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**CALL FOR PAPERS AND ARTWORK**

**Papers**

The editors of The Permanente Journal are planning two theme issues in 2001 with a focus on Patient Safety (Summer) and Clinician Work Environment (Fall). These will join our Winter issue on New Technology and our annual Vohs Award issue in Spring. We are interested in articles that address the topics of Patient Safety and Clinician Work Environment from a clinical perspective, a health systems perspective, or an external affairs perspective. Our “instructions to authors” can be found in the back of each issue of TPJ as well as on our Web site at: www.kaiserpermanente.org/permanentejournal.html.

**Artwork**

Are you an “undercover” artist? Please consider uncovering your talent and sharing it with your peers. Artwork submissions are now being accepted for future covers and text pages. Why not submit a photograph of your work today?

Send us a high-quality color photograph of your artwork no smaller than 4"x5” and no larger than 8”x10”. Portrait orientation is preferred.
Editor’s Comments

Sex-Based Differences in Cardiovascular Diseases: Political or Biological?
Arthur L Klatsky, MD, Editor, Clinical Contributions

Currently an area of intense interest, it has long been recognized that important sex-specific differences exist for many cardiovascular problems with respect to epidemiologic features, disease development, clinical features, and outcomes. Examples of conditions more prevalent in women than in men are congenital ostium secundum atrial septal defects (still sometimes first recognized in adult life), patent ductus arteriosus, rheumatic valvular heart disease, mitral valve prolapse, primary pulmonary hypertension, and susceptibility to pro-arrhythmic effects of antiarrhythmic medications. It is noteworthy that concern about underappreciation of the importance of heart conditions in women is only a recent phenomenon. This delay is probably a consequence of the tendency by lay persons to think synonymously of CHD and cardiovascular disease, since CHD is the most prevalent cardiovascular disease.

The Perspective article about rheumatic fever in this issue includes insightful observations by a physician with long experience and interest in rheumatic fever. Rheumatic fever itself has no major sex predilection, as confirmed by the 1945 article. Yet it is well known, and still without explanation, that chronic cardiac valvular sequelae, especially mitral disease, is more common in women, having about a 2:1 female/male prevalence. Because rheumatic heart disease, still common in underdeveloped countries, often involves women in the childbearing age, much of the substantial older literature concerns complications and management during pregnancy and lactation. A MEDLINE search of the linkage of “rheumatic heart disease” and “sex differences” yielded only one article, indicating that this aspect has been of little interest in recent decades.

By contrast, a MEDLINE search of “coronary heart disease” and “sex differences” yielded 427 articles in the recent literature. This discrepancy became an issue about ten years ago, largely because of the fact that most clinical trials of CHD management before 1990 inappropriately involved only or almost only men. This difference in reporting was a consequence, most likely, of the fact that CHD develops earlier in men and probably was truly more prevalent in men before recent extension of life expectancy. It is now clear that total CHD mortality is equally prevalent in the sexes. The regrettable clinical trial disparity has probably been fully corrected, largely through the efforts of the NIH Office of Research on Women’s Health.

In the Summer 2000 issue of The Permanente Journal, the first women’s health issue, an article presented Kaiser Permanente data which showed that a substantial proportion (18%) of women hospitalized for CHD have no known major CHD risk factors at the time of diagnosis. Because known risk factors have sometimes been given more importance in women than in men when assessing the likelihood of a coronary diagnosis, these data reemphasize the fact that total clinical evaluation in suspected CHD should always be the prime approach. Sex differences may exist in relative strength of specific risk factors to CHD development; but, if so, such differences play little role in initial assessment of symptoms that might represent a CHD episode.

Biologically determined sex-related CHD differences certainly exist. One probable example is detailed in this issue in an article entitled “Sex-based differences in causes of hospitalization for coronary heart disease.” These Kaiser Permanente data show that men are more likely to have an acute myocardial infarction as the initial CHD presentation while women are more likely to have angina (unstable or stable). This sex difference in clinical CHD presentation, which was also found in the Framingham Heart Study, has implications for understanding CHD pathogenesis as well as for management decisions.

It is beyond the scope of these comments to exhaustively discuss the debates about possible sex differences with respect to diagnostic evaluation, disparities in either treatment or prognosis, and prevalence of nonatherosclerotic coronary syndromes or of noncardiac syndromes that mimic CHD problems. All of these areas are pertinent both to various forms of bias and possible biological sex-based differences in CHD manifestations. Differences have been found between the sexes in sensitivity, specificity, and predictive value of the various noninvasive tests, based substantially on age-specific differences in pretest likelihood of a CHD diagnosis. Disparities in management seem to mostly disappear when disease severity is controlled for.

Possible differences in management related to the misperception that this is a “male” disease have become a potent political issue. The following statement illustrates one type of material that has appeared in the public media: “Even some doctors still think of heart disease as primarily a man’s problem. Studies have found that doctors provide women with less testing, less follow-up, less treatment, and less surgery. That may partly explain why once heart disease does strike, it’s far deadlier for women.” It is not surprising that cardiologists occasionally see women who, having heard of possible sex bias, press, on this basis, for diagnostic and therapeutic procedures (including even coronary arteriography CABG). It is a given that physician bias should never play a role in medical decisions. Neither should patient demand, whatever the basis, influence decisions to perform inappropriate tests or procedures.

Thus, the answer to the query in the title is “both.” Important sex-related disparities in CHD and other cardiovascular problems are a fact, as is the case in many medical fields of interest. The political aspect has driven much productive and thought-provoking research. All considered, this has had a constructive influence on medical practice and on women’s health.

References
2. Pettiti DB, Sidney S, Quesenberry CP, Klatsky AL. Likelihood that a woman will have no major risk factors at the time of a first myocardial infarction or stroke. Perm J 2000;4(3):35-8.
Letters to the Editor

To the editor.—As an Ob/Gyn with Kaiser Permanente, I feel compelled to respond to statements in the Summer 2000, Volume 4, No. 3 issue of The Permanente Journal, in the article entitled “Proposed Care Management for Women with Estrogen Deficiency: Identification, Risk Stratification, Treatment.” In this article, Dr Tuso states “For women with a uterus, these regimens commonly prescribe 0.625 mg equine estrogen taken orally every day with daily or cycled medroxyprogesterone at a dosage of 5 mg to 10 mg per day.” Today the use of continuous combined (25 days per month or every day) is with 2.5 mg of medroxyprogesterone acetate.

Dr Tuso also states that “Hormone replacement is contraindicated in women who have a history of ... uterine cancer ....” Uterine cancer is usually broken down into cervical (no estrogen effect) and endometrial (associated with unopposed estrogen). Today there are many gynecologists who are prescribing estrogen to selected patients who have had cancer.

Arthur Fleisher, MD, Ob/Gyn
Kaiser Permanente, Panorama City, CA

In Reply.—I agree completely with Dr Fleisher’s comments.

Philip Tuso, MD
Kaiser Permanente, Lancaster, CA

To the editor.—I just ran across an article on fat embolism from the Spring 1998 issue of The Permanente Journal (http://www.kaiserpermanente.org/medicine/permjournal/spring98pj/perspective.html) with comments by Jerry L. Schilz, MD: Kaiser Permanente Medicine 50 Years Ago: Fat Embolism By A. Bernard Gray, MD; Nathan Meadoff, MD.

Dr Nathan Meadoff was my father. It was such a surprise to run across this article, something only possible now courtesy of the Internet and my curiosity. I am an Emergency Physician, but started medical school a month after my father's fatal MI (1967). Reading this article is the closest to professional interchange I’ve ever had with my father. What a thrill! Thanks.

Thomas Meadoff, MD

Genius

The especial genius of women I believe to be electrical in movement, intuitive in function, spiritual in tendency.

Margaret Fuller (1810-50), US critic, social reformer and writer
Not long ago, I conducted an orientation for eight Group Health Permanente physicians, four of whom were women. That’s not particularly remarkable any longer; more interesting is the fact that a couple of the women were in surgical specialties—interesting, but today not too unusual.

When I graduated from Georgetown Medical School in 1972, I was one of six women in a class of 120—an improvement from a generation earlier, when women were discouraged from medicine as a career. Today, as Dr Kate Scannell pointed out in the Summer 2000 issue of *The Permanente Journal*, medical school classes are approaching gender parity with more than 40% female students.

As a pediatrician, I spent the early part of my career in a field long considered “traditional” for women. I first worked in the Henry Ford Hospital system, then at Harvard Community Health Plan, and now I’m here at Group Health Permanente. I’ve been associated primarily with large nonprofit organizations that are generally more progressive. I never experienced a lot of discriminatory pressure, even though I was a member of the first sizeable wave of women in medicine. I know this has not been the case for all female physicians. But what I’m happiest to see is that as a result of the large numbers of women entering medicine and societal change as a whole, the field itself has changed. We now have “women’s health,” guided and practiced by women physicians to a degree that was inconceivable not so long ago. We also have a profession that is more flexible and responsive because that is what women have wanted, demanded, and earned. This development has been of great benefit to our male colleagues as well.

Here at Group Health Permanente, for instance, most of our family practice doctors work less than full-time, so they can balance the needs of a demanding profession with the equally important needs of family and home. This policy embraces both men and women: Consider how common it is now for men to take a leave to care for and enjoy a baby. Not so long ago, this circumstance would have been unthinkable—especially for physicians. This sort of flexibility is one of the great benefits of working at a large organization.

When I graduated from medical school, about 80% of physicians worked for private or small group practices rather than large entities. Now, the split is about 50/50, in part because the flexibility women demanded is much more feasible in a large organization than in a small practice. This is another change in medicine, initiated by women, that has benefited both men and women.

This is why organizations such as Group Health and Kaiser Permanente are such popular places to work. Our turnover rate at Group Health Permanente is 5-6%, well below the rate at comparable medical employers in the Northwest and below the rate for professionals in less family-friendly fields, such as high technology.

Today the Group Health Permanente medical staff is one-third women—quite a change from those pioneering years at the beginning of my career. Last year, we recruited 58% men and 42% women—much like the proportions in medical school today.

To me, this change demonstrates in day-to-day terms the change for women in medicine over the past 25 years. Although things are certainly much better for women now, I like to think medicine is also much better as a result. What still needs to change? When I entered medicine, the options for women were research, practice, or teaching. Management leadership wasn’t an option. Although the gender statistics for practicing physicians have changed significantly, the progress of women in research, academics, and especially management lags far behind. The qualities of caring, flexibility, and humanization that women have brought to non-management areas of the medical profession—and all professions—will enhance health care leadership, too. I’m proud to be part of it.
Women's Work and Health: Interactions and Implications

History of Women's Work and Health

In 1993, a California study on women asked, “Safe at Work?” and concluded, “No.” What has changed since then? Indeed, what has changed since 1700, when Bernardino Ramazzini described infections in health care workers and lung disease in laundresses? Midwives no longer contract syphilis of the hands, but health care workers contract diseases from other bloodborne pathogens. Pulmonary fibrosis no longer develops in laundresses from lye, but clothes handlers incur repetitive strain injuries from ironing. Lamentably, in the last 300 years, we have made few advances in understanding the causes of work-related disorders. Ramazzini favored the noxious nature of menses, wet clothing, and overheated blood. Today, we still can only guess about the reproductive toxicity of most chemicals. Worse, we know almost nothing about the toxicity of combinations of chemicals. The lack of good long-term studies is not as much a testimony to failures of science but rather to our society’s indifference to workers and consequent lack of research funding in occupational health and safety.

Current Status of Women’s Work and Health

Although women and men work in the same jobs, their distribution within the work force differs. About 80% of workers in office settings and almost 90% of workers in health care settings are women. Life situations can be more trying and complex for women. They earn about three quarters as much for working the same number of hours as men do. Career “glass ceilings” and sexual harassment still exist. Women also tend to have remarkably different caregiving responsibilities for children and elders: five out of six single parents are women, and many of these women also work outside the home.

The Clinician’s Role—First Take a Good Work History

We can start by obtaining thorough work histories from our patients. “Work” may be paid, unpaid, or both. Work may involve exposures to toxic materials (correction fluid in offices, latex in hospitals, cleaning agents at home); circumstances (tensions and deadlines everywhere); air contamination (“sick building syndrome” in offices, waste anesthetic gases in hospitals, sidestream smoke at home). A good work history gathers accurate information about exposure to chemicals or to other agents and use of video display terminals (VDTs) or other equipment requiring repeated or extreme movements. A job title is not enough: some women painters work on bridges, not canvases. A woman who works as a painter might be exposed to lead and have to wear a self-contained breathing apparatus. Indeed, about 9% of the 8.1 million construction workers in the United States are women. A job “analysis” is better. A job analysis lists agents, work hours, lifting and overtime requirements, and protective gear. A Material Safety Data Sheet (MSDS) gives even more information: chemicals, acute and chronic damage, and antidotes. Every company in the United States is required to have a MSDS for each chemical it uses or manufactures. This document should be available to the worker and to clinicians, although there is always danger that a worker’s inquiry about work safety can lead to harassment or job termination.

Ask About Job Satisfaction and Life Circumstances

Taking a work history involves more than asking about job exposures and requirements. Asking about work also includes asking about job circumstances and satisfaction. A colleague of mine once opined that the leading cause of death of women at work was boredom, but, in fact, homicide is the leading cause of death of women at work.
persons die each year at work in the United States. Of women who die at work, 42% are murdered compared with 11% of men. Most killings occur in retail and service sectors. Contrary to myth, personal disputes or problems with coworkers or former coworkers account for less than 10% of murders at work. Nonfatal assaults of both women and men workers are also of concern. Health care patients, primarily in nursing homes and hospitals, account for the largest proportion of assailants (45%). Attacks by nonpatients occur in hotels, motels, and all-night markets, where low-paid, front-line service workers are at risk. If actual death at work is uncommon, strain from repetitious, emotionally exhausting, all-consuming work (often overseen by video cameras or computers staffed by distant supervisors) can be deadening.

Remember to Ask About Work at Home and Home Life

In addition to gathering information about a woman’s paid work, learning about her work at home and work habits is essential as well. This knowledge includes use of risky substances such as oven cleaners, garden pesticides, solvents, or any hazardous agents used in paid work. Ergonomics at home can be hazardous. Repetitive strain can occur from improperly installed VDTs or from lifting babies or parents. The effects of medications or drug abuse, including alcohol and tobacco, can add to work exposure and increase the severity and incidence of devastating illnesses such as cirrhosis and mesothelioma.

Difficulty at the workplace and difficulty at home, or both, can result in more frequent and, often, more frustrating health-seeking visits. Violence, harassment, and exposure to toxic chemicals or circumstances can occur anywhere. Effective, efficient care takes this work/home mosaic into account. Finding all the pieces by asking pertinent questions can solve the puzzle. One way to explore these interwoven forces is to ask, “How are you bearing up?” and “Has anyone hurt, frightened, or harassed you lately?” These questions asked at every visit apply to patients’ work as well as to their domestic lives.

Occupational Health Referrals

Work issues are on patients’ minds. When health care professionals ask about work, patients usually feel more comfortable knowing they are in caring, thorough hands. Nonetheless, some courage is required to ask questions about work because so few of us have been trained in that arena. Courage is especially required to ask questions when we may not know what to do with the answers. But after a few visits (an entire occupational health history does not need to be taken at the first interview), we may have concerns about a patient’s work at home and on the job. Where can we turn for help? The Permanente Medical Group has a cadre of first-rate occupational health specialists available for consultation or referral. Local health departments or universities may have occupational and environmental medicine departments. Material Safety Data Sheets can be crucial. One of the best resources for general information is the National Institute of Occupational Safety and Health’s (NIOSH) fax line (1-800-35NIOSH). Web sites can be helpful as well, such as the Centers for Disease Control and Prevention (http://www.cdc.gov) and NIOSH (http://www.cdc.gov.niosh).

Answering Questions Clinicians Ask About Work and Health

Now that some occupational health terrain has been mapped, let us move to the front lines and list questions frequently asked by clinicians:

**What Can I Do about Repetitive Strain Injury?**

Repetitive strain injury can happen to you and your family as well as to your patients and office staff. VDTs are a major source of problems. Do not dismiss complaints. The most important thing to do is to adjust every workplace and playplace to fit each person: “A’ is for Adjustability.” That policy, along with early intervention and appropriate treatment, is the best answer to repetitive strain injury. Exercise, nonsteroidal anti-inflammatory agents (even aspirin), and splints can help, along with early referral to rehabilitation.

