2004 Vohs and Lawrence Awards

2004 Vohs Award Winner

9 Tobacco Dependence Program: A Multifaceted Systems Approach to Reducing Tobacco Use Among Kaiser Permanente Members in Northern California

2004 Lawrence New Project Award Winner

28 Perinatal Patient Safety Project

A Focus on Evidence-Based Medicine

54 Permanente Medicine in a Changing World: Challenges and Opportunities

56 The Care Management Institute: Making the Right Thing Easier to Do

63 From Evidence to Outcomes: Implementing Clinically Effective and Cost-Efficient Population-Based Interventions

65 Evidence-Based Medicine and Population-Based Care: Caring for Patients with Heart Failure

70 CPC Corner: Sharing Clinical Decisions by Discussing Evidence with Patients

74 Integrating Evidence Into KP HealthConnect: Making the Right Thing Easier to Do
SPECIAL FEATURE
A Focus on Evidence-Based Medicine

In December 2004, The Permanente Journal and the Care Management Institute joined together to sponsor the Evidence-Based Medicine Symposium in Costa Mesa, California. The presenters were invited to contribute to this journal symposium to diffuse their learnings.

53 The Permanente Journal
Cosponsorship of the Evidence-Based Medicine Symposium, December 3 & 4, 2004.
Tom Janisse, MD

54 Permanente Medicine in a Changing World: Challenges and Opportunities.
Jed Weissberg, MD

56 The Care Management Institute: Making the Right Thing Easier to Do. Paul Wallace, MD

58 Acquiring Evidence—Tips for Effective Literature Searching.
Sara Pimental, MLIS, AHIP

61 Balance Sheets: Tools to Inform Changes in Practice.
Matt Handley, MD

63 From Evidence to Outcomes: Implementing Clinically Effective and Cost-Efficient Population-Based Interventions. R James Dudl, MD; Michelle Wong, MPH, MPP

65 Evidence-Based Medicine and Population-Based Care: Caring for Patients with Heart Failure.
Anthony Steimle, MD, FACC

70 CPC Corner
Sharing Clinical Decisions by Discussing Evidence with Patients.
David Price, MD, FAAPA

74 Integrating Evidence Into KP HealthConnect: Making the Right Thing Easier to Do.
Grant Okawa, MD

78 Diffusing Innovation in Your Practice. Guy Chicoine

81 KP Evidence-Based Medicine in the Community.
Winston F Wong, MD, MS

83 Evidence-Based Guidelines.
Paul H Barrett, MD, MSPH
Grant Okawa, MD
Jill Bowman, BS

COMMENTSARY
90 Care, Whether it’s Called Population- or Disease-Management, Sidney Garfield, MD; Would Like the Idea.
Paul Wallace, MD

HEALTH SYSTEMS
Peter Crooks, MD

Patients with end-stage renal disease constitute a major portion of the most expensive 1% of Health Plan patients. KP Southern California has taken a proactive approach to managing high-risk, high-cost ESRD patients. This article describes the clinical and financial success of such proactive clinical planning.

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Abstracts of Articles Authored or Coauthored by Permanente Physicians

From Northern California:
Chronic kidney disease and the risks of death, cardiovascular events, and hospitalization.

BACKGROUND End-stage renal disease substantially increases the risks of death, cardiovascular disease, and use of specialized health care, but the effects of less severe kidney dysfunction on these outcomes are less well defined.

METHODS We estimated the longitudinal glomerular filtration rate (GFR) among 1,120,295 adults within a large, integrated system of health care delivery in whom serum creatinine had been measured between 1996 and 2000 and who had not undergone dialysis or kidney transplantation. We examined the multivariable association between the estimated GFR and the risks of death, cardiovascular events, and hospitalization.

RESULTS The median follow-up was 2.84 years, the mean age was 52 years, and 55% of the group were women. After adjustment, the risk of death increased as the GFR decreased below 60 mL per minute per 1.73 m² of body-surface area: the adjusted hazard ratio for death was 1.2 with an estimated GFR of 45 to 59 mL per minute per 1.73 m² (95% confidence interval, 1.1 to 1.2), 1.8 with an estimated GFR of 30 to 44 mL per minute per 1.73 m² (95% confidence interval, 1.7 to 1.9), 3.2 with an estimated GFR of 15 to 29 mL per minute per 1.73 m² (95% confidence interval, 1.4 to 1.5), 2.0 (95% confidence interval, 1.9 to 2.1), 2.8 (95% confidence interval, 2.6 to 2.9), and 3.4 (95% confidence interval, 2.9 to 3.8), respectively. The adjusted risk of hospitalization with a reduced estimated GFR followed a similar pattern.

CONCLUSIONS An independent, graded association was observed between a reduced estimated GFR and the risk of death, cardiovascular events, and hospitalization in a large, community-based population. These findings highlight the clinical and public health importance of chronic renal insufficiency.

From the Northwest:
How to design computerized alerts to safe prescribing practices.

BACKGROUND Medication errors and preventable adverse drug events are common, and about half of medication errors occur during medication ordering. This study was designed to develop and evaluate medication safety alerts and processes for educating prescribers about the alerts.

METHODS At Kaiser Permanente Northwest, a group-model health maintenance organization where prescribers have used computerized order entry since 1996, qualitative interviews were conducted with 20 primary care prescribers.

RESULTS Prescribers considered alerts helpful for providing prescribing and preventive health information. More than half of the interviewees stated that it would be unwise to let clinicians control or avoid safety alerts. Common frustrations were 1) being delayed by the alert, 2) having difficulty interpreting the alert, and 3) receiving the same alert repeatedly. Most prescribers preferred small-group educational sessions tied to existing meetings and having local physicians conduct education sessions.

DISCUSSION The findings were used to design a strategy for introducing and promoting the interventions, modifying the alert text and tools, and focusing the education on how clinicians could use the alerts effectively.

From Northern California
Barriers to hospice care and referrals: survey of physicians’ knowledge, attitudes, and perceptions in a health maintenance organization.

INTRODUCTION Many proponents of hospice care believe that this service is underutilized.

OBJECTIVE To determine physicians’ perceptions of hospice utilization and of their own hospice referral pattern; their perceived and actual knowledge of appropriate hospice referral diagnoses; and perceived barriers to hospice referral.

METHODS Surveys for anonymous response were distributed to 125 physicians in two internal medicine departments of a large not-for-profit health maintenance organization (HMO). Of these 125 physicians, 89% responded, including 91 staff physicians and 20 residents.
pertinent in caring for these populations. Our objective was to assess the effect of certain comorbid conditions on physical well-being over time in a population of persons with chronic medical conditions; and to compare these effects to that of hypertension alone.

METHODS We conducted a secondary analysis of four-year longitudinal data from the Medical Outcomes Study. A heterogeneous population of 1574 patients with either hypertension alone (referent) or one or more of the following conditions: diabetes, coronary artery disease, congestive heart failure, respiratory illness, musculoskeletal conditions and/or depression were recruited from primary and specialty (endocrinology, cardiology or mental health) practices within HMO and fee-for-service settings in three US cities. We measured categorical change (worse vs same/better) in the SF-36(R) Health Survey physical component summary score (PCS) over four years. We used logistic regression analysis to determine significant differences in longitudinal change in PCS between patients with hypertension alone and those with other comorbid conditions and linear regression analysis to assess the contribution of the explanatory variables.

RESULTS Specific diagnoses of CHF, diabetest and/or chronic respiratory disease; or four or more chronic conditions, were predictive of a clinically significant decline in PCS.

CONCLUSIONS Clinical recognition of these specific chronic conditions or four or more of a list of chronic conditions may provide an opportunity for proactive clinical decision making to maximize physical functioning in these populations.

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From Colorado:
Predicting declines in physical function in persons with multiple chronic medical conditions: what we can learn from the medical problem list.
Bayliss EA, Bayliss MS, Ware JE Jr, Steiner JF; Health Qual Life Outcomes 2004 Sep 7;2(1):47.

BACKGROUND Primary care physicians are caring for increasing numbers of persons with comorbid chronic illness. Longitudinal information on health outcomes associated with specific chronic conditions may be particularly relevant in caring for these populations. Our objective was to assess the effect of certain comorbid conditions on physical well-being over time in a population of persons with chronic medical conditions; and to compare these effects to that of hypertension alone.

METHODS We conducted a secondary analysis of four-year longitudinal data from the Medical Outcomes Study. A heterogeneous population of 1574 patients with either hypertension alone (referent) or one or more of the following conditions: diabetes, coronary artery disease, congestive heart failure, respiratory illness, musculoskeletal conditions and/or depression were recruited from primary and specialty (endocrinology, cardiology or mental health) practices within HMO and fee-for-service settings in three US cities. We measured categorical change (worse vs same/better) in the SF-36(R) Health Survey physical component summary score (PCS) over four years. We used logistic regression analysis to determine significant differences in longitudinal change in PCS between patients with hypertension alone and those with other comorbid conditions and linear regression analysis to assess the contribution of the explanatory variables.

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From Southern California:
Variability of symptoms in mild persistent asthma: baseline data from the MIAMI study.

OBJECTIVE To describe the variability of the asthma phenotype in patients with mild persistent asthma enrolled in the Mild Asthma Montelukast versus Inhaled Corticosteroid (MIAMI) study.

METHODS The variability of asthma rescue-free days, asthma symptoms, albuterol use, medical resource use, and exercise limitations among patients with documented mild persistent asthma was compared between the month before study enrollment and the last two weeks of the run-in period.

RESULTS Patients eligible for randomization (n = 400), aged 15-85 years, exhibited symptoms (mean ±SD) 3.6 ± 1.3 days/week, beta-agonist use 3.5 ± 1.3 days/week, and normal FEV1 (94.0 ± 9.9% predicted) during the last two weeks of the run-in period. In the year before enrollment, medical intervention for asthma flares was common: 38.5% made office visits, 15.8% had oral corticosteroids, and 8.3% required emergency room or hospitalization care. In the month before enrollment, 11.8% experienced daily symptoms, and 28.3% had limitations of normal activity. Patients with daily symptoms in the month before study enrollment, compared with those having less-than-daily symptoms, experienced fewer rescue-free days (p = 0.024) and had more days per week with symptoms (p = 0.008) and requiring albuterol (p = 0.048) during the run-in; FEV1 was similar for both groups (93.1% ± 94.2% predicted, respectively).

CONCLUSION Patients with mild persistent asthma reported a substantial disease burden in the year before enrollment. The asthma burden experienced by these patients both before and during the run-in period was of sufficient severity to support the recommendation that mild persistent asthma should be managed with daily controller therapy.

Reprinted from Respiratory Medicine, 98(9), Zeiger RS, Baker JW, Kaplan MS, Pearlman DS, Schatz M, Bird S, Hustad C, Edelman J, MIAMI Study Research Group, Variability of symptoms in mild persistent asthma: baseline data from the MIAMI study, 898-905, Copyright 2004, with permission from Elsevier.
From the Northwest:
Patient satisfaction and disease specific quality of life after uterine artery embolization.

OBJECTIVES This study was undertaken to evaluate changes in fibroid specific symptom severity and health-related quality of life (HRQOL) after uterine artery embolization (UAE) and to consider the impact of these changes on satisfaction with the procedure.

STUDY DESIGN A validated, fibroid specific, symptom, and HRQOL questionnaire was mailed to 80 women who had undergone UAE from 1998 through 2002. Pre- and postprocedure symptom severity and HRQOL scores were obtained. The primary outcome measure was change in fibroid symptoms and HRQOL after UAE. Secondary outcomes included objective measures of patient satisfaction, and the decrease in uterine volume after UAE.

RESULTS Questionnaires were completed by 64 women (80.0%) at a mean of 32.1 months from UAE (range: 57.5-6 months). After UAE, mean uterine volume decreased by 26.3% (95% CI 19.6-33.0), and 17 of 79 women (21.5%) underwent an additional procedure after a mean of 18.6 months. Symptom severity scores decreased by a mean of 35.2% (95% CI 29.3-41.1) and HRQOL scores increased by a mean of 35.7% (95% CI 28.9-42.4). Satisfaction with UAE was correlated with the change in symptom severity and HRQL scores (p < .0001 and p = .0004, respectively) and the decrease in uterine volume after UAE (p = .0190).

CONCLUSION Women who undergo UAE have a significant decrease in symptom severity and increase in HRQOL, associated with high levels of satisfaction with the procedure, even when subsequent therapies are pursued.

From the Northwest:
The incidence of congestive heart failure in Type 2 diabetes: an update.

OBJECTIVE The aims of this study were to update previous estimates of the congestive heart failure (CHF) incidence rate in patients with Type 2 diabetes, compare it with an age- and sex-matched nondiabetic group, and describe risk factors for developing CHF in diabetic patients over six years of follow-up.

RESEARCH DESIGN AND METHODS We performed a retrospective cohort study of 8231 patients with Type 2 diabetes and 8845 nondiabetic patients of similar age and sex who did not have CHF as of 1 January 1997, following them for up to 72 months to estimate the CHF incidence rate. In the diabetic cohort, we constructed a Cox regression model to identify risk factors for CHF development.

RESULTS Patients with diabetes were much more likely to develop CHF than patients without diabetes (incidence rate 30.9 vs 12.4 cases per 1000 person-years, rate ratio 2.5, 95% CI 2.3-2.7). The difference in CHF development rates between persons with and without diabetes was much greater in younger age-groups. In addition to age and ischemic heart disease, poorer glycemic control (hazard ratio 1.32 per percentage point of HbA1c) and greater BMI (1.12 per 2.5 units of BMI) were important predictors of CHF development.

CONCLUSIONS The CHF incidence rate in Type 2 diabetes may be much greater than previously believed. Our multivariate results emphasize the importance of controlling modifiable risk factors for CHF, namely hyperglycemia, elevated blood pressure, and obesity. Younger patients may benefit most from risk factor modification.

From Northern California:
Physical activity and changes in weight and waist circumference in midlife women: findings from the Study of Women’s Health Across the Nation.

Controversy exists regarding the extent to which age, menopausal status, and/or lifestyle behaviors account for the increased weight, fat mass, and central adiposity experienced by midlife women. To address this question, the authors longitudinally examined the relations of aging, menopausal status, and physical activity to weight and waist circumference in 3064 racially/ethnically diverse women aged 42-52 years at baseline who were participating in the Study of Women’s Health Across the Nation (SWAN), an observational study of the menopausal transition. Over three years of follow-up (1996-1997 to 1999-2000), mean weight increased by 2.1 kg (standard deviation (SD), 4.8) or 3.0% (SD, 6.5) and mean waist circumference increased by 2.2 cm (SD, 5.4) or 2.8% (SD, 6.3). Change in menopausal status was not associated with weight gain.
or significantly associated with increases in waist circumference. A one-unit increase in the reported level of sports/exercise (on a scale of 1-5) was longitudinally related to decreases of 0.32 kg in weight (p < 0.0001) and 0.10 cm in waist circumference (not significant). Similar inverse relations were observed for daily routine physical activity (biking and walking for transportation and less television viewing). These findings suggest that, although midlife women tend to experience increases in weight and waist circumference over time, maintaining or increasing participation in regular physical activity contributes to prevention or attenuation of those gains.


**Clinical Implication:** This study examined the changes in weight and waist circumference over a three-year period of a racially/ethnically diverse cohort of initially pre- or early perimenopausal women. Although the mean weight and waist circumference of the cohort increased with time, the changes in weight and waist circumference in those who transitioned to a later stage of the menopause were no different than those in women who remained in the pre- or early perimenopause. A higher level of physical activity was associated with less weight gain and central adiposity, independently of the aging (time) effect. –BS

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**From Northern California:**

**Causes and demographic, medical, lifestyle and psychosocial predictors of premature mortality: the CARDIA study.**


We examined the 16-year mortality experience among participants in the baseline examination (1985-86) of the Coronary Artery Risk Development in Young Adults (CARDIA) Study, a US cohort of 5115 urban adults initially 18-30 years old and balanced by sex and race (black and whites) in the USA. We observed 127 deaths (annual mortality of 0.15%). Compared to white women, the rate ratio (95% confidence interval) of all-cause mortality was 9.3 (4.4, 19.4) among black men, 5.3 (2.5, 11.4) among white men and 2.7 (1.2, 6.1) among black women. The predominant causes of death, which also differed greatly by sex-race, were AIDS (28% of deaths), homicide (16%), unintentional injury (10%), suicide (7%), cancer (7%) and coronary disease (7%). The significant baseline predictors of all-cause mortality in multivariate analysis were male sex, black race, diabetes, self-reported liver and kidney disease, current cigarette smoking and low social support. Two other factors, self-reported thyroid disease and high hostility, were significant predictors in analyses adjusted for age, sex and race. In conclusion, we found striking differences in the rates and underlying cause of death across sex-race groups and several independent predictors of young adult mortality that have major implications for preventive medicine and social policies.

Reprinted from Social Science and Medicine, Vol 60, Iribarren C, Jacobs DR, Kiefe CI, Lewis CE, Matthews KA, Roseman JM, Hulley SB. Causes and demographic, medical, lifestyle and psychosocial predictors of premature mortality: the CARDIA study. 471-82. Copyright 2005, with permission from Elsevier.

**Clinical Implication:** This paper describes 16-year mortality in the Coronary Artery Risk Development in Young Adults (CARDIA) cohort, which included the KP Oakland Division of Research as one of four centers. CARDIA enrolled 5115 black and white adults aged 18 to 30 years. Among 127 deaths, compared to white women, black men, white men and black women were 9, 5, and 3 times more likely to die. Predominant causes of death, which also differed greatly by sex-race, were AIDS (28% of deaths), homicide (16%), unintentional injury (10%), suicide (7%), cancer (7%) and coronary disease (7%). Factors independently predictive of mortality were male sex, black race, diabetes, self-reported liver and kidney disease, cigarette smoking and low social support. –CI

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From Northern California:

**Computer-aided detection in diagnostic mammography: detection of clinically unsuspected cancers.**


**Objective:** We had two objectives: to determine the percentage of women presenting with clinical findings whose diagnostic mammogram led to detection of a breast cancer at a site distant from the original clinical complaint and to assess the performance of computer-aided detection (CAD) on diagnostic mammography.

**Materials and Methods:** Three institutions contributed consecutive cases in which a mammogram was obtained to evaluate a clinical finding, after which a histologic diagnosis of breast cancer was made. Clinical data and the mammograms were reviewed to determine the nature of the clinical findings and to document the location and characteristics of 212 biopsy-proven cancers in 197 patients who met the study criteria. Standard four-view breast mammograms were then analyzed by a CAD system.

**Results:** The most common clinical finding was a palpable mass (90%, 177/197), with nipple discharge (5%, 9/197), focal tenderness or pain (2%, 5/197), and miscellaneous complaints (3%, 6/197) also noted. Two separate cancers were found in 7.6% (15/197) of the cases. In another 7.6% (15/197) of the cases, the single diagnosed cancer was not at the location of the specific clinical finding. The CAD system correctly marked 87% (26/30) of those cancers that were clinically unsuspected (i.e., not at the location of the clinical finding).

**Conclusion:** Breast cancers occurred at locations other than the site of the presenting clinical finding in 15% (30/197) of patients undergoing diagnostic mammography, in whom a cancer was detected. CAD identified 87% of these incidentally detected cancers and may therefore be useful as a detection aid to the radiologist when interpreting diagnostic mammograms.

Reprinted with permission from the American Journal of Roentgenology.
As we continue to share abstracts from the HMO Research Network, we are including these evidence-based medicine-related abstracts.

May 3-5, 2004 Dearborn, MI Evaluating Care Delivery

From HMO Research Network Member: Fallon Health Care Identifying Patients with Peripheral Arterial Disease in the Primary Care Setting.

Doubeni CA, Yood RA, Emani S, Gurwitz JH.

OBJECTIVE To assess the yield from screening for peripheral arterial disease (PAD) in primary care settings.

STUDY DESIGN Cross-sectional study

METHODS Study subjects were patients receiving care from a multispecialty group practice in Massachusetts between July 2002 and July 2003, who were aged ≥70 years, or aged 50-69 with a diagnosis of diabetes mellitus, dyslipidemia, hypertension and/or smoking based on information derived from administrative databases. Participants completed a telephone interview to ascertain their medical history. We excluded patients with a prior diagnosis of PAD and/or coronary heart disease. The ankle-brachial index (ABI) was measured at the time of a scheduled primary care office visit. PAD was diagnosed if one or both legs had an ABI of ≤0.90. We also assessed the time spent in performing ABI testing in a convenience sample of the study participants.

RESULTS ABI testing was performed on 717 patients, of whom 54 (7.5%, 95% confidence interval: 5.6%, 9.4%) were diagnosed with PAD. Among 359 patients aged ≥70 years, 45 (12.5%) were diagnosed with PAD. Nine (2.5%) of 358 patients aged 50-69 years were diagnosed with PAD. The average total time (n = 52) for ABI testing was 13.8 (SD: ±3.3) minutes. Patients aged ≥70 years required more time for ABI testing compared to those aged 50-69 (mean: 15.0 vs 13.0 minutes, p = 0.04).

CONCLUSIONS PAD is common among patients in the primary care setting who are not already known to have atherosclerotic disease. More ambulatory care resources are required to identify PAD in younger patients compared to older patients.

From HMO Research Network Member: Harvard Pilgrim Health Care Cluster-Randomized Controlled Trial of Three Different Interventions to Improve Antihypertensive Prescribing in Primary Care.

Simon SR, Majumdar SR, Kleinman KP, et al.

BACKGROUND Academic detailing, also called educational outreach, has been shown to improve individual physicians’ prescribing practices but is perceived to be costly and labor-intensive and, as a result, is not widely used. Therefore, we compared traditional one-on-one individual academic detailing (IAD) with group academic detailing (GAD), and compared them with mailed guidelines dissemination (MG) within one large managed care organization to improve the use of antihypertensive medications in primary care.

METHODS We conducted a cluster-randomized controlled trial, allocating three practice sites to IAD (n = 235 prescribers and 2478 patients), three to GAD (n = 227 and 2352), and three to MG (n = 319 and 3575). The goal of the intervention was to increase the use of diuretics and beta-blockers (DIUR-BB), the guideline-recommended first-line agents. The IAD intervention consisted of a single physician visit following established principles of academic detailing; the GAD intervention was a single group session incorporating those principles, also led by a trained physician.

RESULTS At baseline, sociodemographic characteristics and rates of prescribing DIUR-BB among newly diagnosed and treated patients with hypertension were almost identical in the three experimental groups: IAD = 57.6%, GAD = 59.1, and MG = 57.6. In the nine-month period following the intervention, rates of DIUR-BB use increased by 21.7% in IAD, 22.3% in GAD, and 10.8% in MG. As compared with MG patients, DIUR-BB use among patients with newly diagnosed hypertension was more likely in both IAD (OR 1.40; 95% CI, 1.07-1.84) and GAD (OR 1.30; 95% CI, 0.89-1.90), controlling for physician-level clustering. The effects of IAD and GAD were of similar magnitude. There was no apparent effect of the intervention on rates of switching patients previously treated with medications other than DIUR-BB to the guideline-recommended agents.

CONCLUSIONS Both IAD and GAD improve antihypertensive prescribing over and above the dissemination of guidelines. If GAD is confirmed to be as effective and less expensive than IAD, it may represent a more attractive option for improving practice.

From HMO Research Network Member: Group Health Permanente Electronic Data Collection from Patients on Breast Cancer Risk Factor Information in a Mammography Setting.

Aiello E, Tüpfel S, Reid R, et al.

BACKGROUND Information on breast cancer risk factors is important to identifying high-risk groups who may be eligible for prevention activities, but the data collection process is time consuming. Data collection currently occurs at Group Health Cooperative (GHC) using a paper survey at the time of the mammogram. The project goal was to evaluate patient acceptance and feasibility of using an electronic questionnaire. We hoped to reduce the repetitive nature of the questionnaire by prepopulating some answers, reduce the amount of time needed to complete the
The Permanente Journal, Spring 2005/Vol 9 No. 2

questionnaire, and improve the accuracy of data collected.

**METHODS** The HIPAA compliant survey software was developed on a Fujitsu Tablet PC and incorporated prepopulated answers from each woman’s previous survey. We piloted the prototype in one GHC clinic over a three-month period. One hundred sixty women were randomized to use the electronic survey (n = 86) or the paper survey (n = 74 controls) and complete an evaluation form. We compared the distribution of Likert scale responses between the intervention and control groups, and between age groups (<60 vs >60 years old).

**RESULTS** Overall, 90% of women in the intervention group preferred using the Tablet compared to the paper questionnaire. Preference for the Tablet did not differ by age; however, women >60 years did not find the Tablet as easy to use as women <60 years. Every woman liked seeing her prepopulated answers; 97% stated that their prepopulated answers were accurate. The majority (65%) did not think that the Tablet was very easy to carry throughout their appointment.

**CONCLUSION** Electronic questionnaires are feasible to use in a mammography setting and are preferred by nearly all women, even older women. Although the Tablet PC was feasible to use as a prototype, this configuration may not be suitable for full deployment in a setting where patient mobility and high volumes are necessary. Clinics elsewhere may have different technology requirements thus requiring further evaluation of different hardware and software options.

*From HMO Research Network Member: Henry Ford Health System Exploring Racial Differences in Asthma Incidence and Age at Diagnosis.*

Joseph CLM, Haustad SL, Peterson EL, Ownby DR, Johnson CC.

**BACKGROUND** Researchers strive to identify definitive reasons for racial disparities in asthma morbidity and mortality. It is unclear as to when the disparity begins, as few studies have explored a racial divergence in asthma incidence. To do so would require a racially diverse population followed from birth. Our objective was to examine racial differences in the incidence and age of onset of asthma among children enrolled in a racially diverse managed care organization (MCO).

**METHODS** We obtained all inpatient/outpatient encounters for children born 1992-93, who were members of a large managed care organization, and who were continuously enrolled from birth through 12/31/98. Asthma was defined as any visit assigned the ICD-9 code 493.

**RESULTS** Over 6000 children met birthdate criteria, and of those 3562 (53%) met enrollment criteria. The sample was 30% African American (AA), and 48% female. Overall cumulative incidence of asthma by age 6-7 years was 18.4% (95% confidence interval CI = 17.1-19.7), with an overall mean age of diagnosis = 2.7 years (standard deviation = 1.7). Cumulative incidence of asthma for AA children was 22.9% (95% CI = 20.4-25.4) vs 16.5% (95 CI = 15.0-17.9) for non-AA children. A proportional hazards model revealed that AA were over 30% more likely to have an asthma encounter by age 1-7 years when compared to non-AA children, hazard ratio = 1.36 (95% CI = 1.16-1.60); p < 0.001. Age at onset of asthma appeared similar by race; mean age for AA and non-AA = 2.8 years and 2.7 years, respectively. Adjusting for gender did not change the results; adjusted hazard ratio = 1.37 (95% CI = 1.17-1.61); p = 0.0014.

**CONCLUSION** In summary, incidence of asthma by age 6-7 years was significantly higher for AA children vs non-AA children. Our results suggest that racial differences in asthma may begin very early in childhood. Racially diverse birth-cohort studies are needed to determine if differences observed in infancy drive the racial disparities in asthma prevalence and morbidity we observe later in childhood and adolescence. MCO pharmacy claims and encounter databases can be valuable tools in exploring these issues. 

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**Create An Environment**

There are two ways of being creative. One can sing and dance. Or one can create an environment in which singers and dancers flourish.

— Warren G. Bennis, b 1925, Professor of Business Administration and author of books on leadership.
Preventive interventions have far greater potential to improve the public health than treatment of existing medical problems. Doing the right thing includes a mandate to exert our best efforts to implement preventive strategies for our individual patients and for the general population.

This year's Vohs award winner and runner-up both represent disease prevention programs. The winner is: “Tobacco Dependence Program: A Multifaceted, Systems Approach to Reduce Tobacco Use in Kaiser Permanente Members in Northern California.” The runner-up is described in the article: "The Kaiser Permanente Northwest Cardiovascular Risk Factor Management (CVRFM) Program: A Model for All.” The CVRFM Program also won the America’s Health Insurance Plans (AHIP) contest for best quality CV project, making it a national benchmark. We are proud to present both projects in The Permanente Journal.

Among the lifestyle and medical modifications that reduce vascular disease risk smoking is the only one amenable to total, safe, unequivocal elimination. The Northern CA Tobacco Dependence Program involves: 1) screening to ascertain tobacco users, 2) education of health care providers and performance feedback including awards for best results, 3) increased classes, in-person and telephone counseling, and 4) increased financial coverage of these measures.

Tobacco use prevalence in Northern CA KP members has dropped by 11% during this program. Multiple factors may be involved in this decline. However, it seems likely that a substantial proportion is due to this fine program.

The CVRFM program is designed to identify high-risk subjects with one or more risk traits for coronary heart disease, contact them, and institute favorable changes. In the initial “outreach” program to 8000 eligible members, 97% consented to participate. In the first 12 months, beneficial results among patients with multiple risk factors for athero-thrombotic vascular disease were substantial. Similar benefits in terms of fewer later adverse events should follow. This type of effort has evident generalizability, similar programs have sprung up in other regions and cross-fertilization of ideas seems inevitable.

The James A Vohs Award for Quality was established when Mr Vohs, a champion of innovation and improvement, retired from 17 years as President, CEO, and Chairman of the Boards of Kaiser Foundation Health Plan, Inc, and Kaiser Foundation Hospitals. The intent was to recognize and honor projects that advance the quality of care, showcase innovative techniques, produce transferable knowledge, and underscore the value of multidisciplinary teamwork. Annually, each KP Division may nominate one or two projects. The award is presented for the project judged to best represent an effort to improve quality through documented institutionalized changes in direct patient care. The selection criteria include demonstration of measurable improvement in care and potential for transfer to other locations.

While the process for nomination has some local variation, each Division has contact liaisons easily located through the Regional quality representative. Nominations need approval by the Division President and Medical Director and applications are due September 1st each year. The Vohs Award Selection Committee announces its selection at the December Board of Directors meeting and the recognition ceremony takes place at the March Board of Directors' meeting. The Awardees receive no monetary gift but there is much recognition and publicity. The winning Division receives an engraved award, and project team members receive awards. Winners and runners-up are invited to present their projects at a reception hosted by the Boards of Directors, Division Presidents, and other Program Officers. The “real” award, of course, is the knowledge of having done good work that made a real difference in people’s lives.

The possibilities for projects are limited only by the imaginations of our health professionals. Undoubtedly many qualifying programs have not been submitted. Part of our purpose in publishing these projects is the hope that they will serve as models to motivate others to present projects for consideration. The process is an opportunity to share with 11,000 KP physicians and the general health care community your ideas about improving care of illness and providing health information.
Tobacco Dependence Program: A Multifaceted Systems Approach to Reducing Tobacco Use Among Kaiser Permanente Members in Northern California

Introduction

Tobacco use is the single greatest preventable cause of morbidity and premature mortality in the United States today and is responsible for more than 440,000 deaths—about one in five—each year.1 Because of the chronic and relapsing nature of tobacco dependence, addressing this problem at a health system level remains difficult. Tobacco use is so entrenched in the lifestyles of many Americans—including approximately 390,000 Northern California Kaiser Permanente (KP) members—that nothing short of a multifaceted program can even begin to address the problem. To combat the enormous burden on the health of our members caused by tobacco dependence, the Kaiser Permanente Northern California Region (KPNC) undertook a systems approach that relies on the incremental impact of multiple interventions. The KPNC Tobacco Dependence Program has contributed to a more than 10% reduction in smoking prevalence as well as to a 30% increase in HEDIS scores on the “Advising smokers to quit” measure for the period spanning from reporting year 1998 through reporting year 2003, substantially increased both attendance at tobacco-cessation programs and use of antismoking medication, and has become a model for health care systems nationwide.

Initiated in 1998 and fully implemented by 2004, the Tobacco Dependence Program (Figure 1) hypothesized that a multifaceted, evidence-based program can reduce tobacco use among members of KPNC by using four main strategies:

• For patients: routine assessment of tobacco use, counseling, and referral. For clinicians: training, audit, and feedback linked to incentives
• Enhanced health plan benefits
• Menu of tobacco-cessation programs for members
• Worksite and community tobacco control efforts.

Key relationships studied in this program can be identified by answering three questions:

• How effectively does the combination of clinician training, audit, and feedback improve rates at which clinicians advise patients to quit smoking?
• Will enhanced benefits for smoking-cessation medications and programs increase the number of smoking-cessation medication prescriptions and the number of members attending tobacco-cessation programs?
• How effectively is the prevalence of tobacco use decreased by clinical training, audit, feedback, enhancement of health plan benefits, and policies for worksite control of tobacco use?

The Tobacco Dependence Program is aligned with KP’s mission to provide affordable, high-quality...
health care services that improve both the health of our members and the health of the communities we serve. Our program uses all of the strategies supported by current literature as well as the best practices identified throughout the country to help us reach the Healthy People 2010 goal of reducing the prevalence of tobacco use to <12%. Although most smoking-cessation trials do not provide direct evidence of health benefits, the US Preventive Services Task Force (USPSTF) found credible evidence that smoking cessation lowers the risk for heart disease, stroke, and lung disease. The USPSTF concluded that credible indirect evidence shows that even small increases in the quit rates resulting from tobacco-cessation counseling would produce important health benefits and that the benefits of counseling interventions substantially outweigh any potential harms of these interventions. The USPSTF also found strong evidence that brief smoking-cessation interventions—including screening, brief behavioral counseling (three minutes or less), and pharmacotherapy delivered in primary care settings—effectively increase the proportion of smokers who successfully quit smoking and remain abstinent after one year. That at least 70% of smokers visit their health care practitioner each year shows clearly that clinicians are uniquely poised to intervene with patients who use tobacco. Use of cessation programs and medications can greatly increase success rates. The National Committee on Quality Assurance (NCQA) has made “advising smokers to quit” a quality measure and uses Health Plan Employer Data and Information Set (HEDIS) data for assessment. In 1998, KPNC’s HEDIS scores on the “Advising Smokers to Quit” measure were substantially below the 75th percentile benchmark set by NCQA and thus showed that KPNC members were inconsistently advised by clinicians to quit smoking and that work was needed to improve the quality of care for members who smoke (Figure 2).

Objectives of the Tobacco Dependence Program

The KPNC Tobacco Dependence Program has several main objectives:

- To increase the number of current smokers who are advised to quit at office visits to (or above) the 75th percentile benchmark defined by NCQA (an external measure) and to (or above) KPNC’s long-term goal of 65% as reflected by responses to the KP Member and Patient Survey
- To increase the number of smokers attending behavioral interventions for smoking cessation
- To increase the number of smokers receiving prescriptions for smoking-cessation aids

"I am so impressed with the KPNC Tobacco Dependence Program. It should be an inspiration to health systems throughout the country. If the rest of the country operated the way KPNC does, we could save thousands of lives every year."

—Steven A Schroeder, MD, Director, Smoking Cessation Leadership Center, University of California San Francisco
• To increase the number of KPNC campuses which are smokefree
• To collaborate on tobacco-control programs in the external community and to support policies and legislation designed to control tobacco use
• To reduce the prevalence of tobacco use among KPNC members and to exceed the Healthy People 2010 target of reducing the prevalence of tobacco use to below 12%

Scope and Significance of the Program
Approximately 23% of American adults smoke.5,6 Although prevalence of smoking is lower among Californians because of successful statewide policies for tobacco control, physiologic dependence on tobacco still burdens nearly 400,000 of our KPNC members. Although most want to quit smoking, few succeed without help.5,6 Treatment for tobacco use is well known to double rates of successfully quitting.5

The positive effects of treatment and prevention of tobacco dependence extend well beyond the population of current smokers to those exposed to secondhand smoke—particularly in the workplace, in the home, and (for infants) through prenatal exposure. Prevention and treatment can also lead to reduction in the number of injuries and deaths resulting from the leading type of fatal fires: fires caused by cigarettes.7

Smoking also imposes an enormous economic burden on society. The societal costs of death and disease resulting from use of tobacco exceed $100 billion annually.8 Americans spend an estimated $50 billion annually on direct medical care for smoking-related illness.8 Lost productivity and forfeited earnings totaling another $47 billion per year result from smoking-related disability.6 Smoking-related health care costs in California alone total more than $8.6 billion per year.7

Smoking cessation efforts can save years of life at a very low cost compared with alternative preventive interventions. Tobacco-cessation counseling is more cost-effective than other common, covered disease-prevention interventions (eg, screening for hypertension and high blood cholesterol levels9 and periodic mammographic screening for breast cancer). Cost analyses have shown that the benefits of tobacco-cessation efforts are either cost-saving or cost-neutral.11,12 The cost of providing a comprehensive tobacco-cessation benefit ranges from 10 to 40 cents per member per month (costs vary on the basis of both medical utilization and coverage for dependents).13,14 In contrast, the annual health care cost of tobacco use is about $3400 per smoker.1

Internal analysis of the cost-benefit scenario for cessation program coverage showed that although the enhanced benefits require initial investment, the plan results in savings (ie, due to improved health outcomes) within six years.

According to Treating Tobacco Use and Dependence,9 a clinical practice guideline released in June 2000 by the US Public Health Service (PHS), efficacious cessation treatment for tobacco users is available and should become a part of standard medical practice. Tobacco-dependence treatment and prevention is a high priority for KPNC. Tobacco Counseling became a regional quality goal in 2001, linking performance on this goal to incentive pay for physicians.

