal lifting was limited. As you know, my life is very full, and I’m used to doing most things myself. Everything seemed to take twice as long, and I was getting really frustrated!

The yoga exercises on the video made an amazing difference. The gentle stretches quickly improved my range of motion while diminishing the tight, hard feeling of the scar tissue. In addition, the video is beautifully and professionally done. I especially appreciated the introduction given before each set of poses to explain what items would be required.

It would be a great service if doctors would make this video available to their patients.

Blessings to you and to Susan Rosen.

Jane Westerkamp

Through her own experience, Rosen shows that yoga practiced after breast cancer surgery or treatment:

- calms and centers the mind
- releases tension and stress
- improves range of motion
- aids in reducing the effects and discomfort of scar tissue

Kathy Peterman, RN, MA
is Assistant Department Administrator, Preventive Medicine, Kaiser Permanente, San Diego
book reviews

- relaxes the gripping feeling in the chest area, and
- energizes the body, mind, and spirit.

The video “Yoga and the Gentle Art of Healing, A Journey of Recovery After Breast Cancer” is professionally done and has a running time of 43 minutes. Easy to follow, the video offers women a chance at physical, mental, and spiritual healing after surgery and treatment. Ms Rosen provides excellent instruction and support and speaks directly from her own survival experience. Health care practitioners would be well advised to share this video with patients, friends, or family members who are facing breast cancer. They will find support, and their healing journey will be enhanced by the physical and mental renewal they gain through using the video. Cost for the video is $19.95. For more information about the video, visit www.YogaJoyofDelMar.com or call 858-573-0090.

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Journal of Telemedicine and Telecare

The Journal of Telemedicine and Telecare (JTT) is now in its seventh year of bimonthly publication by the Royal Society of Medicine (London). The journal is designed to bring together reports of successes and failures in a new, exciting, and rapidly expanding field where an impressive number of innovative ideas are being tested around the world.

Clearly, electronic storage and transfer of information is currently important in medical practice and is essential to its future. Use of computers, personal digital assistants, and the Internet by physicians and patients has become common. But expectations are rising faster than are experience and practical use. For instance, resolution of operational problems is now commonly postponed with the statement, “That will be solved when we get the electronic medical record.”

Browsing through JTT, the reader finds a number of remarkably imaginative projects that have already been instituted, often in remote parts of the world. Telepathology, teleophthalmology, videoconferencing, telepsychiatry, home monitoring, and teleradiology are all used, although not necessarily successfully. The reader of JTT also finds that the technology itself is usually only a minor part of the equation for successful medical collaboration at a distance. Repeatedly, JTT reports project failure traced to inadequately addressed issues of interpersonal cooperation, hidden competitiveness, and a naïve hope that investment in technology can somehow solve problems that have not been thoroughly analyzed. When we also recognize that successful telemedicine approaches are volume-dependent (because of costs that must be capitalized), we realize that any smoothly running, high-volume operation depends first on a leader who organizes human efforts for cumulative effect.

The Journal of Telemedicine and Telecare would be a good investment for Kaiser Permanente’s in hospital medical libraries as a way to develop interest, stimulate imaginative thinking, and yet maintain realistic expectations among Permanente physicians contemplating the rapidly expanding field of telemedicine. Some physicians may wish to subscribe, but others might want to use the free alerting service with Table of Contents posted on the Internet at www.rsm.ac.uk/pub/jtt.htm. A free sample issue may also be viewed at that Internet address.

Vincent J Felitti, MD, has been with the Southern California Permanente Medical Group since its opening in San Diego in the late 1960s.

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Review by Vincent J Felitti, MD
In this eminently readable work, prominent Swiss psychoanalyst Alice Miller once again reveals the direct and damaging impact that violence and early neglect of children have on every life—not only those subjected directly to such trauma during childhood.

Miller draws a metaphorical parallel between the experiences of Adam and Eve in the Garden of Eden and the experiences of children who are taught that neglect and corporal, emotional, or psychological punishment are “for [their] own good.” She argues, “Like Adam and Eve, the price they have paid for the love given them by their parents is unconditional obedience, blind faith, the voluntary renunciation of knowledge and personal convictions—in short, the abandonment of their own true selves.”