**What Are the Most Common Problems of Health Care Workers? What Can I Do about These Problems?**

Although violence is a headline matter, more commonplace damage to health care staff occurs in nursing homes, where lost time injuries from overexertion are four times the national rate. Most reported problems are musculoskeletal, especially back injuries, just as with other workers. Appropriate staffing, equipment, and training can decrease injuries. A “lift team” can be beneficial as well. At one medical center during a nine-month period, not one nurse (nor lift team member) was injured when the team was on duty whereas several per month were injured before. The worst fear is
needle sticks. Not every device has the same risk. Hollow-bore, blood-filled sharps are the worst. Safer devices must be tested and purchased. Equipment that cannot be “sabotaged” is the safest. That is, the safest equipment requires no activation step and no relearning but rather reinforcement of usual techniques. No size fits all, and, again, adjustability is most important. Safer sharps disposal is also key.

The most common and invidious problems for health care workers are emotional burdens. Emotions do not go away spontaneously. Exhaustion, grief, depression, conflicts with colleagues and family members, discouragement, competition, the “hurry sickness”—all these are signs of pressure and problems that need addressing, not burying. Advising your colleague-patients to get in touch with values and to take some time for themselves is essential. Even taking a deep breath every so often or taking a sip of water so that one eventually has to take time off to go to the restroom are little activities that can improve a day. Asking revealing questions is important. Psychiatrist Dr. Michael F. Myers asks, “Where am I most indispensable?” (oral communication, December 1998). The answer can lead to important insights and decisions for our patients and for ourselves.

What Travel Tips Can I Provide?

Do not recommend or take melatonin for jet lag. Dosage and long-term effects are untested.

Travel agents may have a conflict of interest about giving health precautions. The CDC’s free International Traveler’s Information Line (877-394-8747) gives up-to-date, accurate information about infections and vaccinations. The CDC’s Yellow Book is available by calling the same number. The US Department of State’s Office of American Citizens’ Services gives timely information on street violence, terrorism, insurrections, and other dangers.

How Can I Decide Whether or Not to Give a Person Permission to Work?

From the ethical standpoint, communication must be honest and restricted. A clinician cannot give an excuse for a patient if the patient has not been seen. Say instead, “The patient reports an inability to work.”

Do not give a diagnosis to an employer unless it is clearly work-related or the worker gives permission. No employee “permission” is uncoerced, however. Therefore, do not mention hypertension, cancer, emotional problems, or any other medical or psychiatric diagnoses that can be misinterpreted by uninformed human resources or management personnel.

A single clinician cannot know all the fine points of work capability. If there is a doubt whether a person has the necessary stamina for work after myocardial infarction or because of muscle incoordination associated with multiple sclerosis, for example, referral to rehabilitation/occupational therapy for job simulation can be illuminating.

Research Implications

Work is a source of money, respect, self worth, status—and dangers. Work exposure and responsibilities may interfere with diagnosis and treatment. Toxic substances and circumstances such as excess physical demands, excess heat, and excess hours and responsibilities can affect health. These observations lead to the following research goals:

- Learn interactions of chemicals, circumstances, and life.
- Define actual workloads that women carry, including home and job.
- Discover ways to prevent problems, including the best kinds of social support for those who have demanding lives.

Summary

Life, work, and health interact. We must recognize this in our own lives as well as in our patients’ lives. Become active on behalf of your patients:

- Urge research.
- Visit workplaces.
- Urge adoption of social policies that help women who work 100 hours per week. This means advocating for additional help for child care and elder care.
- Inform patients about workplace risks just as you warn about smoking and alcohol.

Be active on your own behalf:

- Analyze your own workplace for safety and health risks.
- Set limits.
- Ask, “Am I asking too much of my friends and family?”
- Check your “energy bucket.” If frustration, frenzy, anger, resentment, or a sense of being dismissed empty your energy bucket, refill it by reexamining values, aligning them with your workdays, and making time for yourself and loved ones. The goals include regaining personal and professional satisfaction as well as maintaining relationships and a sense of humor.
Conclusion

The worksite cannot be separated from home life; health depends on both. Environmental hazards and stresses, including violence, are encountered at home and on the job. Physicians therefore need to add a few questions to their routine visit questions:

- Tell me about your work (for pay, at home, your hobbies, in your community) and how you feel about it.
- Can you get me a copy of the Material Safety Data Sheets of the chemicals to which you are exposed?
- Has anyone hurt, frightened, or harassed you lately?

Physicians need to be compassionate while asking these questions. Author-statesman John Gardner has said, “Be kind, for everyone you meet is fighting a hard battle” (unpublished manuscript, September 2000). William Osler said, “Do the kind thing, and do it first.” Women’s work is difficult and can be satisfying—whether paid, unpaid, or both. Our challenge is to extend our professional interests and clinical investigation to all of the interactions of women’s work, lives, and health.

References

Association of Hostility with Coronary Artery Calcification in Young Adults: the CARDIA Study. Coronary Artery Risk Development in Young Adults


**CONTEXT:** Psychosocial factors, including personality and character traits, may play a role in the development and expression of coronary artery disease.

**OBJECTIVE:** To evaluate whether hostility, a previously reported predictor of clinical coronary artery disease, is associated with coronary calcification, which is a marker of subclinical atherosclerosis.

**DESIGN:** Prospective cohort study.

**SETTING AND PARTICIPANTS:** Volunteer subsample from Chicago, IL, and Oakland, CA, consisting of 374 white and black men and women, aged 18 to 30 years at baseline, who participated in the Coronary Artery Risk Development in Young Adults (CARDIA) study. Cook-Medley hostility assessment data were collected at baseline from 1985 to 1986 and at year five examinations from 1990 to 1992. After the ten-year examinations in the 1995-1996 year, electron-beam computed tomographic scans were performed.

**MAIN OUTCOME MEASURES:** Presence of any detectable coronary artery calcification (coronary calcium score >0), and coronary artery calcium scores of 20 or higher.

**RESULTS:** In logistic regression analysis adjusting for age, sex, race, and field center comparing those with hostility scores above and below the median of the distribution of the present sample, the odds ratio of having any coronary calcification was 2.57 (95% confidence interval, 1.31-5.22), and the odds ratio of having a calcium score of 20 or higher was 9.56 (95% confidence interval, 2.29-65.9) for calcium scores of 20 or higher. The associations with any coronary artery calcification persisted after adjusting for demographic, lifestyle, and physiological variables. Results using a cynical distrust subscale were somewhat weaker than for those using the global hostility score. Power was inadequate to perform sex- or race-specific analyses.

**CONCLUSION:** These results suggest that a high hostility level may predispose young adults to coronary artery calcification.

Calcification of the Aortic Arch: Risk Factors and Association with Coronary Heart Disease, Stroke, and Peripheral Vascular Disease


**CONTEXT:** Calcium deposits in coronary and extracoronary arterial beds may indicate the extent of atherosclerosis. However, the incremental predictive value of vascular calcification, beyond traditional coronary risk factors, is not clearly established.

**OBJECTIVE:** To evaluate risk factors for aortic arch calcification and its long-term association with cardiovascular diseases in a population-based sample.

**DESIGN AND SETTING:** Cohort study conducted at a health maintenance organization in Northern California.

**PARTICIPANTS:** A total of 60,393 women and 55,916 men, aged 30 to 89 years at baseline who attended multiphasic health checkups between 1964 and 1973 and for whom incidence of hospitalizations and/or mortality data were ascertained using discharge diagnosis codes and death records through December 31, 1997 (median follow-up, 28 years).

**MAIN OUTCOME MEASURE:** Hospitalization for or death due to coronary heart disease, ischemic stroke, hemorrhagic stroke, or peripheral vascular disease, as associated with aortic arch calcification found on chest radiograph at checkup from 1964-1973.

**RESULTS:** Aortic arch calcification was present in 1.9% of men and 2.6% of women. It was independently associated with older age, no college education, current smoking, and hypertension in both sexes, but it was inversely related to body mass index and family history of myocardial infarction. In women, aortic arch calcification was also associated with black race and elevated serum cholesterol level. After adjustment for age, educational attainment, race/ethnicity, cigarette smoking, alcohol consumption, body mass index, serum cholesterol level, hypertension, diabetes, and family history of myocardial infarction, aortic arch calcification was associated with an increased risk of coronary heart disease (in men, relative risk [RR], 1.27; 95% confidence interval [CI], 1.11-1.45; in women, RR, 1.22; 95% CI, 1.07-1.38). Among women, it was also independently associated with a 1.46-fold increased risk of ischemic stroke (95% CI, 1.28-1.67).

**CONCLUSION:** In our population-based cohort, aortic arch calcification was independently related to coronary heart disease risk in both sexes as well as to ischemic stroke risk in women.

Ethnic Differences in Pulmonary Function in Healthy Nonsmoking Asian-Americans and European-Americans.


We investigated ethnic differences in spirometry and gas transfer (DL(CO)) in a young, healthy population of nonsmoking physicians and medical students aged 22-33 years, of European or Asian descent. Each answered questions detailing ethnic background, medical history, level of physical activity, and length of residence in the United States. Spirometry and single-breath DL(CO) maneuvers were performed in accordance with ATS standards. Venous blood was measured for hemoglobin (Hb). The same equipment was used to test all subjects. Data were analyzed by multiple linear regression. Eighty subjects were studied, with 20 in each of the following groups: European male, European female, Asian male, and Asian female. Asian values for forced vital capacity, forced expiratory volume in 1 s (FEV1), and alveolar volume (VA') were significantly lower than for Europeans, but DL(CO), DL(CO)/VA', and DL(CO)/VA'/Hb did not differ significantly. These differences could not be attributed to age, length of residence in the United States, activity level, or variance in baseline...
characteristics and anthropometric measurements, and therefore represent a true physiologic difference. Ethnic differences between individuals of Asian and European backgrounds should be considered when interpreting pulmonary function tests, especially when predicted values are based on populations of European descent.


**Risk of Pulmonary Embolism and/or Deep Venous Thrombosis in Asian-Americans**


Several reports from Asian countries suggest a low prevalence of pulmonary embolism (PE) and deep venous thrombosis (DVT) in Asians, and sparse US data show that a slightly higher prevalence of PE/DVT in “nonwhites” than in whites is evident in all geographic regions except the Pacific region (California, Oregon, and Washington) where “nonwhites” include a larger proportion of Asians and Hispanics than in other US locations. We prospectively studied PE/DVT hospitalizations in 128,934 persons in relation to traits determined at health examinations in 1978 to 1985. Through 1994, 337 persons were subsequently hospitalized for PE and/or DVT (for PE first, n = 206). Cox proportional-hazards models with nine covariates were used. In multivariate models, the following RRs (95% confidence intervals) were found for PE/DVT combined: black/white = 1.1 (0.4 to 1.4); Hispanic/white = 0.7 (0.3 to 1.5); and Asian/white = 0.2 (0.1 to 0.5; p = 0.002).

The lower risk of Asians was present in each sex and for persons first hospitalized for either PE or DVT. Covariates with significant positive relations to risk were age, male sex, body mass index, and a composite coronary disease risk/symptom variable; covariates not significantly related were education, marital status, smoking, and alcohol. These data suggest that Asians have very low risk of PE/DVT, which may account for US geographic variations in white/non-white risk differences. Possible explanations include the absence of hazardous mutations or unspecified PE/DVT protective traits in Asians.

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**Self-Monitoring of Blood Glucose: Language and Financial Barriers in a Managed Care Population with Diabetes**

Karter AJ; Ferrara A; Darbhintian JA; Ackerson LM; Selby JV. Diabetes Care 2000 Apr;23(4):477-83.

**OBJECTIVE:** Self-monitoring of blood glucose (SMBG) is a cornerstone of diabetes care, but little is known about barriers to this self-care practice.

**RESEARCH DESIGN AND METHODS:** This cross-sectional study examines SMBG practice patterns and barriers in 44,181 adults with pharmacologically treated diabetes from the Kaiser Permanente Northern California Region who responded to a health survey (83% response rate). The primary outcome is self-reported frequency of SMBG.

**RESULTS:** Although most patients reported some level of SMBG monitoring, 60% of those with type 1 diabetes and 67% of those with type 2 diabetes reported practicing SMBG less frequently than recommended by the American Diabetes Association (three to four times daily for type 1 diabetes, and once daily for type 2 diabetes treated pharmacologically). Significant independent predictors of nonadherent practice of SMBG included longer time since diagnosis, less intensive therapy, male sex, age, belonging to an ethnic minority, having a lower education and neighborhood income, difficulty communicating in English, higher out-of-pocket costs for glucometer strips (especially for subjects with lower incomes), smoking, and excessive alcohol consumption.

**CONCLUSIONS:** Considerable gaps persist between actual and recommended SMBG practices in this large managed care organization. A somewhat reduced SMBG frequency in subjects with linguistic barriers, some ethnic minorities, and subjects with lower education levels suggests the potential for targeted, culturally sensitive, multilingual health education. The somewhat lower frequency of SMBG among subjects paying higher out-of-pocket expenditures for strips suggests that removal of financial barriers by providing more comprehensive coverage for these costs may enhance adherence to recommendations for SMBG.

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**Predictors of Glycemic Control in Insulin-Using Adults with Type 2 Diabetes**


**OBJECTIVE:** To determine the characteristics that influence glycemic control among insulin-using adults with type 2 diabetes.

**RESEARCH DESIGN AND METHODS:** We studied all 1333 eligible members of a large not-for-profit health maintenance organization who responded to a 1997 survey. We tested associations among demographic, treatment, and psychometric variables with mean 1997 HbA1c values. The Problem Areas in Diabetes (PAID) instrument was used to assess the emotional effect of living with diabetes, and the Short Form 12 Physical Function Scale was used to assess the effect of physical limitations on daily activities. Based on differences between and within treatment groups, we built models to predict glycemic control for subgroups of subjects who were using insulin alone and those who were using insulin in combination with an oral hypoglycemic agent.

**RESULTS:** Younger age, lower BMI, and increased emotional distress about diabetes (according to the PAID scale) were all significant predictors (P < 0.05) of worse glycemic control. However, except among individuals with an HbA1c level of > 8.0 who were receiving combination therapy, only approximately 10% of the variance in glycemic control could be predicted by demographic, treatment, or psychometric characteristics.

**CONCLUSIONS:** Personal characteristics explain little of the variation in glycemic
control in insulin-using adults with type 2 diabetes. Possible explanations are that the reduced complexity of control in type 2 diabetes makes the disease less sensitive to personal factors than control in type 1 diabetes, that health-related behavior is less driven by personal and environmental characteristics among older individuals, or that, in populations exposed to aggressive glycemic control with oral hypoglycemic agents and nurse care managers, personal differences become largely irrelevant.

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Evaluation of the Effect of Performance Monitoring and Feedback on Care Process, Utilization, and Outcome

Petitti DB; Contreras R; Ziel FH; Dudl J; Domurat ES; Hyatt JA. Diabetes Care 2000 Feb;23(2):192-6.

OBJECTIVE: We evaluated a program of performance measurement and monitoring by assessing care process, utilization of services, and outcomes.

RESEARCH DESIGN AND METHODS: Information on 63,264 diabetic individuals who were continuously enrolled as members of Kaiser Permanente Southern California from 1 January 1994 to 31 December 1997 was used to evaluate the program. Time trends in testing for glycemic test and control and screening for dyslipidemia, use of lipid-lowering drugs, and microalbuminuria were evaluated as measures of care process. Time trends in hospitalization, outpatient appointments, prescriptions, and laboratory tests were evaluated as measures of utilization. Outcomes were hospitalization for myocardial infarction, ischemic stroke, and lower-limb amputation.

RESULTS: Between 1994 and 1997, improvements were evident in the process measures. The mean number of hospitalizations and the mean and median number of outpatients visits did not change. The mean number of laboratory tests increased from 13.2 in 1994 to 23.6 in 1997. The mean number of prescriptions for any medication increased from 19.7 to 24.3. Hospitalization rates for myocardial infarction did not change, but rates increased for ischemic stroke and lower-limb amputation.

CONCLUSIONS: Our findings suggest that measurement and monitoring of clinical performance can bring about modest improvements in measures of the processes of care in the absence of financial incentives, centrally driven interventions, and specialty care for all patients. In our setting, process improvements were associated with higher utilization of laboratory services and more prescriptions without an immediate return in terms of lower hospital utilization.

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Maternal Pre-Eclampsia/Eclampsia and the Risk of Sudden Infant Death Syndrome in Offspring

Li DK; Wi S. Paediatr Perinat Epidemiol 2000 Apr;14(2):141-4.