Relevance for Direct Patient Care
Development and implementation of the Tobacco Dependence Program has led to improved patient care. Specifically, this improvement was achieved through several clinical and operational changes:
• At all clinic visits in primary and specialty care departments, routine assessment of tobacco use status, giving advice to quit, and referrals to cessation programs
• For members enrolled in any of our tobacco cessation programs, enhancing health plan benefits covering unlimited attendance at smoking-cessation classes for no additional cost and covering cessation medications for a copay
• Making KP campuses smokefree to decrease members’ potential exposure to environmental tobacco smoke while visiting KP facilities
• Increasing patient satisfaction by assessing them for tobacco use and advising smokers to quit
• Increasing the awareness of KP physicians and other medical staff that clinicians have an important role in encouraging patients to stop smoking
• Regularly communicating performance feedback (ie, quarterly) to Department Chiefs and staff.

Program Innovation and Leadership
The Tobacco Dependence Program is unique because of its scope, clinical outcomes, and sustainability. Best practices used by the program include its multifaceted nature, which combines clinician training, audit, and incentive-linked feedback and enhancement of coverage for cessation aids

Research consistently has shown that brief advice to quit smoking, delivered to patients from their medical practitioners, increases patient satisfaction and increases quit rates a mean of 30%.14,15
and for health education programs as well as support for tobacco control efforts in the workplace and in the community. KPNC has led the health care industry in implementing evidence-based Public Health Service recommendations. We have shared our best practices with other KP Regions and with external agencies. The success of the Tobacco Dependence Program is due largely to the collaborative efforts of many different leadership groups and departments within KP.

Measures Used to Assess Quality of the Program

To evaluate its impact and effectiveness, the program measures five indicators:

- Advice to quit smoking, measured by the KP Member and Patient Survey (MPS)
- Rates of advising smokers to quit, measured by the HEDIS Consumer Assessment of Health Plans Survey (CAHPS)
- Prevalence of tobacco use, attendance at cessation programs, and use of nicotine replacement therapy, all measured by the Member Health Survey
- Prescriptions for nicotine replacement products, recorded in the Pharmacy Information Management System (PIMS)
- Attendance at tobacco cessation programs, recorded in the Regional Health Education Group Class Report Database.

The MPS tracks patients’ satisfaction with medical services and access. The survey sample consists of a daily stratified random sample of patients who receive a survey in the days following an office visit. The patient survey has a target of 100 surveys per physician or other health care practitioner per year. A 48% response rate yields approximately 105,000 patient surveys each quarter. The question pertaining to Physician Advice to Quit Smoking asks, “If you smoke, were you advised to quit by Dr X during your last visit?” Answer options are: Yes, No, I Don’t Smoke, I Don’t Remember. Survey results for this measure are reported as members who answered “Yes” (numerator) divided by those who answered “No,” “I Don’t Smoke,” or “I Don’t Remember” (denominator). The results are reported quarterly as an average over a rolling four-quarter period. The internal long-term (three-year) goal for this measure is a 65% rate of giving advice to quit smoking by 2005.

HEDIS uses CAHPS, a written survey administered to adult Health Plan members who were continuously enrolled during the reporting year and who were either current smokers or recent quitters. The survey asks whether the member received smoking-cessation advice from a Health Plan clinician during the reporting year. A “current smoker” is defined as someone who has ever smoked 100 cigarettes and who smoked either on some days or on every day during the past year. A “recent quitter” is defined as someone who has ever smoked 100 cigarettes and who stopped smoking during the past 12 months. The CAHPS survey sample includes between 400 and 500 Health Plan members per year per Health Plan. The NCQA uses this HEDIS survey to evaluate the impact of smoking cessation programs.

Measurement Instruments used by the Program

For data collection and analysis, the Tobacco Dependence Program utilizes five retrospective measurement instruments: The MPS, the CAHPS, the Member Health Survey, PIMS, and the Group Class Database.
to set benchmarks for quality in health care organizations and to measure their performance. The national benchmark set by NCQA on the Advising Smokers to Quit (ASTQ) measure is the 75th percentile (currently 71.5%).

The KP Member Health Survey provides estimates of the percentage of current smokers in the KPNC member population as well as data on their attendance at smoking-cessation classes and use of cessation medication (nicotine replacement therapy). These estimates are based on respondent data weighted to the age-sex distribution of the medical center service population (hospital and outpatient clinics). The KP Member Health Survey is a mailed questionnaire survey that is conducted in the spring of every third year (most recently 1996, 1999, and 2002). The survey is mailed to a stratified, random sample of 40,000 adult KPNC members. The external benchmark for this measure is that of Healthy People 2010, i.e., an adult tobacco use prevalence of <12% by 2010.

To measure use of smoking-cessation medication before and after the changes in Health Plan benefits, data on nicotine replacement were extracted from PIMS for the first, second, and third quarters of 2002 and 2003. Because KPNC members may buy the nicotine patch over the counter at non-Kaiser pharmacies and at retail drug stores, these data underestimate the true number of cessation medications used before and after the benefits enhancement.

The Group Class Database collects data on attendance at smoking-cessation classes. Because of changes in reporting procedures, class attendance data reported before 2002 cannot be validly compared with class attendance data reported after 2002. To measure the effect of benefits enhancement on program attendance, attendance at a representative sample of KP facilities using the same attendance reporting procedure was compared for the first three quarters of both 2002 and 2003.

**Results**

Results of the Member and Patient Survey show a dramatically positive trend in KPNC rates of giving members advice to quit smoking: From the fourth quarter of 2001 to the second quarter of 2004, rates increased by 23% (Figure 3). Both the MPS and HEDIS measures rely on patient recall, and recall error is often a weakness in data collection.

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**Table 2. Results of the three most recent KP member health surveys distributed to adult Kaiser Permanente Northern California Region members**

| Estimated percentage of past 12-month smokers aged 25-79 years who used a KP Smoking-Cessation Program during the previous 12 months, 1996-2002* |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| All members aged 25-79 years | 1996 (95% CI) | 1999 (95% CI) | 2002 (95% CI) | Significant change 1999-2002? |
| All members aged 25-79 years | 3.4 (2.6-4.2) | 3.1 (2.2-3.9) | 7.0 (5.6-8.3) | Yes; 125% increase |

| Estimated percentage of Serious Smoking Cessation Attempters who used a Smoking-Cessation Program during the previous 12 months, 1996-2002* |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| All members aged 25-79 years | 7.0 (5.7-8.4) | 8.3 (3.8-6.6) | 13.9 (11.1-16.6) | Yes; 67% increase |

| Estimated percentage of Serious Smoking Cessation Attempters aged 25-79 years who used Nicotine Replacement Therapy during the previous 12 months, 1996-2002* |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| All members aged 25-79 years | 10.1 (7.8-12.4) | 18.6 (16.0-21.2) | 23.8 (20.6-27.1) | Yes; 27% increase |

Analysis performed by Nancy Gordon, ScD, Department of Research, KPNC Region, using Member Health Survey Data.

*Serious Smoking Cessation Attempters are defined as being either 1) ex-smokers (at the time of the survey) who reported quitting smoking within the previous 12 months; or 2) current smokers who reported making a serious attempt to quit in the previous 12 months. For this group, comparison is limited because use of the smoking-cessation program differed across survey years:

1996: Attended any KP-sponsored stop smoking program.
1999: Participated in any multisession stop smoking program (KP or non-KP).
2002: Used any KP or non-KP smoking-cessation services (group program or one-on-one counseling).

*Serious Smoking Cessation Attempters are defined as being either 1) ex-smokers (at the time of the survey) who reported quitting smoking within the previous 12 months; or 2) current smokers who reported that they made a serious attempt to quit in the previous 12 months. For this group, comparison is limited because the use of nicotine replacement therapy differed across survey years:

1996: Used Nicorette gum (Pfizer, New York, NY) or nicotine patch.
1999: Used nicotine patch or Zyban (GlaxoSmithKline, Research Triangle Park, NC).
2002: Used nicotine patch, nicotine gum, or nicotine spray.

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…”[m]ore intensive tobacco dependence treatment is more effective than brief treatment. Also, it should be noted that intensive interventions are appropriate for any tobacco user willing to participate in them.” ²²p²³
In this case, however, patient recall improves the quality of practice by necessitating the giving of memorable advice. Because the MPS is both mailed and received several days after a visit, a positive response to the survey provides a good indication that the health care practitioner gave clear, strong, personalized advice—the type of smoking-cessation advice recommended in the US Public Health Service Clinical Practice Guidelines.

The HEDIS rates also consistently improved over the course of the program: These rates increased by 32% from 1998 to 2003 (Figure 2). Currently, KPNC rates far exceed the 75th percentile benchmark set by NCQA and are within a point of the 90th percentile. These results show how the Tobacco Dependence Program’s comprehensive approach to tobacco dependence and prevention has led to success above and beyond secular trends in the general population. In 1998, KPNC’s performance on the HEDIS Advising Smokers to Quit measure was one of the lowest of all the KP Regions, ranking 7th among the eight regions (Northern California, Southern California, Colorado, Georgia, Mid-Atlantic, Hawaii, Northwest and Ohio). By 2004 (reporting year 2003), KPNC ranked second place among the other eight KP Regions. The California Cooperative Healthcare Reporting Institute reported that KPNC outperformed all other California commercial HMOs on the ASTQ measure in 2003.

As shown by results of the past three Member Health Surveys, prevalence of tobacco use among KPNC members has decreased by 10.9% (Figures 4, 5). At a prevalence of 12.2%, KPNC is approaching the Healthy People 2010 prevalence goal of ≤12%. Although these data show a positive trend for tobacco cessation, external factors may influence prevalence of tobacco use; therefore, we cannot state with certainty that the Tobacco Dependence Program is the sole cause of the trend.

After Health Plan benefits were enhanced to provide more coverage for smoking-cessation aids, positive trends were seen in prescriptions for cessation medication and in attendance at tobacco-cessation classes. Comparison of the preenhancement and postenhancement survey results showed an overall increase of 12% in cessation-program attendance and an overall 10.3% increase in prescriptions for nicotine replacement therapy. These successes occurred despite a reduction in KPNC membership—a decrease of 100,000 members—during the timeframe examined (Figures 6, 7; Table 1). The number of smokefree KP campuses has increased...
Member Health Survey further points to a dramatic rise in use of tobacco cessation programs and medications. Because of limitations in the data and the lack of a control group, however, these trends cannot be interpreted definitively.

The number of smokefree KP campuses has increased over the life of the Tobacco Dependence Program. Before 1998, no KP campus was completely smokefree, whereas 16 campuses had become completely smokefree as of August 2004. The remaining campuses have restricted smoking to minimal outdoor areas or to a single outdoor shelter. The Tobacco Dependence Program has also met its objectives of contributing to community tobacco control efforts and supporting tobacco control policy.

Conclusions

Because of the multitude of competing health priorities, health care systems face a special challenge when trying to maintain and improve prevention efforts. KPNC believes that the health and economic burden of tobacco dependence is still too great and that the usual methods of relying on self-help and self-referral are inadequate to significantly improve the health of our members. We hypothesized that prevalence of tobacco use would be reduced by a multifaceted systems approach to tobacco-use cessation and prevention. The Tobacco Dependence Program has achieved extraordinary success achieving our objectives: increasing the rate of physicians giving patients advice to quit smoking; increasing attendance at tobacco-cessation classes and prescriptions for cessation medications; increasing the number of smokefree KP campuses; and supporting community and legislative policies promoting control of tobacco use. We have almost reached our objective of meeting the Healthy People 2010 goal of ≤12% prevalence of tobacco use in our KPNC membership population. Program sustainability has depended on fully integrating tobacco-use assessment and referrals and a strong infrastructure of effective, covered tobacco cessation programs and medications into routine medical practice. Inclusion as a Quality Goal (ie, providing for internal monitoring of our performance on “Advising Smokers to Quit”) has allowed the program to continue improving and growing throughout KPNC, reaching all primary care and specialty departments by the end of 2004. Quarterly feedback reports reinforce positive performance and motivate departments that are not performing as well as they could. Ongoing executive...
and medical center leadership support also has been an important factor in our success. Although we believe that we have been exceptionally successful in our approach to reducing tobacco dependence, we also believe in the importance of providing ongoing support to our tobacco dependence efforts. It is important to continue advocating for support for tobacco dependence treatment within the organization. In this regard, we continue to provide training to staff, work for full integration across program areas, make the best use of internal data, maintain and improve our health education programs, and develop systems that assist staff with advice and referral.

**Transferability**

Having been successfully integrated throughout KPNC, the Tobacco Dependence Program, has shared its systems and education tools with other KP Regions. The Program contributed best practices to the 1998 Tobacco Cessation Implementation Kit developed by the Care Management Institute. The KPNC Smoking as a Vital Sign process was used as a model for the California Tobacco Control Alliance's “Health Care Providers Toolkit for Delivering Smoking Cessation Services.” As an example of best practices, the Program has shared the single-session *Quit Tobacco Workshop* curriculum with The American Legacy Foundation Community Voices Tobacco Initiative (a nationwide network of tobacco-control and health agencies working to reduce prevalence of tobacco use in medically underserved populations) and the National Association of City and County Health Officials. KPNC's enhanced benefits for cessation programs and medications have also provided a model for other KP Regions. The KP Southern California Region has since adopted a similar benefit structure for their tobacco cessation programs and medications. For KP Regions which have implemented KP HealthConnect, smoking status is recorded as part of the process of monitoring vital signs. Advice to quit smoking can be included as part of the patient instructions section of the after-visit summary by using smart phrases. KP HealthConnect will not replace the need for physician communication and treatment options training or performance audit and feedback. Although the KPNC Tobacco Dependence Program has successfully shared much of its contents, more work can—and should—be done to transfer best practices for creating and integrating a multifaceted systems approach to reducing tobacco prevalence within a health care system.

**Team Involvement and Multidisciplinary Collaboration**

Development and implementation of the Tobacco Dependence Program involved a multidisciplinary team spanning a range of departments and committees throughout the KP organization and included:

- *Regional Health Education and Prevention* provided vision and leadership.
- *Department of Research* provided analyzed data on prevalence and benefits.
- *Executive Leadership* provided support in making *Advice to Quit* a quality goal that raised the visibility of the effort and tied it to incentive pay; also provided support for change to policy of smokefree KP campuses.
- *Health Plan Benefits* made tobacco-cessation classes a covered benefit.
- *Pharmacy and Therapeutics* enabled cessation medications to be available for a copay by members who attended approved behavioral interventions.
- *Physician Chiefs* provided consultation on development of program materials and evaluation.
- *Quality and Operations Support* provided leadership for developing the Tobacco Counseling Quality Goal.
- *Service Quality Research* provided internal measurement data and analysis for physician audit and feedback.
- *Tobacco Dependence Task Force and Physician-Champions* facilitated implementation, adapted the program for local needs, and provided leadership at the local level.

**Process Development and Change: Routine Tobacco-Use Assessment, Counseling, and Referral**

In 1998, *Smoking as a Vital Sign (SVS)* was implemented in the primary care outpatient clinics of KPNC and has since been integrated into other existing care delivery programs, such as the Chronic Conditions Management program, the Early Start Perinatal Substance Abuse program, and specialty care departments. A process was put in place to identify tobacco users and to offer them advice to quit and referral to smoking-cessation programs. When checking patients' vital signs, the medical assistants screen all patients for tobacco use and document their tobacco-use status on the medical record. The medical record is flagged with a
smoking cessation flier and/or magnet if the patient is a current tobacco user. This documentation and flag prompts the medical practitioner to give the patient advice to quit and referral to cessation programs. Advice is then documented on the medical record. The Health Education Department has supported this effort through:

- clinician training
- supplying implementation tools (eg, self-inking stamps; charts with a section for documenting smoking; posters; pens and lanyards imprinted with the message “Give Advice, Save a Life” or “Smoking as a Vital Sign—Ask and help save a life”)
- eliciting support from the physicians’ department chief and nurse-manager.

### Clinician Training and Performance Feedback

The Tobacco Dependence Program has provided ongoing education and feedback to physicians and other clinical staff about the importance of assessing tobacco status in addition to feedback on their performance in regard to advising smokers to quit. This feedback communication has occurred through regular quarterly communication of performance feedback to Department Chiefs and Managers. The Tobacco Dependence Program thus strives to develop innovative methods to improve advice rates. In 2003, for example, the Tobacco Dependence Program provided every KP facility with an “Oscar” trophy to award each quarter to high-performing departments on a rotating basis. Performance feedback and introduction of healthy competition have resulted in an overall increase in awareness among physicians and other medical staff about the clinician’s role in encouraging patients to stop smoking.

### A Variety of Tobacco-Cessation Programs for KP Members

KPNC has provided smoking cessation programs to its members since the 1970s. However, these programs were limited to multisession group classes attended by only a small percentage of current smokers, most of whom referred themselves to the class. Feedback from patients indicated existence of two barriers to member involvement in cessation programs:

- the limited types of cessation programs available
- the costs associated with those programs.

To reduce those barriers, we expanded our programs to meet the various needs of our members by including not only multisession classes but also individual counseling, single-session workshops, telephone counseling, Breathe (the online, personalized quit-smoking program available through kp.org), tailored information for teens and for pregnant women, and extensive self-help resources.

### Enhanced Health Plan Benefits Covering Tobacco-Cessation Programs and Medications

The Centers for Disease Control and Prevention (CDC) recommends that health plans provide full coverage for smoking cessation behavioral interventions as well as for pharmacotherapy so that out-of-pocket expenses incurred by patients (including costs for over-the-counter drugs) are minimized—or completely eliminated whenever possible. To achieve this standard, The Permanente Medical Group (TPMG) Regional Health Education Department worked closely with the Health Plan Benefits Department to examine the cost of offering tobacco cessation programs as a covered benefit. Patient care was directly improved by enhancing Health Plan benefits to cover unlimited attendance at cessation classes at no additional cost to members. In addition, the Regional Health Education Department developed a protocol jointly with our Pharmacy and Therapeutics Committee to allow KP members enrolled in any KP cessation program to receive cessation medication for the price of their copay. A patient education brochure was developed describing the covered benefit for cessation medication and the role of medication in quitting tobacco use. A 14-minute video was created describing all the cessation medications and how they are used.

### Worksite Tobacco-Control Efforts: Working with Executive Leadership

Policies mandating a smokefree worksite are well known to reduce environmental tobacco exposure for all KP employees and patients ...
Community Initiatives and Support for Policies Concerning Tobacco Use

The Tobacco Dependence Program has collaborated outside the clinic setting to bring messages of smoking cessation and prevention to the community. In 2004, funded by a Community Grant from the Community Benefit Program, the KPNC Regional Health Education Department partnered with a Bay Area radio station to conduct a six-month antitobacco campaign that targeted teens and young adults. The campaign was recognized by the American Legacy Foundation’s Truth Campaign as a successful strategy for communicating a tobacco-control message in a way that reached adolescents and young adults in the surrounding community. The Tobacco Dependence Program has also worked with the KPNC Government Relations Department to support tobacco control legislation, such as California Assembly Bill 221, the Tobacco to 21 initiative.

Acknowledgments

The authors would like to thank many people from the KPNC Region who have contributed to the success of this program—from the KPNC Regional Health Education Department, David Sobel, MD; Nancy Bouffard, MPH; and Scott Thomas, PhD (currently working with the American Legacy Foundation/Columbia University on tobacco control issues); from the Quality and Operations Support Department: Susan Bachman, PhD, and Mike Ralston, MD; the Community Benefit Program; the Tobacco Dependence Task Force and Smoking as a Vital Sign (SVS) Physician Champions; Phil Madvig, MD, administrative sponsor. The authors also thank Tim McAfee, MD, MPH, formerly of Group Health Cooperative, Seattle Washington, for conceptual development.

References

The Kaiser Permanente Northwest Cardiovascular Risk Factor Management Program: A Model for All

Abstract
Proof of the effectiveness of preventive measures that reduce established risk traits for atherothrombotic disorders has spurred attempts to systematically apply these interventions among susceptible populations. One such attempt is the Cardiovascular Risk Factor Management (CVRFM) Program, launched in 2003 to optimize clinical management and outcomes for 75,000 Kaiser Permanente Northwest Region (KPNW) members with atherosclerotic cardiovascular disease (CVD) or hypertension. The CVRFM Program is a centralized, multidisciplinary, proactive telephone-based clinical management intervention consisting of an “outreach” call, an interview, a mailed individualized care plan and information packet, regular follow-up (including protocolized medication management) and—when “goal status” is achieved—transfer of the patient to a maintenance plan.

Quarterly evaluation of effectiveness entailed measurement of a range of clinical, utilization, and member satisfaction outcomes. Results by the fourth quarter were outstanding: For example, >98% of participants with coronary disease or diabetes had LDL cholesterol testing, >90% of coronary patients received aspirin or statin treatment, 99% were “extremely” or “very” satisfied with the program, and reductions were observed in the number of hospitalizations and visits to the emergency department and clinic. Mathematical models predict a decrease in myocardial infarctions and cardiovascular mortality within two years after implementing the program, the underlying principles of which should yield similar improvement in other Kaiser Permanente (KP) Regions and in other health care organizations.

Introduction
Atherosclerotic cardiovascular disease (CVD) is a pervasive condition affecting 23% of the US population. CVD remains the leading cause of death in the United States, accounting for 39% of all deaths. The estimated direct and indirect cost of CVD in the United States is $393 billion annually.

Diabetes takes an additional toll on the nation’s health: The national prevalence of diagnosed diabetes is 6%. In addition, it is estimated that at least 5.6 million Americans—3% of the US population—have undiagnosed diabetes. Several studies show that, for individuals with diabetes, the risk of myocardial infarction is nearly equivalent to that in people with coronary artery disease (CAD) and that diabetic persons with concomitant CAD are at very high risk of death. In many diabetic persons, CAD remains undetected; in one study, autopsy showed high-grade coronary atherosclerosis in nearly 75% of diabetic persons who did not have clinically evident coronary disease.

Large population studies have identified modifiable risk factors that lead to CVD. These risk factors include diabetes or insulin resistance, elevated levels of low-density-lipoprotein cholesterol (LDL-C), diminished levels of high-density lipoprotein cholesterol...
Table 1. Risk reduction reported in major controlled trials

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Risk reduction for combined CVD outcomes</th>
<th>NNT</th>
<th>Treatment duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antiplatelet Agents</td>
<td>22%</td>
<td>41</td>
<td>2 years</td>
</tr>
<tr>
<td>Beta Blockers</td>
<td>24%</td>
<td>56</td>
<td>1 to 2 years</td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>23%</td>
<td>27</td>
<td>4 years</td>
</tr>
<tr>
<td>HMG Co-A Reductase inhibitors (Statins)</td>
<td>22-31%</td>
<td>28-40</td>
<td>5 years</td>
</tr>
<tr>
<td>Diet</td>
<td>10-75%</td>
<td>12-93</td>
<td>2 to 3 years</td>
</tr>
<tr>
<td>Exercise</td>
<td>20-24% (for death only)</td>
<td>37-46</td>
<td>3 to 5 years</td>
</tr>
</tbody>
</table>

NNT = number needed to treat (ie, the number of patients that must be treated to prevent one adverse outcome)

(HDL-C),14-17 hypertension,17 obesity,13,14,17 and physical inactivity.13,18 These risk-associated traits can be modified by lifestyle change (eg, physical exercise, smoking cessation, reduction of dietary sodium and saturated fats), and medication (ie, given for hypertension, lipid abnormalities, or diabetes/insulin resistance).

The Need to Manage Multiple Conditions

During the past decade, the Kaiser Permanente Northwest Region (KPNW) has implemented disease-specific programs to facilitate management of members with diabetes, heart failure, or CAD. These programs have resulted in marked improvements in care processes as well as in clinical outcomes. Nonetheless, existence of three parallel, single-condition programs has not optimized care for KPNW’s members with concomitant cardiovascular diseases. Simultaneous management of comorbid conditions is crucial because of the high prevalence of coexistent conditions22 (Figure 1) and because the risk of a cardiovascular event or death increases substantially with each additional cardiovascular risk factor.7,15,16,20,21

In recent years, several large clinical trials have shown that behavior changes and medications (Table 1) can reduce CVD events and mortality for persons with chronic conditions or with traits associated with CVD risk.22-40 In response to these findings, KPNW designed and implemented the Cardiovascular Risk Factor Management (CVRFM) Program—an integrated, multidisciplinary approach to case management for all KPNW members with identified cardiovascular risk factors.

Target Population

Among KPNW’s 338,000 adult members, approximately 12,000 (3.6%) have been diagnosed with CAD; 22,000 (6.5%), with diabetes; and 6000 (1.8%), with heart failure. More than 8000 KPNW members (2.5%) have both diabetes and CAD. In addition, at least 60,000 (18%) of KPNW’s adult members have hypertension.

The CVRFM Program is a population-based, individually tailored intervention designed to optimize clinical management and outcomes for all KPNW members with CVD or with cardiovascular risk factors. However, when the program was launched in April 2003, inclusion and exclusion criteria (Table 2) were defined to direct initial resources toward approximately 27,000 members (8% of KPNW’s adult membership) who were at highest risk.

Program Design and Outreach Methods

The CVRFM Program is a centralized, multidisciplinary, telephone-based clinical management intervention. On the basis of analyzed clinical data, highly trained staff proactively contact KPNW members whose clinical parameters (eg, diagnosed comorbid conditions, abnormal lipid levels, poor glycemic control, inappropriate medication regimen) suggest opportunity for improving management of cardiovascular risk factors. To date, the CVRFM Program has reached out to more than 8000 members (about 30% of the initial target population).

KPNW members likely to benefit from the CVRFM Program are identified from electronic clinical data and from chart review done to confirm appropriateness of inclusion and to identify language preferences of potential participants. With the aid of an interpreter when appropriate, CVRFM staff then telephone members to invite their participation.

Table 2. Initial inclusion and exclusion criteria for prospective participants in the Kaiser Permanente Northwest Region (KPNW) Cardiovascular Risk Factor Management Program

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes mellitus and/or CAD and/or history of stroke</td>
<td>Managed by another KPNW care management program</td>
</tr>
<tr>
<td>Age between 40 and 85 years</td>
<td>Does not have a primary care physician</td>
</tr>
<tr>
<td>Blood pressure &gt;140/90 mmHg with CAD; or blood pressure &gt;130/80 mmHg with diabetes mellitus</td>
<td>Pregnant</td>
</tr>
<tr>
<td>LDL &gt;100 mg/dL with CAD; or LDL &gt;130 mg/dL with DM without CAD</td>
<td>Breastfeeding</td>
</tr>
<tr>
<td>Not receiving statin drugs</td>
<td>Receiving maximum dose of medications</td>
</tr>
<tr>
<td>Not receiving ACE-inhibitor drugs</td>
<td>Liver function test results three times upper limit of normal</td>
</tr>
<tr>
<td>Not receiving aspirin or other antiplatelet drug</td>
<td>Does not wish to participate</td>
</tr>
</tbody>
</table>

CAD = coronary artery disease  
LDL = low-density lipoprotein
If a member agrees to participate (fewer than 3% of contacted members decline the invitation), a CVRFM nurse performs an intake interview by telephone. During this interview, several actions are taken:

1. The nurse reviews the member’s baseline information, including tobacco use; blood pressure control; medication regimen and adherence to it; allergies; and lifestyle, including dietary habits.

2. On the member’s specific risk profile, tailored education about cardiovascular risk factors is presented, and recommended interventions are provided.

3. Readiness to change is assessed by using motivational interviewing techniques.

4. A care plan is established which generally includes the member’s goals for aspirin use, blood pressure and lipid control, and lifestyle behaviors, including tobacco cessation, dietary changes, and exercise.

5. Necessary lab work is ordered.

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![Diagram](image-url)  

Figure 2. Flow diagram shows care-related component (processes) of CVRFM Program.
6. Appropriate referrals are given (eg, to primary care physician, specialist, health educator, pharmacist, social worker, dietitian, or case manager).

After the initial outreach call, an information packet—customized on the basis of the member’s risk factors and individualized plan—is mailed. The member then receives regular follow-up contacts and evidence-based clinical management, primarily by clinical pharmacists, on the basis of the CVRFM Program protocol. When “goal” status is achieved for all components of the care plan, the member is transitioned to a maintenance plan with continued (but less frequent) telephone follow-up (Figure 2).

**CVRFM Scripting for Blood Pressure Control**

“I’m looking at the medications you take for your blood pressure. I show that you are taking ___________________.

Note current medications, doses (in mg) and dosing schedule in the chart note.

(Information shown below is available in Correspondence also)

Blood pressure is the force of the blood pushing against the walls of the blood vessels. The pressure when the heart beats is called the **systolic pressure** (the first number in blood pressure readings). The pressure between beats, when the heart is at rest, is called the **diastolic pressure** (the second number). Hypertension is the medical term for uncontrolled or high blood pressure. It does not mean that a person is hyper, nervous, or tense. Uncontrolled blood pressure is a serious condition that often has no symptoms. It makes the heart work too hard and contributes to hardening of the arteries. As a result, patients with high blood pressure are at increased risk for stroke, heart attack, and kidney disease.

Recent information shows that patients who have controlled their blood pressure report that they feel healthier and rate their quality of life as better.

**Ideal blood pressure** for some individuals is lower than we used to think.

**Tools Designed to Support Implementation and Achievement of Results**

A number of tools were developed to support effective design and implementation of the CVRFM Program. These include:

1. **Evidence-based clinical practice guidelines** for the management of:
   - coronary artery disease (CAD)
   - diabetes
   - heart failure
   - hypertension

<table>
<thead>
<tr>
<th>CVRFM Scripting for Blood Pressure Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I’m looking at the medications you take for your blood pressure. I show that you are taking ________________.”</td>
</tr>
<tr>
<td>Note current medications, doses (in mg) and dosing schedule in the chart note.</td>
</tr>
<tr>
<td>(Information shown below is available in Correspondence also)</td>
</tr>
<tr>
<td>Blood pressure is the force of the blood pushing against the walls of the blood vessels. The pressure when the heart beats is called the <strong>systolic pressure</strong> (the first number in blood pressure readings). The pressure between beats, when the heart is at rest, is called the <strong>diastolic pressure</strong> (the second number). Hypertension is the medical term for uncontrolled or high blood pressure. It does not mean that a person is hyper, nervous, or tense. Uncontrolled blood pressure is a serious condition that often has no symptoms. It makes the heart work too hard and contributes to hardening of the arteries. As a result, patients with high blood pressure are at increased risk for stroke, heart attack, and kidney disease.</td>
</tr>
<tr>
<td>Recent information shows that patients who have controlled their blood pressure report that they feel healthier and rate their quality of life as better.</td>
</tr>
<tr>
<td><strong>Ideal blood pressure</strong> for some individuals is lower than we used to think.</td>
</tr>
<tr>
<td><strong>Lifestyle changes.</strong> Any changes you make can do a lot to lower your blood pressure and may decrease your need to take medications.</td>
</tr>
<tr>
<td><strong>Treatment with medications.</strong> Medication does not “cure” high blood pressure, and you may need to take blood pressure-lowering medication for the rest of your life.</td>
</tr>
</tbody>
</table>

**Tips for lowering blood pressure:**

- **Get active!** Exercise is good medicine. Start at ten minutes of walking daily, and work up to at least 30 minutes every day. Check with your health care provider before starting any exercise program.
- **Lose weight if you need to.** If you are overweight, losing just 6% of your body weight can make a big difference in your health. This means losing 6 pounds for every 100 pounds you weigh. If you can’t lose weight, then maintain your current weight and don’t gain any more.
- **If you smoke, quit.** This is the most important thing you can do for your health now, and it lowers your risk of heart disease.
- **Choose healthy, low-fat foods.**
- **Don’t add salt to your food or eat salty food and snacks.**
- **Limit the amount of alcohol you drink to no more than one or two drinks per day.**
- **Limit the use of over-the-counter medications; herbs; and health food supplements that may raise your blood pressure.**
- **Take your blood pressure medicine as prescribed.**

In our program, we may ask you to have regular blood pressure measurements and lab tests done at a KP clinic until you reach your target blood pressure. It may take several dose adjustments or more than one medication to control your blood pressure.

**If you will have problems getting to a KP clinic on a regular basis, please let us know NOW.**

Figure 3. Sample of scripts used in CVRFM Program for controlling patients’ blood pressure.
2. A data querying tool used to identify target members for intervention
3. A flow diagram defining the steps, referral guidelines, and exit criteria for the Program (Figure 2)
4. Telephone scripts for CVRFM Program staff to use when interacting with members
5. Medication management protocols to ensure optimal pharmaceutical management
6. Documentation templates embedded into the clinical record to ensure complete data capture
7. A measurement plan to enable tracking of Program impact and evaluation of its effectiveness
8. Communication templates to ensure that all members of the health care team are aware of CVRFM participants and their progress
9. A training curriculum for CVRFM Program staff.

Figures 3, 4, and 5 illustrate several components of the CVRFM Program.

Evaluation Methodology

A broad range of population-based measures—addressing clinical indicators, utilization, and member satisfaction—are evaluated quarterly. Data definitions for most CVRFM Program measures are consistent with HEDIS. However, KPNW uses broader inclusion criteria (e.g., no upper age cutoff) to evaluate care for all members likely to benefit from the defined interventions. KPNW also monitors performance against more aggressive management targets (e.g., LDL <100 mg/dL, blood pressure <130 mmHg/<80 mmHg) in addition to the HEDIS thresholds.

Utilization data were calculated by comparing utilization of the CVRFM Program’s first 1545 members during the first nine months after enrollment (April 2003 through December 2003) with these members’ use of services during the same months of the previous year (April 2002 through December 2002). Satisfaction data were obtained from completed surveys distributed to all CVRFM participants. Table 3 presents some results of these measures.

Innovation, Adaptability, and Impact

KPNW’s CVRFM Program has several unique features:

- Integration of multiple chronic conditions into a single population management program. The single population management program for CAD, diabetes, heart failure, hypertension, and cardiovascular risk factors optimizes care processes and outcomes.
- Focus on secondary prevention of CVD in members at highest risk, applying interventions substantiated by much evidence.
- Proactive, member-friendly, individually tailored approach resulting in expression of great satisfaction by members.
- Collaborative, multidisciplinary care model that optimizes the complementary roles of each CVRFM team member.
- Leverage of resource capacity by team-based care, clear entry and exit criteria, a robust automated clinical record, and predominance of phone-based encounters.

Adaptability

In only 12 months, KPNW’s CVRFM Program has effected substantial improvements in care and health outcomes for KPNW’s members diagnosed with multiple cardiovascular risk factors. This model could easily be replicated in other health care organizations.
The measurement approach is also easily transferable to other health care settings.

KPNW is currently exploring opportunities to adapt the CVRFM Program to other clinical areas. The underlying principles of this Program—including targeted outreach based on clinical considerations, protocol-based clinical management by a multidisciplinary team, emphasis on self-management, and the efficiency of a centralized, technology-leveraged service—can reasonably be expected to yield improvement in care processes and in clinical outcomes similar to improvements obtained in other high-priority populations.

**Impact**

The impressive results reported here among highest-risk persons with CVD are expected to result in major outcome benefit. Biomathematical models predict that there will be measurable decreases in myocardial infarctions and CVD-related mortality within two years of Program implementation.

<table>
<thead>
<tr>
<th>Table 3. Comparison of selected results for all KPNW members, cardiovascular risk factor management program participants, and HEDIS benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td><strong>Blood Pressure (BP) Control</strong></td>
</tr>
<tr>
<td>Controlling high blood pressureb</td>
</tr>
<tr>
<td>Diabetes,a BP ≤140/90d</td>
</tr>
<tr>
<td>Diabetes, BP ≤130/80</td>
</tr>
<tr>
<td><strong>Lipid Screening and Control</strong></td>
</tr>
<tr>
<td>CAD,a LDL testingb</td>
</tr>
<tr>
<td>CAD, LDL &lt;130 mg/dLc</td>
</tr>
<tr>
<td>CAD, LDL &lt;100 mg/dLc</td>
</tr>
<tr>
<td>Diabetes, LDL testingb</td>
</tr>
<tr>
<td>Diabetes, LDL &lt;130 mg/dLc</td>
</tr>
<tr>
<td>Diabetes, LDL &lt;100 mg/dLc</td>
</tr>
<tr>
<td><strong>Glycemic Screening and Control</strong></td>
</tr>
<tr>
<td>Diabetes, HbA1c testingb</td>
</tr>
<tr>
<td>Diabetes, HbA1c control (&lt;8.0)c</td>
</tr>
<tr>
<td>Diabetes, HbA1c poor control (≥8.0)f</td>
</tr>
<tr>
<td><strong>Medication Management</strong></td>
</tr>
<tr>
<td>Documented aspirin use</td>
</tr>
<tr>
<td>CAD, % receiving statin drugs</td>
</tr>
<tr>
<td>Diabetes, % receiving statin drugs</td>
</tr>
<tr>
<td><strong>Utilization</strong></td>
</tr>
<tr>
<td>Decrease in number of emergency department visits from prior year</td>
</tr>
<tr>
<td>Decrease in number of hospitalizations from prior year</td>
</tr>
<tr>
<td>Decrease in number of office visits from prior year</td>
</tr>
<tr>
<td><strong>Satisfaction</strong></td>
</tr>
<tr>
<td>“Extremely” or “Very” satisfied with program</td>
</tr>
<tr>
<td>Would “Definitely” recommend program</td>
</tr>
</tbody>
</table>

n/a = not applicable; CAD = coronary artery disease; LDL = low-density lipoprotein.
a 4351 total CVRFM Program participants as of 4th quarter 2003. (See Table 2 for inclusion and exclusion criteria.)
b Consistent with HEDIS (Health Plan Employer Data and Information Set) measure.
c Total KPNW adult population with diabetes was 20,625 for 4th quarter 2002 and was 21,910 for 4th quarter 2003.
d Consistent with DQIP (Diabetes Quality Improvement Project) measure and with NCQA (National Committee for Quality Assurance) Diabetes Physician Recognition Program threshold.
e Total KPNW adult population with CAD was 11,088 for 4th quarter 2002 and was 11,705 for 4th quarter 2003.
f Exceeds 90th percentile benchmark.