Recent neurobiologic research, such as the work of Marian Diamond and Janet Hopson, *Magic Trees of the Mind,* supports the contention that our earliest childhood experiences are literally embedded in our anatomic memory in such a way as to alter not only our emotional and psychosocial development but also development of our bodies. This concept supports Miller’s statement that “The consensus is that early emotions leave indelible traces in the body and are encoded as information that will have a serious impact on the way we feel and think as adults, although those effects normally remain beyond the reach of the conscious mind and logical thought.”

Miller recognizes that although we form mental barriers to protect ourselves in the present from pain experienced in the past, these barriers can cause “emotional blindness and urge us to do harm to ourselves and others.” Using concrete examples taken from historical biographies and associated events, such as World War II, Miller describes the process by which innocence can be twisted into evil as a child internalizes the brutality perpetrated upon him by often well-intentioned parents only to later outwardly expel that violence upon his or her own children—and sometimes upon humanity as a whole.

Miller also describes the inadvertent perpetuation of this phenomenon “… in six fields where we should expect precisely the opposite: medicine, psychotherapy, politics, the penal system, religion, and biography,” explaining that “Probably the single most important factor militating against success is doctors’ fear of reviving their own childhood traumas. Unfortunately, doctors frequently ward off such fears by diverting them onto their patients and instilling fear in them.”

Miller believes that patients can find the courage to express their internalized fears, pain, disappointment, rage, and needs—but only through the encouragement of “someone who does not share those fears or who has already experienced them and recognized them for what they are. There can be no doubt that successful therapeutic activity hinges on the therapist’s own emotional development. The help provided by therapists, doctors, and social workers would take on a new dimension if knowledge of this childhood factor were widespread. So far, however, it appears to be taboo for the medical world.”

Fortunately, hope lies in the potential presence of two key roles in a person’s life: that of the “helping witness,” a person who stands beside the endangered child while offering positive emotional support to the child; and that of the “enlightened witness,” who offers unconditional support to the adult suffering the long-term after effects of a traumatic childhood. These people do not have to be professionals; however, compared with other professionals, people in the medical and teaching fields have greater opportunity to engage in these roles.

Without the support of these “witnesses,” Miller argues, the abused person’s conscious or subconscious refusal to recognize his or her own origins has a destructive effect. “Although scientific medicine no longer denies that our bodies store information about what we have experienced in our lives, it is frequently at a loss to decipher those experiences. Yet we know of instances in which severe physical symptoms vanish when one succeeds in surmounting such experiences.”
According to Miller, the focus of modern psychotherapy must include not only the emotional and cognitive recognition of a person’s historical truth; to be successful, this process must include presence of an “enlightened witness” who has already successfully confronted his or her own history and is thus able to supportively guide another person through that process.

Dr Miller maintains that with the aid of such “enlightened witnesses,” patients can better understand their childhood experience of being a helpless victim—an experience which, in turn, leads to the patient assuming the emotional posture of a victim when responding to difficult situations in adulthood. “The denied truth will be with us wherever we flee. … But if we face up to it, we have a chance of finally recognizing what happened, what didn’t happen, and what has forced us to end up living our lives in opposition to our most profound needs.”

As a person who has herself suffered a brutal childhood and a somewhat traumatized adulthood, I am happy to report that Kaiser Permanente is not without its own supply of “enlightened witnesses.” I encountered my first such person in the form of Robert W Hogan, MD, who was my family physician at a time when I was battling cancer and was near death. He recognized not only the physical pain that I was in but also encouraged me to explore the history underlying the disease.

Although this connection may not have been overly clear to either of us at the time, now, 19 years later, renewed exploration—motivated by Dr Hogan’s insightful intervention—has led me to the work of another Permanente physician (who wishes anonymity) who has led me to greater insight into both my own repressed history and the impact it has had on my adult life.

Thanks to these two “enlightened witnesses,” I can, in Alice Miller’s words, “… give up even very old projections and finally find peace.”

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Dukedome

My library was dukedom large enough.