To determine whether maternal exposure to pre-eclampsia/eclampsia during pregnancy increases the risk of sudden infant death syndrome (SIDS) in offspring, we conducted a population-based case-control study using the California linked birth and death certificate data. All infants who died of SIDS (ICD-9 code 798.0) during 1989-91 were identified as cases. More than 96% of the identified SIDS cases were diagnosed through autopsy. Ten controls who did not die from SIDS were randomly selected for each case from the birth certificate matched to the case on the year of birth. Among 2029 cases and 21,037 controls included in the final analysis, mothers of 49 cases (2.4%) and 406 controls (1.9%) had a diagnosis of either pre-eclampsia or eclampsia noted on the birth certificate. After adjustment for maternal age, prenatal smoking, race/ethnicity, parity, maternal education, gestational age at the initial visit for prenatal care, infant year of birth and infant sex, maternal pre-eclampsia/eclampsia during pregnancy was associated with a 50% increased risk of SIDS in the offspring (odds ratio = 1.5, 95% confidence interval 1.1, 2.0). Potential under-reporting of pre-eclampsia/eclampsia on the birth certificates was likely to be non-differential and is unlikely to explain the finding. Fetal hypoxia resulting from pre-eclampsia/eclampsia or immunological aetiology affecting the risk of both pre-eclampsia/eclampsia and SIDS may explain the finding.

A Randomized Comparison of Home and Clinic Follow-Up Visits After Early Postpartum Hospital Discharge


BACKGROUND: Recently enacted federal legislation mandates insurance coverage of at least 48 hours of postpartum hospitalization, but most mothers and newborns in the United States will continue to go home before the third postpartum day. National guidelines recommend a follow-up visit on the third or fourth postpartum day, but scant evidence exists about whether home or clinic visits are more effective.

METHODS: We enrolled 1163 medically and socially low-risk mother-newborn pairs with uncomplicated delivery and randomly assigned them to receive home visits by nurses or pediatric clinic visits by nurse practitioners or physicians on the third or fourth postpartum day. In contrast with the 20-minute pediatric clinic visits, the home visits were longer (median: 70 minutes), included preventive counseling about the home environment, and included a physical examination of the mother. Clinical utilization and costs were studied using computerized databases. Breastfeeding continuation, maternal depressive symptoms, and maternal satisfaction were assessed by means of telephone interviews at two weeks’ postpartum.

RESULTS: Comparing the 580 pairs in the home visit group and the 583 pairs in the pediatric clinic visit group, no significant differences occurred in clinical outcomes as measured by paternal or newborn rehospitalization within ten days postpartum, maternal or newborn urgent clinic visits within ten days postpartum, or breastfeeding discontinuation or maternal depressive symptoms at the two-week interview. The same was true for a combined clinical outcome measure indicating whether a mother-newborn pair had any of the above...
outcomes. In contrast, higher proportions of mothers in the home visit group rated as excellent or very good the preventive advice delivered (80% vs 44%), the provider’s skills and abilities (87% vs 63%), the newborn’s posthospital care (87% vs 59%), and their own posthospital care (75% vs 47%). On average, a home visit cost $255 and a pediatric clinic visit cost $120.

**Conclusions:** For low-risk mothers and newborns in this integrated health maintenance organization, home visits compared with pediatric clinic visits on the third or fourth postpartum hospital day were more costly, but were associated with equivalent clinical outcomes and markedly higher maternal satisfaction. This study had limited power to identify group differences in rehospitalization, and may not be generalizable to higher-risk populations without comparable access to integrated hospital and outpatient care.

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**Papanicolaou Smear History and Diagnosis of Invasive Cervical Carcinoma among Members of a Large Prepaid Health Plan**

Sung HY; Kearney KA; Miller M; Kinney W; Satayya GF; Hiatt RA. *Cancer 2000 May 15;88(10):2283-9.*

**Background:** Despite the widespread use of Papanicolaou (Pap) smear screening, substantial morbidity and mortality from cervical carcinoma continue in the US. Although access to screening is a major barrier to use of the Pap smear, invasive cervical carcinoma (ICC) still is observed in health plan members who have comprehensive preventive care coverage.

**Methods:** For all women diagnosed with ICC between 1988 and 1994 in a large prepaid health plan, the authors retrospectively reviewed the medical records for prediagnosis Pap smear history to identify antecedents to ICC.

**Results:** Of 642 women diagnosed as having ICC, 455 (71%) had been plan members for ≥30 of the 36 months before diagnosis. Of these 455 women, 240 (53%) had no Pap smear during the 6-36 months prior to diagnosis (ie, were nonadherent to screening), 127 (28%) had only “normal” Pap smear results, 42 (9%) had at least one abnormal Pap smear and were adequately followed, 17 (4%) had at least one abnormal result without adequate follow-up, and 29 (6%) were classified as “other.” Compared with adherent women, more nonadherent women presented with later stage disease, were symptomatic at the time of diagnosis, were older, and were of a race/ethnicity other than non-Hispanic white.

**Conclusions:** Nonadherence to screening recommendations was found to be the most important modifiable antecedent to ICC in this population. The rate of incidence of ICC could be reduced by interventions to increase screening in women who do not have Pap smears regularly and by the use of newer screening technologies to reduce the false-negative rate of Pap smears.


Ettinger B; Woods NF; Barrett-Connor E; Pressman A. *Menopause 2000 May-Jun;7(3):143-8.*

**Objective:** The purpose of this study was to examine two predictors of women obtaining hormone replacement therapy (HRT) counseling: socioeconomic status and access to health care.

**Design:** During May-July 1998, by means of random-digit telephone dialing, 749 postmenopausal women who were living in the United States and aged 50-65 years were interviewed. On average, they were 56.8 years and 11.8 years postmenopausal. Most (86.0%) were Caucasian, and their median annual income was approximately $40,000. Nearly all (90.8%) had medical insurance coverage; 47.0% of those insured received care from a managed care organization. Access to medical care was evidenced by 92.3% being under the care of a primary care physician, 92.3% ever having had a mammogram, 96.9% ever having had a pelvic examination, and 91.1% ever having had a serum cholesterol determination.

**Results:** Of these 749 women, 75.4% reported that they had received counseling about post-menopausal HRT from healthcare providers. Both level of education and level of income were associated with an increased likelihood that HRT counseling would be obtained. Having a personal physician, and particularly receiving care from a gynecologist, increased the likelihood that counseling would be available. There were no substantial differences in counseling frequency between women in managed care plans and those having other types of health insurance. In a multivariate model, adjusted odds ratios for receiving HRT counseling were 2.9 (95% confidence interval [CI] = 1.7-4.8) for having an annual income of $50,000 or more versus less than $30,000, 2.8 (95% CI = 1.7-4.5) for receiving care from a gynecologist versus other primary care physician, 1.9 (95% CI = 1.1-3.2) for being Caucasian versus not, and 1.5 (95% CI 1.0-2.2) for having a hysterectomy versus not.

**Conclusions:** Three quarters of a sample of US postmenopausal women aged 50-65 years reported that they had been counseled about HRT. However, women of lowest socioeconomic status and those who did not have a primary care physician were least likely to have received counseling. No differences were observed in prevalence of counseling between women in managed care settings and those with other types of health insurance. The findings suggest that special efforts are necessary to provide menopause education and counseling to underserved women.

**Efficacy of Pneumococcal Conjugate Vaccines in Large Scale Field Trials.**


**Background:** Each year Streptococcus pneumoniae causes approximately 1.2 million deaths worldwide from pneumonia. In the United States S. pneumoniae is esti-
mated to cause 500,000 cases of pneumonia and seven million episodes of acute otitis media annually.

**Conjugate Vaccines**: The current pneumococcal polysaccharide vaccine is ineffective in children <2 years old and may not produce an adequate antibody response until children reach the age of five years. Pneumococcal conjugate vaccines are immunogenic after primary and booster vaccination in young children and in children and adults with immunodeficiencies. Immunization with conjugate vaccines also induces a strong and rapid anamnestic response and enhanced functional activity of antibodies. Two large scale field trials of pneumococcal conjugate vaccines were initiated in 1995, one in California and one in Finland. The California trial, involving 37,868 children, evaluated the efficacy for acute otitis media and pneumonia in children and represented a significant advance in the prevention of childhood infectious diseases.

**Following Depression in Primary Care: Do Family Practice Physicians Ask about Depression at Different Rates Than Internal Medicine Physicians?**

Nicelols GA; Brown JB. Arch Fam Med 2000 May;9(5):478-82.

**OBJECTIVE**: To determine whether the proportion of chronically or recurrently depressed patients of family practice and internal medicine physicians differed in the proportion reporting that their primary care physician asked them about depression symptoms.

**DESIGN**: A cross-sectional observational study of chronically or recurrently depressed survey respondents who identified a family practice or internal medicine physician as their primary care provider.

**SETTING**: A large not-for-profit group-model health maintenance organization in the northwestern United States, with a population representative of its service area.

**RESULTS**: Preliminary results indicate 94% efficacy against invasive pneumococcal disease caused by serotypes included in the vaccine in fully or partially vaccinated children. Preliminary evidence from large scale field trials indicates that pneumococcal conjugate vaccines are effective in reducing invasive pneumococcal disease as well as acute otitis media and pneumonia in children and represents a significant advance in the prevention of childhood infectious diseases.

**CONCLUSION**: Family practice physicians may be more attentive to depressive disorders than internal medicine physicians.

**Can Percent Free Prostate-Specific Antigen Reduce the Need for Prostate Biopsy?**


**BACKGROUND**: In a recent multicenter study, percent free prostate-specific antigen (PSA) enhanced the specificity of PSA testing in prostate cancer screening.

**OBJECTIVE**: To determine whether the percent free PSA could be as effective in reducing the need for biopsy in a managed care setting as in an academic setting.

**DESIGN**: Prospective blinded study conducted by using Hybritech Tandem PSA and Hybritech Tandem free PSA assays (Beckman Coulter, Inc, Fullerton, California).

**PARTICIPANTS**: 250 men (63 with prostate cancer and 187 with benign prostate conditions) who were older than 40 years of age, had a PSA level of 4.0 to 10.0 ng/mL, and had a histologically confirmed diagnosis.

**MAIN OUTCOME MEASURES**: Sensitivity and specificity of percent free PSA.

**RESULTS**: The median percent free PSA values for patients with cancer (free PSA, 13%) significantly differed from that for patients without cancer (free PSA, 17%) (P = 0.001). When a free PSA cutoff of 25% was used, the sensitivity was 97% (95% CI, 92-100%) and the specificity was 13% (CI, 8% to 18%). These results were not significantly different from those obtained in the multicenter study (95% sensitivity, 20% specificity for a free PSA cutoff of 25%).

**CONCLUSION**: The results obtained in a managed care organization were similar to those obtained at large university medical centers and show that the percent free PSA can be used to enhance the specificity of PSA testing for prostate cancer.
Sex-Based Causes of Hospitalization for Coronary Heart Disease

To evaluate sex-based differences in clinical manifestations of coronary heart disease (CHD), we prospectively studied sex and other predictors of hospitalization for CHD in 56,926 men (2802 cases) and 72,008 women (1449 cases) for whom baseline data were available from previous examinations. Cox models with ten covariates were used to study first hospital admission for CHD. In age-adjusted (AA) and multivariate (MV) analyses, men had substantially greater relative risk (RR) for acute myocardial infarction (ICD-9 code 410, n = 1757, AA RR = 2.6, MV RR = 2.7) and for chronic ischemic heart disease (ICD-9 codes 412, 414, n = 573, AA RR = 3.3, MV RR = 3.3) than for other acute syndromes (ICD-9 code 411, n = 848, AA RR = 1.6, MV RR = 1.5) or for angina (ICD-9 code 413, n = 753, AA RR = 1.6, MV RR = 1.6); all p values <0.001. Most CHD predictors were more strongly related to risk of coronary artery disease in women, but this relation was similar for the CHD diagnostic subsets. Risk of later death from CHD was similar for the sexes. These data show a major independent sex-based difference in CHD-related diagnoses leading to hospitalization: men are at greater risk for acute myocardial infarction, and women are at greater risk for stable or unstable angina.

Methods

Subjects and Data
Baseline data were obtained from results of voluntary health examinations given to 128,934 KP members in San Francisco and Oakland, California from 1978 through 1985. The examination included queries about sociodemographic status, habits, medical history and symptoms, and health measurements.

Ascertainment of Hospitalization for CHD
Subjects were monitored until December 31, 1991; until death; until termination of health plan membership; or until first CHD-related hospitalization at a KP facility in Northern California. Duration of patient follow-up totaled 889,611 person-years for the 128,934 persons in the study population. Primary diagnosis for 3931 persons (63% men) hospitalized for CHD included acute MI (ICD-9 code 410), “other acute” CHD syndromes (mainly “unstable angina,” ICD-9 code 411), “angina pectoris” (ICD-9 code 413), and “chronic ischemic heart disease” (ICD-9 codes 412 or 414) (Table 1).

Analytic Methods
The Cox proportional hazards model was used for age-adjusted and multivariate analyses. Most multivariate models included age, sex, race, education, marital status, body mass index, cigarette smoking, and a composite “CHD risk” variable consisting of an affirmative response to any of 12 baseline items pertaining to CHD risk or symptoms. Some models also included systolic blood pressure, blood glucose level, and total blood cholesterol level. We also studied subsequent mortality in relation to first CHD hospitalization diag-

Several of these areas of interest may have implications pertinent to various forms of bias ...
nosis by using an automated matching system to screen for deaths in California through 1994. This result was validated by manual review conducted by two investigators (MAA, ALK).

Results

Table 2 shows demographic characteristics and selected traits of persons hospitalized for any CHD-related diagnosis. On average, women were older than the men by about three years. There was a substantially greater proportion of black women than black men. In general, women were more likely to have CHD-related risk traits, including smoking, lifelong alcohol abstinence, the CHD risk variable, and history of diabetes (Table 2). This higher prevalence of CHD-related traits among women was generally similar for the four subsets of CHD-related clinical diagnoses. These traits were all included among covariates used in the multivariate analyses.

Among patients who had any CHD-related diagnosis, male/female relative risks for age-adjusted and multivariate analyses were identical (RR = 2.0; 95% CI = 1.9-2.1; p < 0.001). Table 3 shows age-adjusted and multivariate relative risk for the four subsets of CHD-related clinical diagnoses. Each subset shows a preponderance of men at p < 0.001. However, the data showed a greater male-female disparity (p < 0.001) between 1) risk of hospitalization for either acute MI (RR = 2.7) or chronic ischemic heart disease (RR = 3.3) and 2) risk of hospitalization for other acute syndromes (RR = 1.5) or angina (RR = 1.6). Very small differences were observed between age-adjusted and multivariate odds ratios. Independence of these disparities from race was confirmed by observation that the male-female difference in risk was similar for each racial group represented—white, black, and Asian (data not shown).

Although the established CHD predictors were generally more strongly related to CHD risk in women, the strength of this relation differed little across the subsets of CHD-related clinical diagnoses (Table 4). Age, body mass index, and the composite CHD risk variable were strong predictors in both sexes; for each clinical diagnostic subset, the composite CHD risk variable was a stronger predictor in women than in men. The stronger relation between smoking and CHD diagnoses in women was present in all diagnostic subsets except angina; and for all diagnostic subsets, the inverse relation between alcohol use and CHD diagnoses was slightly stronger in women than in men. Total blood cholesterol level was strongly related to all diagnostic subsets in both sexes. Systolic blood pressure and blood glucose level showed the expected relations to diagnostic subsets in both sexes with no major disparities except that black men were at substantially lower risk than white men for acute MI and chronic ischemic heart disease, whereas black women were at lower risk for acute MI and other acute syndromes. Men were the only group in which the data showed a substantial inverse relation between higher educational attainment and acute MI or angina.

Data obtained as late as ten years after hospitalization showed identical mortality rates for men and women ...

### Table 1. Sex of 3931 persons admitted to hospital for Coronary Heart Disease (CHD)*

<table>
<thead>
<tr>
<th>CHD-related diagnosis</th>
<th>Total No. patients</th>
<th>No. (%) men</th>
<th>No. (%) women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any (ICD-9 codes 410-414)</td>
<td>3931</td>
<td>2482 (63)</td>
<td>1449 (37)</td>
</tr>
<tr>
<td>Acute MI (ICD-9 code 410)</td>
<td>1757</td>
<td>1201 (68)</td>
<td>556 (32)</td>
</tr>
<tr>
<td>Other acute condition (ICD-9 code 411)</td>
<td>848</td>
<td>456 (54)</td>
<td>392 (46)</td>
</tr>
<tr>
<td>Angina (ICD-9 code 413)</td>
<td>753</td>
<td>411 (55)</td>
<td>342 (45)</td>
</tr>
<tr>
<td>Chronic CHD (ICD-9 codes 412, 414)</td>
<td>573</td>
<td>414 (72)</td>
<td>159 (28)</td>
</tr>
</tbody>
</table>

* Among 128,934 patients (including 56,926 [44%] men, 72,008 [56%] women) who received voluntary health examination during the period 1978 through 1985.

b P < .0001 for ICD-9 code 410 or 412/14 vs ICD-9 code 411 or 413.
men to die of any cause or of CHD, whereas women who were initially hospitalized for stable or unstable angina were 20% less likely than men to die of any cause or of CHD. However, after adjustment for age, this sex-based difference in mortality was significant at \( p < 0.05 \) for comparison of any two diagnostic subsets in any combination. For each diagnostic subset, multiple hospitalizations for CHD occurred slightly more in men (46%) than in women (39%).