The Kaiser Permanente Northwest Cardiovascular Risk Factor Management Program: A Model for All
Acknowledgments

The CVRFM Program was developed through the collaborative efforts of KPNW’s Clinical Strategies Integration Group, Population-Based Care Department, Cardiovascular Steering Committee, Diabetes Steering Committee, Primary Care Council, Guidelines Development Group, Pharmacy Services and Medication Management Program, Nutrition Services, and Health Education Services. KPNW drew from rigorously evidence-based guidelines—including those of KP’s Care Management Institute, the American Heart Association, and INC VI and VII—for development of a comprehensive, multidisciplinary protocol which contains a portfolio of clinical interventions proven to improve outcomes for persons with cardiovascular risk factors.

References


25. Indications for ACE inhibitors in the early treatment of


The Worth of Science
Ultimately, it is the physician’s respect for the human soul that determines the worth of her science.

— Norman Cousins, 1915-1990, writer, editor, citizen diplomat
Optimal patient safety is synonymous with optimal medical care. Evidence-based data point to a need for constant vigilance not only to prevent committing mistakes but to prevent errors of omission. Failure to do the correct thing may not be immediately evident, but consequences are inevitable. The Permanente Medicine culture of safety involves systematic efforts toward simultaneous preparedness against both potential types of error. The New Project Award was given to the Kaiser Permanente Northern California (KPNC) Perinatal Patient Safety Project, and the Transfer Award to the Kaiser Permanente Northwest (KPNW) Preoperative Briefing Project.

The Northern California Perinatal Patient Safety Project arose from the realization that 30% of adverse or potentially adverse “significant events” in 1999-2000 resulting in injury were located in the labor and delivery units. The project began early in 2002 with the objective of improving the reliability of obstetric care in KPNC’s Region via multidisciplinary perinatal patient safety teams. Among the measures implemented were: 1) improvement and opening of communication channels, 2) emergency drills involving simulated clinical situations, 3) multidisciplinary rounds, and 4) a standardized measurement tool: “Characteristics of a High-Reliability Perinatal Unit.” It is estimated that each facility will need about five years of data to be able to demonstrate a statistically significant difference in actual error rates.

Northwest Regional Risk Management identified an increasing trend of accidental burns in the operating room of a single facility, leading to the KPNW Preoperative Briefing Project. The concept of holding a preoperative briefing session prior to each surgical intervention was developed. The purposes of this session were to share information regarding the patient’s care and to verify the operative procedure, patient, site/side and device. The key concept was the importance of including the entire team in the briefing process. After implementation in 2001, compliance with the preoperative briefing has risen to more than 80%, and the number of burn injuries has fallen to almost zero.

During his eleven years as Chairman and CEO of Kaiser Foundation Health Plan and Kaiser Foundation Hospitals, David M Lawrence, MD, challenged Kaiser Permanente (KP) to pursue patient safety as an integral component of high-quality care. When he retired, the Board of Directors established the Chairman’s Patient Safety Awards. The objective was to recognize projects that advance the quality of care by improving the safety of care. The goals are to: 1) create a culture of safety, 2) develop and standardize successful patient safety measures, and 3) define and implement an innovative, transferable regional intervention in patient safety.

Eligibility specifications include this statement: “Projects nominated for the Chairman’s Patient Safety Award should be evidence-based or experience-based and address significant patient safety issues through substantial, measurable, and transferable changes that positively impact the provision of safe care.” Criteria further specify a bias toward projects that demonstrate a change in outcomes, preference for projects involving members from various disciplines, capability of replication, and bias toward practical, relevant and cost-effective solutions.

There are two awards, one to a region with a new project and the second to a region that most effectively replicates the success of prior winners. A call for abstracts will be issued in September of each year, and the regions selected to submit full papers will be announced during the December Award ceremony. The Board’s Patient Safety Award Committee selects winners during its September meeting, and representatives from all Regions are invited to attend the annual Awards Dinner in December. Winners are announced at the Board of Directors’ annual dinner in March and receive substantial recognition and publicity.

The double entendre in the motto of the Kaiser Sand and Gravel Company may be specific to that company but is transferable to other endeavors, including improvements in our medical practice. We applaud the providers of perinatal health care in Northern California and of surgery in the Sunnyside Medical Center of the Northwest who identified a need and took major steps toward filling it.
The Perinatal Patient Safety Project (PPSP) consisted of a multitude of approaches borrowed from many theories, disciplines, and industries. Its purpose was to create high-reliability perinatal units through the use of human factors techniques and systems improvements. The concept of high reliability was borrowed from the United States Navy, NASA, and similar organizations that operate highly complex systems with few errors over a long period of time. The error rate for these organizations is five to six sigma quality performance (Table 1). They recognize the criticality of the quality of their performance and that humans are inherently fallible and procedures and practices need to be in place to trap the inevitable errors.

An example of this high level of quality performance is the United States airline industry, which operates consistently at six sigma.

Key to their performance is the concept of human factors techniques: briefings, assertion, situational awareness, and recognition of red flags. Within these techniques is a sound framework of communication and teamwork.

What is the significance of communication and teamwork in an industry such as the airlines, and how does that apply to health care? Years ago, when the airlines were converting from propeller-driven aircraft to jet engines, there was the assumption that the high reliability of the jet engine would eliminate aircraft crashes. However, accidents continued to occur. Accident investigations revealed that the vast majority of accidents were not caused by the aircraft. Rather, they were the result of the communication and teamwork of those in the cockpit. Identified barriers to effective accident-avoiding actions included fear of speaking up, hierarchical power, etc. In health care, these same issues have been identified by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Their database of 2966 significant events from across the nation (from 1995 to 2004) has revealed that 65% of these had communication as a primary contributing factor.

Articles by Eric Knox, MD, and Kathleen Rice Simpson, RN, that contained conclusions based on an analysis of medical-legal cases from clinical contributions.

Abstract
The Perinatal Patient Safety Project (PPSP) was created as a systemic strategy for creating high-reliability perinatal units by preventing identified causes of perinatal events in the clinical setting. With developmental funding from a Garfield grant, implementation of the PPSP has been completed at four pilot sites in the Kaiser Permanente Northern California (KPNC) Region. Its success has resulted in implementation at all perinatal units in the KPNC Region as well as being promoted by National Risk Management for nationwide implementation. PPSP emphasizes structured communication, multidisciplinary rounds, a definition of fetal well-being, and practicing for emergencies. Steps taken to create high reliability perinatal care include improved communication, patient safety focus, and satisfaction among perinatal patients, providers, and staff.

Table 1. Simplified sigma conversion table

<table>
<thead>
<tr>
<th>Your sigma is</th>
<th>Defects per million opportunities</th>
<th>Percentage of items without defects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>690,000</td>
<td>30.9</td>
</tr>
<tr>
<td>2.0</td>
<td>308,000</td>
<td>69.2</td>
</tr>
<tr>
<td>3.0</td>
<td>66,800</td>
<td>93.3</td>
</tr>
<tr>
<td>4.0</td>
<td>6,210</td>
<td>99.4</td>
</tr>
<tr>
<td>5.0</td>
<td>320</td>
<td>99.98</td>
</tr>
<tr>
<td>6.0</td>
<td>3.4</td>
<td>99.997</td>
</tr>
</tbody>
</table>

250 hospitals collected over ten years by MMI, an insurance company, supported the need for improved communication in labor and delivery (L&D) and outlined specific criteria for high-reliability perinatal units. These criteria, built into PPSP, are:

- “Safety first” is the hallmark of the unit’s culture.
- Team contribution is valued.
- Communication is structured and rewarded.
- MD responds when called by an RN.
- Emergencies are rehearsed.
- L&D is viewed as “potentially dangerous” (ie, to guard against complacency).
- Fetal and maternal wellness are defined.
- Evidence-based protocols are used.

What does this have to do with KPNC Region and the Perinatal Patient Safety Project (PPSP)? When the project was initiated, the medical-legal costs of birth injuries were dramatically increasing even though the birth injury rate had remained stable over the past ten years. In addition to the medical-legal costs of birth injuries, other costs associated with birth injuries included the physical, emotional, and financial costs to the patient and family, emotional, and reputational costs to the health care providers and staff, and reputational and financial costs to KP.

Reviewing the KPNC’s data, it was determined that the volume of births in KPNC was large (32,000 births per year at 11 KP hospitals in 2002). There was collaborative practice between obstetricians and midwives and easy access to a perinatologist for consultation if needed. Ninety-two percent of prenatal patients are seen in the first trimester, and 90.6% of women were screened for preterm labor. Data analysis of birth injuries by the KPNC Region Division of Research clarified that birth injuries were (and still are) rare, as determined on the basis of a large number of births. Further analysis indicated significant variation between medical centers that was not explained by their high-risk patient mix.

Although the health care industry recognizes the criticality of perfect performance, the industry’s quality capability is considered to be between two to four—well below the five- to six-sigma performance of high-reliability organizations. Review of the perinatal literature indicated that the issues identified nationally were identical to those being experienced in KPNC. Some of the recurring systems-related problems included inadequate or inaccurate communication at shift reports, signouts, and hand-offs and problems with assertion and escalation of communication, task fixation and overload, team culture, and hierarchy.

In the opinion of Julie Nunes, RN, MSQ, CPHRM, Director of Regional Risk Management, the traditional corrective action approach to significant events resulting from birth injuries would not result in high-reliability performance. Armed with these data and new concepts, Julie Nunes (PPSP principal investigator), Bruce Merl, MD (PPSP co-investigator), Gabriel Escobar, MD (PPSP co-investigator), Sharon McFerran, RN (PPSP project manager), and Paul Preston, MD, (Human Factors and Critical Events Team Training educator for PPSP), developed a performance improvement approach based on human factors and systems improvements with the goal of developing high-reliability perinatal units. The project initially piloted its approach at four KP

<table>
<thead>
<tr>
<th>Table 2. Kaiser Permanente Northern California Perinatal Patient Safety project (PPSP) members</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPSP Principal Investigator</td>
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<tr>
<td>PPSP Co-Investigator</td>
</tr>
<tr>
<td>PPSP Co-Investigator</td>
</tr>
<tr>
<td>PPSP Senior Project Manager</td>
</tr>
<tr>
<td>PPSP Educator</td>
</tr>
<tr>
<td>PPSP Patient Care Services Liaison</td>
</tr>
<tr>
<td>PPSP Patient Safety Liaison</td>
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<table>
<thead>
<tr>
<th>KP leaders at PPSP pilot sites</th>
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<tbody>
<tr>
<td>Hayward Medical Center</td>
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<tr>
<td>Hayward Medical Center</td>
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<td>Hayward Medical Center</td>
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<td>San Francisco Medical Center</td>
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<td>Walnut Creek Medical Center</td>
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The Permanente Journal/Spring 2005/Volume 9 No. 2

medical centers (Hayward, San Francisco, Santa Teresa, and Walnut Creek). The 2004 Lawrence Patient Safety Award for 2004 was presented to the participants in the piloting of this project (Table 2). Based on the success of the pilot sites, the project was replicated in 2004 at the KP Redwood City, Sacramento, South Sacramento, and Vallejo Medical Centers and in 2005 at the KP Fresno, Oakland, Santa Clara, and Santa Rosa Medical Centers. Also, in 2004, the program began to be replicated programwide under the direction of Karen Mazzocco, RN, JD, Senior Project Manager for National Risk Management.

The project was based on “safety first” for the patients, physicians, and other staff. To create the culture of safety, a multidisciplinary team—including representatives from across the continuum of perinatal care—was assembled at each site. Before their first meeting, the team (and as many others from the perinatal continuum of care as possible) attended a four-hour human factors training session. In addition to addressing the basic human factors concepts, topics such as accident causation, dynamics of human error, and the effects of fatigue were presented.

The team’s first actions were to implement the use of SBAR (Table 3), a structured communication format borrowed from the United States Navy, and assertion (Figure 1). SBAR is an acronym that stands for Situation, Background, Assessment, and Recommendation. Everyone within the continuum of care needed to be included in the training and implementation plan. These techniques were important to clearly and concisely communicate patient information, especially during an emergency. The chain-of-command policy was also reviewed and, if needed, modified to reflect the complex nature of the perinatal environment. This policy needed to be current and organizationally appropriate for use when needed to advocate for the patient’s safety, especially those who cannot speak for themselves.

Critical to the functioning of a multidisciplinary team was the acceptance of the “Just Culture Statement.” The intent of this statement was to begin to open the lines of communication so that problems could be identified and corrected. This document held employees free from discipline if they discussed problems and errors. The only exceptions were if the employee was under the influence of drugs or alcohol, if the action taken was intended to cause harm, or if the action was deemed egregiously negligent.

Using the template of a high-reliability perinatal unit as outlined by Knox and Simpson,2 the need for a single clear operating style was identified. Based on a definition approved by the KPNC Perinatology Peer Group, a definition of fetal well-being was adopted to provide the physical criteria for when the nurse must call a physician and specified that the physician must come when called by a nurse. Other actions taken included clarifying the fetal heart rate tracing terminology differences between physicians and nursing (Figure 2).

A major innovation within PPSP was the development and implementation of Critical Events Team Training (CETT). The basis of this training approach was that teamwork and communication may reduce the frequency of emergencies in L&D but can never completely eliminate them. To address emer-
gencies when they arise, the team must work together and perform at a high level. From the Anesthesiology Department, which has been conducting drills for emergencies for the past few decades, the team has learned that critical skills erode when events are rare and when drills are not performed and that teamwork in emergencies is critical. It was also clear that during L&D emergencies, various disciplines must come together and function at a high level as a team had never been trained as a complete team. Their training had always been in their own discipline’s silo.

Using mannequins to simulate actual L&D events, CETT is a method of practicing for emergencies within the Medical Center’s L&D rooms and obstetric operating suite. The simulations include participants functioning in their appropriate roles and diagnosing and managing the situation as they would if it were real. The training environment focuses primarily on communication and systems and, to a lesser degree, on the technical aspects of performance. The simulations are videotaped, and the tape is used to augment the debriefing. Immediately upon completion of the simulation, the videotape is erased to assure confidentiality and to maintain the blame-free learning environment. All opportunities for improvement identified during the debriefing are documented and are given to the multidisciplinary team to address.

CETT was conducted at all four pilot sites and is continuing to be conducted as new sites become involved in PPSP. The success of CETT has been recognized, and a CETT Train-the-Trainer session was developed and is now being offered to all KP Regions.

As birth injuries are rare events, the effect of this project on birth injuries will take a long time to determine. It will take years to accumulate a sufficient number of birth injuries to determine a declining trend. The Safety Attitudes Questionnaire

---

**Figure 2. Establishing fetal well-being by the fetal heart rate (FHR).**

**Antepartum (before labor)**

<table>
<thead>
<tr>
<th>Reassuring FHR Tracing:</th>
<th>YES</th>
<th>Fetus is well</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline FHR of 110-160 beats per minute (bpm), AND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No FHR decelerations AND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two FHR accelerations (each of 15 bpm and lasting 15 seconds)* within 20 minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Intrapartum (during labor)**

<table>
<thead>
<tr>
<th>Reassuring FHR Tracing:</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline FHR of 110-160 beats per minute AND</td>
<td></td>
</tr>
<tr>
<td>No FHR decelerations AND</td>
<td></td>
</tr>
<tr>
<td>Either two FHR accelerations in 20 minutes</td>
<td></td>
</tr>
<tr>
<td>Or the presence of moderate baseline FHR variability (6 – 25 bpm)</td>
<td></td>
</tr>
</tbody>
</table>

MD or CNM is notified if there are variant FHR patterns that warrant immediate MD notification (definitions attached) or after 40 minutes of continuous FHR monitoring without a reassuring FHR tracing

MD or CNM:
- Develops, communicates to RN, and documents patient’s plan of care.
- Chart documentation explains how fetal well-being is demonstrated in the absence of fulfillment of strict criteria.

* If less than 32 weeks’ gestation:
- Two accelerations of 10 bpm
- Each lasting at least 10 seconds
- Within 20 minutes

**NOTE:** This process may result in “overcatching” problems but is considered important for patient safety.
As birth injuries are rare events, the effect of this project on birth injuries will take a long time to determine.

The Learners

In a time of drastic change it is the learners who inherit the future.

The learned usually find themselves equipped to live in a world that no longer exists.

— Eric Hoffer, 1902-1983, American social philosopher
soul of the healer

“Roman Windows”
photograph
By Tom Janisse, MD

Dr Janisse is the Editor-in-Chief of The Permanente Journal.
This photograph was taken in Umbria, Italy.
Abstract

In June 2001, members of the KP Northwest Region (KPNW) Patient Safety Team attending a Human Factors training program considered the patient safety challenges faced in the operating suite and identified preoperative briefing as a necessary component of safe practice. After receiving the Human Factors training, the KPNW Patient Safety Team obtained sponsorship for a pilot project to develop preoperative briefing as a way to transform patient safety culture in the KPNW Region’s operating suites and to reduce the number of errors (especially burns). The project led to the KP Sunnyside Medical Center’s current policy requiring preoperative briefing before each surgical intervention so that information regarding the patient’s care is verified and shared.

Since initiation of the preoperative briefings—which are increasingly being conducted on a routine basis—a trend of decreasing accidental injuries has been observed in the operating suite. In addition, recent questionnaire responses show an improved team culture of safety and an improved overall work climate (including such factors as teamwork, safety, perceptions of management, and working conditions). Measures reported by surgical teams in Orange County (California) and KPNW indicate the project can be transferred successfully. Staff are also expanding the briefings project to the ambulatory setting.

Human Factors and the Origin of the Preoperative Briefing Project

In June 2001, at a national KP Human Factors Training Program in Oakland, California, members of the KPNW Patient Safety Team considered the patient safety challenges faced in the OR and identified preoperative briefing as a necessary component of safe practice.

The concept of “briefing” describes a dialogue or discussion between two or more people using concise and relevant information to promote clear and effective communication. The premise behind briefings is that it is much easier to monitor and raise issues related to the plan if you are familiar with it, have identified the desired outcome, and know that your input will be welcomed.

The brief concept is used effectively by other high-risk, high-reliability industries and health care teams. The most widely recognized type of briefing is the pre-flight checklist used by airline pilots; in both the avia-
Clinical contributions

After receiving the Human Factors training, the KPNW Patient Safety Team obtained sponsorship for a pilot project to develop preoperative briefing as a way to transform the patient safety culture in the region’s operating suites and to reduce the number of errors, especially burns. More specifically, the Preoperative Briefing Pilot Project had a four-part purpose:

- To decrease the number of accidental injuries occurring in the operating suite;
- To elucidate the nature and causes of human error in high-performance, high-risk workplace settings;
- To examine threat and error countermeasures, presenting such measures as clinically relevant, useful skills that can be learned; and
- To learn to effectively use core human factors skills to improve patient safety.

Champions for the project were Maureen Wright, MD, Medical-Legal Chief and Patient Safety Cochair; Farah Pakseresht, RN, Surgical Services Director; Melvin Goldstein, MD, Chief of Anesthesiology, KP Sunnyside Medical Center; and most recently, Steve Lieberman, MD, Chief of Urology. The Patient Safety Oversight Committee (a joint Kaiser Foundation Health Plan (KFHP) and Northwest Permanente Medical Group (NWPMG) committee) sponsored the group.

Components of the Pilot Project

The NWPMG and the Surgical Operation leadership at the KP Sunnyside Medical Center began the pilot project by granting time for all medical and nonmedical operating suite staff to attend one of two half-day training sessions given in October 2001. The briefing tools used during these training sessions were developed by the KP Program Offices in collaboration with the Center of Excellence for Patient Safety Research and Practice at the University of Texas. Concepts and briefing tools used in Crew Resource Management for commercial airlines were adapted for use with physicians, nurses, and staff. The key concept of the training tools was that the entire team must be included in reviewing issues of skin integrity and burns. In addition, safety rounds were conducted, and staff were familiar with it, have identified the issues related to the plan if you are familiar with it, have identified the desired outcome, and know that your input will be welcomed.

... it is much easier to monitor and raise issues related to the plan if you are familiar with it, have identified the desired outcome, and know that your input will be welcomed.

As a matter of regular procedure in the pilot project, the briefing included the entire surgical team: the surgeon, the surgical assistant, the anesthesiologist, the scrub nurse, and the circulating nurse. At each briefing, the surgical team reviewed key issues of the case, including medical background, potential risks, and other pertinent information. For reference, briefing questions were also posted on the wall in the operating suite. The circulating nurse kept a record of the briefing and submitted this record with the intraoperative record. The briefing record was not part of the patient’s medical record but was included in the monthly compliance data.

Although the questions provide the framework for the briefing, two core principles define the tone of the briefing sessions. The first principle is that all team members are expected both to request and to offer input. The second principle is to facilitate clear and effective communication by asking team members to use first names and to make eye contact with the person they are addressing.

After the project was underway, the project champions formed a broader project team to facilitate culture change. This team consisted of a surgeon, a nurse anesthetist, a surgical assistant, an operating suite technologist, an operating suite nurse, and the educator. For educational purposes, the group produced a briefing video comparing two scenarios: the “normal chaos” of a typical operating suite and the organized process of briefing. The video gave the surgical team a new perspective on patient safety. Soon, staff began to share errors and near misses during the morning report. All errors were reviewed with those involved, and lessons were shared with the entire team. Much effort went into reviewing issues of skin integrity and burns. In addition, safety rounds were conducted, and staff were
asked for their input regarding other ideas to increase safety in the operating suite.

Methods for Measuring Project Results

To measure results of the project, the Safety Attitude Questionnaire (SAQ) was administered before the training and then again eight months after the training. This attitudinal survey collects input from frontline personnel to determine strengths and weaknesses in the organization. The survey evaluates six domains: job satisfaction, teamwork, safety climate, perceptions of management, stress recognition, and working conditions. The first survey was distributed to all medical and nonmedical staff who practiced at the KP Sunnyside Medical Center before the project was launched. Periodic updates were conducted, and outcomes were shared with all staff.

The rate of accidents (ie, burns) in the operating suite was also analyzed. In addition, use of briefings in the operating suite was periodically audited by both the operating suite manager and the operating suite educator. One formal audit for compliance was performed two years after the project was launched. Reported burns were examined on a monthly basis by the Risk Management and Quality Assurance Departments through the Patient Safety Reporting System.

Project Results

Analysis of accidental injury in the operating suite reported since initiation of the preoperative briefings (in November 2001) suggests a decreasing trend: Whereas seven clinically significant injuries were reported in 2000 and nine such injuries were reported in 2001, five were reported in 2002, two were reported in 2003, and none were reported in 2004.

Results of the most recent administration of the SAQ showed an improved team culture of safety. When the SAQ was administered initially (in October 2001, before the pilot project began), more than 80% of operating suite staff stated that briefing was important, but only 24% of staff reported that this briefing was done routinely; in the spring of 2003, 64% of SAQ respondents reported that briefing was done routinely. These results show that briefings had become 2.5 times more common in the operating suite than they were before the pilot project was initiated.

In addition to this substantial shift in safety culture and increase in the frequency of briefings, a decrease in the number of accidental burns was noted and was sustained during the three-year period during which results were measured. Moreover, the only burns reported in 2003 were minor skin redness—a finding that shows a simultaneous decrease in the severity of burns. These trends were shown (by the Patient Safety Reporting System and phone calls to the risk management department) these trends were shown to have occurred in an environment where the operating suite team had increased its reporting of other types of near-misses. This increased reporting is believed to be largely due to an improved culture of safety.

The results of the spring 2003 SAQ also indicate that the overall work climate improved with respect to teamwork, safety, staffing perceptions of management, and working conditions. The percentile ranking for the “team-work climate” measure improved from 4% (at inception of the pilot project) to 32% (at the final SAQ administration). Job satisfaction remained the same overall but improved substantially among staff surgeons, particularly as shown by their responses to the questionnaire item “all of the necessary information is available before the start of procedure”: The percentage of surgeons agreeing with this statement increased from 46% to 88%.

Other indicators on the SAQ also reflected improved results. These indicators included an increase in the number of responses agreeing with the following statements:

- Nurse input is well received in the operating suite.
- Personnel speak up if they perceive a problem with patient care.
- [Survey respondent] know the first and last names of all the personnel that I worked with on my last shift.
- All operating suite personnel take responsibility for patient safety.
- Patient safety is constantly reinforced as the priority in the operating suite.
- Staffing levels are sufficient to care for the given number of patients.

Compared with earlier results of the SAQ, fewer respondents stated that they observed difficulty discussing mistakes and that a high workload was common in the operating suite.

Formal audit of preoperative briefing compliance conducted in October 2003 by the Surgical Operations Group (by examining documentation for each surgical procedure done during a randomly selected week) showed 66% average documented compliance. When measured in 2004, compliance with the preoperative briefing was above 80%. Although this recent result suggests opportunity for further improvement, this compliance rate reflects a substantial improvement over the rate of 24% reported by staff in the prepilot SAQ in 2001.
In a development reflecting the pilot project’s success, the KP Sunnyside Medical Center has implemented a policy stating that preoperative briefing will be conducted before each surgical intervention so that information is shared regarding the patient’s care and so that the operating suite staff verify the operative procedure, identity of patient, correct site/side intended for surgery, and correct device to be implanted. Briefings may occur also during transfers (“handoffs”) in responsibility or when new members join the team.

Discussion
Analyzing the Project’s Success

One key to the project’s success was that physicians and other staff who attended the KP Human Factors training session in June 2001 worked together to ensure that all operating suite staff at the KP Sunnyside Medical Center received an orientation to preoperative briefings. Concurrently with this process, the KP Sunnyside Medical Center Labor-Management Partnership Blame-Free Reporting Project was leveraged to promote an environment of trust and to raise the level of patient safety at the medical center by increasing the reporting of adverse events. Operating suite staff were assured that all reported burns would undergo a system analysis and that unless a burn resulted from a deliberate breach of rules, no punitive action would be taken. Next, a multidisciplinary team was formed to advance the briefings project. More than half of the project team consisted of labor representatives whose persistence and willingness to be partners in the project were fundamental to its success. The SAQ responses reflected meaningful improvement in the scores of all operating suite staff. By making briefing a routine procedure, labor and management alike have completed a transition from collaborating on a project to jointly creating safety.

Another aspect of this project’s success is its scope and magnitude: The project affects each of the 10,000 to 12,000 patients seen at the KP Sunnyside Medical Center each year. On the basis of the project’s success at this medical center, KPNW is expanding the preoperative briefings to the ambulatory surgery unit at the KP Skyline Medical Center, at which another 1200 to 1500 patients are seen each year.

On the basis of reports received from the operating suite, the KP Sunnyside Medical Center has succeeded in collecting information on close calls or near-misses that previously would have been ignored. This positive result translates into other areas of risk as well, because the briefing process represents a generic approach to furthering communication and sharing information related to potential risk.

The transformation of the safety culture in the operating suite at the KP Sunnyside Medical Center OR has been notable. Whereas the original focus was on reducing the number of burn-related injuries, preoperative briefing now transcends this subject. The entire department has increased its awareness that safety is not negotiable.

A key to the cultural shift that took place among the operating suite staff was their receipt of education regarding the importance of the problem. Having been shown photographs of burns that occurred in the operating suite, the surgical staff could recognize the severity of some of the injuries the pilot project was designed to prevent. Because most of the operating suite staff understood that patient safety requires teamwork, they actively worked on their communication skills.

The clear and demonstrated commitment of leadership as well as a persistent focus were two factors that were critical to the success of the project. A committee consisting of representatives from the risk management and quality assurance departments have monitored and have performed system analysis on each event and close call and have shared important lessons with the operating suite staff.

Next Steps for Preoperative Briefing

One of the next steps for KPNW is to take the briefing project into the ambulatory setting. Ambulatory representatives attended the Orange County Lawrence Patient Safety Award Transfer Symposium this past February to learn more about the success of the preoperative briefing project in Orange County and to combine the learnings from Orange County with our regional lessons.

Other next steps for the program include:

- Continued focus on teamwork using a protocol that includes the entire team;
- Training new staff;
- Maintaining and improving the culture; and
- Continued auditing to measure compliance.

Another future step for the program is to continue to modify the briefing tool in response to user suggestions. For example, some surgical team members have expressed their opinion that the briefing process requires too much paperwork. The committee is investigating ways to reduce paperwork while ensuring completion of necessary steps.
Another possibility is future expansion of the program to involve patients in the briefing process. Many patients have responded favorably to seeing the Briefing Checklist on the wall of the operating suite. The opportunity to include patients in the briefing process may provide the opportunity for the surgical staff to learn something not apparent in the medical chart.

These KPNW successes and those of the KP Orange County Preoperative Briefing Program build a strong case for programwide transfer of the preoperative briefing project, and the KPNW project team is willing to consider supporting other medical centers in their efforts to initiate their own preoperative briefing programs.

References


What Is Needed

One needs something to believe in, something for which one can have wholehearted enthusiasm.

— Hannah Senesh, 1921-44, Hungarian-Jewish soldier and diarist
“Pretty Penny”
drawing based upon Edward Hopper’s painting of Pretty Penny
By Kevin D Murray, MD

Dr Murray is a cardiothoracic surgeon at KP Hawaii. He has had a lifelong interest in art and is influenced by the works of Edward Hopper and Winslow Homer.
Pain Management Doesn’t have to be a Pain: Working and Communicating Effectively with Patients who have Chronic Pain

By Christine E Whitten, MD
Christine M Evans, PhD
Kristene Cristobal, MS

Introduction

More than 60 million Americans suffer from some type of persistent or recurrent pain sufficient to substantially affect their lives. Although effective treatments are currently available, at least 40% of patients treated in the routine practice setting fail to achieve adequate relief from primary pain. In a recent survey of Kaiser Permanente (KP) members with various chronic conditions, patients with chronic pain fared the worst in terms of quality-of-life burden, diminished functional status, and lost productivity.

One reason why this population is difficult to treat is the inadequate communication between clinician and patient regarding treatment and self-management of chronic pain. Communication is the most powerful tool between clinician and patient—a tool that needs to be strengthened by the medical community.

Enhancing communication with a patient who has chronic pain can be daunting because so many aspects of the patient’s life are affected by the pain. Clinicians never seem to have enough time to discuss all the relevant issues in addition to addressing coexisting health conditions or presenting problems. An approach that makes that task seem possible—and even accomplished successfully—is to realize that we do not need to do more; we instead need to do things differently.

To enhance our current abilities and possibly to acquire additional office-based tools and strategies for addressing chronic pain, this article—the first in a series—discusses the challenges and complexities of treating chronic pain. (Upcoming articles in this series will provide more in-depth discussion of pain assessment and management.) The more assured we feel about the direction to give the patient, the more likely the patient will be to follow this direction.

A Three-Step Approach

An effective approach for working and communicating with pain patients at an office visit can be conceptualized as consisting of three steps: measuring and assessing; planning the treatment; and delivering the treatment. To enhance communication with patients and to emphasize selected points, clinicians should feel free to use visual aids, such as preprinted handouts and spontaneous drawings or notes.

Measure and Assess the Pain

To understand the “big picture” of measuring pain and assessing the impact of pain on the patient, you must first “size up” what you are dealing with. This evaluation should be done in your office even before you order any tests.

Measuring pain has long been a difficult concept that nonetheless requires documentation in the medical record. The difficulty facing both the patient and the clinician is that pain is entirely subjective and is often described by a number that proves useless because neither the patient nor the clinician really knows what specific therapeutic action is required by the number. Patients often state that they do not know how to attach a number to their pain, and many patients tend to catastrophize by assigning to their pain a score of 10 or higher only because they suppose that doing so is the only way to bring acknowledgment and treatment. Clinicians have no treatment plan for a score higher than 10, and they are trained to interpret a score of 10 as indicating a need for hospitalization, which almost no chronic pain patient needs. You need the ability not only to detect trends in the patient’s pain score but also to evaluate the patient’s ability to function.

What is needed is a “pain language” that both the patient and clinician can use to effectively communicate with each other. The scale can be explained in functional terms:... at least 40% of patients treated in the routine practice setting fail to achieve adequate relief from primary pain.
• A score of 10 indicates a need for hospitalization.
• A score of 8 or 9 indicates that the patient is missing work, canceling social activities, and stays in bed because of inability to function.
• A score of 5, 6, or 7 means that the patient is having a very difficult time functioning with existing responsibilities and that pleasurable activities are rare and concentration is impaired.
• A score of 1, 2, 3, or 4 reflects functional pain: Pain is definitely present—and may even require regular medication—but does not interfere with daily activities.

While acknowledging that the pain is real and does affect the patient’s life, you both must understand where the patient really is in order to manage the pain effectively, both in and out of the office visit. Assessing the impact of the pain on a patient’s life does not have to be a Pandora’s Box. The impact can be assessed during your routine exam by use of a mental checklist of “The Six Dysfunctional D’s”: distress, depression, deficits, disturbed sleep, disability, and deconditioning. For many patients with chronic pain syndromes, dysfunction is apparent in these six “D’s”:

- Distress: emotional distress manifesting as anxiety, conflicted feelings, anger, hostility, resentment, and alienation, possibly aggravated by family, school, or environment;
- Depression: varying degrees and forms (agitated, vegetative, refractory), possibly with psychological dysfunction (anxiety);
- Deficits: cognitive and behavioral deficits (eg, impulse control, assertiveness, attention, concentration, memory, judgment);
- Disturbed sleep: sleeping patterns disrupted by the distress and by the pain sensation;
- Disability: Varying degrees of perceived and actual disability, possibly influenced by family, environment, or both;
- Deconditioning: emotional, intellectual, spiritual, and physical deconditioning resulting from lack of healthy function.

Recognizing these characteristics in your patient should alert you to the need for a more aggressive treatment plan.

Plan the Treatment

Many patients—and some clinicians—fail to realize that chronic pain is not just a prolonged version of acute pain. Unlike a patient with acute pain, a patient with chronic pain should not focus on his or her pain. The goal of treatment is adequate pain control to allow improved function and independence. Poor pain control promotes further loss of strength, flexibility, and function. Hypersensitivity may have already developed and can lead to further change in the nervous system. Depression and anxiety are common. All these factors ultimately lead to more pain (Figure 1).

The KP Care Management Institute (CMI) has developed evidence-based guidelines for assessing and managing chronic pain in the primary care setting. These and clinician/member tools can be accessed at our National Clinical Library Web site, http://cl.kp.org.

One of the most effective treatment approaches is to acknowledge that the pain is real by explaining to the patient the biology of chronic pain:

- Pain and injury can alter sensory nerves, causing them to constantly send out false alarms.
- Pain signals become embedded in the spinal cord like a painful memory. This hypersensitization, called windup, results from changes in the neurotransmitters, receptor binding, nerve-firing threshold,
Pain Management Doesn’t have to be a Pain: Working and Communicating Effectively with Patients who have Chronic Pain

Pain and synaptodendritic contacts. Pain is then felt as more severe, and that which was not painful can become painful. In most patients, windup resolves as the injury heals. However, in some patients, these changes persist. The more severe the pain and the longer it persists, the more likely the change will become permanent. We don’t yet know the exact combination of pain severity, duration, etiology, and genetic predisposition that leads to chronic pain, but adequate pain management for all pain is clearly needed.

In many cases, the patient thinks that a diagnosis will lead to a cure. If a diagnosis is made, then a treatment exists that will take the pain away. Most patients do not understand that pain can become chronic for no reason; this concept therefore must be explained to them. Using a visual diagram or illustration of chronic pain is extremely helpful for validating the biological process, for making the diagnosis real, and for setting the stage for treatment—which, in fact, consists of long-term self-management. A simple, one-to-

### Table 1. Applying the recommended three-step approach to managing chronic pain: Examples of potential patient encounters

<table>
<thead>
<tr>
<th>Key message</th>
<th>Measurement and treatment plan</th>
<th>Delivery</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Pain is real and can malfunction for no reason.”</td>
<td>• Measure, chart NRS&lt;sup&gt;4&lt;/sup&gt;</td>
<td>“I know that this is difficult for you. It’s difficult for me as your doctor, because my job is to fix/cure you, but in this case, we have to work together to help you feel as best as you can with the pain. That will take a different kind of work than before, because for right now, chronic pain is not curable.”</td>
<td>• Visual materials on chronic pain</td>
</tr>
<tr>
<td>“We must change our treatment plan to manage the pain. This is what we are going to do first …”</td>
<td>• Explain that functional pain levels are your goal</td>
<td>• Address medication and side effects</td>
<td></td>
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<tr>
<td></td>
<td>• Focus on what the patient can do, such as exercise and pleasurable activities</td>
<td>• Provide pain diary</td>
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</tr>
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<td></td>
<td>• Patient to report back at next visit</td>
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</tbody>
</table>

“Doctor, there must be something wrong—you are missing it, or why can’t you find it?”