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<td>Fahy PK; Kasper IK; Lum AM.</td>
<td>The Heart of Permanente Culture.</td>
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<td>Felitti VJ.</td>
<td>“Germs: Biological Weapons and America’s Secret War” by Judith Miller, Stephen Engelberg, William Broad.</td>
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<td>2002;6(4):82.</td>
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<td>Complementary and Alternative Medicine: Panel Discussion.</td>
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<td>Jacobs L.</td>
<td>Using Performance Reports to Build a Winning Team.</td>
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<td>Jacobs L; Janisse T.</td>
<td>An Interview with Dr David Lawrence.</td>
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<td>2002;6(3):5-6.</td>
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<td>Janisse T; Vuckovic N.</td>
<td>Can Some Clinicians Read Their Patients’ Minds? Or Do They Just Really Like People? A Communication and Relationship Study.</td>
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Article 1. Evidence-Based Clinical Vignettes from the Care Management Institute: Heart Failure

A 64-year-old male former smoker with hypertension and diabetes presents with a three-week history of intermittent wheezing, worse at night, and dyspnea on exertion. He denies chest pain.

Which of the following initial steps is most helpful in differentiating COPD from heart failure as the etiology of his symptoms?

a. A normal EKG  
b. A normal chest x-ray  
c. Mildly elevated blood pressure  
d. Examination of the neck veins  
e. Bibasilar expiratory wheezing  
f. Mildly decreased peak flow

After physical exam, chest x-ray, electrocardiogram, and eventual cardiac catheterization, you diagnose the patient with heart failure with normal left ventricular ejection fraction. Which of the following treatment would you be least likely to use in this patient?

a. Control of blood pressure and diabetes  
b. Loop diuretics  
c. Beta-blockers  
d. Spironolactone  
e. Angiotensin-converting enzyme inhibitors

For successful implementation of Clinical Guidelines to effect patient outcomes:

a. One should use interdisciplinary hospital and clinic teams for an integrated implementation approach  
b. One needs to collect data on relevant performance measures and clinical outcomes, ideally that are benchmarked against national or like-hospitals, to allow feedback to the health professional as to their guideline adherence and performance  
c. Freely utilize “systems tools” such as pre-printed order sheets, discharge plans, cholesterol treatment algorithms, Multi-Fit programs, and Preventive Health Prompts to encourage guideline adherence  
d. Identify at least one “Champion” at each facility to help drive the implementation process surrounding the relevant Guidelines  
e. All of the above

(Continued on next page)
(Continued from previous page)

**Article 3. Corridor Consult: How Shall We Manage Isolated Systolic Hypertension in Older Adults? Case Example and Suggestions**

(Which of the following statements is false?)

Isolated systolic hypertension in older adults:
- a. Is a normal finding and does not deserve treatment
- b. Represents a significant risk factor for cardiovascular events
- c. Is due to decreased compliance of the arteries
- d. Represents approximately 70% of hypertension in adults over the age of 60

(Which of the following statements are true?)

Treatment of isolated systolic hypertension in older adults:
- a. Involves sodium restriction, aerobic exercise, and smoking cessation
- b. Should aim to reduce the diastolic blood pressure below 65 mm Hg
- c. Should take into account the presence of other co-morbid conditions, ie, prior myocardial infarction, diabetes, or angina
- d. Often induces orthostatic hypotension and should be avoided

**Section B.**

Referring to the CME articles and the stated objectives, please check the box next to each statement as appropriate.

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<td>Strongly Agree</td>
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The article covered the stated objectives.

I learned something new that was important.

I plan to use this information as appropriate.

I plan to seek more information on this topic.

I understood what the author was trying to say.

**Section C.**

What change(s), if any, do you plan to make in your practice as a result of reading these articles?

________________________________________________________________________

________________________________________________________________________

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________________________________________________________________________

**Section D. (Please print)**

Name: ______________________________________________

E-mail: ______________________________________________

Address: ______________________________________________

Signature: ____________________________________________

Date: ________________________________________________

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Article 4. Fulfilling the Potential of Clinical Information Systems

There is strong empirical evidence of clinical information systems demonstrating:
- a. Improvement in efficiency and major cost savings
- b. Improving compliance with guidelines for preventive health and disease management
- c. Decreased inpatient utilization
- d. Improved patient satisfaction

Which of the following is not a significant roadblock to implementing clinical information systems in the US?
- a. Data security and patient privacy concerns
- b. Lack of industry standards for clinical information exchange
- c. Cost of basic clinical IT infrastructure
- d. Lack of acceptable off-the-shelf products in the market
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