Eight women and two men were hospitalized for Prinzmetal’s variant angina (ICD-9 code 413.1) or Syndrome X (ICD-9 code 413.9), and 2620 persons (47% of whom were women) were hospitalized for nonspecific chest pain syndromes (ICD-9 code 786.5).

**Comments**

These prospective hospitalization data are similar to the Framingham Study CHD incidence data\(^2\) in suggesting that CHD in men is more likely to manifest initially as acute MI, whereas CHD in women is more likely to manifest initially as angina. Relatively high rates of CHD manifesting in women initially as acute MI and nonacute MI syndromes were also reported in several clinical series.\(^1,3,5,21\) Although this finding has been accepted as a true difference,\(^20\) possible selection bias should be examined. Selective gender-related admission would seem unlikely to influence hospitalization for acute MI, but hospitalization for diagnostic evaluation of chest pain could be influenced by sex-related bias about perceived likelihood of CHD. That 53% of patients hospitalized for nonspecific chest pain were men is indirect evidence against the possibility that hospital admissions for stable or unstable angina were substantially biased with respect to sex. The preponderance of men diagnosed with chronic ischemic heart disease is more problematic and difficult to evaluate, because inclusion of some patients in this mixed group represented surgery or other procedures, whereas inclusion of other patients represented sequelae of CHD, such as heart failure and arrhythmia. The relatively high preponderance of men diagnosed with chronic ischemic heart failure is therefore likely to represent a combination of higher male risk for sequelae of acute MI (eg, heart failure) and a greater likelihood that men with any CHD diagnosis will undergo interventional procedures (eg, surgery).

Our finding that standard coronary risk factors were more prevalent in women hospitalized for CHD than in men hospitalized for CHD is generally compatible with other published findings.\(^2,3,5,9\) However, our findings showed no consistent sex-related disparity for the subsets of clinical diagnoses we studied. In addition, the small differences between age-adjusted and multivariate data shown in our study (Table 3) suggest independence from the covariates as a group. Thus, our data do not support the hypothesis that risk factor disparities explain sex differences in initial clinical manifestation of CHD.

---

### Table 2. Demographic characteristics of persons admitted to hospital for CHD-related diagnosis

<table>
<thead>
<tr>
<th></th>
<th>Acute MI</th>
<th>Other Acute Condition</th>
<th>Angina</th>
<th>Chronic CHD</th>
<th>Any CHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age at diagnosis (yr)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>63</td>
<td>64</td>
<td>63</td>
<td>62</td>
<td>65</td>
</tr>
<tr>
<td>Women</td>
<td>68</td>
<td>65</td>
<td>66</td>
<td>63</td>
<td>68</td>
</tr>
<tr>
<td>Age &gt;70 yr at diagnosis (no.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>16</td>
<td>11</td>
<td>17</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Women</td>
<td>24</td>
<td>14</td>
<td>23</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Race (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>66</td>
<td>64</td>
<td>63</td>
<td>70</td>
<td>65</td>
</tr>
<tr>
<td>Women</td>
<td>61</td>
<td>54</td>
<td>61</td>
<td>64</td>
<td>59</td>
</tr>
<tr>
<td>Black</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Men</td>
<td>22</td>
<td>23</td>
<td>26</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>Women</td>
<td>33</td>
<td>36</td>
<td>29</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>Asian</td>
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</tr>
<tr>
<td>Men</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Women</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Smoker (%)(^a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>29</td>
<td>23</td>
<td>30</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>Women</td>
<td>36</td>
<td>30</td>
<td>21</td>
<td>31</td>
<td>39</td>
</tr>
<tr>
<td>Nondrinker (%)(^b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>11</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Women</td>
<td>26</td>
<td>27</td>
<td>25</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>At risk for CHD (%)(^c)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>65</td>
<td>72</td>
<td>74</td>
<td>74</td>
<td>69</td>
</tr>
<tr>
<td>Women</td>
<td>74</td>
<td>76</td>
<td>80</td>
<td>89</td>
<td>78</td>
</tr>
<tr>
<td>History of diabetes (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>12</td>
<td>10</td>
<td>11</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Women</td>
<td>15</td>
<td>12</td>
<td>11</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

CHD = coronary heart disease

\(^a\) At baseline examination
\(^b\) Lifelong alcohol abstainers at baseline examination
\(^c\) Answered “Yes” to any of 12 items about medical history and symptoms
### Table 3. Relative risk (RR)* for CHD diagnosis in men vs women

<table>
<thead>
<tr>
<th>Analytic model</th>
<th>Acute myocardial infarction (95% CI)</th>
<th>Other acute condition (95% CI)</th>
<th>Angina (95% CI)</th>
<th>Chronic CHD (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-adjusted</td>
<td>2.6 (2.3 – 2.9)</td>
<td>1.6 (1.4 – 1.8)</td>
<td>1.6 (1.4 – 1.8)</td>
<td>3.3 (2.7 – 3.9)</td>
</tr>
<tr>
<td>Multivariateb</td>
<td>2.7 (2.4 – 3.0)</td>
<td>1.5 (1.3 – 1.8)</td>
<td>1.6 (1.4 – 1.9)</td>
<td>3.3 (2.6 – 4.0)</td>
</tr>
</tbody>
</table>

* P < 0.001 for all RR  
*b Controlled for age, race, body mass index, education, marital status, smoking, alcohol intake

### Table 4. Relation* between demographic characteristics and four CHD-related diagnoses in men and women

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Relation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Strongly positive for all diagnoses in both sexes; RR's slightly greater in women</td>
</tr>
<tr>
<td>Body mass index</td>
<td>Strongly positive for all diagnoses in both sexes; no evident sex disparities</td>
</tr>
<tr>
<td>Risk for coronary artery disease (“Yes”/“No”)*</td>
<td>Strongly positive for all diagnoses in both sexes; RR greater in women</td>
</tr>
<tr>
<td>Black race (vs white race)</td>
<td>Inverse for acute MI and chronic ischemic heart disease in men; positive for acute MI and angina in women</td>
</tr>
<tr>
<td>Asian race (vs white race)</td>
<td>No relation in either sex</td>
</tr>
<tr>
<td>Never married (vs married)</td>
<td>Inverse for acute MI and angina in men; inverse for acute MI in women</td>
</tr>
<tr>
<td>College graduate (vs no college)</td>
<td>Slightly inverse for acute MI and angina in men only</td>
</tr>
<tr>
<td>≥ 1 pack cigarettes/day (vs none)</td>
<td>Strongly positive for all diagnoses in both sexes; for angina, slightly stronger in women</td>
</tr>
<tr>
<td>1-2 alcoholic drinks/day (vs none)</td>
<td>Inverse for acute MI in men; for acute MI and other acute conditions in women; stronger in women</td>
</tr>
<tr>
<td>Total blood cholesterol level</td>
<td>Strongly positive for all diagnoses in both sexes; no evident disparities</td>
</tr>
<tr>
<td>Systolic blood pressure</td>
<td>Positive for acute myocardial infarction and other acute conditions in men and for acute MI in women; stronger in women</td>
</tr>
<tr>
<td>Blood glucose level</td>
<td>Slightly positive for acute MI and other acute conditions in men and for acute MI and chronic ischemic disease in women</td>
</tr>
</tbody>
</table>

* P < 0.05  
* Answered “Yes” to any of 12 items about medical history and symptoms
Could the explanation be that a larger proportion of women admitted for a non-MI, CHD-related diagnosis have nonatherosclerotic syndromes and that these syndromes are erroneously coded as atherosclerotic CHD? Women are more likely to have Prinzmetal variant angina and Syndrome X, and eight of the ten patients so diagnosed in our study were women. If such dilution of the group of women as acute coronary syndromes and angina were substantial, these diagnoses could reasonably be expected to affect follow-up mortality data, because nonatherosclerotic syndromes have a better prognosis than atherosclerotic disease. As already stated, survival in women was not statistically significantly different than for men in any subset of CHD-related clinical diagnoses.

Our age-adjusted data for mortality rates differ from those in some other studies. In those studies, women diagnosed with acute MI were substantially older than men compared with our subjects, and a greater proportion of these women than men were diagnosed with Q-wave infarctions, heart failure, and cardiogenic shock. Death among men, in contrast, was more likely to occur outside the hospital setting.

Could this disparity in CHD-related diagnoses for men and women indicate a biological sex difference in coronary atherosclerosis? Data relevant to this speculation are sparse. In one report, CHD plaques in eight young women with fatal CHD were compared with CHD plaques in older men and women with fatal CHD. Compared with the older men and women, these young women had a substantially higher percentage of cellular fibrous tissue and lipid-rich foam cells and lesser amounts of dense, fibrous calcified tissue; this result was interpreted as suggesting greater potential reversibility of plaque formation. However, a study using intravascular ultrasound analysis failed to show any quantitative or qualitative difference in coronary atherosclerosis between men and women. Other reports suggest different effects of male and female hormones on the interaction of lipid-laden macrophages and endothelial damage. The pertinence of these reports to a sex-based difference in clinical manifestation of CHD is unclear. The possibility of a biological, sex-related difference in atherosclerotic plaque composition remains hypothetical.

Effects of estrogenic hormones in prevention of CHD has become highly controversial, estrogenic substances clearly could affect atherosclerotic mechanisms—not only via lipid effects but also via effects on endothelial function and vascular injury response. In addition, a sex-based difference (possibly hormonally mediated) may also be inherent in thrombophilic or spontaneous antithrombotic tendencies, and this difference might affect the relative likelihood of acute MI vs other CHD syndromes. We did not ascertain which patients in our study were receiving hormone replacement therapy at first hospitalization for CHD.

With respect to first CHD hospitalization, we conclude: 1) among persons hospitalized for CHD-related diagnoses, men are more likely to be diagnosed with acute MI, whereas women hospitalized for CHD-related diagnoses are more likely to have unstable or stable angina, 2) this biological, sex-based disparity is independent of established risk traits for CHD, 3) no explanation for this independence is clear, and 4) a biological, sex-based difference in atherosclerotic plaque composition, endothelial function, or thrombotic tendency is likely.

Previous Presentation: Portions of this material were presented in Abstract form at the 46th Annual Session of the American College of Cardiology in Anaheim, CA, March 1997.

Acknowledgments: This research was supported by grants from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) (1 R01 AA 10830-01), the Alcoholic Beverage Medical Research Foundation, and the Direct Community Investment Benefit Program.

We thank Cynthia Landy for data collection, Harald Kipp for programming assistance, and Sally McBride Allen for technical assistance.

References
“Boats on Lake Titicaca”
by Udo Wahn, MD

The cover photo of this issue was also taken by Dr Wahn.
Uterine Artery Embolization for Treatment of Uterine Fibroids

By Arnold J Klein, MD;
Martin L Schwartz, MD, PhD

Uterine Artery Embolization for Treatment of Uterine Fibroids

To be presented at the 67th annual meeting of the Pacific Coast Obstetrics and Gynecology Society, Kona (Island), Hawaii, November 14-19, 2000, and submitted to the American Journal of Obstetrics and Gynecology.

Introduction

Uterine fibroids are by far the most common indication for hysterectomy. Bleeding, pain, pressure effect, or a combination of these symptoms may force some women with these benign tumors to have hysterectomy, but most women with these benign tumors may be monitored without intervention, and some women may be treated medically. Because many women are uncomfortable with the idea of hysterectomy, the past decade has seen increasing interest in alternatives to hysterectomy as pharmacologic and other less invasive surgical procedures have been developed.

By far, the most promising of these new approaches is uterine artery embolization (UAE), an interventional radiologic procedure which is done with the patient sedated but conscious. In this procedure, a single femoral artery is first catheterized. Then, under fluoroscopic control, the catheter is guided into one, then into the opposite uterine artery, and fine, nonabsorbable particles are injected into each uterine artery.1-5

The benefits of the UAE procedure are striking: the risks of major abdominal surgery are avoided, recovery usually takes about one week (compared with six weeks for hysterectomy), and the patient is left with no scar and no psychological issues related to loss of an emotionally charged body part.

Development of UAE

Use of UAE for treatment of fibroids was first reported from France by Ravina in 1995.1 In a 1997 meeting of the American Association of Gynecologic Laparoscopists, two case series with very promising short-term results were presented.4-5 Also in 1997, Goodwin1 reported on UAE done in a series of 11 patients at the University of California Los Angeles (UCLA) Medical Center. In these series, after a follow-up period ranging from six months to 20 months, UAE had produced a 40%-80% decrease in mean uterine volume and a 48%-92% decrease in bleeding.1-3

Introduction of UAE at Kaiser Permanente

After hearing these presentations, one of us (MLS), an obstetrician/gynecologist, came to believe that this new minimally invasive procedure could become an accepted treatment for fibroids, that patient demand for UAE would probably escalate, and that in this era of aggressive marketing and the Internet, news of UAE might be disseminated as rapidly as it was for laparoscopic cholecystectomy more than a decade earlier. Both of us (MLS and AJK) felt that Kaiser Permanente (KP) should be a leader in offering this procedure to its members.

But despite our shared enthusiasm for implementing this procedure, we had entered the era of evidence-based medicine and therefore wondered whether it was reasonable to introduce into our clinical practice a new procedure for which the medical literature did not contain an extensive number of case reports nor describe any major follow-up beyond two years. For the following reasons, we concluded that this introduction would be reasonable:

• More than men, women decide on a health plan for themselves and their family.
• Having other options than hysterectomy is extremely important for many women. If KP did not offer this procedure while our competitors did, members might wish to change their health plan, an event which could cause adverse publicity in our community.
• Compared with hysterectomy, on the basis of 1) experience with UAE for treatment of obstetric hemorrhage, 2) embolization data from treating other organ systems, and 3) the limited data available on UAE for treatment of fibroids, UAE appears to result in substantially less morbidity.1-8
• Use of interventional radiologists skilled in UAE for fibroids is advantageous because these same skills can save lives in rare cases of obstetric hemorrhage.
• Superficial analysis suggested that UAE would not increase our costs, at least in the short term.
• Permanente physicians wish to be viewed in our community as leaders in implementing minimally invasive surgical procedures.

For these reasons, one of us (AJK)—an interventional radiologist—became the radiology department counterpart to Dr Schwartz in developing UAE within KP. Dr Scott Goodwin (an interventional radiologist) and Dr Bruce McLucas (a gynecologist)—both from UCLA and both having extensive experience with UAE—were willing to share their expertise and helped us to develop UAE protocols and technical aspects of the UAE procedure. In}

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MARTIN L SCHWARTZ, MD, PhD (right), is an obstetrician gynecologist who has been a member of Northwest Permanente since 1977. E-mail: Martin.L.Schwartz@kp.org
July 1998, Dr Klein performed the first UAE procedure for KP in Portland, Oregon.

**Kaiser Permanente Protocols for UAE**

We first developed an algorithm of care and patient inclusion/exclusion criteria. We then developed a detailed document for informed consent, assembled preoperative and postoperative standing orders for UAE, and standardized the procedure for using UAE to treat fibroids in the angiography suite. We then made this material available on the KP Intranet site, sent material about the UAE procedure to all members of the obstetrics and gynecology department, and worked to gain their support for implementing the UAE procedure. We observed healthy skepticism about the wisdom of incorporating the UAE procedure into clinical practice. Initially, consensus did not exist; however, with the support of the department chiefs and with some trepidation, we proceeded to implement the UAE procedure.

**Patient Selection and Care Algorithm**

Initially, all patients interested in having the procedure were evaluated by Dr Schwartz; subsequently, other physicians in the obstetrics and gynecology department participated in the program. After screening the patient and reviewing the informed consent document with her, physicians contacted Dr Klein, who reviewed the case, contacted the patient, and scheduled and performed the procedure. After Dr Klein developed sufficient experience with UAE, he trained our other interventional radiologists, who then became involved in this program. Initially, the authors tightly regulated referrals for UAE and the procedure itself; this precaution was taken for patient safety and because of our concern that any early, adverse incident could result in pressure to discontinue UAE.