### “I can’t …” or “Yes, but …”

<table>
<thead>
<tr>
<th>Key message</th>
<th>Measurement and treatment plan</th>
<th>Delivery</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Sometimes, issues get in the way of a patient’s ability to get better.”</td>
<td>• Assess for complications</td>
<td>• Let’s focus on what progress we have made and apply how we did that to what we are facing at this visit.”</td>
<td>• NRS</td>
</tr>
<tr>
<td>“Are there other stressors in your life that affect your pain?”</td>
<td>• Measure, chart NRS</td>
<td>“I am hearing that you think what I am saying is valuable and yet you are not able to follow through. What do you think that is about?”</td>
<td>• Pain diary</td>
</tr>
<tr>
<td></td>
<td>• Explain again that functional pain levels are your goal</td>
<td>“Pain management is 90% you and 10% me, so it is not going to feel like our plan is working if you feel it is the other way around. So, let’s take another look at the treatment plan and try to make it work better for you.”</td>
<td>• One behavioral activity goal</td>
</tr>
<tr>
<td></td>
<td>• Address medication and side effects</td>
<td>“My job is not to give you what you want; it is to give you what you need.”</td>
<td>• One pleasurable activity while pacing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key message</th>
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<th>Delivery</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Medication is only one component of pain management.”</td>
<td>• Assess for misunderstanding, undertreatment, pseudoaddiction, addiction</td>
<td>“I am concerned about your use of medication. Let’s try to figure out what is going on. For us to work together, this daily diary of medication intake is critical to fill out. If changes need to be made, it will be after the next visit, when I can examine your completed diaries and get a clearer picture of what needs to happen next.”</td>
<td>• NRS</td>
</tr>
<tr>
<td>“Before we increase or change your medication, let’s take a look at the treatment plan and what you are doing to self-manage your pain.”</td>
<td>• Briefly assess for presence of stress, depression, anxiety, or serious mental disorder</td>
<td>“Do you ever find that during or after a stressful event, you feel you need more pain medication due to feeling more pain?” IF YES: “Our emotional pain can make our physical pain worse, but pain medication is not designed to address emotional pain. Let’s take a closer look at what to do during stressful events, so you are not using pain medication as a response …”</td>
<td>• Pain diary</td>
</tr>
<tr>
<td></td>
<td>• Focus on what the plan was for the patient and hold the patient accountable</td>
<td>“My job is not to give you what you want; it is to give you what you need.”</td>
<td>• Handouts on management of medications and side effects</td>
</tr>
<tr>
<td></td>
<td>• Patient to report back at next visit</td>
<td></td>
<td>• Referral to Chemical Dependency clinic for evaluation if unsure</td>
</tr>
</tbody>
</table>

<sup>4</sup>NRS = numeric rating scale.
five-minute explanation can be followed with, “Now that we are here, we need to talk about the management plan.” Before entering the examination room, anticipate possible questions or problems the patient may have regarding self-management techniques, and assemble some strategic options for addressing these concerns (Table 1).

**Promote Self-Management for Pain Control**

Help your patient to set realistic treatment goals for improving function on the basis of objective physical limitations and not on the basis of perceived pain. Being 100% pain-free may not be a realistic goal. Tell the patient, “There will be better and worse days, but there are things you can do to feel better” and that you expect a trend of general improvement over time.

Restore physical conditioning gradually by giving clear, specific exercise prescriptions. For example, the patient may be instructed to walk ten minutes per day and to increase this daily duration by one minute each week (eg, walk 11 minutes daily for the second week) until the patient reaches a pre-assigned number of minutes daily. Many patients respond well to a “rehabilitation” analogy. Talk to the patient about “starting where you are—not where you think you should be—and increase from there.” When confronted by the comment that it hurts to exercise, reassure the patient by saying, “gentle daily exercise may actually decrease (instead of increase) your pain. Gentle daily exercise strengthens muscles that help you become more active and independent and helps restore more normal balance in your nervous system.”

An essential instruction is for patients to pace their activities. You may say to the patient, for example, “Pace yourself. Some days will be better than others, and you might tend to push yourself to do more. If you break up your activities into smaller tasks and take rest periods before the pain gets severe, you will decrease your discomfort and prevent your pain from flaring up.”

Discuss “flare-up” management before it occurs so that the patient has a plan to follow and can prevent the pain from further escalating out of control.

**Address Patients’ Attitudes About Medication**

We sometimes blame the patient if treatment seems to fail. Resist this temptation by trying to “see through the patient’s eyes.” If the patient is not following instructions, ask the patient why. The answer could alert you that the patient does not expect success, has no incentive to change, or feels that the effort is too great. Do not assume that you know the answer without asking the patient.

If a patient’s pain is poorly controlled, the first thing to ask is whether and how they are taking the medications you prescribed.

If a patient has pain that is not responding to treatment, consider the following factors:

- **Dependence** is a physiologic state characterized by withdrawal and is rare in patients treated for less than three weeks. You might say to the patient, “If you’ve taken any medication for awhile and suddenly stop taking it, you may feel withdrawal symptoms. For example, have you ever gotten a bad headache from suddenly stopping caffeine? That was withdrawal.”
- **Tolerance** refers to the decrease in strength of the opiate effect with continued use of the drug. You might say, “When you first started drinking coffee, you felt more of a lift from one cup; after a few years, it took several cups to get the same lift. That’s tolerance.”

In the general population, the rate of addiction to prescription analgesic drugs is comparable with the rate of addiction to alcohol: about 5 in 10,000 persons. Despite potential or actual harm, patients may have a psychic compulsion to continue taking a prescribed analgesic drug on an ongoing basis for effects other than pain relief. To illustrate this dangerous behavior, you might say, “Using our caffeine example, the caffeine addict might continue to drink caffeine despite it causing significant medical problems, such as rapid or irregular heartbeat.”

Many patients who receive an inadequate dose of opioid medication seek more pain medication to regain control of their pain. This behavior is called pseudoaddiction because it is often mistaken for the true drug-seeking behavior of addiction. The behaviors of pseudoaddiction resolve with improving analgesia, whereas true drug-seeking behavior does not.

Fear of actual or perceived side effects is also a major problem. Take
Pain Management Doesn’t have to be a Pain: Working and Communicating Effectively with Patients who have Chronic Pain

the opportunity to open a dialogue with your patients on the best way to take the prescribed medication, and ask about specific worries. The specter of nausea, constipation, dizziness, and dry mouth keeps many patients—especially older patients—from starting or continuing to take medications as prescribed, although these patients might not always tell you that they have stopped or have not begun taking the medication. Always start the drug regimen at a low dosage and slowly titrate the medication. Tell your patients up front that most side effects from prescription medications can be managed and that you will slowly increase the medication dosage to allow the patient’s body time to adjust. Tell patients that you will find the best dose for their comfort. Being frank with patients makes them your partner in optimizing their care.

Because thoughts, feelings, behavior, and symptoms all affect pain severity, you should help patients to become aware of factors exacerbating their pain. Use of a pain diary can help patients to provide you with key information on how the care plan is progressing and allows you to give feedback on what is proving effective and why. Patient diaries can include the following: daily numeric rating scale (NRS) scores; daily functional impairment scores; quality of pain (eg, “dull,” “sharp,” “throbbing,” “sore,” “tender,” “heavy,” “tight,” or “burning”); what factors decrease or increase the pain; how the pain has affected sleep, mood, and relationships; and side effects of the medication.

Consider Whether to Use Cognitive Behavioral Therapy

Some patients need more help to attain good self-management strategies than you or a health education class can provide. Consider cognitive behavioral therapy (CBT) for patients for whom pain management is a challenge—whether or not they have poor social, occupational, physical, or psychological function. CBT is a psychotherapeutic approach that focuses on helping patients to modify the way they perceive pain and respond emotionally and behaviorally to the pain. The benefits of CBT are improved quality of life and, above all, more independence and self-efficacy with regard to pain management and the aspects of life affected by chronic pain. An important step is to let the patient know up front that using CBT does not mean that the pain is not real or that the patient has a psychological problem. Explain to the patient that all illnesses have psychological as well as physical components and that a comprehensive approach is more likely to help regain function.

Take Cultural Beliefs into Account

Cultural beliefs also can affect pain management. Without intending to convey any cultural stereotypes, a few examples of cultural responses to pain can be presented:

• Central American patients may view pain as a necessary part of life and sometimes as a consequence of “earthly misconduct” or “imbalance” of nature. Certain types of pain-related behavior—particularly moaning and crying—may be culturally acceptable to these patients.

• For African-American patients, expression of pain may be open and public. These patients commonly avoid pain medication because they fear the possibility of addiction.

• Chinese-American patients might not complain of pain, so be alert for nonverbal cues. Some patients may use acupressure or acupuncture to treat pain.

• Muslim patients might refuse narcotic drugs as treatment for mild to moderate pain, because narcotics are forbidden in their religion. These patients may prefer home remedies to manage pain.

Published research shows that nonwhite patients experience a lower quality of health services and are less likely to receive even routine medical procedures than are white patients—regardless of insurance status, income, age, presence of comorbid conditions, and symptom expression. Understanding the role culture plays in health care beliefs and practices and adapting interventions accordingly can yield a higher quality of care and greater clinical effectiveness. You need to understand and work within the patient’s cultural context instead of using your own culture-specific values.

Use tools such as the services of qualified medical interpreters and translated patient education materials, and ask about patient preferences for treatment. When appropriate, involve family members to improve the patient’s trust and adherence to prescribed regimens.

Final Notes on Delivering Treatment

Remember: Patients need to tell their story. They also need to be believed. And they need direction and structure.

Many chronic pain patients have endured years of having their pain dismissed, and these patients often feel isolated and frightened. They may view any clinician with distrust. Comorbid psychological conditions (such as depression,
Table 2a. Exemplary communications when working with patients who have chronic pain

<table>
<thead>
<tr>
<th>Goals: Identify barrier</th>
<th>Action-orientation</th>
<th>Poor communication</th>
<th>Goals: Effective communication</th>
<th>Focused questioning</th>
<th>Psychological interference</th>
<th>Goals: Psychiatric treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I understand how difficult it is to change, and we are in this together. For me to be successful, you must be, too. How can I help you overcome [identified barrier(s)]?”</td>
<td>“Let’s focus on your progress for a moment. Since our last visit, your diary shows/your reported pain level was/have done…which shows that you CAN make progress.”</td>
<td>“I am hearing some resistance. Can you think of a better way of approaching our goals?”</td>
<td>“When emotions are not stable, then pain will increase. We become more disabled. The good news is that we can treat the emotional part by trying this medication and getting you connected to our psychiatry department. The outcome is less pain, and the emotions are better controlled.”</td>
<td>“Pain takes an emotional toll on us. I can hear that you are deeply affected by your pain, and I sense some depression and anxiety. Let me talk to you about what we can do to help relieve those feelings.”</td>
<td>“Pain can sometimes make us feel and act like a different person. It can isolate us and interfere with our abilities to relate appropriately. If this continues, it will cause more problems for you than just your pain. We need to address this by getting you additional help.”</td>
<td>“Sometimes we are the last to see that our pain has affected us psychologically. As your partner in pain management, I see that you are not able to think clearly and that your emotions are not stable. Let me help you by getting you treatment that will help you deal with the physical pain better and feel more in control.”</td>
</tr>
<tr>
<td>“When you have pain all the time, it is common to think that you are not getting better. Let me point out the things we have been improving.”</td>
<td>“Pain management is very tough, but it is just that: manageable. Let’s try to come up with two additional techniques that you can practice until we see each other again. I am sure we can make more progress.”</td>
<td>“I am hearing your pain feels like at this moment. Look at this scale with the word descriptions and tell me where you are on it.”</td>
<td>“Communication is our best tool for working on your pain. What works best for me is … What works best for you?”</td>
<td>“Feelings.”</td>
<td>“Next time, bring a family member in with you. They can provide valuable information.”</td>
<td>“Sometimes expectations are unclear. What do you really expect regarding the treatment of your pain?”</td>
</tr>
<tr>
<td>“I am hearing that you think what I am saying is valuable, yet you are not able to follow through. What do you think that is about?”</td>
<td>“Sometimes issues get in the way of a patient’s ability to get better. Do you have other stressors in your life that are affecting your pain?”</td>
<td>“Let’s spend a few minutes using this pain scale so that we can better understand your pain together.”</td>
<td>“Explain to me in your own words: What do you think is wrong with you?”</td>
<td>“In your own words, explain chronic pain and how to manage it.”</td>
<td>“Communication is our best tool for working on your pain. What works best for me is … What works best for you?”</td>
<td>“I am hearing how difficult it is to change, and we are in this together. For me to be successful, you must be, too. How can I help you overcome [identified barrier(s)]?”</td>
</tr>
</tbody>
</table>
the time interval for visits, which may be spaced six to eight weeks at the start. Patients tend to respect your time if they perceive you as available; if they perceive you as unavailable, both the frequency and urgency of calls are higher. Routine follow-up visits reassure the patient of your continuing commitment, allow you to reinforce self-management skills, and provide an opportunity to avoid a pain flare-up.

Consistency is critical, because so many patients with chronic pain are both confused and angered by inconsistent messages heard previously from many clinicians. Team members should have a common philosophy and must communicate regularly—both formally and informally—so that the plan is clear to all, including the patient. This strategy is especially important for a patient who tries to manipulate team members in an effort to obtain what the patient perceives as better care.

Sometimes, in a given moment, you may be truly frustrated and unsure of what you have left to offer. At such times, try taking a deep, diaphragmatic breath or two, and do nothing. You might not need to order an additional test or change yet another prescription; you might just need to use the best tool you have: yourself. Just listen, validate, and show empathy. That approach can be the best medicine the patient needs. With your help, your patients with chronic pain will get their lives back.

**Table 2b. Exemplary communications when working with patients who have chronic pain**

<table>
<thead>
<tr>
<th>Fixation on pain</th>
<th>Noncompliance with treatment plan</th>
<th>Increased use of medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals: Distraction</td>
<td>Goals: Acceptance of pain</td>
<td>Goals: Structure</td>
</tr>
<tr>
<td>Action-orientation</td>
<td>Compliance</td>
<td>Appropriate use of medication</td>
</tr>
</tbody>
</table>

- “I know it is difficult for you to understand that you have pain that we cannot cure, but let’s review exactly what chronic pain is and answer any questions you have about this condition.”
- “I understand that it is difficult to think about anything but your pain and how that affects you, but there are things we can do together to help you feel better.”
- “Let’s focus on what we can do together, such as taking a closer look at the medication we’re using and other approaches that could help.”
- “I believe that coming up with a management plan will help you feel like we are doing something about the pain that you feel. Let’s start with discussing …”
- “To help me better understand what your pain is like when you are not in the office, I would like you to complete a pain diary between visits. That way, I can see any patterns and possible changes in our pain management plan that we need to make.”
- “I know that if you try to and address everything about your pain that you are experiencing, so let’s focus on what bothers you the most. What is that exactly?”
- “What self-management tools or techniques are you using in addition to taking medication?”
- “What are you doing to manage your pain on a daily basis in addition to taking the medication?”
- “What prevents you from using additional pain management techniques that are clinically proven to reduce your pain?”
- “Research indicates that medication alone does not manage pain effectively, so let’s figure out what else you are doing to help your condition.”
- “I realize that it is difficult to think differently about your pain in terms of trying new things, but we know that these things work. Let’s come up with three nonmedication techniques that you will practice as part of your daily pain management. We will put them into your treatment plan, and at the next visit, we’ll check in to see how they’re helping.”
- “Is there anything that you don’t understand that I can help explain to you that will help you to use additional techniques with your pain medication?”
- “The person most affected by your pain is you. If you don’t follow your treatment plan, neither your functioning nor your pain will improve. Increases in medication are not likely to help if you are not using additional techniques. Let’s review the treatment plan again.”
- “Information about your daily living is critical to our management plan. If you don’t fill out the diary, I cannot make any decisions about changes.”
- “I am concerned about your use of the medication. Let’s try to figure out what is going on. For us to work together, this daily diary of medication intake is critical to fill out. If changes need to be made, it will be after the next visit—when I can examine your completed diaries.”
- “Medication is only one component of pain management. Before we increase or change your medication, let’s look at what nonmedication pain management techniques you are using.”
- “Using pain medication is part of our plan, but it is very important that you take it as prescribed. Let’s discuss a working agreement regarding your medication so that we are on the same page, with trust and understanding, working toward the same goal of higher functioning.”
- “Pain medication is a component of pain management. What concerns do you have about your medication? I have some concerns that I would like to talk with you about.”
- “Sometimes a patient may have stress that increases pain to a point of taking more medication. This is not effective pain management and can become a problem. Do you notice taking more medication when you are stressed? There are ways that you can deal with the stress differently so that your pain is not affected and you feel like you have to take more medication.”
- “Help me to understand how, when, and why you are taking the medications. I think we need to add some supportive techniques to your treatment plan, such as …”
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References

Nobody Is Watching
Integrity is doing the right thing, even if nobody is watching.
— Jim Stovall, entrepreneur and organizational speaker
The Electronic Health Record “Toolbox”

Introduction

The electronic health record is like a toolbox that clinicians can use to help manage their practice, take better care of their patients, and improve their documentation and efficiency. But to take full advantage of a toolbox, the carpenter must have familiarity and experience with all of its components, have a sense about which tool is optimal for a given job, and have the discipline to use that tool, even if at first it might seem difficult or cumbersome. When building a fine piece of furniture, or even a serviceable one, the initial investment made in “measuring twice and cutting once,” or “letting the glue set,” later yields great rewards in time, effort, and quality of the finished product. The same can be said when utilizing an electronic health record.

Case Example

How can Kaiser Permanente (KP) HealthConnect help manage the difficult, multiple-problem patient more efficiently? Whether in primary or specialty care, there are patients with five to ten or more medical problems and ten or more medications. Many of those patients also have several allergies or intolerances and are as likely as other patients to have important social, family, medical, and surgical histories. What tools are available within KP HealthConnect to help a clinician organize, track, and manage these patients and their health data? What are some “best practices” in the use of these tools? What follows is one approach to these questions, written by an experienced KP HealthConnect (aka EpicCare) user, taking into consideration my own views and those of several other experienced users and trainers with whom I discussed this challenge. It may be possible to build a fine china cabinet using only one tool or only tools designed for other purposes, but to do so would be much more difficult, probably less fun and rewarding, and almost certainly less successful than using a well-stocked toolbox and using it well.

The Problem List

In KP HealthConnect, the Problem List (Figure 1) is of paramount importance. The list is visible from several places within the application and can be fundamental to organizing, understanding, and managing patients and their problems. It is also a crucial tool to communicate necessary information to one’s colleagues should they be called upon for consultation or treatment. However, maintaining the Problem List requires some effort and thoughtfulness as well as an understanding about what the Problem List is—and is not—designed to achieve within KP HealthConnect.

Essentially, the Problem List in KP HealthConnect is designed to be the repository of the patient’s active, chronic, medical problems. Unlike the Problem Lists contained in some other electronic health records, here it is not a list of all the patient’s Encounter Diagnoses. In KP HealthConnect, clinicians can easily add an Encounter or Visit Diagnosis to the Problem List, but this is done selectively. Used in this manner, the Problem List becomes an effective reminder and “action” list for use when the patient presents for a routine or acute visit. Conversely, it is very easy and efficient to add a chronic problem from the Problem List to the list of Visit Diagnoses. Moreover, when the Problem List is up to date and well organized it is easy for all to see what is being managed and what the treatment goals are (eg, control of blood pressure or LDL-C level). Treatment targets, dates of important studies or chart entries (eg, coronary angiograms, pain management contracts, or advance directives), or agreements (eg, narcotic limitations) can be specified in the comments and regularly updated. It is far more easy, efficient, and safe to cover for someone who manages patient Problem Lists in this manner.

Problems can be sorted by priority to add further clarity to the List. When they become inactive, problems can be resolved, and doing so removes clutter from the computer display. Resolved problems can be viewed easily and reactivated if necessary. Most clinicians agree that acute, one-time, or time-limited problems clutter Problem Lists and are not helpful except in situations such as pregnancy or the serial management of a fracture (which might be maintained on the List until the episode of

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The Electronic Health Record “Toolbox”

clinical contributions

In KP HealthConnect, problems are automatically ICD-9 coded and are reportable as discrete data. As shown in the illustration, however, there is ample room to add free text comments when desirable. It is important to note that there are sections within KP HealthConnect designed to store data, such as social and family history and current medications. Taking advantage of those fields (ie, instead of extensively recording such information on the Problem List) allows users to more efficiently reuse such data through charting links.

The Medication List
An accurate, up-to-date Medication List (Figure 2) also is crucial when caring for the complex patient. Medication management is among the most complicated and important activities we do with our patients. To keep these lists accurate requires persistence and vigilance from all who interact with them. Complexity is introduced by the large number of pharmaceutical preparations that exist, their formulary and nonformulary status, medications filled both inside and outside KP, over-the-counter drugs, the special requirements of electronic pharmaceutical system interfaces, the frequent ambiguities in knowing which active prescriptions a patient is actually taking (or how they are taking them), to mention just some of the factors. Yet nowhere else does the effort expended to maintain the accuracy of a list, pay greater dividends. Clinician-patient decisions about medication effects, side effects, and dosage adjustments require reliable baseline information. Accurate drug-allergy and drug-drug interaction alerting and other automated decision support also depend on this list. To achieve a reliable Medication List, there is no substitute for reviewing and updating the Medication List at every visit. Updates in dosage and instructions must be recorded, even when such advice is given over the telephone or verbally and a new prescription is not issued. It is absolutely worth the effort for clinicians and teams to understand the difference between ordering, reordering, and changing prescriptions and using the correct workflow consistently. Similarly, it is important to understand the difference between a Current Medication (an active prescription in the pharmacy), an Encounter Medication (prescribed or changed in the current Encounter), and the Medication History (all medications, including discontinued and inactive ones, that have been prescribed). Well-designed, well-managed Preference Lists should help with prescribing complexity, but there are few shortcuts here. Your teams and work groups should decide how you will share the responsibility of maintaining the Medication List, and you must hold each other accountable. It is a safety and quality issue, as well as one of efficiency, and it will only be as successful as the effort made by every member of the clinical team.

The Allergy List
In KP HealthConnect, the Allergy List (Figure 3) also contains coded data. Coded data are necessary to avoid ambiguity and for automated decision support and reporting purposes and thus become an important safety and quality matter. Technical and procedural issues surround Allergy List maintenance, and the list is best managed with a shared and coordinated approach. During the interregional collaborative design sessions, a recommendation was that the Allergy List be reviewed...
and updated at each visit. KP HealthConnect provides tools to make this task easy. It requires literally a single click to confirm that allergies have been checked and verified as of today's date. Entering a specific reaction (e.g., "hives" or "nausea and vomiting," and the reaction type (e.g., "Allergy" or "Intolerance") is of great help when evaluating the risk of subsequent reactions. It is straightforward to document this information in KP HealthConnect. Once this information is entered, it is prominently displayed in several locations within the application. The quality of Drug-Allergy alerting, including the frequency of false positive alerts, depends on ongoing attention to the Allergy List. When everyone does their part, the incremental maintenance effort is small.

**The Histories Section**

KP HealthConnect contains a comprehensive Histories module (Figure 4) that includes sections for Past Medical, Past Surgical, Family Medical, Family Status, Social and specific Specialty histories. Social History is further subdivided into “Substance and Sexuality,” “Activities of Daily Living and other concerns,” “Socio-economic,” and other free-text “Social Documentation” areas. Using these sections, it is possible to record and easily retrieve a rich record of relevant personal risk factors and modulating influences, including individual preferences. Outside of some workflows, it takes attention to complete and maintain the patient histories. These data are typically completed gradually over time, with more consideration given during health maintenance or comprehensive examinations or when specific histories are especially significant. Workgroups and clinical teams may develop effective strategies to encourage documentation of histories, by using (for example) patient-completed forms and ancillary staff entry with clinician review.

**The SnapShot**

It should now be clear that there are many potential payoffs for actively completing and managing the KP HealthConnect record. Enabling automated decision support, in the case of medication and allergy lists, is one such benefit. Facilitating clinician information review and decision making by virtue of the enhanced and effective display of relevant data is another benefit. One example of where clinicians can take advantage of this activity is in the Patient SnapShot (Figure 5). With a single click, it is possible to get a comprehensive, high-level overview of the patient’s active problems, medications, allergies, immunization history, due and overdue health maintenance plans, and selected elements of histories. This information flows to the SnapShot with no extra effort, but the data displayed here are only as accurate as the lists from which they are drawn. This fact may provide an additional incentive to do the upfront work necessary to reap this subsequent benefit. Clicking on a section within SnapShot yields a “drill down” into a configurable, detailed section report.

**SmartLinks**

Yet another payoff of maintaining accurate lists is appreciated through the use of SmartLinks. SmartLinks are very similar to SmartPhrases. To display a short or...
The Permanente Journal / Spring 2005 / Volume 9 No. 2

clinical contributions

long string of “boilerplate text” when the phrase is invoked, a clinician types a period followed by the symbol for the phrase. For example, “.l” might expand into the phrase “left,” and “.bp” might expand to “blood pressure.” SmartPhrases will expand to the exact same text when used in any patient’s chart. In contrast, SmartLinks differ in an important way: SmartLinks are connected (as their name implies) to specific information about the patient in whose record they are used. This connection can be as simple as a linkage to the age of a patient such that typing “.age” in the chart of an octogenarian will expand to “80 years,” whereas the same link for an infant might return “8 days.” SmartLinks are relevant here because they exist in very powerful fashion for the lists we have been discussing. There are links for “.prob,” “.cmnd,” “.allerg,” “.pmh,” “.psh” and “.sochx,” among others. As you would expect, invoking these in a patient’s record, whether as part of charting, or writing a referral, a letter, or patient instructions, would return the patient-specific active Problem List, current Medication List, current Allergy List, Past Medical, Past Surgical, and Social Histories, respectively—assuming, of course, that someone has gone to the effort to populate and maintain these lists. Imagine the power of a comprehensive admission SmartPhrase “.admit” which embeds and draws from these and other SmartLinks, and can literally in a second assemble a comprehensive Admission History and Physical note. One of the times when I am most overwhelmed by and thankful for the power of KP HealthConnect is when I use “.admit.” Being very familiar with available SmartLinks and SmartPhrases can markedly increase your charting efficiency.

SmartSets

A comprehensive introduction to SmartSets is beyond the scope of this article. Briefly, SmartSets are preassembled ordering and documenting tools designed to facilitate easy, efficient care of a specific condition or conditions or to perform the ordering and documenting associated with a procedure. When utilized, SmartSets may dramatically decrease the amount of “navigating” the clinician must do, and they can be a helpful reminder of the comprehensive management of the problem—from taking and documenting history and physical exam elements, to ordering lab, imaging, referrals, supplies, and patient education activities. SmartSets may not always be available for the problem your patient presents with, and they do seem to be most heavily used for patients who present for a single problem or procedure. However, an interregional group of adult primary care clinicians has developed a powerful SmartSet specifically designed to assist in management of complex adult patients with several common and important disease entities. In some circumstances, this tool may be just the right one for the job.

Summary

I can’t imagine that it will ever be easy to care for multiproblem, chronically ill patients; I suspect that such patients will always be a challenge. However, effective use of a system like KP HealthConnect can help us to be more organized and more focused in this care and can help us in the often very difficult, time-consuming task of reviewing the past status and preparing ourselves for the issues of today. With an up-to-date and managed Problem List, Medication List, and Histories section, we will be able to review in a short time what otherwise would require many minutes. Moreover, performing interim updates is simple and does not require starting from scratch, as often was the case with a paper record. Likewise, the use of SmartLinks will frequently streamline the documentation task. A SmartSet may bring all needed elements together into one easily used package. With KP HealthConnect, we have more electronic record tools, better adapted for specific functions, than ever before. With regular use of these tools, the result will be more time to spend on today’s issues, including emotional needs, and on prevention, health maintenance, and chronic disease management. Achieving this goal will require dedication and ongoing effort but should yield a very satisfying and rewarding feeling not unlike that which a master carpenter might experience upon completing a fine china cabinet.

Figure 5. The SnapShot.

I can’t imagine that it will ever be easy to care for multiproblem, chronically ill patients …
The Permanente Journal Cosponsorship of the Evidence-Based Medicine Symposium, December 3 & 4, 2004

The Permanente Journal (TPJ) was privileged to join the Kaiser Permanente (KP) Care Management Institute as cosponsor of the Evidence-Based Medicine (EBM) Symposium held in Costa Mesa, California in early December 2004.

The Editorial Team and Advisory Board of TPJ recognize the importance of evidence in practice and believe that enabling the dissemination of learnings from these high-quality meetings is mandated by the mission of TPJ: The Permanente Journal is written and published by the clinicians of the Permanente Medical Groups and KP to promote the delivery of superior health care through the principles and benefits of Permanente Medicine. TPJ can play a major role in taking the knowledge and key learnings of this symposium and translating them into written documents. This will extend the audience well beyond those participants in Costa Mesa in December. In fact, physicians have confirmed that written articles can provide the right information, the right tools, or the right contacts to incorporate a described practice into their own practice. TPJ is definitely one important vehicle of transfer of innovation and best practices.

The “Learning Objectives” as presented at the EBM Symposium provides the readers of this issue with a sound framework as they read the contributions from the presenters. Specifically, they will be able to:

• Describe at least three key concepts of EBM
• Appraise the validity of evidence in clinical studies
• State criteria for determining which guidelines/clinical improvement tools are EBM
• Apply EBM to the care of patients in the exam room
• Conduct a literature search using evidence-based sources and other resources accessed through KP’s National Clinical Library.

All of us at TPJ know you will find that this symposium will add real value to your practice. We would like to hear how these learnings have affected your everyday practice.

Tom Janisse, MD
Editor-In-Chief

Poor Memory
It’s a poor sort of memory that only works backward.
— Lewis Carroll, 1832-98, mathematician and writer
Permanente Medicine in a Changing World: Challenges and Opportunities

The practice of evidence-based medicine (EBM) is central to the philosophy of the Permanente Medical Groups (PMG), but our beliefs don’t stop the world from changing around us. Physicians practicing EBM within the PMG will face a number of changes in the coming years—both positive and negative.

Among the positive changes, the most obvious and perhaps the most significant is the implementation of KP HealthConnect. Kaiser Permanente’s (KP) Care Management Institute recently identified five factors that enabled KP facilities to achieve program-leading performance in diabetes care:

1. Financial incentives
2. Action plans (patient-specific and personal)
3. Automated medical record
4. Outreach and follow-up
5. Provider alerts and reminders.

Implementation of KP HealthConnect will significantly boost four of the five key success factors for effective diabetes care—all but financial incentives.

In addition, a growing number of interregional networks are disseminating EBM throughout KP, including the Guidelines Directors’ group for issues such as colorectal and cervical cancer screening; the Inter-Regional Breast Care Leaders; the Inter-Regional New Technologies Committee; and many others.

Another encouraging development is that KP is not alone in seeking to demonstrate the value of multispecialty group practice. The Council of Accountable Physician Practices—an alliance of 28 prominent group practices, including the eight Permanente Medical Groups, the Mayo Clinic, and the Cleveland Clinic—has found that EBM is a key success factor in roughly 80% of all quality improvement projects among its member organizations.

Unfortunately, our ability to practice EBM faces a number of challenges. For example, Americans on average are treated with recommended medical care processes only about 50% of the time. Many Permanente physicians probably believe that they outperform the national average in applying EBM, but the comparable percentage for KP patients is still unknown. The most common obstacles to use of recommended care processes probably also occur within Permanente Medicine to a degree.

Lingering disparities of care present another challenge. Many Permanente physicians intuitively believe that disparities of care don’t exist in their own practices, but usually lack hard data to validate their belief. However, limited data suggest that KP may perform better than other organizations in applying EBM to a culturally diverse population and narrowing disparities of care.

A number of studies have also found that even though EBM should apply globally, much of the care that patients actually receive is driven by regional and local variations in practice. Data on practice variation within the PMG is limited, but we do know that significant practice variation exists for procedures such as angioplasty.

In the meantime, marketplace factors are changing the financial relationship between KP and its members and possibly driving changes in the ability of Permanente physicians to practice EBM. In response to heightened competition related to insurance product offerings, KP is implementing new insurance products that shift more of the total cost of health care from employer groups to members. Rising out-of-pocket expenses may create incentives for members to delay office visits and thereby reduce opportunities for preventive screening.

We still don’t know whether purchasers will be willing to pay more for EBM, even if it results in demonstrated quality improvement, or whether EBM actually saves money. Most employer-group purchasers of health care are focused on cost not quality—in deciding which plans they should offer to their employees. This preoccupation with costs will probably continue as long as annual increases in health care expenditures remain in the double digits.

The net outcome of all of these factors on our ability
to practice EBM is still unknown, but the physician leadership of the PMG and the Permanente Federation remain committed to finding better ways to help frontline physicians practice medicine according to the latest in scientific knowledge.

References

Glossary of Evidenced-Based Medicine Terms

**Absolute Risk Reduction:** The difference in the event rate between the control group and the treated group.

**Algorithm (Clinical):** An explicit description of steps to be taken in patient care in specified circumstances.

**Balance Sheet:** A compact display of quantitative estimates of the effects of alternative treatments on all the important outcomes, so that physicians, patients, and other decision makers can more easily grasp the consequences of the different options they face.

**Care Management (or disease management):** Coordinated health care, for logical groupings of members, intended to prospectively improve, maintain, or limit the degradation of their functional status.

**Clinical Practice Guideline:** A systematically developed statement designed to assist practitioners and patient in making decisions about appropriate health care for specific clinical circumstances.

**Cost-Benefit Analysis:** Converts effects into the same monetary terms as the costs and compares them.

**Cost-Effective Analysis:** Converts effects into health terms and describes the costs for some additional health gain (eg, cost per additional myocardial infarction prevented).

**Evidence Tables:** Organizes and summarizes evidence from the medical literature. They are used in documenting evidence in guidelines and facilitating discussion. They may also be used as decision support in clinical practice guidelines.

**Meta-Analysis:** An overview that uses quantitative methods to summarize results.

**Number Needed to Treat (NNT):** The number of patients who need to be treated to prevent one bad outcome.

**Population:** In research, the group of people being studied, which may or may not be the population of a particular geographic area.

**Randomized Controlled Clinical Trial:** When a group of patients is randomized into an experimental group and a control group. These groups are followed up for the variables/outcomes of interest.

**Registry:** A means of storing and tracking information on a common set of patients, eg, members with asthma.

**Shared Decision Making:** When patients participate in making medical decisions about their care.
The Care Management Institute:
Making the Right Thing Easier to Do

By Paul Wallace, MD

The Kaiser Permanente (KP) Care Management Institute’s (CMI) defining mission is “Making the Right Thing Easier to Do,” and for almost eight years, CMI has emphasized both developing the credible knowledge base (the “right thing”) and operationalizing it (the “doing”). A thorough grounding in the science of medicine is absolutely necessary in clinical practice, but it is not in itself sufficient. Building the bridge between clinical research and practical clinical application for patients—combining evidence-based medicine with evidence-based management—is at the heart of Permanente Practice. It is for this reason that CMI cosponsored the Evidence-Based Medicine Symposium last December.

The creation of rigorous, evidence-based clinical content is the foundation of CMI’s work. Interregional workgroups consisting of clinical experts from medicine, pharmacy, and nursing, evidence-based methodologists, and CMI care management consultants have created clinical practice guidelines for a core set of conditions and health care issues: asthma, coronary artery disease, chronic pain, cancer, depression, diabetes, elder care, heart failure, and self-care and shared decision making. These guidelines have been approved on a national level by the National Guideline Directors, representing all regions, and are revised at least every two years. Guidelines, associated care management programs, and clinicians and patient tools are made available to clinicians in a variety of print formats, including full-length technical and summary documents, as well as on the Clinical Library (CL) (Available at: http://cl.kp.org). CMI also is leading an interregional effort to ensure the availability of this high-quality, evidence-based knowledge within KP HealthConnect as decision support.

With this robust knowledge base in place, CMI has also been focusing efforts on how to practice evidence-based management—taking the medical knowledge base, “diffusing” the knowledge to all regions, and making it used and useful to clinicians in their work-a-day lives.

One example is the KP Improving Performance Project, which was initiated at the request of the CMI Board of Directors in order to: 1) understand more fully what underlies persisting differences in performance of key clinical interventions across operational sites, and 2) develop strategies for operational leaders to use to better understand and thereby reduce this variation. The project is initially looking at the management of members with diabetes, asking: What organizational practices are associated with superior outcomes in diabetes care? Factors accounting for regional performance variations were investigated by conducting regional and medical center surveys examining the level of implementation of specific operational practices, such as the use of alerts and reminders or the ability to create an action plan with a member. Survey results were linked to diabetes outcomes measures from across the Program to identify potential relationships between these practices and high performance. In the first phase of analysis certain practices stand out: action plans, alerts and reminders, physician financial incentives tied to diabetes clinical quality measures, capability and capacity for inreach and outreach to members, and the presence of a fully automated health record.

CMI is using the findings from this study to: 1) focus further investigation of operational practices associated with high performance, 2) integrate the findings with implementation of KP HealthConnect as appropriate, and 3) support regional improvement efforts. To further clarify the relationship between organizational practices and performance, CMI sponsored a series of focused case studies of specific high- and lower-performing sites in conjunction with the Harvard Business School.