Women are candidates for UAE if they have not responded to hormonal treatment (with or without invasive therapy) of symptoms related to uterine fibroids (ie, bleeding, pain, pelvic pressure) and if they desire an alternative to surgical therapy. Women are not candidates for UAE if they have any of the following: 1) desire for future fertility; 2) poorly controlled diabetes mellitus, vasculitis, or bleeding diathesis; 3) history of pelvic irradiation; 4) active, recent, or chronic pelvic inflammatory disease; 5) rapidly enlarging uterus, especially with a single fibroid; 6) presence of fibroid on a narrow pedicle.

Informed consent is obtained from patients after we discuss with them the risks of the procedure (Table 1). Although this list of risks is lengthy, its thoroughness does not approach that of the well-conducted preoperative conference associated with hysterectomy. A detailed conference about UAE is conducted by both the gynecologist and the interventional radiologist with the patient preoperatively. Alternatives to UAE (Table 2) are also routinely discussed with patients who are considering having UAE instead of hysterectomy for treatment of uterine fibroids.

**Clinical Details of the UAE Procedure**

Interventional radiologists currently do UAE as an outpatient procedure using conscious sedation, typically with midazolam and fentanyl. Patients also receive ketorolac tromethamine intravenously to relieve postoperative pain. Prophylactic antibiotics, typically cefazolin or doxycycline, are given intravenously before the embolization procedure. UAE is a sterile procedure done in the angiography laboratory by skilled interventional radiologists using angiographic techniques.

A single groin puncture with catheter placement into the femoral artery is typically all that is required. A 5-French angiographic catheter is placed via the groin and advanced over the aortic bifurcation to the contralateral internal iliac artery, and digital angiography is done to identify the origin of the uterine artery. Typically, to avoid spasm, a 3-French microcatheter is used coaxially to safely catheterize the uterine artery.

**Table 1. Partial list of risks and related information reviewed with patients contemplating UAE instead of hysterectomy**

- Because UAE is a new procedure, information about its long-term risks and failure rates is lacking.
- UAE has been reported to produce 80%-90% improvement in clinical symptoms (bleeding, pain, pressure) beyond six months. Thus, women who demand certainty are better served by having a hysterectomy.
- Except in very unusual circumstances, UAE is inadvisable for women who wish to preserve fertility.
- Some researchers have reported a small risk that the uterus is not enlarged by fibroids but instead is enlarged by a malignant tumor (ie, uterine sarcoma). Thus, UAE might delay diagnosis of sarcoma and consequently jeopardize survival.
- In some women, a high fever develops after UAE is done. In most cases, this fever indicates a noninfectious process and is simply the result of tissue ischemia; this phenomenon is called the “Post-Embolization Syndrome.” However, in some cases, this fever is secondary to a septic process; rarely, after UAE is done, a pelvic abscess develops and necessitates hysterectomy.
- As of December 1999, one published case report of UAE described a death which resulted from postoperative sepsis.
- Early menopause occurs in as many as five percent of women who have had UAE.
- UAE carries the usual risks associated with use of intravenous radiologic contrast agents.
- Several months after having UAE, some women spontaneously expel fibroids through the cervix.
After the microcatheter has been placed deeply into the uterine artery, this vessel is carefully embolized under fluoroscopic guidance with a solution of polyvinyl alcohol particles mixed with sterile saline and iodinated radiographic contrast medium. We use particles which range from 350 \(\mu\)m to 500 \(\mu\)m in size. If necessary after embolization of the artery with particles, pledgets of an absorbable gelatin sponge may be placed via catheter to complete the embolization. The 5-French catheter is then formed into a "Waltman loop," and the catheter is placed into the ipsilateral internal iliac artery; the embolization procedure is then repeated in the right uterine artery. All catheters are then removed.

The patient is then sent to the Ambulatory Care Unit for postoperative observation and pain control. Most patients may be discharged home on the same day; some patients may require admission to the inpatient obstetrics/gynecology department for intravenous analgesia and observation. Our algorithm of care requires follow-up with pelvic examination and ultrasonography at six to eight weeks and at six months after the procedure.

**Results of UAE at Kaiser Permanente**

To date, we have done UAE on 29 patients. Of these 29 patients, 28 had pelvic examination and ultrasound evaluation within six to eight weeks after the procedure, six patients were evaluated three months after the procedure, nine patients were evaluated at ≥ 6 months after the procedure, 11 patients were evaluated by phone at ≥ 6 months after the procedure; for six patients, six months had not yet elapsed since the procedure was done. Mean age of patients was 45.3 years (range, 33 years to 56 years). Mean pre-UAE uterine volume was 788 mL (range, 98 mL to 2366 mL). Mean pre-UAE dominant fibroid volume was 209 mL (range, 6 mL to 1021 mL). Of the 29 patients, 28 (97%) were sent home the same day as the procedure. One (3%) of the 29 patients was admitted to the hospital on the day of UAE for pain and nausea. Three (10%) of the 29 patients returned to the hospital within one to three days after having UAE; reasons for return included 1) urinary retention, 2) nausea, vomiting, and low-grade fever, and 3) pelvic pain.

In our series, clinical success—as determined by clinical follow-up examination, imaging follow-up examination, or both—was achieved for 27 of 29 patients: in these patients, fibroid-related symptoms (bleeding, pain, pelvic pressure) improved or resolved. Two (7%) of the 29 patients had clinical failures: one patient had no change in pressure symptoms and had persistent bleeding, and the other patient had temporary decrease in heavy bleeding and continuous fibroid growth after UAE. Four (13%) of the 29 patients became postmenopausal within six months after the UAE procedure.

After having UAE, patients who had follow-up using ultrasound or magnetic resonance imaging (MRI) showed a mean 36% decrease in uterine volume (range, -14% to 80%) at a mean follow-up time of 19.2 weeks (range, seven weeks to 66 weeks). Mean

| Table 2. Alternatives to UAE in women considering having UAE instead of hysterectomy for treatment of uterine fibroids |
|-------------------------------------------------|---------------------------------------------------------------|
| **Alternative**                               | **Comments**                                                  |
| Hysterectomy                                   | Remove most of the uterus but leave cervix in place            |
| Supracervical hysterectomy                     | Not recommended; instead, recommend supracervical hysterectomy unless further childbearing is desired |
| Myomectomy                                     | Because data on long-term use are lacking, discourage use of this regimen except in perimenopausal women |
| Treatment with gonadotropin-releasing hormone agonist drug (e.g., leuprolide acetate) and add-back therapy with norethindrone acetate | Use if problem is excessive bleeding secondary to fibroids |
| Treatment with a progestational agent to suppress menstruation | Use if problem is excessive bleeding and endometrial cavity is not large |
decrease in dominant fibroid volume was 50% (range, -1% to 92%). Our results are comparable with those reported by Goodwin9 at UCLA: in that series,9 at follow-up evaluation conducted a mean 10.2 months after UAE, mean uterine volume had decreased 43%, and mean fibroid volume had decreased 49%.

Discussion

UAE used for treatment of fibroids has received a huge amount of media attention. Many medical institutions have begun practicing UAE and are marketing their expertise in performing this procedure. Several thousand cases have now been reported (4165 cases in the United States as of early October 1999), and many Internet sites feature this subject. Many of these sites are advertisements in search of patients; some sites, such as the Georgetown University Web site (www.dml.georgetown.edu/fibroids/), are extremely informative sources of data. A UCLA Web site (www.fibroids.com) and the Web site of the Society of Cardiovascular and Interventional Radiology (www.scvir.org) are also objective and very informative. Increasing numbers of patients are coming to us requesting UAE on the basis of what they have been hearing in the media and reading on the Internet.

Our success rate and our rate of complications with UAE are comparable with those reported in the medical literature.39 In our series, 95% of patients were sent home within eight hours after having the procedure (compared with approximately 67% of patients in other series3). In our community, the Oregon Health Sciences University and KP have been leaders in implementing and gaining experience with UAE for the treatment of fibroids.

Does the current standard of care require clinicians to offer UAE to any woman who otherwise would have a hysterectomy for uterine fibroids? This is a difficult question to answer, because the community standard of care constantly changes. We suspect that this question may be resolved in the medical-legal arena. For now, we ask ourselves the following question: “Why would a conscientious obstetrician/gynecologist NOT mention the option of UAE to a woman before proceeding to hysterectomy?”

Conclusion

In our opinion, on the basis of current published data, UAE is an effective procedure for treating the symptoms related to a fibroid uterus, although more prolonged follow-up is needed before the ultimate role of this procedure can be established. We believe that all Permanente Medical Groups should seriously consider developing expertise in this procedure and instituting UAE in their hospitals.

We would be happy to share our detailed algorithms and protocols with our colleagues, and Dr Klein would welcome visits by any of his radiologist colleagues who would like to observe the procedure. The authors may be contacted by e-mail (Martin.L.Schwartz@kp.org and kleinaar@adams.mts.kpnw.org).
Osteoarthritis and Exercise: Does Increased Activity Wear Out Joints?

By Robert H Sandmeier, MD

Presented at the Kaiser Permanente Northwest Division Nike Sports Medicine Symposium, Portland, Oregon, August 7-8, 1998, sponsored in part by Kaiser Permanente Northwest Division in cooperation with the Nike World Masters Games.

Introduction

Exercise is one of the most effective ways of improving and maintaining health. High levels of physical activity have been correlated with lower risk for cardiovascular disease, lower blood pressure, and weight reduction as well as increased sense of well-being. More and more people are becoming active in exercise programs and are trying to maintain a high level of physical activity throughout life. A common concern of athletes—and especially of aging athletes—is that increased joint stress may lead to premature “wearing out” of the joints and osteoarthritis.

Background

Osteoarthritis is defined as a noninflammatory, degenerative joint disease characterized by loss of articular cartilage and marginal hypertrophy of bone accompanied by pain and stiffness that is aggravated by prolonged activity. Some other joint problems resemble this definition but do not progressively worsen and do not represent osteoarthritis. An example is development of anterior tibial osteophytes in kicking-type sports such as soccer. Formation of the osteophytes is thought to be caused by repeated traction injury to the attachment of the joint capsule. This condition can be treated and symptoms resolves by removing the osteophytes (a procedure not effective with osteoarthritis). The osteophytes may reform years later, but the ankle typically does not become diffusely arthritic.

Biomechanical Studies

The effects of various forms of stress on articular cartilage have been evaluated biomechanically. Articular cartilage is composed of several layers. The superficial layer provides a smooth, gliding surface. The deeper layers have high concentrations of hydrophilic macromolecules (glycosaminoglycans), which absorb large amounts of water. When mechanical load is applied to the cartilage, the water is squeezed out. This removal of water helps to dissipate the load and provides increased lubrication for the joint.

Cartilage can accommodate a slowly applied load better than an impact load. Impact loads above a certain threshold can acutely disrupt cartilage surfaces. The magnitude of load required to acutely disrupt the cartilage surface is reported to be 25 MPa (approximately 3600 psi). The injury may not be initially apparent: Impact sufficient to cause death of chondrocytes and degradation of the matrix may result in changes not seen until months or even years later. Thompson et al evaluated the effect of a transarticular impact load of 2170 N (approximately 477 lb) to the patellofemoral joint in dogs and noted initial formation of minute fractures of the subchondral bone without visible damage to the cartilage surfaces. During the next six months, changes in the cartilage surface consistent with osteoarthritis developed. Repeated application of impact loads below the threshold also can lead to disruption of the cartilage surface. Zimmerman et al evaluated a cyclic load on the human patella in vitro and with a load of 1000 psi found surface abrasions after application of 250 cycles. The cartilage did not disintegrate until 8000 cycles had been applied.

Animal Studies

Other injuries to the joint also affect the capacity of the articular cartilage to withstand stress. Two important factors in this ability are the surrounding ligamentous restraints and the protective effect of the musculature. O’Connor et al compared dogs with normal knees to three other groups of dogs: 1) dogs with injury to the anterior cruciate ligament, 2) dogs in whom sensory input was removed from the knee joint, and 3) dogs with both injury to the anterior cruciate ligament and removal of sensory input from the knee joint. In the dogs with normal knees but no articular sensory input, no signs of arthritis had developed after 64 weeks. By eight weeks, dogs with sensory input and injury to the anterior cruciate ligament showed early stages of arthritis, which progressed to moderate-to-severe arthritis by 18 weeks. Dogs with neither knee sensation nor a functioning anterior cruciate ligament showed signs of arthritis in only two weeks and severe arthritis by eight weeks.

Exercise (even strenuous exercise) on normal joints does not result in a substantially increased likelihood of arthritis. Exercise (even strenuous exercise) on normal joints does not result in a substantially increased likelihood of arthritis. In a study evaluating the knees of beagle dogs who ran as much as 40 km/day for a year, Arakoski et al identified a decrease in the concentration of glycosaminoglycans in the knee but saw no signs of degeneration of the articular cartilage. In a study of beagle dogs who ran on treadmills for as much as 15 km/day at a 15° uphill angle for 40 weeks, Kiviranta et
al\textsuperscript{10} found that cartilage thickness and glycosaminoglycan concentration were both decreased compared with controls. This result contrasted with a previous study,\textsuperscript{7} in which the same authors found an increase in both cartilage thickness and glycosaminoglycan concentration after a more modest running program. Newton et al\textsuperscript{10} found no difference in cartilage thickness or mechanical properties of the cartilage at the end of a study in which 11 dogs ran on a treadmill at 3 km/hr for 75 minutes for 527 weeks (ten years) while wearing weight jackets (weighing 130\% of the dog’s body weight). Arthritis did not develop in any of the dogs. This research suggests a threshold after which changes are seen in the cartilage and that these changes are probably adaptive rather than pathologic. Even in these studies of long-term, very vigorous exercise, no arthritis was seen in otherwise normal joints.

**Human Studies**

Research has also been done in humans, but these studies are much more anecdotal in nature because the subjects cannot be controlled as the animals were. It is difficult to find a group that engages in similar activities at similar intensities. In addition, there is currently no easy way to determine who may be susceptible to osteoarthritis.

That previous injury to the joint can result in arthritis is unequivocal. Injury to the meniscus resulting in early signs of arthritis in the knee was described by Fairbank\textsuperscript{9} at a time when the meniscus was still believed to be a vestigial structure. Recently, Daniel et al\textsuperscript{10} documented an increased risk of arthritis after injury to the anterior cruciate ligament. In that study,\textsuperscript{10} reconstruction of the ligament actually increased the amount of arthritic change.

The risk of osteoarthritis developing in athletes without associated injury to the knee is thought to be minimal. However, this belief cannot be confirmed from the medical literature, because most studies do not separately analyze athletes who have previous knee injuries and those with uninjured knees.

Lane et al\textsuperscript{11} compared 41 runners aged 50–72 years with matched controls. The comparisons were made on the basis of radiographic changes as well as by clinical symptoms of osteoarthritis. In that study,\textsuperscript{11} runners had a 40\% mean increase in bone density compared with nonrunners. No clinically significant difference between groups was seen in the incidence of osteoarthritis detected either clinically or radiographically. Women runners did have an increased amount of sclerosis and spur formation about the knee, but this difference was of doubtful clinical significance. A second radiologic study comparing runners with age-matched controls\textsuperscript{12} showed no difference in frequency or severity of radiographic changes.\textsuperscript{12}

The same author\textsuperscript{13} compared 498 runners with 365 community controls. Runners had less physical disability and higher functional capacity than age-matched controls. The runners sought medical attention less frequently and developed less disability as they aged. These differences were present even after subjects with clinically significant medical problems were excluded and after adjustments were made for age, sex, and occupation.\textsuperscript{13} Spector et al,\textsuperscript{14} in a comparison of 81 athletes and more than 900 controls, found slightly increased signs of osteoarthritis by radiographic criteria in the athletes, but the athletes had fewer symptoms than did controls. Although these results are encouraging, it is not possible to determine whether the runners were a self-selected group who were able to continue running because they have fewer musculoskeletal problems or if runners have fewer musculoskeletal problems because they run.\textsuperscript{14}

Several authors have attempted to differentiate between weightbearing and nonweightbearing activity. Sohn and Micheli\textsuperscript{15} attempted to control for the effect of weightbearing exercise by comparing 504 former college runners with 287 swimmers and found no difference in the incidence of osteoarthritis. Kujala et al\textsuperscript{16} found radiographic signs of osteoarthritis in 3\% of the shooters studied, 29\% of the soccer players, 31\% of the weightlifters, and 14\% of the runners. The authors\textsuperscript{16} felt that the majority of the differences in the incidence of osteoarthritis could be explained by the higher rate of injury in soccer players and by increased body weight in weightlifters.\textsuperscript{16} Knee injuries resulted in a fivefold increased risk of osteoarthritis.\textsuperscript{16} Kujala et al\textsuperscript{17} also reported on 2049 athletes who competed in the Olympic Games from 1920 to 1965, comparing the athletes with 1403 matched controls. In this study, the endpoint (presenting for joint replacement) takes into account symptoms as well as radiographic criteria. Endurance athletes (runners) had a relative risk of 1.73, participants in mixed-type sports (ex-soccer players) had a relative risk of 1.9, and participants in power sports (weightlifting, wrestling) had a relative risk of 2.17.\textsuperscript{17} Incidence of injury was not reported.

**Conclusions**

Impact loads are the most likely to result in injury to articular cartilage. Having well-developed muscles decreases the loading on the cartilage and thus has a protective effect. Animal research suggests that exer-
Exercise—at least when done in the form of running—is not harmful to normal joints even under high loads and over long distances. In contrast, similar exercise of an injured joint leads to arthritic change. The literature suggests that in humans, athletic activity is associated with a slightly increased risk of osteoarthritis. Athletic individuals seem to tolerate similar radiographic levels of osteoarthritis with less disability than nonathletic individuals. Joint injury is the primary factor that increases the risk of arthritis developing in athletes.

Activities that maintain flexibility, muscle strength, and coordination protect the cartilaginous surfaces and help to maintain joint function in joints that have already been injured and in which arthritic change have developed or are developing. The forms of exercise that meet these criteria include bicycling, weightlifting (with emphasis on closed-kinetic-chain exercises), and pool exercises.

A good program to start with is an exercise bike with the seat positioned high and with resistance set to a low level. After the patient is able to spend 20 minutes on the bike, the seat may be lowered to deepen flexion, and the level of resistance may be increased. The patient may then add leg presses using a low weight and with a high number of repetitions (start with 20 repetitions at a time). Patients may progressively add weight to the leg press until lifting to their tolerance. I tell them to avoid knee extensions despite the fact that these machines are found everywhere. Reactive forces on the patellofemoral joint exceed body weight, even when light weights are used. For patients without access to exercise equipment, straight-leg raises are a good start. Wall sits are a substitute for leg presses, although it is often difficult for patients to start out with wall sits because they cannot exercise using less than their body weight. Patients should also work on a stretching program to maintain full extension of the knee.

For patients who have suffered a significant injury to the knee but who do not have arthritis, activities that include prolonged, repetitive impact (eg, distance running) are not the best choice for maintaining fitness. Other activities that the patient enjoys and that maintain physical strength and flexibility are probably acceptable if they do not cause pain. The best choices are bicycling, swimming, and weightlifting. Runners usually find this recommendation difficult to accept; many dedicated runners do not feel that any other activity makes them feel as good as running does. Sometimes a difficult decision must be made, however, and they must recognize that they exercise for many reasons and that the possibility that arthritis may develop may be offset by the cardiovascular benefit and the sense of well-being that they get from running. Doing any exercise—even one that is not especially recommended—is better than doing no exercise. If the choice were running or nothing, I would run.

References
“Title Unknown”  
by Mohamed Osman, MD  
More of Dr Osman’s artwork can be seen on page 58, 
In the 22-month period from March 1943 to January 1945, twenty patients with acute rheumatic fever have been studied and treated at the Permanente Foundation Hospital. All cases occurred among workers in the Richmond shipyards. The diagnostic criteria used were those set forth recently by Jones. The major criteria for diagnosis were: 1) Active carditis, as evidenced by the development of electrocardiographic changes, cardiac enlargement, significant cardiac murmurs (grade two or louder systolic murmurs, all diastolic murmurs), congestive heart failure, or pericarditis. 2) Arthralgia. 3) Chorea. 4) Subcutaneous nodules, and 5) Recurrence of rheumatic fever. The minor manifestations include: 1) Fever. 2) Abdominal pain. 3) Precedral pain. 4) Rash. 5) Epistaxis. 6) Pulmonary findings. 7) Laboratory findings of leukocytosis, elevated erythrocyte sedimentation rate, and microcytic anemia. The minimum requirement for inclusion in this study was the presence of one major manifestation with at least two of the minor manifestations.

The age of our patients ranged from 17 to 39 years, the average age being 28.3 years. This average age is somewhat higher than those reported by Master and Coburn and is probably due to the more advanced average age of the population served by this hospital as compared with Navy personnel. There were 16 males and four females. This is approximately the same as the ratio of males to females in the employed population served by this hospital.

Sixteen of the patients spent the greater part of their lives in rural mid-western or southern communities. The remaining four patients were natives of California. The length of stay in the Bay area prior to the onset of rheumatic fever in the former group ranged from six months to 24 months, the average being twelve months. It is of interest that of the 16 out-of-state patients that developed acute rheumatic fever, none came from large urban centers. These facts will be alluded to later in considering the possible etiologic importance of streptococcus infection in rheumatic fever.

Eleven patients (55%) entered the hospital with a history suggestive of previous rheumatic fever in childhood or established cardiac murmurs, or both. Two of these patients had no murmurs but gave histories of migratory polyarthritis, repeated bouts of epistaxis, or previous diagnosis of “leaky heart.” Three of these patients had significant established cardiac murmurs but no history suggestive of childhood rheumatic fever. Six of the patients had both significant...
murmurs and a suggestive history of previous childhood rheumatic fever.

Nine of our 20 patients (45%) had neither a history of rheumatic fever nor significant cardiac murmurs and might, therefore, represent new cases of acute rheumatic fever. It is understood that the absence of a significant past history of rheumatic fever does not mean that attacks of childhood rheumatic fever did not occur. This question has recently been discussed by Master.6 Cohn and Lingg7 in a study of 3125 patients with rheumatic cardiac disease followed from onset to death, state that 70 percent of patients have acquired the disease before the age of fifteen. Sixty-six percent of their patients with rheumatic cardiac disease had no recollection of previous attacks of rheumatic fever. Direct transference of these statistics and inferences drawn from them to our experience is hazardous as it appears that they were dealing with a stable population while we treated a dislocated group. It may well be that a larger number of our cases than ordinarily expected actually represent new infections.

Eleven patients (55%) were found to have had either a severe sore throat or “tonsillitis” from one to four weeks prior to the onset of symptoms of rheumatic fever. Two additional patients gave histories of upper respiratory infections two weeks prior to the onset of symptoms. Hence 13 patients (65%) gave histories of disease of the upper respiratory tract one to four weeks prior to the onset of rheumatic fever symptoms. The etiologic agents in these infections were not identified. Coburn3 has emphasized the importance of streptococcus infections in the etiology of rheumatic fever. Indeed, he states that sensitization to antigens produced by the alpha streptococcus is the underlying factor in acute rheumatic fever. He has observed that people who come from environments poor in streptococci to congested areas rich in these organisms are very susceptible to infection. Our data lend support to this observation for, as we have seen above, 80 percent of our patients have been dislocated from rural communities to the congested environment of the Richmond-San Francisco Bay area. Coburn3 has stated that sulfonamide administration is of no value in the prophylaxis of acute rheumatic fever once the upper respiratory infection has become established and may even precipitate acute rheumatic fever in patients that might not otherwise have suffered from the disease. Four of our patients had been given sulfonamides during their precipitating upper respiratory infection. Two of these patients had a past history of childhood rheumatic fever. In view of its inefficacy and possible danger, it would appear advisable to withhold sulfonamide therapy in upper respiratory infections, particularly in persons with a past history suggestive of rheumatic fever.

Migratory polyarthritis was an outstanding complaint in seventeen cases. All of these patients showed involvement of one or more of the major weight-bearing joints. The small joints of the hands or feet were involved in only five cases. The joints were typically involved in migratory fashion and were in most instances painful, hot and swollen. Joint symptoms subsided, as a rule, within one week after the initiation of salicylate therapy and bed rest.

Of the eleven patients who entered the hospital without cardiac murmurs, six developed significant murmurs while under observation. Five of the nine patients who entered the hospital with significant murmurs developed changes in the intensity of their murmurs or new murmurs. Thus eleven (55%) of the patients developed significant new murmurs or showed an increase in the intensity of already present murmurs while under observation.

Apical systolic murmurs were heard most commonly but aortic systolic and diastolic murmurs and mitral diastolic murmurs occurred frequently. In only two cases did murmurs disappear once they had become of significant intensity.

Sinus tachycardia occurred in 50 percent of cases and in all instances the heart rate became normal during the hospital stay.

er-thema nodosum was present on entry in two patients. It did not develop in any patient during the period of hospitalization.

Seventeen patients had temperatures over 100° F on entry. In all cases the temperature fell to normal within one week after beginning salicylate therapy and bed rest.

Chorea, as a manifestation of rheumatic fever, is rarely seen after adolescence. Levine6 has stated that chorea is never seen in adults over 20 years of age except in association with pregnancy. We have observed one case in our series, that of a 19-year-old female who gave no history of previous occurrence of chorea or rheumatic fever but had a grade three apical systolic murmur on entry. This young woman had one child three years old. She gave no history of prior or subsequent pregnancies.

Subcutaneous nodules were not present in any of our cases.
Patients are put at absolute bed rest as soon as the diagnosis is made. Sodium salicylate in enteric coated tablets is given in dosage of 1.7 grams every four hours, day and night.

Roentgenograms of the chest were taken in 17 of the 20 patients and cardiac enlargement was revealed in four. Two of these patients gave past histories of childhood rheumatic fever. None of the four patients had significant cardiac murmurs. Repeated roentgenograms taken on these four patients revealed no change in the size of the heart during hospitalization.

Electrocardiographic abnormalities, other than sinus tachycardia were presented by 13 patients (65%). These included: extreme wandering of the pacemaker (two cases), A-V nodal rhythm (one case), auricular fibrillation (one case), multiple ventricular premature beats (two cases), incomplete A-V block (eight cases), incomplete A-V block with dropped beats (two cases), Wendckebach type (one case), complete A-V block (two cases), abnormally elevated ST segments (one case), and T wave changes (two cases). Auriculoventricular block of varying degree is clearly the most common electrocardiographic abnormality. The electrocardiograms in ten of the 13 patients showing the above abnormalities returned to normal during the hospital stay. Since the electrocardiographic changes are often transient, tracings must be made at frequent intervals, and it has been our practice to repeat electrocardiograms at least once a week during hospitalization.

Wendkos and Noll have recently reviewed the electrocardiographic changes in 100 patients with polyarticular rheumatism and point out the value of finding electrocardiographic changes in making the differential diagnosis between rheumatoid arthritis and acute rheumatic fever. Their finding of electrocardiographic changes in 70 percent of patients with acute rheumatic fever agrees well with our experience.

The erythrocyte sedimentation rate is the most valuable single laboratory aid in judging the activity of the rheumatic process. Coburn and Kapp use the sedimentation rate as a measure of the extent of inflammation in acute rheumatic fever. Every one of our twenty patients showed an elevated sedimentation on entry. The range varied from 14 millimeters to 128 millimeters per hour (Westergren method).

A white blood cell count of between 10,000 and 20,000 per cubic millimeter was found in 19 of the 20 patients. The leucocyte count returned to normal in all cases during the hospital stay.

Treatment

The treatment of acute rheumatic fever in this hospital follows the principles outlined by Coburn. Patients are put at absolute bed rest as soon as the diagnosis is made. Sodium salicylate in enteric coated tablets is given in dosage of 1.7 grams every four hours, day and night. The erythrocyte sedimentation rate and white blood cell count are determined weekly and the sodium salicylate is administered until the sedimentation rate has been normal for one week. Salicylates are then discontinued. At the end of one week without sodium salicylate the sedimentation rate is again checked and if found to be normal the patient is allowed to sit in a chair at his bedside for 15 minutes two times daily. If after one week the sedimentation rate has become abnormally rapid the patient is returned to strict bed rest and the initial treatment is resumed. If the sedimentation rate is normal after one week of sitting at the bedside, the patient is allowed bathroom privileges. If after one week of bathroom privileges the sedimentation rate remains normal, the patient’s activities are increased and he is shortly released from the hospital to continue his convalescence at home. If at any time signs of active rheumatic fever return, strict bed rest and sodium salicylate therapy are reinstituted.

High caloric, high vitamin diets are provided and supplemental vitamins are added, including 100 milligrams of ascorbic acid daily.

Methyl salicylate ointment, cotton batting, splints, heat and physiotherapy are used for symptomatic treatment of joint pains and stiffness.

It is felt that some sort of occupational therapy involving minimal activity is of great value to the patient’s morale during this usually protracted hospital stay.

Sodium bicarbonate was used in treatment of some of the earlier cases, but is no longer given due to its property of lowering the serum salicylate level.

Hypoprothrombinemia due to salicylate therapy has been reported by Shapiro. We routinely check prothrombin blood levels and have not found significant depression of the prothrombin concentration in any of our patients. Solley has observed that the prothrombin levels in the blood frequently dropped after the first few days of salicylate therapy and then slowly returned to normal without the aid of vitamin K preparations and with continued salicylate administration.

Patients under treatment with ten grams of sodium salicylate daily complain of tinnitus, decreased auditory acuity, dizziness, headache, nausea, and occasionally vomiting. These symptoms are ordinarily not very troublesome and disappear with the cessation of salicylate therapy. We have not had to discontinue salicylate treatment for any of the above complaints.
Discussion

Rheumatic fever as we have observed it in adults differs in none of its essentials from the classical rheumatic fever of childhood. The age of the patient suspected of having this disease is not of great importance when characteristic or suspicious signs and symptoms are present. The greater frequency of rheumatoid arthritis among adults, and the general feeling that acute rheumatic fever is a disease of children will lead to error and missed diagnoses unless a high index of suspicion is maintained.

The literature prior to 1941 dealt primarily with the problems of childhood rheumatic fever. However, with the mobilization of large numbers of men into the armed forces, numerous reports appeared describing outbreaks of acute rheumatic fever among army and navy personnel. Our study of rheumatic fever was stimulated in large part by these later reports, and it was found that the average age of our patients was even higher than those reported from the navy. This experience emphasizes the fact that acute rheumatic fever occurs commonly during the third and fourth decades.

As has been already pointed out, an attack during this period of life may well be the patient’s initial episode. A history of previous rheumatic fever is not essential to this diagnosis in adult patients.

It is thought that patients who have their initial attack of rheumatic fever after the age of 20 suffer less permanent heart damage than those who acquire their disease in childhood. We have not followed our patients long enough at the present time to be able to confirm or deny this statement. The electrocardiographic changes are typically transient. Cardiac murmurs, once they become of significant intensity, tend to remain. On the other hand, we have observed the complete disappearance of a mitral diastolic murmur which was doubtless that of relative mitral stenosis due to dilatation of the left ventricle. In another patient the Graham Steele murmur of relative pulmonic insufficiency disappeared completely.

The treatment of acute rheumatic fever is still far from satisfactory. We feel that sodium salicylate should be used as outlined above, and together with bed rest is the best treatment available at the present time. There are many patients who require two to three months of this regime to secure a satisfactory result, and there are a few who do not respond at all to intensive salicylate therapy. As Solley has pointed out, it may be that the changes which occur in the endothelium of the arterioles are irreversible in these patients before treatment is initiated and that this limits or prevents any therapeutic effect.

Summary and Conclusions

1. Twenty cases of acute rheumatic fever have been observed in adults during a twenty-two month period.
2. Acute rheumatic fever in adults does not differ in its clinical manifestation from acute rheumatic fever of childhood.
3. Nine of our patients had neither history nor signs indicative of previous attacks of rheumatic fever and might, therefore, represent new cases.
4. The therapeutic program followed at this hospital has been presented.

Bibliography

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If all this seems strange from today’s perspective, it is yet stranger that in those days, the medical wards were replete with patients having the consequences of severe hypertension (also virtually never seen today), for which the mainstays of treatment were Rauwolfia alkaloids and a diet of only rice and honey (to provide calories and no sodium!)

That Sellers and Levine saw fit to expound upon probable streptococcal involvement in the etiology of rheumatic fever—a fact today taken for granted—is interesting. I am reminded, however, that not until the mid-1950s was the streptococcal etiology of rheumatic (Sydenham’s) chorea established by long-term follow-up studies that related streptococcal sore throats with the delayed onset of chorea—a delay as much as several months long. How many physicians today have ever seen a patient with rheumatic chorea? Even in those days, it was said that before the diagnosis of chorea was made, children with this condition were scolded for being fidgety. Aside from the rare Huntington’s disease, chorea today is mainly a manifestation of systemic lupus erythematosus (SLE). In fact, SLE used to be exceptionally rare—I saw one case in my entire medical school experience, whereas rheumatic fever was common; today, the prevalence of these two diseases is reversed, with SLE affecting 1 in 250 black women and 1 in 1000 white women.