A key challenge for KP, as it is for the rest of health care, is the rapid and thorough spread of effective new ideas and practices. The ALL (aspirin-lovastatin-lisinopril) Project is an example of how KP is improv-
Evidence-Based Medicine

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health systems

The HOPE trial and the Heart Protection Study showed that the combined effect of three groups of medications can immediately reduce the risk of heart attack and death by at least 25% for members with diabetes or coronary artery disease. Aspirin, lipid-lowering statins, and angiotensin-converting enzyme inhibitors (ACE-I) or angiotensin receptor blockers (ARB) are close to being magic bullets in the fight against cardiovascular disease. The potential impact of these three medications on health care outcomes and costs was projected using Archimedes, a KP computer-simulation model and the brainchild of Leonard Schlessinger, PhD, and David Eddy, MD, PhD. According to Archimedes modeling, appropriate pharmacotherapy over ten years for just 10,000 KP members with coronary artery disease would result in 4063 avoided heart attacks, 893 avoided deaths, and more than $44 million saved.

With this evidence in hand, CMI and the KP regions began working to ensure that every KP member who can and should take these medications does so. CMI convened a series of quarterly interregional teleconferences to focus on regional strategies for improving ALL usage. By providing a mechanism for diffusing successful regional practices for starting an ALL regimen, CMI aimed to maximize innovation and reduce programmatic trial and error. The goal was to shorten the interval until every KP member at risk for an adverse cardiovascular event benefits from the protective effect of these medications.

Regions have been doing groundbreaking, innovative work with high levels of commitment and creativity to increase ALL use. Regions use a combination of strategies to increase risk-reducing pharmacotherapy, including identifying and reaching out to members at risk, setting quality goals, and relying on clinical champions to spread the word about the importance of ALL.

A final word: Evidence-based medicine and evidence-based management are tools which, when appropriately used, can support the right things being done for the right person at the right time. They will, however, necessarily remain tools that ultimately must be put to good use by clinicians and members using evidence, judgment, and experience, to provide great care.

Clinical Library—http://cl.kp.org

An excellent site that includes the following references:
- Clin-eGuide: provides grading of evidence for therapeutic interventions
- EBSCOhost: includes reference databases
- Full-Text Electronic Journals
- Full-Text Electronic Textbooks
- MD Consult/First Consult: electronic information
- OVID: an excellent search database
- PubMed: National Library of Medicine
- STAT!Ref/PIER: electronic textbooks
- Taber's Medical Dictionary

References
Acquiring Evidence—
Tips for Effective Literature Searching

By Sara Pimental, MLIS, AHIP

Effective, evidence-based literature searching is easier if it’s kept simple. The basic steps are:

A Clinical Question Arises
Out of Care of the Patient

A 60-year-old, postmenopausal woman presents with a diagnosis of arthritis. Can glucosamine be recommended in place of more conventional therapy?

Formulate the Question

Well-built clinical questions are constructed using PICO format. The key is to start with the most basic question. More facets can always be added if necessary. In this example:

P (Patient/Disease)—Arthritis
Are the age, sex and menopausal status of the patient of primary importance? Probably not, so leave it out for now.

I (Intervention)—Glucosamine

C (Comparison)—Conventional Therapy

Many clinical questions such as this one don’t have a searchable comparison. It is okay to ignore it.

O (Outcome)—Effectiveness of therapy, side effects, etc

If one particular outcome was of interest, it could be built in the search. In this case, outcome definition is broad enough to leave it out.

Select the Appropriate Resource

There are many resources available. Don’t automatically assume that an exhaustive MEDLINE search is needed. Sometimes a book is the best place to look. For example, in searching for the use of a particular drug in pregnancy, it is perfectly reasonable to use Drugs in Pregnancy and Lactation by Gerald Briggs.1

But most of the time, you will be looking for a systematic review or randomized controlled trial. Cochrane databases (www.cochrane.org) or Clinical Evidence (www.clinicalevidence.com) make a good first pick. These types of resources do the evidence analysis for you. ACP Journal Club (www.acpjc.org) or the Database of Abstracts of Reviews of Effectiveness (DARE) (www.york.ac.uk/inst/crd/darehp.htm) produces critical reviews of systematic reviews and other key studies. If these resources do not answer the question, a literature search will need to be performed.

Develop a Search Strategy

The search strategy will depend on what type of resource is used. But in all cases, try to enter each of the PICO elements as separate concepts. It will be easier to manipulate the search if necessary.

All the evidence-based medicine (EBM) review databases (eg, Cochrane) are not indexed. There are no MESH headings or controlled keywords. All synonyms must be included. The steps of a typical search might be (Figure 1):

1. “Arthritis or osteoarthritis”
   If arthritis is searched alone, synonyms for various types of arthritis need not be added. The fact that the patient has rheumatoid arthritis might be unimportant

2. “Glucosamine”
   The two search statements can now be combined using the Boolean operator “and”

3. “1 and 2”
   Adding facets, such as age or sex, can be tricky. Don’t...
try to do this unless absolutely necessary. It is easier to browse through 30 citations rather than try to limit the search somehow and potentially miss good references. MEDLINE is an indexed database. That means that every citation is assigned headings. The indexer does the work so synonyms become less important. The steps of a MEDLINE search might be (Figure 2):

1. “Exp Arthritis”
   Exp stands for explode. This function gathers all the different types of arthritis plus synonyms utilizing the Boolean operator “or.”
2. “Glucosamine”
3. “1 and 2”

Sex and age are much easier to search in MEDLINE. Both OVID and PubMed offer not only sex and age limits but also human/animal and subject subsets, such as AIDS.

**Evaluate Results and Try the Search Again if Necessary**

Did you get the information you need? If not, try different search terms. Was your retrieval too large? Think about adding other facets of the clinical question, such as age or sex. If the results seemed too small, think about taking search terms out. Many times, there really isn’t much information on a topic.

**Which is Better, OVID or PubMed?**

Using OVID or PubMed is largely a matter of personal preference, but there are some key differences:

**OVID**
- Cochrane Database of Systematic Reviews and ACP Journal Club offered as separate databases. This makes it easier to search.
- Easy to see search history and combined search statements.
- Cochrane Central Register of Controlled Trials available. The RCT limit in PubMed does not guarantee that the trial was truly randomized. Cochrane checks for randomization along with other factors.
- DARE is available.
- Ability to limit to EBM reviews or systematic reviews on the first screen. Remember, review articles are NOT systematic reviews.
- Ability to limit to publication types such as randomized controlled trials or guidelines on second screen.
- Nine clinical query categories, such as therapy, diagnosis, etiology, prognosis, or qualitative studies are offered. Each can be limited by sensitivity or specificity or can be optimized. A sensitive search attempts to retrieve all relevant documents by using a broad search. A specific search attempts to retrieve only relevant documents in a small precise search. Optimized is considered a happy medium between sensitivity and specificity.

**PubMed**
- Cochrane Database of Systematic Reviews and ACP journal club only available as a journal title limit.
- Search history is available through a link. It’s a little tricky to manipulate at first, but it works the same way as OVID MEDLINE.

**Useful Web Sites**

- For Permanente clinicians, all evidence-based resources are available through the Clinical Library—http://cl.kp.org (Figure 3)
- For more detailed training, try these Web sites:
  - OVID Training: www.mlibrary.duke.edu/training/ovid
  - A KP version of this OVID tutorial is available at //cl.kp.org/pkc/national/clin_ed/ovid/
  - EBM Tutorials: www.hsl.unc.edu/services/tutorials/ebm/index.htm
  - www.cebm.utoronto.ca/
  - www.poems.msu.edu/infomastery/
  - denison.uchsc.edu/sg/index.html
• Cochrane Central Register of Controlled Trials or DARE not available. PubMed does cover health administration and some life sciences journals that are not in OVID MEDLINE.
• All limits are on a second screen. There is no special EBM review limit. Publication types are available.
• Clinical queries are available. Systematic reviews can be searched. There is no way to use multiple search statements. Specificity or sensitivity available but not optimized. Therapy, diagnosis, etiology and prognosis are the only categories offered. These basic tools make searching for the evidence much less complicated than it sounds. The last ingredient is practice.

Happy searching! ❖

Reference

Inspiration
Just as appetite comes by eating, so work brings inspiration, if inspiration is not discernible at the beginning.

— Igor Stravinsky, 1882-1971, composer
Balance Sheets: Tools to Inform Changes in Practice

**Balance Sheets—Tools for Translating Evidence into Practice**

Integrated care delivery systems have two inherent advantages over other health care organizations. First, we integrate the financing of care with care delivery. Second, our integrated care delivery systems position us to be able to collaboratively recommend and carry out changes in practice more effectively than other delivery systems. The ability to change practice comes with responsibility. We need to understand the value of a change in clinical practice—the improvement in outcomes for the resources expended—to be effective stewards of our patients’ health care resources. Because the decision to work together to change practice should be considered an opportunity cost, we need tools to understand the relative value of different clinical initiatives to focus our resources for change wisely.

**Turning Evidence into Guidance**

At its core, evidence-based medicine (EBM) has a systematic approach to understanding the difference in clinical outcomes for different clinical strategies. Posing a clinical question, systematically searching for evidence to answer that question, and critically appraising the evidence are the foundation of EBM. The practical tools that help us translate evidence in practice are evidence-based guidelines. David Eddy, MD, PhD, pioneered the use of balance sheets in clinical guideline development work. He has described them as a tool to: 1) estimate the health and economic outcomes from clinical research and clinical experience, 2) assist decision makers to develop an accurate understanding of the important consequences of adopting the different options, 3) condense important information into a space that can be grasped visually and mentally at one time, and 4) assist in planning organizational change (eg, organize thinking, structure the analysis of evidence, and focus debates).

A balance sheet takes evidence to the next step by comparing the outcomes of different clinical strategies. A good balance sheet includes clinical outcomes (eg, myocardial infarction, death, symptomatic improvement), utilization outcomes (eg, laboratory tests ordered, prescriptions, visits) and overall system costs. Although patient satisfaction is an extremely important outcome, it is so confounded by service-related issues (eg, time spent waiting for the doctor, phone access) that modeling effects on satisfaction is rarely helpful. Assumptions always must be made—we never have perfect evidence. Assumptions should be explicit and vigorously questioned—and especially where the evidence is not strong. For most clinical conditions, the balance sheet should consider the Venn diagram of the health care delivery system rather than a societal perspective, with timeframes tied to the duration of the anchoring clinical trials that provide the evidence of clinical benefit.

Balance sheets are challenging. A small number of people in the program have the skills both to construct them and to help teams to use them for making decisions. Balance sheets provide an opportunity for analysis paralysis—adding complexity is often a strategy to postpone decision-making. They often help bring to the surface differences in how individuals value different outcomes, challenging (but also moderating) advocacy positions.

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Turning Guidance into Practice

In addition to helping inform guideline development, balance sheets contribute important information to help plan implementation.1 They provide quantitative estimates of the impact of implementation on our delivery system. They help make sure that we are practical in our recommendations and operate within the resources we have available to help our patients. Planning implementation using a balance sheet helps ensure that the resources that we invest in changing practice are commensurate with the improvement in clinical outcomes that we expect for our patients.

Balance sheets also hold another promise: better information to inform the decisions that we make with our patients every day. Shared decision-making isn’t possible without a personal balance sheet—an estimate of the likelihood of clinical outcomes with different choices in practice. As we work to develop tools to change practice, we must continue to increase the sophistication of the tools that directly support a patient’s personal decision-making process.

Balance sheets do not make decisions—they inform decisions. They are the critical tool that helps inform our decisions as we grapple with difficult trade-offs in marginal benefit. Our ability to grapple, together with our ability to make tough decisions and the ability to act on our decisions, sets us apart from other health care organizations and will help us make purposeful decisions to deliver on our promise to all of our customers—our patients, our provider community, and our purchasers.

References

Vision

Vision without action is a daydream
Action without vision is a nightmare
— Japanese proverb
From Evidence to Outcomes: Implementing Clinically Effective and Cost-Efficient Population-Based Interventions

Kaiser Permanente (KP) is well recognized as an innovator and industry leader in providing cost-effective, population-based, and preventive care for its members. These same principles are reflected also in the goals and strategies of KP’s National Diabetes Program. The goal of the Care Management Institute’s National Diabetes Program is to provide high-quality, cost-effective, and evidence-based care to reduce morbidity and mortality in members with diabetes. However, when this goal is competing with other short-range targets and resource requests, it often becomes challenging to implement. Maintaining focus on this larger goal is especially crucial when translating evidence into practice. Although the National Diabetes Program’s evidence-based guidelines cover a broad scope from prevention of diabetes to screening to self-management, these guidelines must be prioritized and translated into cost-effective programs and initiatives that lead to improved clinical outcomes.

As one of KP’s oldest care management programs, the diabetes program has gone through many changes. In the process, the program has focused on a few important principles for identifying priority goals:

- Implement programs that move toward decreasing morbidity, decreasing mortality, and saving money.
- Use evidence as the foundation of the work.
- Assess program effectiveness, either by using simulation modeling or by analyzing real-world impact.
- Continually reevaluate the program, adjust it, and implement it again.

In its history, the diabetes program has undergone three cycles of change. With its successes and failures, each cycle demonstrates how following all four of these principles can ultimately lead to successful programs.

1. **Expert Opinion**: In the first cycle, programs were developed solely on the basis of expert opinion but with limited success.
2. **Risk Stratification and Testing**: In the second cycle, evidence-based medicine (EBM) was subsequently incorporated, but a lack of focus on clinical outcomes led to suboptimal results.
3. **Outcomes Focus**: Finally, in the third cycle, EBM was incorporated into an outcomes-focused program; modeling predicts that this will lead to an improvement in outcomes and significant cost savings for the organization.

**Cycle 1: Expert Opinion Leads to an Unsuccessful Lipid Program**

In the 1980s and before EBM was widely adopted, research from KP Northwest and the KP Northern California Regions suggested that cardiovascular disease was the biggest cause of morbidity and mortality in patients with diabetes. There was some evidence that lowering cholesterol (with niacin and lovastatin) decreased cardiovascular disease (CVD), and thus the logical next step was the creation of a cost-effective lipidd- lowering program for all members.

This program was based on expert opinion and included the following characteristics:

- Using niacin instead of lovastatin in order to save $1000/pt/year on drug costs
- Using nurse practitioners (NPs) instead of MDs to save 50% of the cost of physician visits
- Tracking lipid values every three months to find patients who discontinued therapy (recidivism was high, and no electronic medication tracking was available)
- Targeting and treating everyone who came to the doctor and requested treatment.

However, when the program was implemented, simulation modeling by Archimedes revealed significant deficiencies:

- The program did not have clinically significant benefit; due to lack of risk stratification, too few events were saved, and titration of niacin was difficult.
- The program was not cost saving; “Treating those who came” resulted in treating too many low-risk patients, and the savings from use of NPs was outweighed by the costs of laboratory testing every three months.

**Cycle 2: EBM is Used, but a Lack of Focus on Clinical Outcomes Results in a Risk Stratification Testing Program**

In cycle 2, the focus shifted toward treating higher-risk patients. Because evidence showed that lipid and microalbumin testing could identify patients at high risk for CVD, emphasis was placed on testing lipids and microalbumin to find the highest-risk patients. An underlying assumption was that identified patients would be given appropriate treatment.
The results were disappointing: the number of CVD events did not drop because focus was placed on intermediate outcomes instead of decreasing CVD. For example, the first identified target was lowering lipids via treatment with a statin drug. However, treating with a single drug like statin was insufficient to decrease CVD and was more expensive but no more effective than aspirin. Similarly, a focus on increased lipid and microalbumin testing led to 80% testing rates but not to a significant drop in CVD prevalence. Testing and identifying appropriate candidates did not automatically result in an increase in treatments that lower CVD prevalence. It was necessary to revisit the original goal and remodel the treatment strategy.

Cycle 3: An Evidence-Based, Outcomes-Focused Program Provides Promise for Success

In cycle 3, emphasis was shifted to creating an evidence-based program that focused on decreasing the number of CVD events. Systematic reviews of the evidence showed that aspirin, statin drugs, and ACE-inhibitors decreased CVD events and mortality in diabetic patients over age 55 years with aspirin, lisinopril, and lovastatin decreases CVD events by 71% and will lead to a cost savings, averaging $600 per patient per year. In addition, the STENO-II trial—a multifactorial intervention aimed at treatment of diabetes and CV risk factors and which included treatment with ACE-inhibitors, aspirin, and statin drugs—led to a 50% relative risk reduction in CVD events in proteinuric diabetes patients older than 55 years.

Summary

Within three quality improvement cycles, KP has migrated from interventions based primarily on expert opinion to those driven by outcomes and clinical evidence; and from interventions with small impact and significant cost to those with large impact and significant savings. Although programs varied in effectiveness, these experiences provide important insights for each subsequent quality improvement cycle:

- Keep focus on the big goal: mortality, morbidity, and cost-effectiveness.
- Use evidence as the basis of your program.
- Make an effort to model your program and to assess real-world impact.
- Continually reevaluate, adjust, and reimplement the program.


References


Self-Respect

No man who is occupied in doing a very difficult thing, and doing it very well, ever loses his self-respect.

— George Bernard Shaw, 1856-1950, Irish playwright
Evidence-Based Medicine and Population-Based Care: Caring for Patients with Heart Failure

By Anthony Steimle, MD, FACC

Introduction

Heart failure is not only common but—somewhat unique among cardiac conditions—its prevalence is increasing as the population ages and as modern cardiac care allows people with heart disease to survive longer. (I sometimes tell nurses and pharmacists that the prevalence of heart failure adds to their job security.) Despite tremendous advances in therapy, heart failure nonetheless brings with it a heavy burden of both mortality and morbidity. Half of affected patients die within five years after diagnosis, and severe symptoms and hospitalization are frequent.

A fact not widely recognized is that nearly half of patients with heart failure have a normal ejection fraction. Clinical evidence regarding the management of these patients with preserved systolic function is relatively sparse. Fortunately for heart failure patients with a reduced ejection fraction (often called systolic heart failure), good evidence does exist regarding disease management. Controlled trials of tens of thousands of patients with systolic heart failure have identified three categories of medication that improve survival. These agents—now referred to as triple therapy—include beta-blockers, spironolactone, and vasodilators, such as angiotensin-converting enzyme (ACE) inhibitors. These medications reduce mortality, improve symptoms, and prevent hospitalization—favorable results that provide important impetus for developing clinical programs for management of heart failure.

Within our heart failure program in the Kaiser Permanente Northern California Region (KPNC), the practice of evidence-based medicine must take into account the aspects of cardiac care about which existing clinical evidence is either imperfect or fails to address important issues. Use of implantable cardioverter defibrillators (ICDs) is one such topic. These devices represent a tremendous advance for patients with severely reduced ejection fraction: ICDs have reduced the risk of sudden death by as much as 90% in these patients, and earlier trials showed that high-risk patients treated with these devices derive a huge benefit from them—as much as a 14% to 20% reduction in absolute mortality over a two-year period. As these devices became smaller and safer to implant, trying them in lower-risk patients made sense; ideally, however, studies of this population should first screen out high-risk patients already known to benefit from the devices.

Recently published studies (MADIT II® and SCD-HeFT®) that included both high- and low-risk patients treated with ICDs showed a 4% to 7% absolute reduction in mortality over a two-year period. The question thus arises: If the high-risk patients had been removed from the analysis, would the residual benefit have been clinically significant? Would this benefit have been cost-effective? We do not know the answer with any certainty, but use of ICDs is nonetheless being expanded to lower risk patients on the basis of this imperfect evidence.

An important topic lacking sufficient evidence is how to diagnose heart failure. No randomized trial has defined the best approach, and, unfortunately, no single sign, symptom, or test is pathognomonic. Because patients with heart failure can have a normal ejection fraction, normal results of echocardiography do not exclude the diagnosis; and neither does a reduced ejection fraction establish the diagnosis. Yet, because diagnosis is a crucial first step in caring for patients, a portion of our “evidence-based” guideline focuses on diagnosing heart failure despite the lack of sufficient evidence.
Putting Evidence into Practice in the KP Northern California Region

Synthesizing the evidence, “warts and all,” into the best possible clinical guideline is a necessary first step—but itself is insufficient—for disease management. Without programs to implement them, guidelines usually have little impact on clinical practice. For this reason, this article describes the KPNC Heart Failure Care Management Program, which is designed to ensure that our members with heart failure receive the best evidence-based care for this condition. Our program often hosts visitors from other US health plans—and even from other countries—who ask us: What is the secret of the program? Is it our disease management software? Is it our method of training care managers? Is it our medication protocols? Like Archimedes, these visitors seem to be seeking a lever long enough to move the world. But there is no single such lever. In our program, we have learned that we must pull multiple levers to influence clinical practice and that no single approach is equally effective for every clinician or in every clinical setting.

Using Stratified Interventions in Patients with Heart Failure

To identify patients diagnosed with heart failure, KPNC’s heart failure program relies on a registry based on computerized clinical data—a KP forte—and uses interventions stratified by intensity. What most people think of as a heart failure program is active management of the most advanced disease by nurses and pharmacists. This part is the most visible in the program, but most patients with heart failure actually receive their care both from their primary care provider and from themselves: We educate the patients as well as the physicians. This important part of the program is less visible.

Patient Education is the Best Medicine

Patients with heart failure must take good care of themselves. We know that patients who eat a low-salt diet or who take their medications as directed are much less likely to become hospitalized, but providing this kind of education requires a commitment of time. We use a four-part, eight-hour class to teach self-care skills to patients diagnosed with heart failure. These skills include recognizing decompensation early, medication compliance, a low-salt diet, and—very important—flexible diuretic dosing based on daily fluctuation in the patient’s weight. Patients must realize that a weight gain of 2 lb (.91 kg) in one day or 5 lb (2.27 kg) in one week indicates excessive fluid retention and requires the patient to increase the dosage of furosemide (for example) for a few days. Early elimination of the fluid—ie, before the gut becomes edematous and stops absorbing oral medications—can prevent hospitalization. The classes also discuss exercise, which, a recent meta-analysis suggests, reduces mortality from heart failure by as much as 35%. Overall, independent of any change in medications, a randomized trial has shown that this kind of comprehensive education about heart failure reduces rehospitalization for this condition by nearly 40%. Moreover, no single medication prevents hospitalization as effectively. For this outcome, therefore, education truly is the best medicine.

Outreach and Inreach

For outreach, we can use our KPNC registry of 30,000 heart failure patients to generate lists. For instance, we can send clinicians a list of their patients with heart failure who are not receiving ACE inhibitors, and we can simultaneously recommend starting this medication. Unfortunately, the registry lacks detailed clinical information, and our recommendations are not always correct; recommendations are correct for two or three of each ten patients for whom we recommend ACE inhibitors, but the clinician must nonetheless review the recommendations for all ten patients. This task can be frustrating and time-consuming.

I am more enthusiastic about our inreach efforts, which also use the registry data: When a patient who has been diagnosed with heart failure comes for a visit unrelated to heart failure, the computer detects whether the patient is receiving an ACE inhibitor. If not, a reminder suggesting prescription of the medication can be attached to the front of the chart. With the patient and medical record thus made available for the clinician’s immediate observation, less work is required for the clinician to decide whether the recommendation makes sense. The problem with inreach is that many programs use it; the reminder sheets can therefore become cluttered. In addition, each reminder has a certain error rate. I believe that as KP HealthConnect is implemented online (ie, making more detailed clinical information available), our inreach efforts will become much more accurate and effective, and reminders could become more targeted: For instance, when a clinician writing an online progress note reaches the section designed for entry of the assessment and diag-
The Heart Failure Care Management Program: Successes and Qualifications

The Heart Failure Care Management Program is designed to address care of the sickest patients—generally those referred from the hospital, from the emergency department, or from their physician. An intake visit takes place with a care manager (nurse or pharmacist), who assesses the patient’s needs, reviews the case with a mentor physician, and develops a treatment plan specifying any needed medications to be titrated or diagnostic tests to be administered. Education in self-care skills is begun at this visit, but the patient is nonetheless referred to the heart failure education classes. Follow-up is then done largely by phone; in-person visits for physical assessment are scheduled as needed. At these visits, self-care skills are reinforced, the medications are gradually titrated using detailed medication protocols, and patients are monitored for decompensation. After 3 to 12 months, care of the patient is returned to his or her primary care practitioner if the patient’s condition has stabilized. More than 15,000 KP members have participated in the Heart Failure Care Management Program, although only about 4000 of our 30,000 patients with heart failure participate in the program at any one time.

The Heart Failure Care Management Program offers unique advantages. With respect to education, self-care skills are difficult to convey in 15-minute clinic visits but are effectively and efficiently taught in an eight-hour class reinforced by weekly phone calls from the care manager. Another advantage is the efficiency of medication titration, which can be done easily and effectively by protocol-driven, software-supported disease management but can be tedious and time-consuming for a primary care practitioner. (For instance, beta blockers must be started at a low dose and titrated upward slowly over a two- to three-month period because these drugs can worsen heart failure before improving it.) Another advantage of the program derives from the ability of care managers to track patients in ways that are difficult for primary care practitioners. For instance, the care manager’s disease management software supplies reminders when a member has missed a laboratory test. The Heart Failure Care Management Program thus makes titration easier and safer for a medicine such as spironolactone, which necessitates frequent monitoring of the patient’s potassium levels.

We are proud of the program; more than 40 nurses, pharmacists, and physicians at 17 different KPNC medical centers have made the program highly effective. Having nurses and pharmacists in the role of care manager has made the program stronger. Each profession brings different but valuable and complementary skills. Another strength has been our semi-annual meetings, where we exchange helpful ideas. Although we have a regional model, each of the 17 KPNC medical centers is free to implement and innovate upon the model as they see fit. One of the more recent innovations has come from Jeffrey Ritterman, MD, and Margery Ginotti, RN, who tried a novel form of music therapy using group drumming. In a randomized trial, these clinicians showed that the drumming substantially decreased depression and increased self-efficacy (J Ritterman, MD, personal communication, October 2004). This kind of outside-the-box thinking permitted by local innovation is another strength of our program.

Some patients are too ill for protocol-driven care management. These include patients with severe cardiac conditions, such as valve disease, advanced heart failure, or arrhythmia; or patients with comorbid conditions, such as lung disease, psychosocial issues, or renal failure. Each of these patients is unique and requires customized, intensive management. On several occasions, I have been asked to design a “case management” program for these patients; however, I have concluded that the best management for such complex cases is driven not by a protocol or a program but somebody who has gone to medical school—a doctor. The Heart Failure Care Management Program or case management can often provide support in caring for these patients, but this kind of customized care is best when directed and closely monitored by a physician.

Outcomes of the Heart Failure Care Management Program

Although we have not tested our program in a randomized trial, we have monitored our progress via process measures such as appropriate use of ACE inhibitors and beta blockers (which has increased to where nearly all eligible patients are receiving these medications). We have also examined medical utilization among our patients diagnosed with heart failure, and our most recent measurements suggest...
that inpatient medical utilization among these patients is decreasing and has been replaced by outpatient visits—a desired outcome. We also have data showing high member and physician satisfaction. KP members report that the Heart Failure Program improves their care, and the physicians report that they are pleased with the support provided by the program. The most encouraging “bottom line” outcome—mortality rates—have been declining. Mortality from heart failure has been decreased by 15% since the program was implemented. Because we did not conduct a randomized trial, we do not know how much of this decrease in mortality rates would have occurred in the absence of the program; nonetheless, the outcomes suggest that KPNC's activities are working.

Although cost was part of the impetus for starting the program—we expected to save money by preventing hospitalization—costs for patients with heart failure have remained relatively flat since the program was implemented. However, when we modeled this component, we realized that we should not have been surprised; prolonged survival and increased care—particularly the increased use of pharmaceutical agents—erases most of the cost savings from prevented hospitalization. This finding was reproduced by a recently published randomized trial, in which 1069 patients were randomized to disease management versus usual care. Compared with the group receiving usual care, the disease management group had lower rates of mortality and more improvement of symptoms but not lower costs. I am sure that all clinicians would agree: something that prolongs survival, makes our patients feel better, prevents the need for hospitalization, and is relatively cost-neutral can be considered a great bargain. Therefore, this result does not discourage us but instead might be coined in the phrase, “Live to utilize.”

**Conclusion**

Writing a rigorous clinical guideline is a crucial first step in evidence-based disease management but is insufficient without programs to implement the evidence. For most of our KP members diagnosed with heart failure in Northern California, we combine clinical guidelines with education of clinicians and patients and registry-based outreach and inreach. About 15% of our patients with heart failure receive protocol-driven care from the nurses and pharmacists in our care management program; a smaller, sicker subgroup of patients receive more customized, intensive, physician-directed care. Since implementing this stratified, population-based program, we have observed improved outcomes. Appropriate medication use also has increased, and rates of inpatient utilization and mortality have declined. “Pulling every lever we can find” has allowed us to influence clinical practice and to improve the lives of our members diagnosed with heart failure.

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**Mortality from heart failure has been decreased by 15% since the program was implemented.**

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**Acknowledgment**

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**References**


**Recommended Reading**


**The Art**

Memory, prophecy, and fantasy—the past, the future and the dreaming moment between—are all in one country, living one immortal day.

To know that is Wisdom.

To use it is the Art.

— Clive Barker, b 1940, writer, artist, and filmmaker
Sharing Clinical Decisions by Discussing Evidence with Patients

By David Price, MD, FAAFP

Introduction

Our patients receive skillfully presented medical information from multiple sources other than us—in particular, from direct-to-consumer pharmaceutical advertising that pervades television, radio, print media, and the Internet. At the same time, clinicians cannot easily keep pace with the volume of new medical information available from studies—and the quality of studies may vary greatly. We clinicians must therefore differentiate high-quality from less-than-high-quality evidence and become skilled in communicating this difference to patients to help address their concerns.

Consider the following scenario: A 55-year-old thin, nonsmoking female calls you with questions about her hormone therapy. Two months ago, she started a regimen of estrogen 0.625 mg and progesterone 2.5 mg daily to treat perimenopausal hot flushes. She has no history of hypertension but has impaired glucose tolerance with a fasting blood glucose level of 114 mg/dL. Her total cholesterol level is 185 mg/dL; low-density lipoprotein (LDL) cholesterol level, 120 mg/dL; high-density lipoprotein (HDL) level, 45 mg/dL; and triglyceride level, 100 mg/dL. Her mother has coronary artery disease, which manifested at age 60 years. The patient has had excellent relief of her hot flushes. She recently read an article (in a lay publication) that warned all women to stop hormone therapy, but she is concerned that symptoms might recur if she does this. What should you tell her?

Shared decision making is an excellent approach for discussing treatment options with patients like the one described here. Shared decision making is a communication strategy that provides evidence to patients in a nonbiased way and that shares with patients the basis as well as the responsibility for making medical decisions. Moreover, this approach inherently recognizes and respects patient’s values; helps patients to consider the seriousness of the condition to be prevented or treated; helps patients to understand risks, benefits, and alternative options for diagnosis and treatment; engages patients in the decision-making process at a level which they personally find comfortable and desirable; and includes patients’ own beliefs and values as factors in the decision-making process. In this sense, shared decision making differs from the process of obtaining informed consent; in that process, risks and benefits are disclosed without explicitly incorporating the patient’s values or sharing the basis for decision making in a formal decision-making process.1 In general, shared decision making is consistent with the Institute of Medicine’s call for a patient-provider partnership “to ensure that decisions respect patients’ wants, needs, and preferences and that patients have the education and support they require to make decisions and [to] participate in their own care.”2–5 Further, shared decision making may promote trust within patient-physician relationships, enhance patients’ confidence about participating in their own health care, and reduce patients’ decisional conflict with a chosen course of care.

In general, strategies for shared decision making are applicable in four situations:

• When recommendations conflict with one another or insufficient evidence exists to form a basis for recommending for or against an intervention
• When several possible interventions are believed to have approximately equal effectiveness
• When the benefits of an intervention may vary from patient to patient
• When, on the basis of their values or personal situation, patients may differ in the way they weigh the risks and benefits of an intervention.

In general, shared decision mak-
ing should not be used when an intervention is clearly harmful or when the best choice regarding how to proceed is clearly evident on the basis of quality and cost-effectiveness. In addition, a patient might not want to share in the decision-making process; but the clinician can know this only by asking the patient directly. Declining to share the decision making does not absolve the clinician of responsibility for explaining treatment options to patients.

Clinical practice contains many potential barriers to sharing medical decisions. For example, many patients have difficulty understanding health risks, medical terminology, and statistical probabilities. For many patients, sharing decisions regarding medical care is a new role that might create uncomfortable uncertainty or regret (eg, if the course of care does not result in an ideal outcome). Other patients may firmly believe in what they want and thus remain uninterested in sharing decisions with their clinician.

Barriers for clinicians may include lack of either training or experience using shared decision making or fear that this activity will make further demands on the limited time available for patient care. We therefore must be judicious about beginning our use of shared decision making; practical approaches might include starting with either one condition or with one patient per day. Use of concise, key phrases also may help us to incorporate shared decision making into our practice while we learn from each other. Declining to share the decision making does not absolve the clinician of responsibility for explaining treatment options to patients.

Example of Exploring Use of Shared Decision-Making Process

Patient (a 50-year-old male): “I’m here for a PSA test.”

Clinician: “Could you tell me more about what you are concerned about?”
P: “My uncle died of prostate cancer, and I’m worried that it might affect me, too.”
C: “I can see why you’re concerned. What have you heard about the PSA test?”
P: “I saw an ad that urged all men to have one.”
C: “Thank you. This helps me understand where you are coming from. We certainly have that test available, and I’d be happy to order it for you if that’s what you’d like. Can I tell you what we know about the test and prostate cancer? Then you can decide what we should do.”

Scenario 1: Patient Agrees to Share Decision-Making Process

P: “Sure, that’s a good idea.”
(Clinician then provides evidence and asks about the patient’s preference.)

Scenario 2: Patient Uncertain About Sharing Decision-Making Process

P: “You’re the doctor, what do you recommend?”
C: “Since you and I are different people with different circumstances, I’m not sure that what I would recommend would really meet your needs. Would it be okay if I explain to you a couple of things about PSA? Then, if you’d still like me to make a recommendation, I’ll do the best I can. I’ll also try to explain how my recommendation is based on my understanding of your circumstances. Is that okay with you?”
(Discussion continues until patient understands basis of recommendation and uses it to reach decision.)

Scenario 3: Patient Refuses to Share Decision-Making Process

P: “No, thanks. I just want the test.”
(Without further discussion of options, clinician then orders PSA test.)
Shared decision making is a useful strategy in situations where different patients may differ, on the basis of their values or personal situation, in how they weigh the risks and benefits of an intervention.

Table 1. Outcomes from the Women’s Health Initiative Estrogen-Plus-Progestin arm

<table>
<thead>
<tr>
<th>Hazard Ratio (Relative Risk) Compared with Placebo</th>
<th>Breast cancer</th>
<th>Coronary heart disease event</th>
<th>Stroke</th>
<th>Hip fracture*</th>
<th>Colon cancer*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.26 (1.00–1.59)*</td>
<td>1.29 (1.02–1.63)</td>
<td>1.41 (1.07–1.85)</td>
<td>0.66 (0.45–0.98)</td>
<td>0.63 (0.43–0.92)</td>
<td></td>
</tr>
<tr>
<td>Absolute Risk Reduction</td>
<td>0.08%</td>
<td>0.07%</td>
<td>0.08%</td>
<td>0.06%</td>
<td>0.05%</td>
</tr>
<tr>
<td>Absolute Risk Increase</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Number Needed to Treat</td>
<td>1250</td>
<td>1429</td>
<td>1250</td>
<td>1666</td>
<td>2000</td>
</tr>
<tr>
<td>Number Needed to Harm</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

-- = not applicable.

Outcomes presented in table were observed after a mean of 5.2 years of follow-up.

Numbers in parentheses are 95% confidence intervals; confidence intervals that include 1.0 are not statistically significant.

* Secondary outcome.

benefits of an intervention. For any strategy in situations where different patients may differ, on the basis of their values or personal situation, in how they weigh the risks and benefits of an intervention.

The patient in our case example is somewhat younger than the mean age (63 years) of women in the Women’s Health Initiative (WHI) study of postmenopausal hormone therapy. WHI was a double-blind, placebo-controlled, randomized trial which included women receiving estrogen 0.625 mg and progestin 2.5 mg daily for a mean duration of 5.2 years; a second arm of the study included women who had hysterectomy and subsequently received unopposed estrogen 0.625 mg for a mean duration of 6.8 years.

Some concern might exist about the applicability of the WHI results to the patient in this scenario, because older women are estrogen-deficient for longer periods of time than are younger women. However, the WHI did include women in their 50s; with some explanation, a reasonable choice would be to use the WHI results as a basis for shared decision making with this patient.

Table 1 summarizes results of the WHI estrogen and progestin study and illustrates the pitfalls of relying on relative risk when presenting data to patients. The 34% relative risk reduction in hip fracture and 37% relative risk reduction in colon cancer may be more positively persuasive than the 26% relative risk increase in breast cancer, the 29% relative risk increase in heart disease, and the 41% relative risk increase in stroke. However, relative risk does not account for the baseline probability or risk of disease and tends to magnify both benefit and risk. Using the number needed to treat or the number needed to harm, we can see that, compared with women receiving placebo, fewer women treated with estrogen and progesterone over a 5.2-year period will have prevented a hip fracture (1 in 1666) or colon cancer (1 in 2000) than will have a diagnosis of breast cancer (1 in 1250), stroke (1 in 1250), or a heart-disease-related event (1 in 1429).