At one time, Streptococcus was held responsible for many diseases of uncertain cause. In fact, the belief that Streptococcus causes rheumatoid arthritis led to development of the serologic tests now used to detect rheumatoid factor: these current serologic tests were originally developed as streptococcal agglutinin reactions. Of interest also is that rheumatoid arthritis was so named after becoming differentiated from the polyarthritis of rheumatic fever. However, so as not to make a complete nosologic break from rheumatic fever, rheumatoid arthritis was labeled “rheumatic fever-like,” ie, rheumatoid. A curious fact about rheumatic fever is that it rarely affects children younger than four years of age, possibly because of either immaturity of the immune mechanisms or, more likely, lack of exposure to rheumatogenic strains of Streptococcus. Recognition of this pattern showed that, generally, children under age four years who had arthritis had juvenile rheumatoid arthritis and not rheumatic fever.

Sellers and Levine cite findings that assign no value to sulfonamide administration in prophylaxis of acute rheumatic fever after the upper respiratory infection becomes established. We now understand the reason for this lack of effect: the antigenic stimulus has already triggered the disease. Besides, sulfonamides are less effective antistreptococcal agents than is penicillin. Sulfonamides were introduced into medicine in 1936; in 1945, penicillin would have been available only to the armed forces and only in doses of a few thousand units. My aunt was a pathologist in those days and recalls recovering penicillin from urine so that it might be reused in other patients!

Apical systolic murmurs were heard commonly in the series of patients described by Sellers and Levine. Not until the advent of sonocardiography did the pansystolic murmur become recognized as the physical sign of mitral regurgitation; and not until the mid-1950s was the late apical systolic murmur recognized—as the precursor of mitral regurgitation. Until then, the late apical systolic murmur was regarded as benign. Also worth remembering is that Barlow did not describe mitral valve prolapse as the click-murmur syndrome until the mid-1960s; undoubtedly, many children with mitral valve prolapse who happened to have minor joint pains or tonsillitis were misdiagnosed as having rheumatic fever.

Misdiagnosing acute rheumatic fever with carditis had serious consequences. As is emphasized in the article by Sellers and Levine, absolute bedrest was important for preventing major cardiac damage and meant use of bedpans and spoon feeding for the first week; thereafter, the regimen was gradually relaxed until normal activities were allowed—usually six weeks later. Patients were allowed to sit out of bed for 15 minutes twice daily only after the erythrocyte sedimentation rate (ESR) had been normal for one week—an event which might not happen for three or four weeks. If the ESR again became fast, the patient was returned to absolute bed rest. (One of my tasks as a house officer on the rheumatic fever wards was to draw blood from each of the 15 or 20 patients once weekly and to set up the ESR in Westergren tubes. We did this by mouth-pipetting; hepatitis viruses and HIV were unknown.) Absolute bedrest was the prescribed regimen not only for the carditis of rheumatic fever
but also for acute myocardial infarction with the result that as many patients died from pulmonary embolism as from the myocardial infarction. An interesting observation—one which has never been adequately explained—is that pulmonary embolism was rare in the children with acute rheumatic carditis and also in patients treated with bed rest for active pulmonary tuberculosis. A revolutionary announcement came about 25 years ago: Patients who have had heart attacks can safely be discharged from the hospital after three weeks. Equally revolutionary was the subsequent announcement that these patients may leave the hospital after only seven days; and discharge after only two days is now proposed for some patients with myocardial infarct. We may imagine the outrage that such suggestions might have provoked in earlier years! Some children with rheumatic carditis were in the hospital for six months because the ESR might not yet have become normal. Sellers and Levine indicate that “some sort of occupational therapy involving minimal activity is of great value to the patient’s morale during this usually protracted hospital stay.” The occupational therapist taught basket weaving, sewing, and simple activities that helped pass the time; much later, the occupational therapist’s focus shifted to physical therapy for the upper limbs.

The statement of Sellers and Levine that “rheumatic fever as we have observed it in adults differs in none of its essentials from the classical rheumatic fever of childhood” would not have been made ten years after these authors’ article appeared. In fact, although the cardiac manifestation in adults is usually slight, effects on joints are much more severe and long-lasting. Indeed, as is said proverbially, rheumatic fever in children “licks the joints and bites the heart,” whereas in adults it “licks the heart and bites the joints.”

For this issue of The Permanente Journal, I was asked to provide both a Commentary on the paper by Sellers and Levine and an update on the subject of rheumatic fever. I have given a personal perspective with some reminiscences that might interest younger physicians; however, little update is available, because the disease is now virtually unseen in the United States. (Rheumatic fever is still seen in Latin America.) We understand the immunologic basis of the carditis, which results from cross-antigenicity between epitopes in the streptococcal cell wall and cardiac myocytes. We also understand why rheumatic fever was rarely accompanied by poststreptococcal nephritis: The nephritogenic strain of Streptococcus has cross-antigenicity with glomerular epitopes but not with epitopes in the cardiac myocyte; and the Streptococcus responsible for rheumatic fever has cross-antigenicity with epitopes on cardiac myocytes but not with glomerular epitopes. Treatment today would differ substantially from that offered in 1945, when the mainstays of treatment were strict bed rest for carditis and use of salicylates for inflammation. Although an international study done in the 1950s showed no benefit of cortisone over salicylate treatment, the dosages of cortisone used (ie, 60 mg daily, tapered over six weeks) would today be regarded as inadequate, and carditis would be treated with high dosages (60 to 120 mg daily) of prednisone. Death from acute rheumatic pancarditis (endocarditis with valvulitis plus myocarditis plus pericarditis) should be rare, and chronic valve disease should be less likely to occur. Fortunately, today’s rarity of rheumatic carditis means that we will not have the opportunity to conduct a clinical trial of TNF-α antagonists in patients with rheumatic carditis, although I suspect this treatment might be beneficial because part of the myocardial damage could be mediated by cytokines. Rheumatic chorea is certainly mediated by cytokines, because no neuropathologic changes are associated with Sydenham’s chorea.

In conclusion, rereading Sellers and Levine’s article reminds us of a scourge that is, fortunately, no longer with us, at least in the developed world. Their work also allows us to reflect on the undreamed-of advances made since those days toward our understanding of both disease pathogenesis and therapeutics.

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**A Breast Cancer Tracking System**

This article briefly describes the development, structure, and accomplishments of the Breast Cancer Tracking System (BCTS) of Kaiser Permanente Northern California (KPNC). The BCTS is a KPNC-wide program to ensure that members who are diagnosed with breast cancer or at increased risk for breast cancer receive consistent, timely, high-quality care. The BCTS was created by the KPNC Breast Care Task Force to provide a safety net for patients whose care is overdue. The tracking program has two arms: 1) follow-up of abnormal biopsy results, and 2) follow-up of abnormal mammography results. Tracked abnormal mammograms are those that recommend biopsy or repeat mammography after three, six, or twelve months. Tracked abnormal biopsy results include invasive breast cancer, ductal carcinoma in situ, and pathology that indicates increased risk for cancer. BCTS also provides all KPNC Radiology Departments with statistical reports designed both for internal quality assurance and to meet state and federal requirements. Since its implementation, BCTS has tracked more than 45,000 patients and has had a positive impact on the frequency and timeliness of needed care. The tracking system is recognized as a risk management tool for our health maintenance organization. Evaluation of the BCTS role in improving breast cancer survival odds is ongoing.

**Introduction**

Kaiser Permanente has a strong record of providing high-quality care for patients with breast cancer. During the years 1989-1995, localized breast cancer among members of Kaiser Permanente Northern California (KPNC) was diagnosed at a rate of 65.7%, a rate that exceeded the national benchmark of 62%. During the same period, five-year survival rates for KPNC breast cancer patients was 86.6% compared with the national benchmark of 84.7%.1

The Breast Cancer Tracking System (BCTS) of KPNC is a case management program designed to ensure that members who are diagnosed with breast cancer, or at increased risk for breast cancer receive consistent, timely, high-quality care. Specifically, the program’s goals are 1) to improve the clinical continuity and consistency of breast cancer care throughout KPNC; 2) to reduce delay in diagnosis and treatment; and 3) to serve as a safety net for breast cancer treatment. KPNC serves a population of more than three million members and extends from Fresno to the Oregon border. KPNC members who receive abnormal mammogram and/or breast biopsy results are entered into the BCTS database and are then tracked to ensure they receive the recommended follow-up care. Since the start of the program in September 1995, BCTS has tracked the breast care of more than 45,000 members, thereby prompting intervention as needed when appointments are missed or overdue.

The program was created by the KPNC Breast Care Task Force, chaired by Susan Kutner, MD. Commitment from the KPNC organization, including financial backing and participation by all facilities, was essential to launching the program. Care algorithms and specific tracking events were developed through a collaborative, multidisciplinary effort, and regional databases were identified to provide the necessary electronic data capture. With expertise in screening and tracking developed by the Perinatal Regional Screening Program, the Genetics Department at the KPNC Oakland Medical Center agreed to serve as home to the program. After extensive preparation, BCTS was launched in September 1995.

This article briefly describes the methods used by BCTS and its impact on delivery of consistent, timely, high-quality breast care for our members.

**Methods**

BCTS is a system for tracking abnormal mammography results (Figure 1) as well as abnormal results of breast biopsy (Figure 2). Abnormal mammography results include those in any of three final assessment categories: 1) “probably benign” (for which repeat mammogram is recommended), 2) “suspicious” (for which surgical consultation and possible biopsy is recommended), and 3) “highly suggestive of malignancy” (for which biopsy is recommended). The BCTS database is programmed to recognize alert codes for mammogram results that recommend biopsy or follow-up mammography to allow automatic entry into the database. Mammography tracking follows patients for the recommended follow-up appointment in the form of either a repeat mammogram after three, six, or 12 months or surgical consultation and biopsy when indicated. Three types of abnormal biopsy diagnoses are tracked: invasive...
breast cancer, ductal carcinoma in situ (DCIS), and pathology that indicates increased risk, i.e., lobular carcinoma in situ (LCIS), atypical ductal hyperplasia, and atypical lobular hyperplasia. As with abnormal mammogram results, the BCTS database is programmed to recognize abnormal biopsy pathology codes to allow automatic entry into the database. The biopsy tracking system follows patients from receipt of abnormal biopsy results through treatment for invasive cancer and DCIS and (for all patients with abnormal biopsy results) through annual breast examinations and mammograms.

The tracking system is staffed by graduate-prepared registered nurses and other professionals, each of whom is responsible for specific facilities within KPNC. Regional databases are queried every two weeks for abnormal mammogram and biopsy results and for follow-up appointments needed for such cases already in the BCTS database. This information is then imported into the BCTS database. Reports are produced to determine patients whose care is overdue. The nurse coordinators evaluate the care of these patients to determine whether any intervention by BCTS is needed. This evaluation includes a review of the patient’s appointment history for missed, canceled, and future appointments, and a chart review is then done if needed. The facility is then contacted regarding the delay in care.

A contact person within the facility calls the patient to schedule the needed appointment or provides information to BCTS to explain why the appointment may not be necessary. If the patient is causing the delay, BCTS provides a letter for signature by the practitioner to send to the patient to encourage her to return for care. These letters have been written with the input of Task Force members, the Risk Management Department, and health educators. Letters are also sent to patients who no longer have Health Plan coverage to ensure that they are aware of follow-up recommendations, such as obtaining repeat mammography or annual breast examination.

BCTS further influences patient care by making changes to Preventive Health Prompting (PHP) in the CIPS (Clinical Information Presentation System). PHP notifies practitioners and patients when a preventive health care visit or procedure is due. BCTS changes the PHP for patients whenever a follow-up mammogram has been recommended. When the follow-up mammogram appointment has been kept, the PHP reverts to the routine mammography screening schedule unless further follow-up has been recommended. BCTS also changes the prompting for mammograms and clinical breast examinations to a yearly schedule for patients who have received abnormal biopsy results.

BCTS provides statistical reports to the Radiology Departments and to other departments as requested throughout KPNC. All KPNC facilities receive a report every two weeks that lists the abnormal mammography results obtained in the preceding two weeks. These reports supplement each facility’s internal system for tracking abnormalities.

Figure 1. Algorithm shows tracking of abnormal mammogram

Figure 2. Algorithm shows tracking of both treatment and annual follow-up after abnormal biopsy result
mammograms indicating the possible need for biopsy and for scheduling follow-up mammograms. Monthly reports compiled by BCTS for each KPNC Radiology Department include a mammogram biopsy correlation report, a false-negative report, and a report of total mammograms administered. These three types of reports satisfy state licensing and Mammography Quality Standards Reauthorization Act (MQSRA) of 1998—requirements mandating that each mammography facility 1) keep a record of the volume of mammograms read by each provider, and 2) maintain a medical outcomes audit system that tracks positive mammograms and correlates pathology results with final assessment categories. An annual radiologist statistics report has recently been introduced that provides outcome data for each radiologist, for the facility, and for KPNC. Definitions for each statistic and a list of desirable goals (as set by the US Department of Health and Human Services (DHHS) Quality Determinants of Mammography) are included with each report. This report provides the necessary data for annual review of individual and aggregate radiologist outcomes, which are also required by MQSRA.

In addition, the BCTS contribution to achieving standardized mammography reporting has assisted in making the transition to the reporting system required by the MQSRA, which requires that each mammogram include a final assessment and a recommendation to the referring provider. BCTS also plays a role in provider education. BCTS has worked with the Radiology and Pathology Departments to standardize reporting. Another area of provider education has focused on the importance of 1) communicating to patients whose biopsy results indicate atypical hyperplasia or lobular carcinoma in situ (LCIS) that these results are associated with increased breast cancer risk, and 2) recommending annual mammography and breast examinations as follow-up for these patients.

### Impact on Care

Figure 3 shows the distribution of types of cases tracked by BCTS. Since the inception of BCTS in 1995, the volume of tracked cases has steadily increased, and the greatest increase has been realized since the addition of tracking abnormal mammography results, in May 1998. Figure 3 shows that the most common condition tracked is an abnormal mammogram requiring repeat mammography. As shown in Figure 3, invasive cancer represents 15% of tracked cases, and increased risk represents 1.6%.

Although biopsy cases showing patients at increased breast cancer risk comprise fewer than 2% of all cases tracked by BCTS, more than 10% of BCTS-prompted interventions for overdue care have been for these cases. The length of time between visits for breast examination and mammography for members at increased risk as shown by biopsy results decreased by 45% from September 1996 to September 1998. Of the 872 such at-risk members in the tracking system, 33 have since had a diagnosis of DCIS or invasive breast cancer. Of these 33 patients, 70% have been diagnosed at Stage 0 or Stage I.

![Figure 3. Types of cases tracked by Breast Cancer Tracking System (BCTS)](image)
BCTS data indicate that the number of women who have had annual follow-up mammograms after receiving a diagnosis of breast cancer has increased by 4% since the program began. Timely appointments for three- and six-month follow-up mammograms increased by 12% from September 1998 through March 1999. To date, about 3% of patients identified by BCTS as needing intervention for overdue visits were diagnosed with breast cancer at those visits.

Discussion

The KPNC Breast Cancer Tracking System is an example of what an integrated care system can offer to improve the quality of health care. The program’s direct, real-time impact on patient care helps improve member satisfaction and the quality of care delivered. In addition, the tracking system promotes consistency of care across the KPNC Region. This regional system also offers an unprecedented collection of data that gives each facility the opportunity to compare its performance with the other facilities in the KPNC Region. System-related issues that affect care can become more apparent through this process of comparison. Facilities are able to use information collaboratively to promote best practices throughout the KPNC Region. BCTS also provides a powerful tool for risk management—and alleged breast cancer mismanagement is the second most frequent basis of medical malpractice claims. The tracking system assures follow-up of all abnormal mammography results and provides comprehensive documentation of efforts to notify patients of overdue visits and procedures.

Tracking system data are also being used to assist research. Recruitment of women for participation in the Study of Tamoxifen and Raloxifene (STAR) Trial (being conducted by the KPNC Division of Research) has been assisted by BCTS identification and tracking of patients whose biopsy results indicate increased breast cancer risk. Staging and grading data collected by BCTS have provided information for use in the Sentinel Node Biopsy Multi-KP Center Trial.