Although not presented here, another arm of the WHI study, the Women’s Health Initiative Memory Study, showed that in a subset of older women taking combined hormone therapy, the risk of dementia was higher than in women receiving placebo: The number needed to harm was 435 after four years.

This scenario also illustrates why shared decision making is a useful strategy in situations where different patients may differ, on the basis of their values or personal situation, in how they weigh the risks and benefits of an intervention. For any individual patient, the risks of any of these events (beneficial or adverse) are small in absolute terms.

Many patients may feel that the symptomatic relief achieved from hormone therapy is worth the small individual risk, whereas other patients might elect to discontinue hormone therapy (or to try another treatment option) on the basis of their family history, the relative value they place on avoiding an event (eg, breast cancer), or on the experience of friends.
Evidence-based medicine with the “art” of clinician-patient communication skills. The mnemonic “IAIS” (Figure 1) may help clinicians to incorporate evidence-based medicine and shared decision-making approaches efficiently into clinical care of patients. As Ned Calonge, MD, MPH, Chair of the United States Preventive Services Task Force and Chief Medical Officer for the State of Colorado has stated (personal communication), the role of shared decision making is to “invest in information and accept the patient’s decision.”

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References

Figure 1. Evidence-based medicine (EBM) can be combined with the shared decision-making (SDM) process in a four-part activity represented by the mnemonic “IAIS” (Invite/Acknowledge/Instruct/Summarize).

To Soar
One can never consent to creep when one feels an impulse to soar.
— Helen Keller, 1880-1968, American author and lecturer
Integrating Evidence Into KP HealthConnect: Making the Right Thing Easier to Do

By Grant Okawa, MD

Clinicians make countless decisions every day regarding diagnosis and treatment, relying principally upon personal experience and clinical judgment. What is also needed—and often lacking—is current, relevant evidence that can inform and strengthen decision making at the point of care. With the ever-increasing body of medical literature, the ability for any individual clinician to stay abreast of this evidence becomes increasingly more difficult, if not impossible. In addition, the information is usually not readily available or accessible when most needed.

With KP HealthConnect, we now have a powerful tool that offers the ability to deliver high-quality evidence to the clinician in a form that supports and improves decision-making in the examination room.

**Case Scenario #1**

A 52-year-old woman, new to you, was recently diagnosed with hypertension. She has been working on her diet and exercise for the past six months, but her blood pressure remains elevated. You recommend that she start medical therapy. She states that her friend was successfully treated with a calcium channel blocker, which she would also like to try. With all of the newer agents being marketed, you wonder whether they might be comparable, or even superior, to the more established medications.

Let’s see how, in this scenario, various KP HealthConnect tools can deliver decision support.

**SmartSets: Templates for Focused Problems**

A SmartSet is a template tool that can assist the clinician in being more efficient in documenting, coding diagnoses and procedures, and ordering. It also can be designed to provide decision support at the point of care.

The 2004 National Kaiser Permanente (KP) Hypertension Guideline evidence-based recommendation for initial therapy are the thiazide diuretics. Their review of the evidence found that both thiazide diuretics and ACE-inhibitors are superior to beta blockers, calcium channel blockers, and alpha blockers as initial therapy for uncomplicated hypertension. Thiazides are preferred because they have been shown effective in reducing cardiovascular morbidity and mortality and because no other drug class has been found to be consistently superior.

Figure 1 illustrates how this evidence-based recommendation can be integrated into the Order section of the SmartSet. You would not need to remember this information but could rely on the SmartSet to guide your decision. Should the evidence related to the use of specific medications change over time, these changes can be incorporated into the SmartSet, thus ensuring that you are always presented with the most current evidence-based recommendations. You can see how SmartSets could provide similar levels of decision support for treatment of other common conditions, such as diabetes, dyslipidemia, heart failure, and depression.

A number of outpatient SmartSets have already been built using a collaborative interregional process. The Care Management Institute’s Knowledge Management...
Unit is a network comprised of evidence consultants and physician methodologists trained in critical appraisal of the literature. They have worked closely with each specialty group developing clinical content for KP HealthConnect and developing evidence summaries for relevant clinical questions to help inform the selection of appropriate diagnostic and/or therapeutic interventions within the SmartSets.

**SmartRx: Diagnosis-Based Ordering**

If you choose not to use a SmartSet or should this patient present with hypertension in the context of a number of other health problems, a SmartRx can provide a similar level of decision support as the SmartSet. The SmartRx is triggered by typing in “HTN” as an “order.” Figure 2 illustrates how the SmartRx informs you that thiazide diuretics are the preferred initial therapy in uncomplicated hypertension. It also streamlines the ordering process by offering a list of the recommended medications. In addition, there is a Web link to the complete hypertension guideline should you require additional information to guide your decision making.

Although entering a diagnosis as an “order” sounds strange at first, it is actually quite intuitive in that it more accurately reflects the way most physicians think. Instead of the constant need to keep up with the medical literature, a SmartRx that is kept current can provide this information to you at the time of decision-making. Like the SmartSet, the SmartRx can not only inform you of the right thing to do but also can make it easier to do by providing a panel that allows you to quickly order the appropriate medications.

**Preference Lists: Using Display Names to Guide Decisions**

An innovative strategy developed in the KP Colorado Region is to use the display names for medications to provide decision support. In our example, the best available evidence supports the benefit of diuretics as first line agents for treatment of routine hypertension. By entering the diagnosis of “HTN” as an order, the appropriate priority of evidence-based medications is presented (Figure 3). As with the SmartRx, by entering the diagnosis of “HTN” as an “order,” the thiazide diuretics are presented as the initial drug of choice at the top of the list.

The medical literature is constantly expanding, and new studies may require that current evidence-based recommendations be updated. Therefore, critical to maintaining the relevance and accuracy of all embedded evidence-based recommendations is the ability to tag, locate, and find each decision-support tool in which a specific piece

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**Figure 2.** The SmartRx presents the recommended initial medications when the provider enters hypertension as an “order.”

**Figure 3.** The Preference List can be set up so that decision-support is enabled through the display name of the medication. This is made active by entering a diagnosis as an “order” similar to the functionality of the SmartRx.

**Figure 4.** A prototype of a Hypertension Active Guideline being developed with KP Clinical Library.
of evidence was incorporated. KP HealthConnect will allow us to do this kind of updating on an ongoing basis.

Active Guidelines: From the Bookshelf to the Exam Room

Evidence-based clinical practice guidelines, properly developed, offer a systematic synthesis of the best available evidence for a given condition. The greatest obstacle to successful implementation has been that this information is not usually readily available at the point of care when an informed decision needs to be made.

A tool designed to address this barrier is currently being developed through several independent collaborative projects with Clin-e-guide—a third-party content vendor for clinical practice guidelines, the Center for Health Research in the Northwest, and the KP Clinical Library (Figure 4). The concept is to embed an interactive, evidence-based guideline into KP HealthConnect which the clinician can then activate via a hyperlink. An algorithm is presented to guide decision making and, if desired, the clinician will be able, at each decision point, to click on and to place orders from within the guideline that flow directly into KP HealthConnect. This procedure permits accessing an entire guideline with minimal interruption of workflow.

KP Clinical Library: Complete Reference Shelf at Your Fingertips

All of the above decision-support tools are able to present evidence-based recommendations for decisions related to therapy and diagnosis. However, sometimes you are looking for other information such as the natural history and prognosis of a disease; the potential harms and adverse effects of a treatment; differential diagnoses; or you have the time and interest to dig deeper into the evidence surrounding a specific recommendation.

The KP Clinical Library is a comprehensive reference library that gives you access to high-quality evidence-based content. It contains all of the National KP Guidelines, which are all developed using a rigorous evidence-based methodology. The Clinical Library also accesses OVID, which contains a number of excellent evidence-based databases including the Cochrane Library, DARE (Database of Abstracts of Reviews of Effects), Clinical Evidence, and the Cochrane Central Register of Controlled Trials. Also accessible through the Clinical Library is Micromedex, which offers evidence-based content on medications and specific diseases; and Natural Standard, a source for evidence-based information related to alternative medications.

To make the Clinical Library easily accessible from within KP HealthConnect, links can be placed on the KP HealthConnect home page of each clinician as shown in Figure 5. The KP Northwest Region recently launched this feature, and the Hawaii Region is working to do the same.

Case Scenario #2

You have recently returned from a conference on women's health where there was a comprehensive review of the evidence related to the benefit of routine cervical and breast cancer screening. You are reminded of the importance of both, and although you realize that your region has systems in place to ensure that this is being done, you would also like to have a personal reminder system.

Health Maintenance Reminders: Timely Prompts for Prevention

The above scenario is familiar to many primary care physicians. With preventive interventions, it is often not a matter of knowing the right thing; it is a matter of having systems in place to make it easier to do. Due to the need to address urgent and/or multiple issues during the office visit, routine preventive measures often are forgotten or are postponed to the next office visit. There are a number of interventions that are well supported by the evidence such as screening for colorectal, cervical, and breast cancer.

The Health Maintenance Reminder (HMR) is a tool that can serve to remind you when such interventions are due. It can be tailored to the individual patient on the basis of factors such as age and gender and, on the
basis of the date of the last preventive intervention, can determine when the next is due. Figure 5 is an example of a HMR for a Pap smear and mammography. A reminder for colorectal cancer screening would be designed in a similar manner. To make it easy to order the proper screening tests, the alert is accompanied by a Best Practice SmartSet (shown inside the box in Figure 6). Opening this SmartSet allows you to quickly order both exams.

A similar process can be applied to a panel of patients, and all those who are due for an intervention can be thus identified. The appropriate screening test can then be ordered and letters mailed out to each patient. A significant advantage of this type of panel management is a reduction in the number of HMR alerts that require attention during the limited time of an office visit.

**Scenario #3**

Your Cardiology Department completes an evidence review on secondary prevention and determines that there is good evidence that the use of statins is effective in reducing cardiovascular morbidity and mortality in patients with coronary artery disease. Review of statin use data among this high-risk population in your region shows that there is room for improvement.

Similar to an HMR, a Best Practice Alert (BPA) can be used to provide evidence-based decision support at the point of care. In this example, the alert would be triggered on the basis of an appropriate age threshold, relevant cardiovascular disease diagnoses shown on the problem list, and absence of a statin prescription in the medication file. Like the HMR, a BPA is patient-specific instead of disease-specific (Figure 7).

Besides having the best available evidence, the other important and necessary components of evidence-based decision-making are clinical judgment and patient preferences. Therefore, although these tools serve as prompts and reminders, as the physician you will need to take all factors into consideration to make the best decision for each individual patient.

**Conclusion**

One of the main barriers to the successful practice of evidence-based medicine has been the inability to deliver the evidence to the clinician when decisions are made and in a way that does not hinder the natural workflow. As has been presented here, the variety and flexibility of KP HealthConnect’s decision-support tools allows the evidence to be brought to the point of care, making it easier to do the right thing.

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**References**

Diffusing Innovation in Your Practice

By Guy Chicoine

Innovation and diffusion, although related, have not been equally successful at Kaiser Permanente (KP). At KP, we are masters at innovation, and we do it often. Unfortunately, innovation can be costly. Often, our best innovations do not transfer or diffuse across regions, between medical centers, or even within modules as well as we would hope. Is there a way to make it more likely that a successful practice will be diffused or transferred? Is there literature and are there studies that support structured diffusion?

Luckily, these sources do exist. Everett Rogers reviewed a study on the diffusion of hybrid seed corn (Ryan and Gross, 1943) in his seminal study on diffusion, Diffusion of Innovations. That study has been the basis for Diffusion Theory ever since. Several key factors from his work can be applied to the health care setting. First, some background.

Rogers reviewed how a new type of seed corn, hybrid seed corn, spread throughout a particular area of Iowa. It took approximately ten years for this diffusion to occur, and interestingly enough, the comparative advantage of using this new seed corn (increased bushels per acre) was not the driver on the diffusion. Although many farmers understood the benefit of using the new corn, they were unwilling to try it until someone they knew, someone who was part of their social network, had both tried and succeeded at planting and harvesting with this new corn. The diffusion came about because of both comparative advantage and social networks; comparative advantage of the new seeds’ productivity was important, but that alone was not enough.

Through this process of studying what made differing farmers adopt a new technology, and subsequent studies after that, Rogers identified five key factors that make diffusion more likely. We can apply these same five factors in a health care setting to make it more likely that a particular successful practice will diffuse. Those five factors are (acronym borrowed from William Marsh, MD, of The Colorado Permanente Medical Group): T Trialability

A Advantage

C Compatibility

O Observability

S Simplicity

Or TACOS.

**Trialability** is the idea that a clinician can try a particular innovation without having too much at risk. The risk can be monetary, reputation, autonomy, etc. The idea is to break the innovation down so that trying a piece of it, whether with a process or program, does not exceed the clinician’s risk threshold.

**Advantage** (in Rogers’ words, Comparative Advantage) is making sure that the new way of doing things has a clear advantage over the old way of doing things.

**Compatibility** is making sure that whatever the innovation is, it is compatible with both the culture and systems of the individual or group receiving the innovation. Certainly in KP, any new innovation should leverage the abilities of KP HealthConnect (the system) as well as support evidence-based medicine (the culture). Of course, these same rules of system and culture apply at the micro level as well (eg, the culture of the module and the system for rooming patients).

**Observability** is creating an opportunity for the receiving group or person to observe the innovation in action. This factor is key because the receiving group can: 1) see that this program can actually be successful, and 2) establish a relationship with the innovator such that questions of tacit knowledge, knowledge that can’t be written down but is key to success, can be asked. What is tacit knowledge? Questions like, “How did you get your team to buy in? How did you tweak the original idea to make it work?” are questions related to tacit knowledge. The answers are not

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written down in binders or papers in the how-to guide, and yet, without that knowledge, it can be impossible to succeed. Having the receiving team visit the original team or module allows for tacit knowledge transfer and establishes relationships for future questioning and learning.

**Simplicity** is just that; if a new process is simple, it is more likely to be implemented. The more complicated it is, the more difficult it will be to implement. Often at KP, we create very complicated systems to cover every possibility. Simplicity would argue to cover not all possibilities, but most.

Rogers identified two other key learnings on diffusion: 1. The importance of reinvention 2. The fact that any diffusion has both a social and technical piece in order to be successful.

Reinvention seems to be a necessity of human existence. Often, we are not truly willing to receive a new process or program until it becomes “our” program. That personalization or slight change to the original process or program is “reinvention” and often, without allowing for this, the transfer may not occur. It is not just a human, personal necessity, however. Many times, one region is different from another (demographics, size, growth) just as one clinic is different from another (location, processes, programs offered) so allowing for some reinvention to allow for these differences not only allows further buy in, but also allows the necessary customization to work in that particular milieu. Of course, this does create a tension: Is the receiving site changing the practice or program so much that it is no longer effective? Or, has the site been able to import the basic concepts of the new practice, and simply changed the peripheral pieces of the practice? These are tensions that do not go away and must be balanced over time.

Every transfer has a technical component and a social component. Rogers actually states that every transfer is 50% technical (the practice) and 50% social (the relationships between the transferer and the transferee). This identifies that in order to try something new, we often need a trusted source to learn from and work with. Rogers speaks of the importance of social networks and early adopters in order for participants to agree to transfer into their farms. In KP, how often have beautiful binders with wonderful ideas sat on shelves, while trying a new process happens as a result of a hallway conversation between two colleagues. Without context, and relationships, and the opportunity to discuss tacit knowledge, it is much more difficult for transfer to occur. As leaders, and as those interested in seeing diffusion grow in KP, we need to support participation in informal and formal networks, both social and otherwise.

Diffusion also takes place in a predictable pattern. Innovators (or about 2.5% of the population) develop a new product or process. It is picked up by the Early Adopters (13.5%), and then to the Early Majority (34%), the Late Majority (34%) and finally the Laggards or Archivists (16%). Some important patterns to realize in this process:

First of all, the Innovators and the Archivists often take most of our time and attention. The fact is that the Early Adopters and Early and Late Majority are more than 80% of the process. While we want to recognize the innovators for their great work, they often are not the most effective communicators on their own innovations—and often we must look to a respected clinician in the early adopter phase to act as the translator to the majority. Also, while listening to the archivist is important, it should not be the reason to stop moving forward—there is history to know and respect, and change still needs to happen. Often, someone may be an innovator on one topic, and in the late majority on another, so where one falls within this spectrum is not a personality type, it is simply how one is reacting to that particular process or program diffusion.

**How Does All This Apply?**

As we look at differing programs, including programs from several locations, we can see that these learnings apply to KP as well.

In Group Health Cooperative, diffusion of their depression guideline started out inauspiciously. While the process was simple—a form with DSM 4 and severity tools on it—this was not enough given the stressed and busy schedule of primary care clinicians. Instead, networking (social networks), observability, and trialability came to the fore as the leverage points that caused the program to take off. Specifically, as the tool was introduced, one or two clinicians in each module would volunteer to try it out (trialability). As that happened, other clinicians in the module could see that it was possible to do (observability) and still survive the day. So, in this example, there were not all of the factors exhibited in TACOS, and yet there were enough of them, and including social networks, to allow for this diffusion to take off. This is an important point. One does not have to have all of the elements that Rogers writes
about to be successful, but the more you have, the more likely you are that the program will be transferred.

In March of 2002, Group Health Permanente was looking at implementing the Heart Protection Study findings (statins for diabetics) in the midst of significant downsizing. Since they had already implemented the HOPE study findings, they had some success with this approach (Compatibility). They also had established champions and leaders who had worked together previously (social networks). Also, the practice itself—prescribing statins for diabetics—was relatively simple, and trialable (not too much risk for the clinician to try). So once again, not all of the elements that Rogers identified were there, and yet enough elements were in place to make the implementation and transfer successful.

In Southern California, the work of developing a dyslipidemia guideline was intense and effective. The guideline was definitely evidence-based, and keys to its uptake have been quickly adapted and used to improve outcomes. When reviewing the process, a couple of key features also come to the surface:

- The tools are simple to use (simplicity).
- The recommendations are not risky for the clinician (trialability).
- Regional leaders are available and engaged in leading the implementation and demonstrating how to implement the process (observability and social networking).

Once again, not all of the areas of Rogers elements are obvious, but enough are there to make it work.¹

In closing, Figure 1 is a simple tool, a Spread Potential Worksheet³ to assess past transfers or plan for future ones:

The process to use this tool is quite simple, and useful. For a given transfer, think of each of the elements that Rogers has identified.¹ Then give that particular transfer a score for that element, 1 = low, 5 = high. Then if you are low in a few areas, strategize how to improve in those areas. So, for example, if a process is not particularly “observable” because no one in your module is doing it, could you take a team to the original site to observe it and thereby increase the observability rating? Try this with other members of your team; you will be impressed where the ideas come from. The discussion alone between team members will be worthwhile.

Figure 1. Spread Potential Worksheet³

References

Half Done
Well begun is half done.

— Aristotle, 384-322 BC, Greek philosopher
KP Evidence-Based Medicine in the Community

By Winston F Wong, MD, MS

A family practitioner who has been the clinical director for a facility providing primary care to a rural community that includes hundreds of individuals who are HIV sero-positive. An internist who develops outreach programs for migrant farm workers with diabetes. A physician who works with a medically uninsured African-American population in Georgia, a population suffering a disproportionate prevalence of obesity and diabetes. These are just a few of the backgrounds of sponsored guests at the Care Management Institute (CMI)/Permanente Journal-sponsored conference on “Evidence-based Medicine” (EBM), which took place in December 2004, in Costa Mesa, California. Seventeen “community-based” physicians from around the country were nominated for sponsorship by Kaiser Permanente’s (KP) Community Benefit Program.

The effort was the most recent and visible display of how KP is working to expand our understanding and implementation of EBM. By actively inviting and supporting the participation of clinical experts working outside of KP, we are seeking to foment opportunities to bring into our Program the lessons and expertise of physicians who work with some of the most challenging populations in our country—populations that represent an ever-increasing segment of our membership, and ones that we are committed to serving.

“We project that most of our membership growth in the next few years will be among small businesses and thousands of new members will be enrolling in our so-called “new products,” plans that have low-cost premiums with higher deductibles. We need to learn the challenges of providing population care management, using EBM, to populations that are increasingly diverse not only in terms of culture and language, but also in terms of social background and financial means,” comments Paul Wallace, MD, Executive Director of CMI.

“The number of uninsured in the United States continues to climb every year. Forty-four million Americans are uninsured, and when they fall ill, or suffer from chronic disease, they turn to institutions that are publicly or community funded: public hospitals, emergency departments, federally supported community health centers, or free-standing clinics—our “safety net.” The problem is that as the number of working poor who are medically uninsured continues to climb, the resources and financial support given to public hospitals and clinics to do their job continue to come up short. It’s counter-cyclical,” stresses Ray Baxter, PhD, Senior Vice President, Community Benefit, KP.

Herein lies a convergence: a realization that real population management, applying EBM to care for all our members, and thus, providing them with the quality and value that Permanente medicine represents, compels us to work closely with providers who are at the frontlines of working with populations already facing challenging choices and decisions. Safety net providers, who care for a disproportionate number of the poor and underserved, largely minority, population are logical partners because they have often achieved optimal clinical outcomes by integrating culturally diverse views of health and patient/clinician decision-making that takes in account the limited resources of individuals.

Bringing physicians from the safety net into a setting with Permanente clinicians sets the framework for common language and objectives that further illuminates the impact of EBM to improve the health of entire communities, and not just membership-defined populations. In an increasingly mobile and transient workforce, today’s KP member might be tomorrow’s uninsured patient using a community health center, and vice-versa. Issues and approaches in applying evidence-based practices might not be so institutionally defined as we might expect.

In fact, KP already provides care to a sizeable number of members who would normally encounter barriers to mainstream care. For example, in 2003, KP served over 225,000 members who were enrolled under Medicaid, State Child Health Insurance Plans (SCHIP), and dues subsidy programs. An additional 30,000 to 50,000 patients were served through charity care and nonmember Medicaid programs. As our membership diversifies and grows, so will
our need to encompass multiple approaches to evidence-based care management.

Evidence suggests that shared decision-making is critical for patients to make meaningful changes in their self-management of diabetes and other chronic diseases. At KP, we seek to work with members to cultivate interactions so that patients can work with their doctors to make optimal choices. But what do we do when our patients are difficult to reach because of transience, family, or job obligations? And what if they relate to their disease in ways different than their provider does?

At one rural Hawaii community health center serving a medically uninsured population, emphasis is placed on literally bringing care to the patient. “After plenty of frustration and experience, we found that some patients just won’t return for a class or appointment scheduled some time in the future. So, we decided that if patients wouldn’t come to us, we’d go to them—at home or on the beach—to provide the education and support to facilitate improved health,” comments Sheila Beckham RD, MPH, of the Waianae Coast Comprehensive Health Center, in Oahu.

Anne Peters, MD, Director of the University of Southern California Clinical Diabetes program, agrees, “Our patients are mostly Spanish-speaking and functionally illiterate. They’re also among the working poor, so if they miss work it’s a significant hardship. We built our own area in the clinic and developed care protocols so that within two hours patients can have everything they need in what previously took three-to-four visits.” After an intensive six-month program, mean HgbA1c scores decreased from 10.3% to 8.2%, and lipid-lowering agent use increased from 37% to a remarkable 82%.

Alex Moy, MD, a family physician with the Los Angeles County Department of Health Services, further observes the importance of understanding the cultural components of shared decision-making, “We know there are patients who rely on the use of traditional healing practices for treating their chronic illness; what we don’t know is the evidence or lack of evidence for these practices. Part of our evidence-based approach to understanding self management has to factor this in.”

Evidence suggests that KP’s influence on medical costs in the regions where it has significant “market” presence extends far beyond its membership, eg, health care premiums in Northern California are generally $1000 less than in other parts of the country, largely due to the presence of KP. Similarly, might not KP be able to influence the overall quality and promulgation of EBM in the communities it serves?

Indeed, in certain geographic regions where KP operates, more than 85% of adults are provided medical care by either KP or the “safety net...”

“I firmly believe that when it’s all over and done with, it’ll be only KP and the community health centers that will be left standing. That’s why it’s so important for us to work together,” predicts Dan White, MD, of the Marin Community Health Center in California.

Indeed, the guiding principles of community providers, namely clinician-driven priorities based upon the overall improvement of a community’s health and an emphasis on prevention, are values that are part of the fabric and history of Permanente Medicine. Community health centers and KP also share a common history of being initially marginalized and disdained by the medical establishment.

KP’s Community Benefit and CMI both realize the importance of continuing to “give back” to the community, with one of the assets being KP’s experience in developing successful practices to manage populations to healthier outcomes. But there is also the realization that in an increasingly complex health care delivery system, one that is simultaneously spiraling to crisis and relying on interdependencies, that “benefit” is not unilateral, and that seeking shared approaches and practices in medical delivery ultimately render healthier populations—a benefit to the entire system and nation.

Thus, the presence of physicians and colleagues from community-based settings at Permanente conferences and meetings should become less of an oddity and more of a logical extension to how Permanente seeks to create value for our members, and build healthier communities for all.

❖
Evidence-Based Guidelines

Abstract

The Advanced/Policy Track of the 2004 Kaiser Permanente Evidence-Based Medicine Symposium was an interactive session that focused on developing evidence-based clinical practice guidelines. The hypothetical scenario involved the imaginary drug “Memoryboost,” a treatment for dementia. The participants were given materials describing the national Kaiser Permanente (KP) methodology for developing evidence-based guidelines and a summary of the highest-quality articles about the efficacy of this drug. The participants then formed small groups and used this information to develop a recommendation about its use for the treatment of dementia. In spite of having the same evidence, the groups developed three different recommendations. The entire group then explored some of the reasons for this variability. This article also addresses the reasons KP develops its own national guidelines, as well as who oversees the national guideline initiative and who develops guidelines.

Introduction

The Advanced/Policy Track was an interactive session that focused on developing evidence-based clinical practice guidelines. The scenario involved the fictitious drug “Memoryboost,” a treatment for dementia. In this article we describe the National Kaiser Permanente (KP) Guideline process and then review the hypothetical “Memoryboost” case study as an example of the application of that process.

KP National Guidelines

KP has developed interregional guidelines for several years. The primary reasons that KP develops its own guidelines are the need for consistency across all of our regions and the economies of scale that our large size permits. KP needs consistency because it is expected from our large national accounts and because the programs, systems, and materials necessary for the implementation of guidelines can be produced with higher quality and more economically by collaborating across the program. In addition, the members of the team that develops the guideline constitute a group of advocates in each medical group and region. These individuals serve as two-way conduits of information, taking local concerns and priorities to the team and then sharing draft guidelines with other clinical leaders in the regions for their input prior to publication.

With the exception of guidelines developed by rigorous evidence-based methods, eg, some guidelines developed by the US Preventive Services Task Force, KP rarely adopts existing guidelines published by other groups, such as specialty societies or disease advocacy organizations, for several reasons. First, these groups may lack the necessary broad representation by the appropriate specialties, disciplines, and key stakeholders. Second, the KP evidence-based methodology (Common Methodology) developed by an interregional collaboration of guideline experts, is more rigorous than that of many of these organizations. Third, the KP team members are less likely to have significant conflicts of interest with industry compared to national experts who sit on other guideline teams. Finally, KP, as an organization, has its own systems of care, formularies, and cost structure—all important factors to be taken into consideration when developing national guideline recommendations.

National KP guidelines are developed under the aegis of the National Guideline Directors, which includes the lead physicians in guideline development in each region. KP Guideline Development Teams (GDT) consist of members from all eight regions representing all the relevant health professions and specialties. Each team also includes an analyst and a physician trained in evidence-based methodology, who... KP rarely adopts existing guidelines published by other groups ...
Table 1. System for grading the strength of a body of evidence

<table>
<thead>
<tr>
<th>Level/Grade</th>
<th>Therapy/Prevention/Screening</th>
<th>Diagnosis</th>
<th>Prognosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade GOOD</td>
<td>Type and number of studies</td>
<td>Type and number of studies</td>
<td>Type and number of studies</td>
</tr>
<tr>
<td></td>
<td>At least one well-designed, well-conducted systematic review (SR/MA) (consider heterogeneity) of RCTs</td>
<td>At least one well-designed, well-conducted SR/MA (consider heterogeneity) of cross-sectional studies using independent gold standard</td>
<td>At least one well-designed, well-conducted SR/MA (consider heterogeneity) of prospective cohort studies</td>
</tr>
<tr>
<td></td>
<td>Two or more well-designed, well-conducted RCTs with narrow confidence intervals</td>
<td>Two or more well-designed, well-conducted cross-sectional studies using an independent gold standard</td>
<td>Two or more well-designed, well-conducted prospective cohort studies</td>
</tr>
<tr>
<td></td>
<td>One well-designed, well-conducted multi-center RCT with narrow confidence intervals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>Low risk of bias</td>
<td>Quality</td>
<td>Low risk of bias</td>
</tr>
<tr>
<td></td>
<td>Adequate sample size and power</td>
<td>Consistency</td>
<td>Independent gold standard</td>
</tr>
<tr>
<td></td>
<td>No major methodological concerns</td>
<td>Consistency</td>
<td>No major methodological concerns</td>
</tr>
<tr>
<td>Consistency</td>
<td>For SR/MA, no major conflict in results (consider heterogeneity). If significant heterogeneity exists, drops to Poor.</td>
<td>For SR/MA no major conflict in results (consider heterogeneity)</td>
<td>For SR/MA no major conflict in results (consider heterogeneity)</td>
</tr>
<tr>
<td></td>
<td>For individual RCTs, no major conflict in results</td>
<td>For individual studies, consistent diagnostic accuracy</td>
<td>For individual studies, consistent diagnostic accuracy</td>
</tr>
<tr>
<td>Relevancy</td>
<td>No compelling reason not to generalize the published work to the target KP population</td>
<td>Relevancy</td>
<td>No compelling reason not to generalize the published work to the target KP population</td>
</tr>
</tbody>
</table>

Grade FAIR

<table>
<thead>
<tr>
<th>Type and number of studies</th>
<th>Type and number of studies</th>
<th>Type and number of studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single well-designed, well-conducted RCT with narrow confidence intervals</td>
<td>Single well-designed, well-conducted cross-sectional study</td>
<td>Single well-designed, well-conducted SR/MA of lower quality studies</td>
</tr>
<tr>
<td>Two or more RCTs of lower quality</td>
<td>Two or more cross-sectional studies of lower quality</td>
<td>Well-designed, well-conducted SR/MA of lower quality studies</td>
</tr>
<tr>
<td>Well-designed, well-conducted SR/MA of cohort studies (consider heterogeneity)</td>
<td>Well-designed, well-conducted SR/MA of cohort studies (consider heterogeneity)</td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>Minor methodological concerns</td>
<td>Quality</td>
</tr>
<tr>
<td>Consistency</td>
<td>For SR/MA, no major conflict in results (consider heterogeneity)</td>
<td>Consistency</td>
</tr>
<tr>
<td></td>
<td>For individual studies, no major conflict in results</td>
<td>for individual studies, no major conflict in results</td>
</tr>
<tr>
<td>Relevancy</td>
<td>No compelling reason not to generalize the published work to the target KP population</td>
<td>Relevancy</td>
</tr>
</tbody>
</table>

Grade INSUFFICIENT

| NOTE: Any evidence that fails to meet criteria for GOOD or FAIR evidence is considered to be INSUFFICIENT. Examples of insufficient evidence are provided for the different criteria. |
| Type and number of studies | Type and number of studies | Type and number of studies |
| Single RCT of lower quality or insufficient size | Single cross-sectional study of lower quality | Single prospective cohort study of lower quality |
| Cohort study | Case-control study | Retrospective cohort study |
| Quality | Quality | Untreated control arm of RCT |
| Major methodological concerns (e.g., lack of concealed allocation, inadequate blinding, no ITT analysis) | Major methodological concerns (nonconsecutive, poor or non-independent gold standard) | Major design or methodological concerns (sampling bias, high dropout, nonblinded outcome assessment, lack of adjustment for confounders) |
| Consistency | Consistency | Consistency |
| Studies that are well-designed, well-conducted (Good or Fair) but with major conflict in results | Studies that are well designed, well-conducted (Good or Fair) but with major conflict in results | Studies that are well-designed, well-conducted (Good or Fair) but with major conflict in results |
| Relevancy | Relevancy | Relevancy |
| Compelling reasons why the results do not apply to the target KP population | Compelling reasons why the results do not apply to the target KP population | Compelling reasons why the results do not apply to the target KP population |
Evidence-Based Guidelines

The Permanente Journal, Spring 2005, Volume 9 No. 2

Evidence-Based Guidelines

Evidence-based medicine (EBM) is a process for bringing the knowledge of the evidence to its supporting literature. For National KP guidelines the rationale typically includes a narrative summary of the evidence tables and the conclusion that follows. In simplified form a rationale might state, “Based on one systematic review and two more recent randomized clinical trials the guideline development team concludes that drug A is highly effective for the treatment of cognitive decline in dementia.” Where there are expert in searching, summarizing, and critically appraising the medical literature.

National KP guidelines are developed according to a rigorous, evidence-based methodology, which includes five steps: Problem Formulation, Evidence Search, Evidence Summary, Rational, and Recommendation. Each guideline addresses several discrete topics (Problem Formulations), each with one or more Recommendations for care. The Evidence Search, Evidence Summary (often presented as Evidence Tables) and Rationale document the process of developing these Recommendations.

The KP methodology requires that the Evidence Search be comprehensive and fully documented. Depending on the quality and quantity of publications pertinent to a question a Recommendation may be evidence-based or consensus-based. Consensus-based Recommendations are developed in situations where the evidence is insufficient to support an evidence-based Recommendation, but a clinical question needs to be addressed. One example is the interval for certain cancer screening tests, where there is clear evidence about the effectiveness of screening but no studies directly comparing the effectiveness of different intervals. In this example, the recommendation to screen is evidence-based, but the recommended interval is consensus-based.

Each Problem Formulation is based on a single clinical question, which includes four key components: Patient (population), Intervention, Comparison and Outcome—PICO. For example, in the treatment of dementia, one important question is: “How should pharmacological agents be used to treat cognitive and functional decline associated with dementia?” In the hypothetical scenario, the four key components are:

- **P** (Patient): Men and women with diagnosed dementia
- **I** (Intervention): “Memoryboost”
- **C** (Comparison): Placebo or other drugs used to treat dementia (including rivastigmine, hormone replacement therapy, statins, and others)
- **O** (Outcome): Cognitive ability, functional ability, and others.

The Problem Formulation informs the Evidence Search, which specifies which databases were searched and what terms were used. All publications that address a given problem formulation are identified and then, based on commonly accepted standard criteria, all the articles that are relevant and of sufficient quality are summarized. For approaches to rating the quality of journal articles, see Table 1 and The User’s Guide to the Medical Literature. For questions about treatment, the publications are generally restricted to high quality randomized clinical trials (RCTs). For more details about the kinds of studies used to address questions other than treatment choices see Table 1.

The articles selected in the evidence search are summarized in either text or table format. The summary typically includes the reference to the article, the selection criteria and number of subjects in each arm of the study, the treatments being compared, the results and relevant comments about biases and other threats to the validity of the study. (See Table 2, taken from the hypothetical case study).

The team makes two judgments as it reviews the evidence summary: 1) What is the quality and quantity of the evidence? and 2) What are the benefits and harms of the treatments included in the summary? Evidence that is of adequate quantity and quality is said to be “sufficient,” and is further classified as either “good” or “fair.”

Unlike guidelines from many other organizations, KP national guidelines always have a rationale statement that explicitly ties each recommendation to its supporting literature.

<table>
<thead>
<tr>
<th>Study, total n</th>
<th>Treatment groups size and drug</th>
<th>Study population</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winblad et al, 2001 (RCT, double-blind) Follow-up: 52 weeks Initial n: 286 Final n: 192</td>
<td>Rx1 placebo (n = 144) Rx2 “Memoryboost” 5 mg/day for 28 days, then increased to 10 mg/day (n = 142)</td>
<td>• Possible or probable Alzheimer’s disease MMSE score ≥ 10 and ≤ 26</td>
<td>MMSE (Mean change): Rx1: -2.2 Rx2: -0.5 p &lt; 0.001</td>
<td>Study funded by the pharmaceutical company that produces “Memoryboost”</td>
</tr>
</tbody>
</table>

*MMSE: Mini mental status examination
Table 3. Language of recommendations

<table>
<thead>
<tr>
<th>Evidence-Based Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommendation: A</strong></td>
</tr>
<tr>
<td><strong>Language:</strong> The intervention is strongly recommended for eligible patients.</td>
</tr>
<tr>
<td><strong>Evidence:</strong> The intervention improves important health outcomes, based on good evidence, and the Guideline Development Team (GDT) concludes that benefits substantially outweigh harms and costs.</td>
</tr>
</tbody>
</table>

| **Recommendation: B**        |
| **Language:** The intervention is recommended for eligible patients. |
| **Evidence:** The intervention improves important health outcomes, based on 1) good evidence that benefits outweigh harms and costs; or 2) fair evidence that benefits substantially outweigh harms and costs. |

| **Recommendation: C**        |
| **Language:** No recommendation for or against routine provision of the intervention. (At the discretion of the GDT, the recommendation may use the language “option,” but must list all the equivalent options.) |
| **Evidence:** Evidence is sufficient to determine the benefits, harms, and costs of an intervention, and there is at least fair evidence that the intervention improves important health outcomes. But the GDT concludes that the balance of the benefits, harms, and costs is too close to justify a general recommendation. |

| **Recommendation: D**        |
| **Language:** Recommendation against routinely providing the intervention to eligible patients. |
| **Evidence:** The GDT found at least fair evidence that the intervention is ineffective, or that harms or costs outweigh benefits. |

| **Recommendation: I**        |
| **Language:** The evidence is insufficient to recommend for or against routinely providing the intervention. (At the discretion of the GDT, the recommendation may use the language “option,” but must list all the equivalent options.) |
| **Evidence:** Evidence that the intervention is effective is lacking, of poor quality, or conflicting and the balance of benefits, harms, and costs cannot be determined. |

Consensus-Based Recommendations

| **Language:** The language of the recommendation is at the discretion of the GDT, subject to approval by the Guideline Directors Group. |
| **Evidence:** The level of evidence must be specified as “Good,” “Fair,” or “Insufficient” to match the language regarding evidence-based recommendations above. However, do not use the A, B, C, D, I labels which are only intended to be used for evidence-based recommendations. |

> All statements specify the population for which the recommendation is intended.

Note that most consensus-based recommendations will have evidence grade “Insufficient.” For the rare consensus-based recommendations which have “Good” or “Fair” evidence, the evidence must support a different recommendation, because if the evidence were good or fair, the recommendation would usually be evidence based. In this kind of consensus-based recommendation the evidence label should point this out, e.g., “Good, supporting a different recommendation.”

Evidence-Base Recommendations is sufficient evidence of good to fair quality, an evidence-based recommendation can be made. It is important that the language of the recommendation accurately reflects the strength of the supporting evidence (Table 1). In addition to the strength of the evidence, other factors such as the magnitude of benefit and potential or actual harms also need to be taken into consideration. In most cases, the process of weighing benefits and risks requires some degree of subjective judgment. What distinguishes an evidence-based methodology is the transparency of the rationale where all assumptions and value judgments are made explicit.

The actual guidance to the provider or other user of a guideline is called a recommendation.

The recommendation is the actionable statement, driven by the evidence summary, that tells the provider what treatment, test, etc., should be provided to the patient. For national KP guidelines, the language of the recommendation is strictly defined for consistency and clarity (Table 3).

**Discussion of Hypothetical Case Study by Workshop Participants:** “Memoryboost for Dementia”

The case study was based on the KP national dementia guideline, updated in 2004. The problem formulation, Evidence Search and Evidence Summary Tables were taken from the guideline with minor changes. The assignment for the small groups in this track was to develop a Recommendation based on the material from this guideline and the information from the Common Methodology, Tables 1 and 2.

The groups did not have time to create the supporting Rationale for their Recommendation, so the authors developed one based on the contents of the discussion of one of the small groups.

**Problem Formulation**

In the case of “Memoryboost” the specific “PICO” clinical question was, “In men and women with dementia, does “Memoryboost” as compared to placebo or other drugs used to treat dementia result in improved cognitive and functional ability?”

**Evidence Search**

The databases searched included the Cochrane Database of Systematic Reviews, PubMed and others. The type of studies specified included systematic reviews, meta-analyses and randomized clinical trials. The search terms, driven by the “PICO” criteria, included the diagnoses of Alzheimer’s disease and dementia and the same pharmacologic agents listed above under “I” (intervention) and “C” (comparison). The search identified over 200 systematic reviews and clinical trials, of which 16 met the inclusion criteria of the PICO and were of sufficient quality to be summarized for the team.

**Evidence Summary**

For the case study, Table 2, slightly simplified from the original, summarizes the results for one of the five studies about “Memoryboost” that were included in the evidence summary. The five tables were reviewed by the discussion groups. All groups were concerned about the quality of these articles. The primary issues were bias (all five were funded by the manufacturer of “Memoryboost”), duration of follow-up (three were only for 24 weeks; the other two were for one year).
and the clinical significance of the results (difference in MMSE between groups <2 points on the 30 point MMSE scale in which 2-3 points is considered to be clinically significant). Information about adverse effects, which were relatively frequent, but mild to moderate in severity, was also presented to these groups. Finally, after their initial deliberations and conclusions, the groups were told that the cost of the drug is about $3 per day.

**Recommendation**

While the five small groups believed that overall, the evidence did not support a clear recommendation to use the drug in the treatment of dementia, they came to three different conclusions about the quality of the evidence and the recommendation that was driven by that evidence. All used the definitions from the Common Methodology in stating their conclusions (Table 3).

Some groups chose a “C” recommendation: “No recommendation for or against routine provision of “Memoryboost” for the management of cognitive and functional decline in mild to moderate dementia.”

**Recommendation: C**

**Language:** No recommendation for or against routine provision of the intervention. (At the discretion of the guideline development team, the recommendation may use the language “option,” but must list all the equivalent options.)

**Evidence:** Evidence is sufficient to determine the benefits, harms, and costs of an intervention, and there is at least fair evidence that the intervention improves important health outcomes. But the guideline development team concludes that the balance of the benefits, harms, and costs is too close to justify a general recommendation.

Some groups chose a “D” recommendation: “Memoryboost is not recommended for the management of cognitive and functional decline in mild to moderate dementia.”

**Recommendation: D**

**Language:** Recommendation against routinely providing the intervention to eligible patients.

**Evidence:** The guideline development team found at least fair evidence that the intervention is ineffective, or that harms or costs outweigh benefits.

Some groups chose an “I” recommendation: “Memoryboost is an option for the management of cognitive and functional decline in patients with mild to moderate dementia.”

**Recommendation: I**

**Language:** The evidence is insufficient to recommend for or against routinely providing the intervention. (At the discretion of the guideline development team, the recommendation may use the language “option,” but must list all the equivalent options.)

**Evidence:** Evidence that the intervention is effective is lacking, of poor quality, or conflicting and the balance of benefits, harms, and costs cannot be determined.

The fact that these groups came up with three different interpretations of the evidence may be surprising to some. However, close inspection of the wording of these three recommendations reveals that when the evidence is weak or conflicting, reasonable people may disagree about whether it is sufficient to make a recommendation and whether it demonstrates net benefit or harm. In fact, most of the controversies in the development and approval of national KP guidelines occur in situations where the evidence is weak or inconsistent.

**Rationale**

The rationale for the “C” recommendation: “No recommendation for or against the routine provision of “Memoryboost” for the management of cognitive and functional decline in patients with mild to moderate dementia,” might go as follows. “There are five RCTs that evaluate “Memoryboost” compared with placebo. The GDT is concerned about the quality of all of them. The primary issues are bias (all five were funded by the manufacturer of “Memoryboost”), duration of follow-up (only 24 weeks for three studies and one year for the other two) and the clinical significance of the results. (The difference in MMSE between groups is <2 points on the 30 point MMSE scale in which 2-3 points is considered to be clinically significant.) Adverse effects were relatively frequent, but mild to moderate in severity. Based on the lack of a clinically significant difference in outcomes, combined with concerns about bias and duration of follow-up, the GDT concludes that the evidence is insufficient to make a recommendation.”

This example clearly shows how the rationale statement explicitly links the recommendation to the underlying evidence.

**Discussion**

National KP guidelines are created under the aegis of the KP National Guideline Directors by development teams that represent all of the appropriate specialties, stakeholder departments, as well as methodologic experts. These teams use only the highest-quality evidence, critically appraised and interpreted in light of the clinical experience of the team members. This process produces high-quality, evidence-based guidelines for implementation across the Pro-
gram. In several cases, e.g., coronary artery disease, the guidelines are implemented by scores of care managers and others across the Program, using high-quality regional disease registries. As a result, some KP regions are giving some of the best care in the nation, which is reflected in the Healthplan, Employer Data and Information Set (HEDIS).

In the future, improvements in methodology by other organizations may result in guidelines of sufficient quality that KP will be able to focus on adapting those guidelines to the specifics of the KP care delivery system and benefits.

Finally, each KP Region has developed many guidelines by other methods. In general they represent the consensus of the providers in that region. Many, if not most, of these guidelines are consistent with the medical literature, but without a comprehensive, well-documented evidence-based process, they are not likely to be adopted by other regions. The current national guidelines development process can serve as the mechanism to facilitate national guidelines on specified conditions once their importance reaches national significance and the published literature is sufficient to support an evidence-based process.

References

Beauty

When I am working on a problem
I never think about beauty.
I only think about how to solve the problem.
But when I have finished,
if the solution is not beautiful,
I know it is wrong.

— Buckminster Fuller, 1895-1983, engineer, designer, and architect
Dr Levy is a retired physician from SCPMG, where he was a partner from 1955 until 1990. This photograph was taken at Glacier National Park in the early morning hours.
Care, Whether it’s Called Population-or Disease-Management, Sidney Garfield, MD, Would Like the Idea

In the 1930s, Sidney Garfield, MD, established the foundation for Permanente Medicine in the Mojave Desert while providing care for workers building the Los Angeles Aqueduct. He combined caring for the sick and injured with analysis and confrontation of the causes of his patients’ acute need for care. A frequently told, perhaps apocryphal story recounts Dr Garfield taking a hammer in hand after clinic hours to go to the worksite and pound in the protruding nails that were causing puncture wounds sustained by workers that filled his clinic day. Dr Garfield systematically approached the problem, knowing that while all workers seemed at some risk of injury, he was unable to know exactly which ones would eventually suffer. So he sought and found a solution that improved the health of the entire population being served.

In this issue of The Permanente Journal, Peter Crooks, MD, shares the continuation of this Kaiser Permanente (KP) tradition of excellent population care, describing the success attained by him and his colleagues in the Southern California Permanente Medical Group in systematically improving care for patients with end stage renal disease (ESRD) (page 93). By addressing this clinical challenge with creativity and persistence, a new benchmark for effective and efficient ESRD care has been established. Dr Crooks provides several examples of elevated performance and enhanced outcomes. Key factors include the development of effective care teams featuring new and expanded clinical roles such as the renal nurse specialist, evolution of a patient management system to ensure each patient gets the right intervention at the right time even if they don’t have a scheduled medical office visit and active inclusion of the patient and their family members in care and care planning.

Were he to read of this success with ESRD, Dr Garfield no doubt would have recognized the overall themes. However, he also likely would have been at least temporarily vexed in sorting out the bewildering profusion of terms that have evolved to describe approaches for systematically caring for the upstream and immediate needs of a population: Care Management, Chronic Conditions Management, Population Management, Population Care Management, Case Management and Disease Management to pick perhaps the most common. Equally new and perhaps confusing may have been the associated clinical roles and titles of individuals such as case and care managers, health coach, health educator, and nurse and pharmacist clinical specialists. Finally, while caring for the population is part of the KP “genetic code,” Dr Garfield certainly would have been pleasantly surprised to see similar interventions being developed widely outside KP: within medical groups, delivered by health plans, and even by a relatively new health care entity, the Disease Management Company.

I’d address the proliferation and colloquialization of terms to Dr Garfield in the following way: “Don’t worry too much about what it’s called!” I’d explain:

Increasingly robust and organized efforts within KP and elsewhere are efficiently and effectively linking whole populations of patients to the resources and people who can improve and sustain their health. It’s beyond the scope of this commentary to fully catalog, but the scope of population-focused care includes population identification and stratification, member tracking, case management, inreach and outreach, and patient education. Chronic conditions, such as diabetes and heart disease are a common focus of these efforts, as are resource intense clinical challenges like ESRD and cancer. Program development has been fueled by a growing evidence base supporting a wide range of effective interventions for even early stages of the targeted conditions.

Care management, population care, disease management, and simi-
ular terms are highly overlapping and pragmatically indistinguishable “means” in systematic pursuit of the same “end”—improved health outcomes for a population of patients. While debated academically, the distinctions are increasingly blurred and, at least to the patient, probably not all that important to discriminate.

Some thoughts on why we have several terms for what is about the same thing follow:

• “Population care” is often used to capture a broad view of the entire spectrum of care needs and interventions for populations of patients, seeking differentiation from a central disease focus. A population encompasses the most impaired and ill through to those in the earliest stages or even just at risk for a condition. Implied in optimal population care across this range of need is the ability to stratify the members of a population for their severity of illness and needs and use this information about risk in planning and delivering care. Care management and disease management programs as commonly practiced in 2005 generally address a wide scope of population needs including risk assessment and allocation of appropriate interventions across multiple and often co-morbid diseases.

• Care Management seeks to emphasize the delivery of care as an organizing principle rather than the disease itself.

• The Disease Management Association of America defines Disease Management as “a system of coordinated health care interventions and communications for populations with conditions in which patient self-care efforts are significant.”

The term disease management has been criticized for emphasizing a single disease process over the complex care needs of individual patients who often have significant co-morbidities. However, while Disease Management initially tended to focus on only one condition at a time, in most circumstances now a spectrum of common chronic conditions can be addressed concurrently to better align with the multiple and complex needs of larger patient populations.

• Free-standing Disease Management companies have emerged in the last several years focused exclusively on providing, quite logically, Disease Management services for the chronically ill. While disease management programs are often overlaid on the fee-for-service health care delivery system, the population care delivered within KP is increasingly seen as a benchmark for the disease management “industry.” For example, in both 2003 and 2004, KP received awards from the national disease management industry for outstanding disease management care delivered by a health plan and by a managed care organization.

Finally, when this systematized care occurs (in sum or in part) on a case-by-case basis with close individual attention by members of a care team, as is the case with Dr Crooks report on ESRD, use of the term case management makes sense for that individualized care. Case management is often closely linked with broader and less individualized care/disease/population approaches. Once past the naming exercise, I would expect Dr Garfield to ask if this approach is successful. As an organization, we can respond with an unequivocal yes:

• KP’s approach to care and disease management has achieved dramatic health improvements. Studies within KP and elsewhere have consistently documented marked improvements in clinical processes (eg, testing frequency), intermediate health outcomes (eg test results) and patient satisfaction with systematized care for multiple conditions. The linkage of these improvements to actual clinical outcomes (eg control of disease and death rates) is generally less convincingly documented to date, arguably because of the longer timeframe necessary to see these desired benefits.

Even with that constraint, examples like the Northern California region’s substantial decrease in deaths from heart disease to the point that it is no longer the leading cause of mortality among its members are increasingly documented.

• KP’s approach to care and disease management saves money compared to cost trends, and delivers high value for health care purchasers and consumers alike. A recent study of the programs run by The Permanente Medical Group in Northern California documented dramatic improvements in quality of care and a savings of $200 million in one year (relative to expected cost trends) for patients with certain conditions.

The portfolio of interventions described by Dr Crooks is successful. Patient outcomes have been im-
proved and higher value is being obtained for the financial investment in this systematic approach to care. However, where Dr Crooks concludes, in reference to systematized population-based care, that “The health care industry seems to have realized that some things are just too important to leave to the doctor,” I would offer the friendly amendment that what he and his colleagues have achieved is an evolved and more robustly supported system of care actively led by doctors, not one passing them by, even as some aspects of care leave the exam room and the doctor’s office visit for other venues.

I also suspect we will see even more notable improvements in renal care in coming years. The program described focused on the patients with kidney disease with the highest current needs, those on dialysis and/or receiving transplantation. The potential for further improvement in population health will be amplified as the course and complications of “upstream” causes of renal failure such as diabetes and hypertension yield to complementary population-based approaches. The most cost-effective approach to managing ESRD for a whole population over time is probably to decrease substantially the number of patients sustaining severe insults to renal function in the first place—in a manner reminiscent of pounding nails more than 70 years ago. I believe Dr Garfield would like this approach.

References

Encouraging The Heart
A leader who Encourages the Heart is one who encourages other people; recognizes people’s contributions; praises people for a job well done; gives support and appreciation; finds ways to publicly celebrate and tells others about the group’s good work.

Managing High-Risk, High-Cost Patients: The Southern California Kaiser Permanente Experience in the Medicare ESRD Demonstration Project

By Peter Crooks, MD

In the recent book, *Epidemic of Care*, Kaiser Permanente (KP) CEO George Halvorson and co-author George Isham show how the use of health care resources is distributed among a health plan’s members. They present an illustration (adapted here as Figure 1) from which can be estimated that in a given year,

- the least expensive 70% of patients account for 10% of the expenditures; and
- the most expensive 1% of patients account for 30% of expenditures.

Clearly, two different approaches are needed for managing the care of these two groups of patients.

For the 70% of patients in the least expensive group, the health care system must deliver rapid and convenient access to care whenever and wherever it is wanted. Convenient access to doctors and medical services is what this group wants, and the high satisfaction of these healthy patients is extremely important: Health plans must retain these members as well as their membership dues so that resources are available to pay for the care of less healthy patients.

For the 1% of patients in the most expensive category, the health care system must efficiently deliver the care that is predictably needed and must successfully coordinate care when the unpredictable occurs. This approach to care may be described as a *disease management* process, in which *case management* plays an important role. The impact of disease management on the health care system should be to use medical resources more efficiently and to eliminate expenses that do not produce positive clinical results.

For the KP medical care system to survive and succeed financially, we must optimally manage both ends of the patient health spectrum: We must preserve the inflow of dues income into the system by satisfying healthy patients and at the same time eliminate excess spending on high-cost, high-risk patients—spending that does not contribute to the desired clinical outcomes.

Patients with end-stage renal disease (ESRD) constitute a major portion of the most expensive 1% of health plan patients. For these patients in the Kaiser Permanente Southern California Region (KPSC), outside medical costs alone (payments for dialysis treatments plus outside hospital days) averaged $32,430 per patient in 2002. To this cost must be added the cost of a mean 9.0 KPSC hospital days, one or more vascular access surgeries, emergency department visits, multiple clinic visits, and multiple medications. The mean annual Medicare cost per dialysis patient was $57,973 in 2001. Therefore, for about 3,200 dialysis patients in KPSC at yearend 2003, the annual cost of care may be as high as $185 million.

Since the early 1990s, KPSC has taken a proactive approach to managing high-risk, high-cost ESRD patients. Our success and confidence in our care model led to participation in a Medicare ESRD Demonstration Project.
Health systems

Managing High-Risk, High-Cost Patients: The Southern California Kaiser Permanente Experience in the Medicare ESRD Demonstration Project

Patients with end-stage renal disease (ESRD) constitute a major portion of the most expensive 1% of health plan patients.

into which 1000 non-KP Medicare patients with ESRD were enrolled between 1998 and 2001. Our clinical and financial success in this Medicare project confirms the value of such proactive planning.

**Evolution of ESRD Disease Management at KPSC, 1992-1997**

The Southern California Permanente Medical Group (SCPMG) carries the full financial risk for outside ESRD patient expenses. The early 1990s brought the recognition that millions of dollars annually were being paid to non-KP community health care providers despite little evaluation of clinical outcomes. Senior SCPMG leadership decided to take more direct control of ESRD patient care and to measure the quality of care purchased. This decision led to an agreement (in 1992) between SCPMG leadership and nephrologists. In this ESRD business plan, SCPMG nephrologists agreed to internalize all ESRD patient care services except hemodialysis and kidney transplant surgery. Registered nurse ESRD case managers were hired at each KP medical center in Southern California to work closely with the nephrologists, and the nephrologists agreed to relinquish their general internal medicine patients to focus more attention on managing the ESRD patient population. A regional office was opened to monitor expenses and to assist in processing outside claims. Outcome metrics were developed, and regional staff were put in place to support data collection and analysis. This model of care was highly successful and reduced outside medical expenses by millions of dollars per year.

**The Medicare ESRD Demonstration Project (1997-2001)**

A diagnosis of ESRD entitles Medicare-eligible patients to Medicare coverage, even for patients less than 65 years of age. Unlike other Medicare patients, however, ESRD patients are not allowed to participate in managed care health plans unless these patients were already enrolled at the onset of ESRD. In 1993, the US

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Comparison group</th>
<th>Kaiser Permanente Southern California</th>
<th>p value</th>
<th>Health Options, Inc, Florida</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare fee-for-service (FFS) enrollees</td>
<td></td>
<td>1056</td>
<td></td>
<td>967</td>
<td></td>
</tr>
<tr>
<td>Adjusted death rates (Figure 2):</td>
<td></td>
<td>18%</td>
<td></td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>• Standardized mortality ratio</td>
<td>DOPPS</td>
<td>18%/26% = 0.69</td>
<td>p = 0.001</td>
<td>23%/24% = 0.96</td>
<td>p = 0.945</td>
</tr>
<tr>
<td>Unadjusted hospital days per patient-year at risk:</td>
<td>DOPPS</td>
<td>7.6 vs 9.6</td>
<td>ns</td>
<td>9.1 vs 10.1</td>
<td>ns</td>
</tr>
<tr>
<td>Hemodialysis adequacy:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Patients with Kt/V ≥1.2 at one year</td>
<td>Baseline</td>
<td>71.8% vs 86.2%</td>
<td>p &lt; 0.01</td>
<td>81.4% vs 89.7%</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>• Condition improved compared with general Southern California community</td>
<td>DOPPS</td>
<td>Yes</td>
<td>p &lt; 0.01</td>
<td>No</td>
<td>ns</td>
</tr>
<tr>
<td>Hemodialysis arteriovenous fistula prevalence at one year</td>
<td>Baseline</td>
<td>28.6% to 34.7%</td>
<td>ns</td>
<td>33.8% to 34.1%</td>
<td>ns</td>
</tr>
<tr>
<td>Kidney transplant access:</td>
<td>Baseline</td>
<td>Doubled at one year</td>
<td>p &lt; 0.001</td>
<td>Nearly doubled at one year</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>• Odds of remaining on waitlist after one year</td>
<td>UNOS</td>
<td>Matched California odds</td>
<td>Still below Florida odds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of life* (SF-36TM):</td>
<td>DOPPS</td>
<td>FFS enrollees: four measures improved (p &lt; 0.01), four remained unchanged</td>
<td>All measures declined</td>
<td></td>
<td></td>
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<tr>
<td>• Change at one year vs community</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Patient satisfaction*</td>
<td>Community controls</td>
<td>Overall ESRD patient satisfaction was high, primarily because of financial benefits and access to nutritional supplements.</td>
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</tr>
</tbody>
</table>

Annual costs for all medical care:
- Medicare payment
- Health plan profit or loss
- Contribution by patients or secondary payers
- Estimated annual savings
  - $3K over predicted
  - Income covered expense
  - Estimated $9K annual savings
  - $6K per patient per year
  - $5.2K over predicted
  - Income reported far short of expense
  - Estimated $9K annual savings
  - Uncertain that savings resulted

ns = not statistically significant.
UNOS = United Network for Organ Sharing.
DOPPS refers to a same-state representative sample of US in-center adult hemodialysis patients from the Dialysis Outcomes and Practice Patterns Study.
* Creation of fistulas is considered a medically superior procedure and is preferred over placing arteriovenous grafts.
* Data for the Kaiser Permanente Southern California site and for the Health Options, Inc site in Florida were combined.
* HOI was unable to secure a transplant contract in the Miami area. Patients were referred to a Jacksonville (Florida) transplant center, more than 300 miles away.
Congress called for a demonstration project to compare clinical and financial outcomes observed among Medicare ESRD beneficiaries in managed care plans to those of patients receiving usual fee-for-service care. Medicare initially accepted four sites for the demonstration project. Before enrolling patients, one of the four sites—PacificCare of Southern California—dropped out, citing financial concerns. Xanthus Health Care Corporation (in Nashville, Tennessee) terminated its participation early after enrolling about 50 patients. Two of the original four sites—KPSC and Health Options, Inc (HOI) (a subsidiary of Blue Cross/Blue Shield of Florida)—completed the three-year project. HOI used a network model in Florida and offered a capitated rate to contracted nephrologists who enrolled HOI patients. This model offered multidisciplinary case management, but the vertical integration present in the KP medical care system was not available. No Institutional Review Board (IRB) approval was sought for the project, because it was a federally funded public policy project which did not require IRB action during the review period.

Before opening enrollment at KPSC, a multidisciplinary workgroup carefully evaluated the anticipated needs of ESRD patients, and with the help of the KPSC Department of Operational Analysis developed a detailed staffing model driven both by tasks to be accomplished and by number of ESRD patients. The care coordination responsibilities for nurses were expanded to include managing vascular access and evaluating patients for kidney transplantation. At each KP medical center, we added renal social workers and renal dietitians and created a new role: the renal pharmacist. These renal teams were based at the medical centers and were usually located near the nephrologists’ offices so that formal and informal interaction could occur on a daily basis.

In the 1990s, vascular access surgery was the leading cause of hospitalization for hemodialysis patients in the United States. SCPMG leadership recognized that success in the ESRD demonstration project would require cost-effective management of vascular access. Therefore, we initiated a regionwide Vascular Access Continuous Quality Improvement Project, which is still ongoing.

**Results of the Medicare ESRD Demonstration Project**

Independent evaluators (The Lewin Group* and the University Renal Research and Education Association*) were selected by Medicare to analyze the Medicare ESRD Demonstration Project and to prepare a report for the US Congress. To compare fee-for-service enrollees with patients in the community who did not enroll in the project, the evaluators used same-state data from the Dialysis Outcomes and Practice Patterns Study (DOPPS), an ongoing, worldwide study of dialysis patient care. Table 1 summarizes some key results of the analysis.

As shown in Figure 2, the crude mortality rate at KPSC was 13% (representing 13 patient deaths per 100 patients per year) compared with 26% in the general Southern California community. However, enrollees were substantially younger and had fewer comorbid conditions than nonenrollees. Therefore, the evaluators statistically adjusted for age and comorbid conditions; this calculation resulted in an adjusted death rate of 18%, a rate 31% lower than in the general Southern California community (p = 0.001). Although the crude death rate was 17% for HOI enrollees versus 24% for Florida DOPPS, this difference was nullified by adjustment for age and comorbid conditions.

Both KPSC and HOI substantially increased the percentage of patients who achieved the recommended amount of dialysis (shown by a Kt/V ≥ 1.2, p < 0.01). At KPSC, this improvement was significantly better than the improvement observed in the general Southern California community (p < 0.01). Patient satisfaction was high and was linked primarily to satisfaction with re-

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ducied out-of-pocket medical expenses and with receiving nutritional supplements free of charge.

All quality-of-life measures improved or remained unchanged for ESRD project enrollees between baseline and follow-up one to two years later. This result is particularly noteworthy because measured quality of life tends to decrease over time for most dialysis patients. For comparison, the evaluators reviewed a non-KPSC community sample over a one-year period and found that, indeed, all quality-of-life measures were declining.

During the first year of the project, ESRD patients at KPSC had fewer mean hospital days (7.6 hospital days per patient) than did ESRD patients in the general Southern California community (9.6 hospital days per patient), although the probability did not reach 95% statistical significance. As shown in Table 1, the per-patient annual cost of health care (Medicare contribution + health plan contribution + secondary payer or patient contribution) was $6000 less at KPSC than was predicted for fee-for-service care.

Discussion
Optimal care for high-risk, high-cost patients cannot be achieved within the traditional office-based, acute care model, where nearly all interventions must be initiated by the physician. An ever-growing number of evidence-based and consensus-based guidelines are targeted to different groups of patients, and physicians cannot reasonably be expected to keep pace with and remember all the latest such guidelines. In addition, implementing an intervention should not depend on a patient having a doctor’s appointment; for example, flu and pneumonia vaccinations save lives and save money, especially in the chronically ill—but we cannot rely on patients visiting their physicians at an appropriate time and on physicians remembering to order vaccine during busy clinics. The solution is to support physicians with a disease management system to ensure that all candidates for vaccination are educated about and offered the vaccination at the appropriate time.

High-risk, high-cost patients need more than the provision of predictable, guidelines-based interventions; for these patients, clinicians must manage unpredictable events. Chronically ill patients often have unplanned episodes of care; and if poorly managed, these episodes can result in poor medical outcomes as well as unnecessary medical expenditures. Moreover, these episodes cannot be managed optimally by physicians alone; care in these circumstances must be coordinated to ensure that patients efficiently obtain the medical services needed to prevent deterioration and hospitalization. For example, during dialysis rounds, a nephrologist may advise a patient with chest pain to see the cardiologist. Without care coordination, the patient’s angina is very likely to be addressed next in the emergency room. In contrast, a nurse care coordinator working with the nephrologist can make the appointment with the cardiologist, inform the family, and ensure that transportation is arranged. Another common situation requiring care coordination is vascular access failure in a hemodialysis patient. Vascular access failure is an urgent problem, but with proper care coordination, same day management can be arranged without hospital admission or loss of dialysis treatment time.

The functions performed by multidisciplinary team members directly improve clinical outcomes. In our model of care, the renal pharmacist periodically reviews the full medication regimen for each ESRD patient (usually more than ten medications per patient). This review provides an opportunity to detect duplicate prescriptions; to prevent prescription of nephrotoxic or otherwise inappropriate medication; and to adjust doses for patients with low kidney function. Patients and family members receive education, and medication issues are communicated to the nephrologist. Parallel reviews are performed by our renal dietitians and renal social workers, who then communicate their findings and recommendations to the patient, the family, and to clinicians. Renal nurse specialists not only provide care coordination and manage vascular access but also coordinate kidney transplant evaluation and referral.

Conclusion
In managing high-risk, high-cost patients, KP enjoys a tremendous advantage over most other systems of medical care in the United States. This advantage results directly from the financial structure of KP, in which the Permanente Medical Groups assume much of the financial risk and where delivery of services is highly integrated. This system creates a strong incentive for the Permanente Medical Groups to proactively plan for the management of high-risk, high-cost patients.

The benefits of proactive disease management at KPSC were clearly shown in the Medicare ESRD Demonstration Project: Mortality rates among ESRD patients were decreased, quality of life for these patients was improved, and medical costs were reduced. Empowered by Medical Group and Health Plan leadership, the
SCPMG nephrologists and multidisciplinary renal teams were able to develop what is now recognized as a national model of ESRD disease management. The same proactive approach can—and should—be applied to other high-risk, high-cost KP members, such as patients requiring chemotherapy or the frail elderly approaching the end of life.

The value of this proactive, disease management approach for chronically ill patients has been increasingly recognized by Medicare and by non-KP health plans. During the past decade, an entirely new disease management industry—with its own trade associations and professional journals—has evolved. Non-KP health plans have been willing to invest considerable resources into disease management with the understanding that physicians cannot do everything by themselves, and that patient education and appropriate interventions should be supplied to all members diagnosed with a chronic medical condition.

Or, to put it another way, the health care industry has realized that some things are just too important to be left up to the doctor.

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**Acknowledgments**

The author would like to acknowledge the hundreds of Southern California Kaiser Permanente Region (KPSC) employees who planned and participated in the Medicare End-Stage Renal Disease (ESRD) Demonstration Project. The author thanks especially the multidisciplinary renal team members, who provided direct care to more than 1000 ESRD patients who joined KPSC during the project.

**References**


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The KPAN National Bulletin serves to provide a programwide network of experiences and resources.
Enclave Services: An Office with a Purpose

By Judy Hayward

“How do you like your job?” the Enclave Services supervisor, Janice Robinson, asks. “I love it!” Penny Shuping responds. From a nearby work station, David Holmes pauses in his work and shyly echoes her sentiment: “I love my job too!” Ms Shuping resumes her task, frequently reaching to carefully straighten the growing stack of *The Permanente Journal* on her desk. At a nearby desk, Beth Grodem focuses on assembling a mailing from the Health Education Department.

She glances momentarily at the lead staff on duty, who compliments her on her progress, and then returns to her task. The atmosphere in the pleasant, spacious workroom is both calm and purposeful. It could be a clerical production room in any number of large organizations.

But this is no ordinary office. These are just three of a dozen workers who comprise Enclave Services, a supported work environment at Kaiser Permanente Northwest (KPNW) for persons with disabilities. Although they have consistently demonstrated that they are capable—even meticulous—at performing a wide variety of clerical tasks—and they are clearly devoted to the work they do—they might not have found employment in conventional jobs. Finding productive work for people with disabilities like Ms Shuping, Mr Holmes, and Ms Grodem is difficult. Potential employers often overlook them, believing that training and supervision pose difficult challenges.

KPNW is different. In 1987, when Paul Crowther, Executive Director of the nonprofit Oregon Employment Service Company (OESCo) approached KPNW human resources managers to propose a permanent jobs program for persons with disabilities, they listened. OESCo pays the salaries for the supervisor and lead staff from grants and government funds and bills for jobs completed to fund the wages for the staff. Mr Crowther had previous experience with more limited programs at St Vincent de Paul and was eager to expand the concept and to provide permanent, meaningful work for persons with disabilities. He knew that businesses could benefit from a partnership with OESCo.

From the start, recalls Mr Crowther, KPNW demonstrated a strong commitment to the project. Then Human Resources manager Tom Williamson and his associates Cheryl Harmon, Mary Moore, and Carolyn Gomez dedicated a permanent workplace in the regional administration headquarters, incorporated OESCo's paid staff at the worksite, and gave the department its distinctive name—Enclave Services.

Today Enclave Services has one supervisor, three staff lead personnel, and 13 clerical workers: Most are high school graduates; all must be able to sign their names, catch a bus to and from work, negotiate hallways and elevators to and from the cafeteria, and demonstrate clerical skill. Enclave Services employees typically work part time, averaging 10-16 hours per week. Two staff leads are always present at the worksite.

Program participants have remarkable longevity. Janice Robinson, lead supervisor at Enclave Services, has been with the program since 1992. Her clerical workers have similarly long work histories. Ms Grodem, for example, has been an Enclave Services employee since the day it started in 1988. Most want to work more hours than they are assigned. A waiting list attests to the

Judy Hayward is a teacher of English in the Portland Public Schools and a former admitting manager at the Kaiser Sunnyside Medical Center, she resides in Portland.
need for more programs like Enclave Services.

Beth’s mother, Gail Grodem, sings Kaiser Permanente’s and Paul Crowther’s praises for what the program has meant to her daughter. “I give Kaiser Permanente only bouquets of flowers,” she says. “I can’t imagine Beth not having that job. What it has meant to her confidence, her self-worth, her ability to perform is incalculable.” Her admiration for Mr Crowther, Ms Robinson, and the entire Enclave Services staff is unconditional. “Paul and his staff bring an extraordinary degree of professionalism to the department.”

Who are Enclave Services’ customers? By far its biggest is The Permanente Journal. The publication depends on Enclave Services for labeling and distribution of its 100,000 copies each year. Enclave Services regularly serves other departments as well: Health Education, the Claims Department, and Human Resources are steady customers. In fact, wherever there is a need for bulk mailing, inserts of materials into packets, collating, labeling, assembling, and other repetitive tasks, Enclave can and does provide support. Ms Robinson lauds the quality of work performed at Enclave Services: “They do excellent work” is her succinct assessment.

The Enclave Services workroom is filled with cartons of as-yet untouched assignments awaiting their turn. Colorful brochures, paper inserts, envelopes, and labels range along shelves that ring the workspace. “I need more books, please,” Ms Shuping sings. “Thank you,” she says as a new stack lands at her workstation. Ms Robinson approaches Mr Holmes. “You’re doing a great job,” she says. He brightens.

It’s a typical workday for the Enclave Services staff and another day to take pride and satisfaction in their jobs—jobs they probably would never have had without Paul Crowther, KPNW, and Enclave Services.

Dear Dr Janisse,

My developmentally disabled daughter, Beth Grodem, is employed by the OESCo Kaiser Permanente Enclave. She has been a member of the Enclave since its inception. Both my daughter and I are deeply grateful and appreciative for the affiliation and support of KP for the OESCo Enclave.

Thank you and everyone at KP for all the support and your participation in making this a reality.

This job is my daughter’s identity. In spite of Beth’s limited speech and abilities, she has the job support to perform, succeed and become a contributing member of society. I am not exaggerating when I say that Beth IS her job and her job IS her life. She feels important and is. The self-esteem, self-worth, and dignity she has learned on this job is what has been fundamental to her ever-increasing confidence and success. Her work experience has so enriched her life. The joint KP and OESCo relationship has given her and others in the Enclave the opportunity for a better quality of life.

When Beth and I are out in the community or we are together in the building, I am overwhelmed by the many KP employees who come up to us to greet Beth and the joy and enrichment given to my daughter by these wonderful individuals.

Dr Janisse, THANK YOU for the job and support for my daughter and the other disabled adults in the Enclave. Beth and her family join me in sending our deepest thanks to you and all the KP family.

Most sincerely,

Gail B Grodem
Portland, Oregon

For information on developing a program in your region, please contact:

Paul Crowther: 503-774-1667, e-mail: PaulC@OESCorp.org; or Janice Robinson: 503-813-4009, e-mail: janice.l.robinson@kp.org.
There comes a time in some girls’ lives when modesty is forced to take a backseat.

When your most prized possession is subject to cold steel and a dollop of lubricant.

Inner thighs still creased from constant crossing are given liberation, and self decency is asked to take a powder.

Forget for a brief moment your reserved existence and open up with confidence, you have not sinned today.

This space, which we have spent most of our years trying to conceal and protect from the deluge of curious gawkers, is exposed without hesitation and prodded by antiseptic fingers. A necessary violation.

We are expected to hide our feelings of propriety while fervently being asked to scoot down … scoot down … a little more.

Some of us find no angst in the event. How I envy them. Blessed with the liberal gene.

They also had no problems stripping in PE, and were not shocked when they first menstruated.

As I age, I feel compelled to accept this ritual of indecency and go with the flow.

While I am never ready to offer up my dignity, I know it is essential.

Kelly Ann Malone is a Project Analyst for Business Risk Management in Pasadena, CA. She was born at KP Panorama City and has been writing since she was 12 years old. Her poetic inspirations are Ogden Nash and Dorothy Parker. E-mail: kelly.a.malone@kp.org.
Physician Appointed to National Commission on Systemic Interoperability
Simon Cohn, MD, Associate Executive Director of The Permanente Federation, was recently appointed to the National Commission on Systemic Interoperability in recognition of his expertise and his leadership role in Kaiser Permanente’s (KP) health information technology.

Dr. Cohn has been a leader in the development of health IT standards for many years and is also the chair of the National Committee on Vital and Health Statistics (NCVHS). The NCVHS is the federal advisory committee to the US Department of Health and Human Services, which advises on the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and on the National Health Information Infrastructure.

The Medicare Modernization Act (MMA) mandated that the Commission develop a comprehensive national strategy for the adoption and implementation of health care information technology standards, including a timeline and priorities for implementation. Appointments to the Commission were made by the President of the United States and leaders from both Houses of Congress.

HHS Honors the 10,000 Steps® Program
Health and Human Services Secretary Tommy G Thompson recently announced that the 10,000 Steps® program, offered to KP members in collaboration with HealthPartners, is one of 11 winners of the second annual Innovation in Prevention Awards. The awards are presented each year by Secretary Thompson to highlight businesses and organizations that are leading efforts to promote healthy lifestyles. The awards are part of President Bush’s Healthier US initiative and Secretary Thompson’s emphasis on preventing chronic disease and improving Americans’ lives.

Participants in the 10,000 Steps® program sign up online and use a pedometer to count the number of steps they take each day. The 10,000 Steps® Web site can be accessed anytime to set personal goals, track daily steps and monitor progress. The program offers the option of receiving daily e-mails for the first eight weeks that provide useful tips, support and encouragement to maintain motivation to stay active.

Culturally Competent Care Provider Handbooks Honored
The National Business Coalition on Health (NBCH), a national nonprofit membership organization of employer-based health coalitions, recently honored KP National Diversity’s Institute for Culturally Competent Care with an Innovations Award for its Provider Handbook series. The award acknowledges “an innovative, national program or initiative that substantially impacts the nation’s growing health disparities.” KP won the award in the Health Disparities category.

The Institute for Culturally Competent Care created the Provider Handbook series in 2000. Currently, five publications are available for clinicians working with members who are Latino; African American; Asian Pacific Islanders; Lesbian, Gay, Bisexual and Transgender; and individuals with Disabilities.

KP Health Care for Medicare, Medicaid Patients Ranks in Nation’s Top Ten
KP’s Mid-Atlantic States, Colorado, and Hawaii Regions are among the top ten Medicare and Medicaid programs in the United States, as ranked by the National Committee for Quality Assurance (NCQA).

The services measured by the Committee include important preventive care programs like immunizations, rates of screening for common diseases, and controlling high blood pressure and cholesterol.

KP Hawaii garnered both of the honors, with their Medicare and Medicaid plans both in NCQA’s top ten. The KP Colorado Region was recognized by NCQA for its overall health care quality, winning a top-ten national ranking for the second year in a row. The KP Mid-Atlantic States Region was ranked among the top five programs in the Southern Atlantic region by NCQA for its overall health care.
Colorado Permanente Medical Group (CPMG)

Physician Named to Colorado Business Committee for the Arts

Berry Morton, MD, Associate Medical Director, Specialty Care and Hospital Operations for KP, has been named to the Colorado Business Committee for the Arts (CBCA) 2005 Board of Directors.

Formed in 1984 by leading Colorado businesses who share a philanthropic commitment to the arts, CBCA is a member organization of more than 140 leading companies that recognize the link between our cultural vitality and business success.

Cardiovascular Risk Factor Management Program Receives Award

Colorado’s Cardiovascular Risk Factor Management Program, which has already won an award from American Health Plans and an honorable mention from the Vohs Award, has received another honor: The American Society of Health-System Pharmacists has given its Best Practices Award in Health-System Pharmacy to the program.

The Southeast Permanente Medical Group (TSPMG)

Region Presents Four Universities with Nursing Scholarship Endowment

KP Georgia recently awarded $500,000 in scholarships over a five-year period to four local nursing schools: Clayton College and State University; Georgia Perimeter College; Georgia State University; and Kennesaw State University. The scholarships are an integral part of the KP Workforce for Tomorrow Committee agenda, focused on encouraging individuals to choose the health care industry as their career field in order to address the severe shortages of nurses in the state.

Local Star Power in New Kaiser Permanente Video—Caring for Your Family’s Health: A Guide for African Americans

In recognition of Black History Month, KP recently launched the African-American Family Health Project, which focuses on African-American health concerns and preventative health strategies. The project also includes a video, “Caring for Your Family’s Health: A Guide for African Americans,” which aired in many KP markets. Joining the cast were Adrienne D Mims, MD, Chief of Prevention and Health Promotion for Georgia and Nutritionist Beverly Washington, also of the Georgia region.

Northwest Permanente (NWP)

CHR Awarded $3 Million Grant by National Center for Complementary and Alternative Medicine

KP’s Center for Health Research was recently awarded a $3 million grant by the National Center for Complementary and Alternative Medicine. The grant is funding a study to resolve the controversy whether a low-carbohydrate or a high-carbohydrate diet is better for one’s health.

The Permanente Medical Group (TPMG)

Physician Honored for Tsunami Relief Work

In recognition of her tsunami relief work, Vajiramal Dhar masena, MD, received the Good Citizenship Award from the city of San Jose. The award was presented by Mayor Ron Gonzales during the annual state of the city address.

Dr Dharmasena, an obstetrician/gynecologist at the Santa Teresa Medical Center, recently returned from Sri Lanka, where she worked with team members Sarah Beckley, MD, Redwood City; Christine Fernandez, MD, Sacramento; and Hernando Garzon, MD, Sacramento. The team spent 16-hour days caring for patients in refugee camps along the east coast of Sri Lanka. To read excerpts from Dr Garzon’s journal about the team’s experiences, go to InsideKP: California.

Tobacco Dependence Program Wins 2005 Vohs Award

The Northern California Region’s Tobacco Dependence Program recently received the 2005 James A Vohs Award (page 9). The program has contributed to a more-than-10% reduction in the prevalence of smoking in its adult population and has become a model for health care systems nationwide.

The Tobacco Dependence Program implemented a multifaceted, evidence-based program to reduce tobacco use among members of the Northern California Region by undertaking four main strategies: 1) routine tobacco use assessment, counseling and referral, augmented by provider training, audit and feedback linked to incentives; 2) enhanced Health Plan benefits; 3) menu
of tobacco cessation programs for members; and 4) worksite and community tobacco control efforts.

Physician Invited to Join Program Committee for US Government HIV Drug Therapy Conference
Michael Horberg, MD, FACP, Director of HIV/AIDS Policy, Quality Improvement, and Research at the Division of Research and lead for the Committee for HIV/AIDS Interregional Responsibilities (CHAIR), and a physician at the Santa Clara Medical Center, was invited to join the program committee for the first domestic conference on HIV drug therapy sponsored by agencies of the federal government.

The conference, Treatment and Management of HIV Infection in the United States, will be held in the fall of 2005, and will bring together 2000 frontline clinicians and care providers from the national HIV community for participation in this inaugural event.

Southern California Permanente Medical Group (SCPMG)

New SCPMG Business Administrator Named
Tom Williamson was named SCPMG Business Administrator, after most recently serving as Vice President, Southern California Human Resources, KFHP/H. Williamson brings to the job his in-depth knowledge of strategic issues, such as the Labor Management Partnership (LMP). He began his career with KP in 1977 as the HR director at the West Los Angeles Medical Center. Throughout his career in Southern California and the Pacific Northwest, he has participated in significant policy discussions and decisions. He sponsored and championed many innovative programs that brought recognition to Southern California as a leader in Human Resources.

Latino Health Access Presents Award to Orange County’s Residency Program
For three of the last four years, Latino Health Access (LHA) has awarded the Golden Tamale Award to the Orange County Family Medicine residency program. LHA is a nationally recognized nonprofit organization in Santa Ana whose goals include improving the health of those without access to medical care in the local area. Family Medicine residents spend time at LHA and make home visits with lay promotoras, or community health workers. Dorothy Siddall, MD, Assistant Residency Director, has spearheaded the partnership with LHA. Warren Wong, MD, and Frank Torres, PA, both from the Tustin Santa Ana Family Medicine office, spend a small portion of their time providing medical leadership at LHA. LHA has received generous grant support from KP and the State of California Healthcare Workforce Policy Commission.

Regional Asthma Chief Named Physician of the Year by Professional Association
The American Association of Allergists and Asthma Specialists chose Michael Kaplan, MD, Regional Asthma Chief and Los Angeles Medical Center Asthma Department Chief, as their doctor of the year for 2004.

Los Angeles Medical Center Physician Featured in Forbes Magazine
Luis Zeledon, MD, physician-in-charge of teenage medicine at the Los Angeles Medical Center, was featured in a January 2005 article in Forbes magazine on a new study that integrates mental health care for adolescents into primary care practices. The study found that teens receiving this care—called quality improvement intervention—had fewer depressive symptoms overall and were more satisfied with their care.

SCPMG Physician Receives RJ Erickson Diversity Achievement Award
Ricardo Sistos, MD, was named as one of the recipients of the RJ Erickson Diversity Achievement Award for the Southern California region at the 27th Annual National Diversity Conference. Dr Sistos is the co-founder of Hippocrates Circle, a mentoring program to encourage middle school students from underrepresented groups, to consider careers in Medicine. Hippocrates Circle was started five years ago in San Diego and has been adopted by five other KP medical centers.

Reference
Upcoming Symposia

National Surgery Symposium
Wednesday–Friday
August 31-September 2, 2005
Fairmont Orchid Hotel
Kohala Coast, Hawaii

For more information or to receive a brochure, you may contact Physician Education at 626-564-5360.

Call For Material Related To Sidney Garfield, MD

The Permanente Journal plans to devote a special centenary issue in April 2006 to Sidney R Garfield, MD, and his legacy. We are seeking any material of historical interest related to Dr Garfield's career, including photographs, sound recordings, letters, work documents, and anecdotes. In particular, we hope to hear from people who knew Dr Garfield personally and who may possess unique artifacts not already archived by KP Heritage Resources or other historians.

To share materials, please contact:
Tom Debley
Heritage Resources, Kaiser Permanente
1800 Harrison St, 18th Floor, Oakland, CA 94612
Phone: 510-625-4844 (Tieline 8-428-4844)
Fax: 510-625-5949 (Tieline 8-428-5949)

Showcase your Artwork …

The Permanente Journal is always interested in considering artwork by Kaiser Permanente clinicians and employees. Submit a sample of your artwork today.

To submit art for consideration for the cover or interior pages of The Permanente Journal, please use the following guidelines: Send us a high-quality color photograph of your artwork no smaller than 4”x5” and no larger than 8”x10”. Slides and digital images may also be submitted. Include a cover letter explaining your KP association, art background, medium, and a brief statement about the artwork (description, inspiration, etc).

Send artwork samples to:
Managing Editor, The Permanente Journal
500 NE Multnomah St, Suite 100, Portland, Oregon 97232
E-mail: permanente.journal@kp.org
Rh Positive

Across
1 South American flightless bird related to the emu
5 Scottish chemist, or a lab flask he invented
10 Assns (abbr)
14 Get better
15 Combining form meaning "race" or "culture"
16 500 sheets of paper
17 Killer whale
18 "Gone With the Wind" role for Clark
19 Prefix indicating "blood"
20 Disease classically associated with strep infection
23 Moves a camera across a scene
24 "___ and oriented x 3"
25 Eight who perform together
29 Fall short
31 Doc with the nose for a job
35 Upper extremity
38 ___ splicing
39 Cavities in organs such as bone and stomach
40 Feel mighty sore
41 More than ws or mos
42 Botanic source of pruritic rashes (2 words)
44 Alexander Fleming and William Osler, for example
45 Dangerous brand of mosquito
46 Sound of pain or disappointment
49 Sounds caused by diaphragmatic spasms
52 Serious condition of muscle breakdown
54 Jane ___
59 Like boots needing to be wiped
60 English school founded in 1440
62 US (abbr)
63 Bitter and stinging, as an odor
64 Highest point
65 Kennedy and Koppel
66 River flowing through Lyons to the Mediterranean
67 ___ stat, a device that adjusts the current flowing in a circuit

Down
1 Greek letter especially relevant to this puzzle
2 German mister
3 Every
4 Nasal ___
5 Skin prefix
6 Vermont hero Allen
7 Stimulates, as the appetite
8 Not a fan of (prefix)
9 College military program (abbr)
10 Heaven ___ (2 words)
11 Late heroic actor Christopher
12 More plucky
13 Feel pain, as from a blow
21 "What have they been ___?" (2 words)
22 ___ accompli
25 Sex fest
26 Pop idol who was #1 with "Believe"
27 Food containers
28 Hydrocarbon suffix
29 Trees of the pine family
30 At the first opportunity! (abbr)
32 Comic actor Bert
33 Burden of proof
34 Sporty auto models
35 Stomach product
36 South Korean president Syngman
37 "Don’t ___ with Bill"
40 It may be worth one or eleven
42 Tough outer coating
43 No problem
44 Heavy swords
46 ___ vessel, such as the aorta
47 Create verses that end in similar sounds
48 Like a rowing shell
49 ___ electric power
50 Element needed by the thyroid (variant spelling)
51 “Bonnie and ___”
53 Screen star and bridge expert Sharif
54 Plenty
55 Char the surface of a steak
56 Suffer from contact with 42-Across
57 Not "all" or "none"
61 ___ mycin or -natology

Visit TPJ on the Web for answers to this puzzle: www.kp.org/permanentejournal

Kenneth J Berniker, MD, is a Board-certified Emergency Physician at the KP Vallejo Medical Center. Dr Berniker has long enjoyed solving crossword and cryptic puzzles, and now creates his own. The challenges in creating the puzzles include: completing the grid with usable answers and perhaps a theme, generating interesting clues of suitable difficulty, being error-free in framing questions and answers, and injecting humor. Have fun, and please send him your comments. E-mail: kenneth.berniker@kp.org.
soul of the healer

“Sedona Bronze Dancer”
Taken in Sedona, Arizona, December 2002
By Letitia Fitzpatrick, MA

Ms Fitzpatrick is a Senior Communications Specialist for Permanente Clinical Systems Deployment in Pasadena, California.
The title *Big Doctoring in America* provoked my curiosity, partly because I am situated in Iceland—the geological and cultural bridge between Europe and the USA and a place from where the condition of American medicine is followed with great interest. The US system is widely believed to be the best in the world despite consuming a higher portion of the national gross domestic product than in any other country and despite a World Health Organization report\(^{1}\) ranking it as only 37th among the health care systems of 191 countries. Gro Harlem Brundtland (WHO Director-General at the time) acknowledged that “there is wide variation in performance, even among countries with similar levels of income and health expenditure” and asserted that “[i]t is essential for decision-makers to understand the underlying reasons so that system performance, and hence the health of populations, can be improved.”\(^{2}\)

Coming from a Nordic country where general practice has a strong tradition, I suspect that part of the American problem is the absence of a comprehensive primary health care system. The subtitle of the book—*Profiles in Primary Care*—therefore increased my interest even further.

What is it like to deliver temperate, deliberate primary health care in contemporary America in the shadow of compartmentalized, expensive, expansive high-tech medicine? Is doing so worth the effort? *Big Doctoring in America* aims to answer these questions. The book acquaints us with 15 devoted, visionary, experienced primary health care professionals whose mission, in their view, is to deliver affordable, humanistic, comprehensive health care. We also learn what has inspired or compelled these clinicians to show admirable determination, courage, and generosity.

The author, Fitzhugh Mullan—a professor of pediatrics and public health—presents the 15 narratives within a trustworthy theoretical framework. The book opens by introducing the professional ideology and mindset underlying primary health care at its best. Next, the author adds “flesh and blood” to the ideology of primary care by presenting the histories of devoted and determined clinicians. The accompanying photographs enhance our familiarity with these people and our feeling of learning from them. This phenomenon reminds me of the Aristotelian idea that we teach virtue by the practice of virtue.

The stories in *Big Doctoring* are purposefully selected from a total of 74 interviews, five of which previously appeared in *JAMA* (Profiles in Primary Care, 1998-9).\(^{3-7}\) The stories are recorded with impressive simplicity and sensitivity, reflecting the mind of an experienced, gifted clinician-writer equipped with a strong sense of the big and small issues that matter in people’s lives. The author also presents a good overview of the organization and history of the American health care system. The narratives reflect the development from generalist to super-specialist medicine in the 20th century, introduction of new financial steering systems, and the profound challenge of balancing professional autonomy and managed care.\(^{8}\)

The author also has a clear vision for tomorrow’s health care system. Mullan delivers the well-founded argument that primary care clinicians are the leading actors in any sensible health care system: “*Big Doctoring* is about a way of medical life, an approach to health care … that is humanist, comprehensive, efficient, and flexible, doctoring that builds on the legacy of the past and the rich tradition of care in medicine and nursing. To that, it adds the science and technology of the contemporary world, applied in a measured, evidence-based, and coordinated fashion … [providing] a foundation for health care that blends good science with good judgment.”\(^{9}\) Mullan closes by suggesting concrete policy strategies to strengthen primary health care in America. Although some readers might consider this important book controversial and polemical, I would recommend it to any serious health care professional at any career stage and to nonmedical readers interested in politics, public health, or philosophy of health care. The book is so well written and so enlightening that even clinicians in countries where primary health care is considered a self-evident necessity and specialty can expect to boost

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**Big Doctoring in America: Profiles in Primary Care**

by Fitzhugh Mullan, MD; Photographs by John Moses

Review by Linn Getz, MD

**The author also has a clear vision for tomorrow’s health care system.**

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**Linn Getz, MD, is a Norwegian general practitioner who works as an occupational physician at the National University Hospital of Iceland, Reykjavik. She is also a PhD candidate in community medicine at the Norwegian University of Science and Technology, Trondheim, Norway.**

E-mail: linngetz@med.is.
their professional inspiration and self-esteem.

“… at every moment of our lives, we all have one foot in a fairy tale and the other in the abyss …” writes Paulo Coelho in the opening of his new novel, *Eleven Minutes.* These words remind me that ultimately, medicine is a moral enterprise. The primary care professional’s mission is to establish a firm relationship with patients and to help them to make sense of the system as they face illness or death. Fitzhugh Mullan has got it right: Cost-effective, humane health care is best delivered in a context where people have access to a generalist trained—and well paid—to be their “navigator, personal coach, and medical friend.”

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**References**


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**The Best Words**

I wish our clever young poets would remember my homely definitions of prose and poetry, that is, prose,

—words in their best order; poetry,

—the best words in their best order.

— Samuel Taylor Coleridge, 1772-1834, poet and critic
Affect Regulation and The Repair of the Self
By Allan N Schore

In this most recent volume in his series, Allan Schore of the University of California at Los Angeles describes an extensive body of research and clinical observations supporting the idea that early development of the brain’s right hemisphere plays a critical role in an infant’s attachment to its primary caregiver. During the first three years of life, the centers in the prefrontal cortex of the infant’s right hemisphere respond to the interaction with the mother’s emotions in guiding the infant’s own emotional development.

In the preface, Schore explains the purpose and plan of the current book in the context of earlier volumes in the series:

In this book … I offer further exposition in the fields of developmentally-oriented psychotherapy and developmental neuropsychoanalysis. The rich body of data that emerged from basic brain research, as well as from psychobiology and psychophysiology was now, perhaps more so than any time before, relevant to clinicians.

An important theme of the book is that many aspects of Freud’s original theoretical and clinical models have been substantially updated and, in some cases, even radically altered. Schore places great emphasis on Attachment Theory (as set forth and developed by Bowlby) and its use of the concept of nonconscious internal working models. Schore seems to believe that any biases held by his readers must be measured against the ever-growing neurobiological evidence that Freudian theory and our understanding of brain function are no longer incompatible. As a nonpsychanalytic psychotherapist, I appreciated learning of the great efforts being made to scrutinize and revise psychoanalysis in neuroscientific terms—an effort that supplements the experimental approach within psychoanalysis itself.

Also interesting is the fact that a new journal, Neuro-Psychoanalysis (which began publication in 1999) lists an impressive editorial board, including psychoanalysts Schore, Otto Kernberg, and Arnold Modell as well as neuroscientists Antonio Damasio, Joseph LeDoux, Eric Kandel, Karl Pribram, and Oliver Sachs.

Another important theme is the neurobiological development of the self. On this topic, Schore presents a nearly overwhelming volume of research findings. From these findings, two particularly important subthemes emerged. The first is the greater role of the right prefrontal cortex as compared with the left during the first three years of life—with regard to influencing development of a sound emotional base:

This prefrontal region comes to act in the capacity of an executive control function for the entire right cortex, the hemisphere that modulates affect, nonverbal communication and unconscious processes … . In this manner, the child’s first relationship, the one with the mother, acts as a template for the imprinting of circuits in the child’s emotion-processing right brain, thereby permanently shaping the individual’s adaptive or maladaptive capacities to enter into all later emotional relationships … . Indeed, the right brain is thought to contain the essential elements of the self system (Mesulam and Geschwind, 1978; Schore, 1994).

A second major subtheme is the key role of the mother’s face and emotional expressions in determining the emotional development of the infant. The mother’s face—particularly her eyes—is the most potent stimulus in the infant’s environment. Schore quotes studies by Hoffman (1987) and Panksepp, et al (1985), which show that interactive mutual gazes between the mother and her infant trigger high levels of endogenous opiates in the child’s growing brain. These findings are related to Schore’s Regulation Theory, which emphasizes that attachment is essentially the right brain regulation of biological synchronicity between organisms.

Another theme discussed in the book addresses the relation between the right hemisphere and the lower brain centers, particularly the autonomic nervous system (ANS). Physicians whose patients have an illness with a strong psychosomatic component will be especially interested. The following quotation is representative of Shore’s presentation:

… the infant’s psychobiological response to trauma is comprised of two separate response patterns, hyperarousal and dissociation … . In the initial stage of threat an alarm reaction is initiated, in which the sympathetic component of the ANS is suddenly and significantly activated, resulting in
in increased heart rate, blood pressure, and respiration. Distress is expressed in crying and then screaming … This state of fear-terror is mediated by sympathetic hyperarousal, and it reflects increased levels of the major stress hormone corticotrophin releasing factor, which in turn regulates noradrenaline and adrenaline activity ….

But a second, later-forming, longer-lasting traumatic reaction is seen in dissociation, in which the child disengages from stimuli in the external world and attends to an "internal" world …. Traumatized infants are observed to be staring off into space with a glazed look. This parasympathetic dominant state of conservation-withdrawal occurs in helpless and hopeless stressful situations in which the individual becomes inhibited and strives to avoid attention in order to become "unseen." …

This primary regulatory process for maintaining organismic homeostasis … is characterized by a metabolic shutdown … and low levels of activity …. It is used throughout the lifespan when the stressed individual disengages in order "to conserve energies … to foster survival by the risky posture of feigning death, to allow healing of wounds and restitution of depleted resources by immobility" (Powles, 1992, p 213). 3,4,5

In evaluating the potential value of Schore’s book for readers of The Permanente Journal, I would like to compare the book to A General Theory of Love by Lewis, Amini, and Lannon,7 a book reviewed favorably here recently by Vincent J Felitti, MD.8 Both books cover the same basic material: the human infant’s development of a self on the basis of brain development; and interactions with the primary caregiver. But Shore’s book can be seen as the full text, whereas A General Theory of Love is more like a good abstract of the scientific materials. For many purposes (eg, saving time), the abstract may be sufficient. However, there are several deficiencies in the Lewis et al book that might incline an interested reader to spend the extra time required to read Schore’s book. The latter is more scholarly, far more fully referenced,9,10 and represents a more complete attempt to explain how evolving psychodynamic ideas are integrating with the field of neuroscience. To paraphrase an old expression, “You pays your money [$39 vs $24] and your time [363 pages vs 274], and you takes your choice.”

References

Banish The Clouds

When I am attacked by gloomy thoughts, nothing helps me so much as running to my books. They quickly absorb me and banish the clouds from my mind.

— Michel de Montaigne, 1533-92, French philosopher
The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures

By Anne Fadiman

Review by Carol A Redding, MA

The Spirit Catches You and You Fall Down is a stimulating adventure for any intelligent reader whose heart and mind are open to reaching beyond that which is familiar and understood. Against a backdrop of cultural mystery, tales of nations at war, an epoch of human misery, and a thundering clash of two worthy, well-intentioned cultures, a baby girl has epilepsy, and all who know her struggle to help her.

The child—Lia Lee—is the 13th born to mother Foua and father Nao Kao Lee, residents of Merced County, California. The Lees “… are among the 150,000 Hmong who have fled Laos since their country fell to communist forces in 1975.” Like many Hmong, the Lees were a fiercely independent family of self-sufficient farmers who, chased by war and political strife, in 1980 arrived in California, a land of foreign customs and languages where the Hmong would save their lives but lose their treasured identity as respected, productive people.

Lia was the first Lee child to be born in a hospital—a surreal experience for Foua, all of whose other children were delivered by Foua, unattended and in silence so as not to alert the evil spirits (dabs) to each new child’s presence. Nao Kao had dutifully buried the placentas of the first 12 children under the hut’s dirt floor so that their souls could find their way back home after death. (And by the time the Lees arrived in California, half of their children had already died.)

The book’s title is a literal translation of qaug dab peg, the Hmong phrase describing a seizure. Fadiman shows how the Hmong view of epilepsy is similar to views expressed in other periods and cultures—for example, by the ancient Greeks, who viewed epilepsy as a “sacred disease” of supernatural origin. Given both their natural concern for the health of their daughter and their reluctance to interfere with things supernatural, the Lees were burdened with an unwieldy internal struggle that would only worsen as they tentatively brought their seizing baby daughter repeatedly into the hospital’s emergency department.

There, unable to communicate with the child’s parents, the kind, well-intentioned medical staff endured the unspeakable frustrations of having to practice “veterinary medicine” on the seizing Lia. Despite everyone’s best efforts, the unavailability of translation services, combined with profound cultural differences, resulted in Lia being undermedicated, overmedicated, and mis-mediated. Lia’s seizures were increasingly severe, and her physicians knew that onset of an uncontrollable grand mal seizure was inevitable. Said one of Lia’s physicians, “It was so haunting. I started to have nightmares that it was going to happen, and I would be the one on call, and I couldn’t stop it and she was going to die right before my eyes.”

The Hmong are superior parents in general, and Fadiman illustrates the outstanding care the Lees provided to Lia. Nonetheless, the complexity of Lia’s medical regime would have befuddled even the most literate, American-born parents: “By the time she was four and a half, Lia’s parents had been told to give her, at various times, Tylenol, ampicillin, amoxicillin, Dilantin, phenobarbital, erythromycin, Cefclor, Tegetrol, Benadryl, Pedialyte, Vi-Daylin Multivitamins with Iron, Alupent, Depakene, and Valium” and that these drugs were to be administered only at certain times and under specific conditions.

Lia’s father said, “Sometimes the soul goes away but the doctors don’t believe it. I would like you to tell the doctors to believe in our neeb [healing spirit] … . The doctors can fix some sicknesses that involve the body and blood, but for us Hmong, some people get sick because of their soul, so they need spiritual things. With Lia it was good to do a little medicine and a little neeb, but not too much medicine because the medicine cuts the neeb’s effect. If we did a little of each she didn’t get sick as much, but the doctors wouldn’t let us give just a little medicine because they didn’t understand about the soul.”

The reciprocal frustration of the parents and of the clinicians are compounded by arrival of the grand mal seizure. Fadiman’s tale of the events leading up to and following this event make this modern tragedy—in which everyone fights for the good, yet no one wins—an opportunity for greater wisdom. Fadiman provides extraordinary insight into how vital is a thorough understanding of cultural diversity to successful practice of the medical arts.

Reference
Final Exit: The Practicalities of Self-Deliverance and Assisted Suicide for the Dying. 3rd edition
by Derek Humphry

The revised, updated edition of Final Exit: The Practicalities of Self-Deliverance and Assisted Suicide for the Dying, by Derek Humphry, is a “must-read” for all physicians, nurses, social workers, ethicists, and other health professionals—but especially those who care for people with advanced illness. The intended audience of the book is nonprofessionals, whether well or seriously ill.

Final Exit addresses contemporary human anguish and fear of dying without control, whether over pain, shortness of breath, incontinence, or just an unacceptable condition. Most people die from a chronic disease after protracted distress from symptoms and functional decline. Humphry sees the right to end one’s life as an evolving one: Currently, Humphry would limit the right to those with medical illnesses, but the author does not preclude future inclusion of mentally ill people without apparently meaningful lives and whose condition resists treatment.

Most readers of this book will never avail themselves of the methods described, but growing numbers of people want options to be available “just in case.” Indeed, the popularity of Humphry’s book highlights the growing acceptability of ending one’s life when disease makes life personally unacceptable. That decision varies over time and from person to person as their illness progresses, but the “medicalization” of dying has nonetheless created a new death-related anxiety: fear of becoming trapped in a soulless, technology-centered system of care from which no exit is possible.

The book suggests such concrete steps as:

- Make an advance directive, and consider hospice care.
- Ensure that your insurance is in order and that suicide would not preclude your beneficiaries from receiving a payout.
- Arrange for quick cremation so that measurement for lethal levels of drugs will be impossible.
- Take steps to ensure that you do not have treatable depression.

Other recommendations include asking your physician about his or her views on the subject. Humphry also recommends that you leave a copy of Final Exit next to where you die, so that your intent is clear.

Humphry is a pragmatist and recognizes that many people will be unable to find a sympathetic physician to prescribe needed medications. Moreover, some people will be unable to ask; for these people, he offers specific instruction for how to end their lives.

Since the book’s first appearance in print, Oregon voters twice approved the Death with Dignity Act, and a 1994 Oregon law established specific guidelines under which physicians in that state may lawfully prescribe medications for terminally ill adult patients to end their lives at a time chosen by the patient. The Death with Dignity Act defines “terminal” disease as a medically confirmed, irreversible, incurable disease that will probably produce death within six months. At present, Oregon is the only US state where physician-assisted suicide is legal.

Final Exit and its topic are uncomfortable for many people but should not be dismissed a “fringe” book. Failure of clinicians to communicate with seriously ill people and to adequately address their concerns, fears, and symptoms has been repeatedly documented. Although some people will choose to end...
their lives during the course of decline or serious illness, most will not; most people hope and expect that their physicians and health care systems will ensure that terminally ill patients die with dignity and that these patients will not feel the need for self-deliverance. Living up to that expectation will be a major challenge for clinicians and for a health care system driven by technology and by the philosophy that there is always one more thing that can be done for the patient.

References

Leaf and Bird

When I rise up
let me rise up joyful
like a bird.

When I fall
let me fall without regret
like a leaf.

— Wendell Berry, b 1934, poet, essayist, farmer, and novelist
As nurse practitioners continue to expand their role in medicine, protocols for guiding practice are paramount. Each state governs and defines a nurse’s scope of practice; the State of California defines this scope in the Nurse Practice Act. In the book *Women’s Primary Health Care: Protocols for Practice*, written by Winifred Star, RNP, Lisa Lommel, FNP, and Maureen Shannon, FNP, the authors set out to develop practice guidelines that are conventionally comprehensive but also include such sensitive topics as lesbian health, sexual abuse, and violence. The disease-specific protocols presented in the book emphasize women’s health with the intention that they be used as guidelines for practice. The authors have accomplished this tall task masterfully.

The title *Women’s Primary Health Care* is slightly misleading: Although the focus is on women’s health, many of the disease-treatment protocols listed in the book are pertinent to men’s health as well. Nonetheless, in each section of the book, the authors do use a wonderful technique of focusing on pathophysiology specific for women as compared with men. This technique was executed particularly well when discussing cardiovascular disorders—and specifically angina, a condition whose frequently late or misdiagnosis in women can result in a negative clinical outcome.

This book is filled with the latest information that would delight any nurse practitioner—whether student, beginning, or seasoned practitioner. Each section has a familiar narrative flow that begins with the pathophysiology of the disease followed by a SOAP (Subjective, Objective, Assessment, Plan) format, advice regarding when to consult a mentor, important reminders regarding patient education, and an extensive bibliography. The book is filled with evidence-based treatment plans that are supported by a bibliography that enables the practitioner to investigate further as needed. However, although this extensive book of protocols certainly offers some useful benefit for any reader, seasoned nurse practitioners might find that the book contains more information than they need. Therefore see this book as applicable mainly for nursing programs throughout the country: The book provides a great framework for practice and can serve as a multipurpose resource. Because no protocol for nursing practice should replace the sound clinical judgment necessary in each case, this book can be considered a fine adjunct to both common sense and sound medical advice.

I suggest that future editions consider including a section on obesity in the category of behavioral disorders. Whether obesity is conceived as a disease or as a physical sign, we can agree that the incidence of obesity—and its frequent sequelae, heart disease and diabetes—is increasing and therefore warrants discussion of treatment and prevention. In the current edition of the book, obesity is discussed in the Cardiovascular Disorders section as a comorbid condition; placing it in the Eating Disorders section might be more appropriate.

Overall, this book is excellently written and edited, focusing and expanding on the health and well-being of women. I look forward to adding it to my resource library for future use; I only wish that I had access to it when I was in nursing school.

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**Reference**

All PMG physicians and those clinicians eligible to do so may earn up to two hours of Category 1 credit for reading and analyzing the four designated CME articles, by selecting the most appropriate answer to the questions below, and by successfully completing the evaluation form. Please return (fax or mail to the address listed on the back of this form) to The Permanente Journal by July 29, 2005. You must complete all sections to receive credit. (Completed forms will be accepted until July 2006. Acknowledgment will be mailed within two months after receipt of form.)

The Permanente Journal has been approved by the American Academy of Family Physicians as having educational content acceptable for Prescribed credits. Term of approval covers issues published within one year from the distribution date of November 2004. This Spring 2005 issue has been reviewed and is acceptable for up to two Prescribed credits. Credit may be claimed for one year from the date of this issue.

**Section A.**


Which of the following is INCORRECT? Strategies that improve tobacco cessation rates include:

- a. menu of benefited behavioral interventions offered to members
- b. clinician advice to quit smoking at first visit to department
- c. benefited cessation medications available to members
- d. environmental policies, including smoke-free campuses

Which of the following is NOT applicable? A member satisfaction survey, in lieu of a patient encounter form, to measure clinician performance on advising smokers to quit:

- a. is not valid because of patient recall error
- b. makes it more difficult for clinicians to evaluate performance on this measure
- c. is not appropriate because advising smokers to quit is not a typical satisfaction indicator
- d. improves quality of care by emphasizing strong and clear advice to quit

**Article 2. Pain Management Doesn’t have to be a Pain: Working and Communicating Effectively with Patients who have Chronic Pain**

Which statement is INCORRECT? The risks of poorly controlled pain include:

- a. further loss of strength, flexibility, and function
- b. development of nervous system hypersensitivity
- c. sleeping too much
- d. development of depression and anxiety

Which statement is INCORRECT? Pseudoaddiction:

- a. is often mistaken for true substance abuse behavior
- b. is drug seeking behavior prompted by inadequate pain control
- c. often resolves with improved analgesia
- d. is evidence the patient should be tapered from opioid medications

**Article 3. Sharing Clinical Decisions by Discussing Evidence with Patients**

Which one of the following clinical scenarios is least appropriate for shared decision making?

- a. choice of antidepressants of psychotherapy for a patient with mild-moderate major depressive disorder?
- b. prostate cancer screening using prostate specific antigen (PSA)?
- c. antibiotics for treatment of three days of viral upper respiratory infection symptoms
- d. mammography screening for breast cancer in an average risk 44-year-old female

(Continued on next page)
Which of the following approaches is INCORRECT? Suggested approaches in using shared decision making include:

a. ask about patient concerns
b. use relative risk to describe benefits and risks of a course of treatment
c. use visual tools like simple graphs to supplement shared decision-making conversations
d. use high-quality written and online resources to supplement shared decision-making conversations


Planning for the management of high-risk, high-cost patients should involve all but which of the following choices?

a. preparing to manage unpredictable, acute medical events
b. systematically implementing evidence and consensus-based guidelines
c. preparing to mail educational booklets and lab reminders
d. evaluating staffing levels, based on specific tasks and patient numbers

Based on the results of the Medicare ESRD Demonstration Project, proactive disease management of high-cost, high-risk patients can be expected to lead to all but which of the following choices:

a. improved quality of life
b. higher patient satisfaction with access to physicians
c. decreased mortality rate
d. reduced global medical costs

**Objectives**

1) to inculcate the use of evidence-based medicine as part of the science of medicine. 2) to stress the art of medicine via enhanced patient physician communication, improved care experience for patients, and more satisfying care giving experience for physicians and staff through better teamwork. 3) to review appropriate updates on the diagnosis and treatment of clinical conditions. 4) to describe infrastructure and systems improvements that lead to improvements in outcomes and patient care experiences.

**Section B.**

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

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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)**

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