The Breast Care Task Force designed the tracking system to evolve and adapt as future needs arise. Possible considerations for program modification and expansion include tracking patients at genetic risk, evaluating sentinel node biopsy results, and evaluating new technologies such as stereotactic core biopsy.

Conclusion

BCTS has required a strong commitment at every level of the KPNC organization, from each facility’s medical records clerks, department contacts, and health care practitioners to the facility and regional administrators. Results from the first five years of using the tracking system reveal a positive impact on timeliness of follow-up mammograms and frequency of annual screening throughout the KPNC Region.

Evaluation of the role BCTS plays in further improving breast cancer survival odds is ongoing. The authors are not aware of any other breast cancer case management system that has tracked and intervened with a similar volume of patients to assure timely care. As BCTS enters its sixth year, the tracking system will continue its efforts to ensure that KPNC members receive consistent, high-quality breast care throughout the KPNC Region.

Acknowledgments: The Breast Cancer Tracking System acknowledges the efforts of the following people, who were instrumental in its development: Steve Black, MD; Jay Crosson, MD; Judy Derman, RN, MS; Robert Klein, MD; Susan Kutner, MD; Gordon Manashil, MD; Edgar Schoen, MD; and Zoevonda Sutton, RN, MSN. The following BCTS Coordinators reviewed the manuscript: Karen Frey, RN, MS; Kimberly Gabellini, RN, MS; Wanda Gray, RNP, MSN; Jeffrey Hart, MS; Carrie Kakehashi, RN, MSN; and Robin Ketelle, RN, MSN; Judy Derman, RN, MS; Edgar Schoen, MD, and Susan Kutner, MD; also reviewed the manuscript. Sheri Hornseitch provided graphics assistance.

References
“A Generous Woman”
by Terry Laskiewicz, MD

Dr Laskiewicz is a Board-certified internist and has worked in the internal medicine and trauma clinic for Northwest Permanente since 1988. She has been drawing and painting for nine years, and began exhibiting last year.
Introduction
Breast cancer is responsible for most cancer-related deaths among women aged 15-54 years. In fact, 48% of new breast cancer cases and 56% of all breast cancer deaths occur in women aged 65 and older, and breast cancer will develop in one of eight American women during her lifetime. The risk of future breast cancer is greatest for women who have had breast cancer previously, have a family history of breast cancer, or are older than 50 years. Seventy-five percent of women in whom breast cancer develops have no risk factors.

At present, the best defense against breast cancer is early detection. Nonetheless, patients underutilize early detection procedures such as mammography; many women do not routinely obtain a mammogram. Lack of access to locations doing screening is one reason for this underutilization of mammography services. To research the possibility that access to screening is an issue affecting mammography, a pilot study was conducted in December 1997 using a mobile mammography van at three medical office locations which did not have mammography centers.

Method
Women in the pilot study met six inclusion criteria: 1) age 50 years or older; 2) not enrolled in the Medicare Senior Advantage program (which provides transportation); 3) normal results of clinical breast examination; 4) difficulty securing transportation to existing mammography centers; 5) mammogram not obtained in past 12 months; and 6) most of their primary medical care received at one of the pilot sites.

A roster of members who met criteria one, two, five, and six was generated for each of three medical offices in the region. Primary care providers reviewed the roster and excluded members with prior mastectomy or competing clinical priorities. Members who met the criteria were sent a letter advising them to schedule a mammogram; patients who still did not call to schedule an appointment received an outreach call emphasizing the importance of clinical breast examination and mammography. Women who were contacted by the call center were offered clinic appointments.

All members arriving at their clinical breast examination appointment were given the opportunity to schedule a mammogram at one of the current mammography centers. A roster was produced with the names of women who needed transportation. In late November, women who needed transportation were contacted, and appointments were scheduled for these women to have mammography at pilot sites during the first week of December.

A mobile mammography unit visited the pilot clinics and provided mammography services. Mammography films were processed at the end of the day at a distant facility. A survey was given to the women for completion on the day they had their mammography.

Results
On December 2nd through December 5th, the mobile mammography van was available to provide screening mammography to members in the target population. Screening appointments began at 8:30 am, and the last one was scheduled at 2:40 pm. Eighteen appointment time slots were available at each site—a total of 72 appointments available among the three centers during the four days. In all, appointments were scheduled for 63 women; of these, 62 had a mammogram, and one did not keep the appointment. Among the 62 women who were tested, two were found by mammography to have an early stage of breast cancer.

Figure 1. Cost comparison for providing mobile outreach unit vs member transportation to mammography-equipped medical center (N = 20)

Lack of access to locations doing screening is one reason for this underutilization of mammography services.
Member check-in and film transfer for processing proceeded smoothly. However, one major problem affected film quality: at the end of the day, when films were processed, some incomplete views of the breast were noted. These incomplete views rendered the films inadequate for interpretation. As a result, 40 (65%) of the 62 women were notified that the views were incomplete and that additional views were needed. The radiology staff scheduled members for repeat examination at a regional medical center that had a mammography machine and that was located nearest to the member’s home. New Saturday appointment slots were added to make access as convenient as possible, and all 40 women completed this examination.

A survey was administered to women at completion of the original visit. Of the 62 women, 55 completed and returned the survey. Responses are shown in Table 1.

**Discussion**

This pilot study showed that a subgroup of health plan members have difficulty obtaining a screening mammogram because they prefer to have a mammogram at their regular medical center and because they lack transportation to go elsewhere if their regular medical center does not offer mammography services. Mammography in this group of women yielded a higher detection rate for breast cancer than in our general population (Table 2). This result justifies use of a targeted intervention to address barriers to screening.

When results of their clinical breast examination were normal, all 62 women stated that they did not have transportation to regularly go to a medical office with mammography services to obtain routine screening mammography. Nonetheless, transportation was found by all 40 of the women who were called back in. Presumably, after being called back, these women became concerned about the possibility of an abnormality. Thus, when patients perceive the situation to be critical, transportation may no longer be a barrier to screening.

Figure 1 compares the cost of providing member transportation to medical offices that offer mammography services and the cost of providing mobile mammography units at medical offices without equipment.

In conclusion, providing member transportation to medical centers with mammography equipment appears to cost less per member than providing a mobile mammography unit. The possibility of routinely providing transportation for members in need should therefore be explored.

**Table 1. Survey responses of study population**

<table>
<thead>
<tr>
<th>Response</th>
<th>Excellent</th>
<th>Very Good</th>
<th>Yes</th>
<th>No</th>
<th>Weekdays</th>
<th>Evenings</th>
<th>Saturdays</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would rate my experience with the mobile mammography service…</td>
<td>70%</td>
<td>28%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I found the service provided by the staff…</td>
<td>77%</td>
<td>23%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If convenient transportation had been available to me, I would have preferred to go to the radiology suite at existing centers…</td>
<td>11%</td>
<td>89%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If future times were available for this service, I would prefer these…</td>
<td>62%</td>
<td>23%</td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2. Comparison of the breast cancer incidence rate of the mobile mammography outreach versus regional medical center mammography**

<table>
<thead>
<tr>
<th></th>
<th>Mobile Outreach Unit</th>
<th>Regional Medical Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of new cases</td>
<td>2</td>
<td>80</td>
</tr>
<tr>
<td>No. of women who had mammograms</td>
<td>62&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6473&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Incidence</td>
<td>3.2%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Women aged 50 years and older from the Cascade, Fancila, and TownPark Medical Centers who were screened by mobile mammography unit.

<sup>b</sup> Women aged 52-69 years who were continuously enrolled in the Health Plan for at least two years.

**References**

Improving Breast Care at the Kaiser Permanente Bellflower Medical Center

This article describes recent improvements to the Breast Care Program at the Kaiser Permanente Bellflower Medical Center. The improvements resulted from the work of an interdisciplinary, multidepartment task force formed in January 1998 to develop and implement new care pathways and processes to reduce the length of time taken to diagnose breast problems. The Breast Care Task Force included stakeholders and process owners from the Departments of Radiology, Surgery, Primary Care, and Quality Management. The group used a structured process improvement approach to guide planning, implementation, and monitoring of the new care pathway.

The redesigned care pathway pays special attention to patients who have a palpable mass in the breast or a mammogram that prompts clinical suspicion. A Radiology Breast Center was set up for patients to receive evaluation and, if needed, ultrasonographic core needle or stereotactic biopsy. If a biopsy is required, it can be done in the Imaging Department, where the procedure can be completed the same day and produce minimal to no scarring. When the biopsy is performed in the Radiology Breast Care Center, the diagnosis is delivered to the patient by the same radiologist who did the procedure.

Introduction

An interdisciplinary project team was set up at the Kaiser Permanente (KP) Bellflower Medical Center to improve processes for obtaining breast diagnoses. The goal was to reduce the number of days from initial clinical suspicion to biopsy for patients with abnormal mammogram results, palpable lumps in the breast, or other breast problems. Processes were streamlined and improved, resulting in measurable improvement in quality of care, service and cost-effectiveness.

Before these program changes were implemented, breast care at KP Bellflower was fragmented. Patients were required to have multiple appointments, and many referrals preceded the biopsy and diagnosis. To confirm the diagnosis, patients with abnormal mammogram results were typically referred to the Surgery Department for open biopsy. High demand for surgical services created backlogs and delay in scheduling for breast evaluations and biopsies. Patients had to wait a long time to have their breast problems diagnosed. The time between initial suspicion of a breast lesion and time of biopsy was referred to as “Sleepless Nights.” The need to reduce Sleepless Nights for members having breast problems diagnosed at KP Bellflower became a key priority for the medical center’s Quality Council.

In the Fall of 1997, the late Lewis Hahn, MD (Assistant Area Medical Director) and Jacques Blanc, MD (Chief of Radiology at KP Bellflower) outlined a proposal for the Radiology Department to perform biopsies and render diagnoses for patients with palpable breast lumps or clinically suspect mammography results. This new process would take full advantage of recent technologic advances that use ultrasound or stereotactic imaging in the biopsy procedure. In most cases, these new modalities can replace open surgical biopsy and be less invasive, quicker, and cause only minimal scarring.

In December 1997, key stakeholders from the Departments of Surgery, Radiology, and Quality Management, imaging, surgical services, and primary care met in an interdisciplinary project team to develop a plan to streamline and improve breast care processes. Key participants included Jacques Blanc, MD (Chief of Radiology), Marc Kurzbard, MD (Chief of Surgery), Lisa Heindl, MD (Chief of Family Practice), Elisa Chen, MD (Chief of Internal Medicine), Yolanda Bell, RN (Surgical Services), Sherry Beardon (Clinical Support Services), Chris Bieker (Quality Management), and others.

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**Table 1. Members of the Kaiser Permanente Bellflower Breast Care Task Force Team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacques Blanc, MD</td>
<td>Chief of Radiology</td>
<td>Imaging</td>
</tr>
<tr>
<td>Elisa Chen, MD</td>
<td>Radiologist</td>
<td>Imaging</td>
</tr>
<tr>
<td>Lisa Heindl, MD</td>
<td>Surgeon</td>
<td>Surgery</td>
</tr>
<tr>
<td>Chonita Holmes, MD</td>
<td>Radiologist</td>
<td>Imaging</td>
</tr>
<tr>
<td>Tarala Kapadia, MD</td>
<td>Radiologist</td>
<td>Imaging</td>
</tr>
<tr>
<td>Marc Kurzbard, MD</td>
<td>Internist</td>
<td>Internal Medicine</td>
</tr>
<tr>
<td>Nita Rebeck, MD</td>
<td>Family Practice Physician</td>
<td>Primary Care</td>
</tr>
<tr>
<td>Rich Boersma</td>
<td>Assistant Medical Group Admin</td>
<td>Clinical Support Services</td>
</tr>
<tr>
<td>Claudia Calandrino</td>
<td>Department Administrator</td>
<td>Imaging</td>
</tr>
<tr>
<td>Yolanda Bell, RN</td>
<td>Breast Care Manager</td>
<td>Surgical Services</td>
</tr>
<tr>
<td>Diane Hubler</td>
<td>Assistant Department Admin</td>
<td>Imaging</td>
</tr>
<tr>
<td>Al Quitral</td>
<td>Assistant Department Admin</td>
<td>Imaging</td>
</tr>
<tr>
<td>Sherry Beardon</td>
<td>Ambulatory Surgical Service Coordinator</td>
<td>Surgical Services</td>
</tr>
<tr>
<td>Dolores Rodriguez</td>
<td>Administrative Specialist</td>
<td>Clinical Support Services</td>
</tr>
<tr>
<td>Andrew Mollen</td>
<td>Process Improvement Consultant</td>
<td>Quality Management</td>
</tr>
<tr>
<td>Joseph Orth</td>
<td>Senior Analyst</td>
<td>Quality Management</td>
</tr>
<tr>
<td>Kay Simon</td>
<td>Quality Analyst</td>
<td>Quality Management</td>
</tr>
</tbody>
</table>

**The goal was to reduce the number of days from initial clinical suspicion to biopsy for patients with abnormal mammogram results...**
Management presented a proposal to the Medical Center Administrative Team (MCAT) outlining a new process as envisioned by Drs. Blanc and Hahn. That same month, the MCAT provided seed money to begin the planning process. In January 1998, an interdisciplinary task force—the Breast Care Task Force—was set up to develop a comprehensive, unified, structured program to improve and streamline the process of diagnosing breast problems.

The Breast Care Task Force included key individuals from the Departments of Primary Care, Surgical Services, Radiology, and Quality Management (Table 1). This group was charged with reviewing existing processes and recommending and implementing program changes to reduce Sleepless Nights for Health Plan members seeking diagnosis and treatment of breast problems.

**Scope and Significance of the Underlying Problem**

The Clinical Strategic Goals for Kaiser Permanente in Southern California state increasing satisfaction with breast cancer care is a major clinical priority. Specifically, the Breast Care Program at KP Bellflower affects all adult female Health Plan members in the KP Bellflower Service Area. The population targeted for screening generally is all women aged \( \geq 50 \) years or, for women who have a first-degree relative diagnosed with breast cancer, \( \geq 35 \) years. As of June 1999, the KP Data Warehouse reported that the KP Bellflower Service Area included 78,061 female members aged \( \geq 35 \) years.

The scope and significance of breast cancer across the United States can be seen in the following statistics:

- The National Alliance of Breast Cancer Organizations (NABCO) estimated that breast cancer would be newly diagnosed in 178,700 women during 1998 and that 43,500 women would die from the disease that year. Breast cancer is the second leading cause of cancer death for all women and is the leading cause of cancer death among women between the ages of 40 and 55 years.
- Approximately one million breast biopsies are performed each year in the United States, where traditional (ie, open) surgical biopsy is the method used most commonly.
- Estimates are that one woman in eight will have breast cancer during her lifetime and that one in 33 women will die from the disease.

**Task Force Mission and Goals**

The mission of the Breast Care Task Force was to develop an interdisciplinary Breast Care Center for quick, accurate diagnosis of breast problems. The goals of the task force were twofold: 1) ensure that the time from initial clinical suspicion of breast lesion to time

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**The Breast Care Program at KP Bellflower compares favorably with more progressive breast care programs in the United States...**

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![Figure 1. Clinical pathway for breast care at Kaiser Permanente Bellflower Medical Center](image-url)
of biopsy does not exceed 14 days, and 2) reduce the number of surgical biopsies that yield negative results. The primary focus of the Breast Care Task Force was to reduce Sleepless Nights for members who seek diagnosis of their breast problems. The Task Force thus focused on the goal to reduce the number of days between initial suspicion of a breast lesion and time of biopsy to 14 days or fewer. (Fourteen days is a common KP standard for access to routine appointments.) A telephone survey of leading medical centers in the community revealed that the mean time from initial suspicion of a breast lesion to time of biopsy ranged from 14 to 30 days.

**Process Improvements**

The Breast Care Task Force guided implementation in the following three improvement areas:

- Developed a unified clinical pathway (Figure 1) that guides patients from initial suspicion of a breast lesion through the evaluation stage (biopsy) to the confirming diagnosis. This new pathway replaced a fragmented and somewhat convoluted set of processes for breast diagnosis.
- Prepared a communications plan to educate referring physicians about new guidelines and expectations.
- Established, monitored, and reported performance on access time goals for each step in the care pathway.

The benefits resulting from these process improvements were at least three:

- Health Plan members are “handed off” to other departments and practitioners less often, require fewer appointments, and receive a diagnosis in much less time.
- All clinical findings related to the diagnosis are captured in one report.
- New technology is less invasive and leaves minimal to no scarring of the breast.

One of the first tasks of the Breast Care Task Force was to record all existing processes related to breast screening and evaluation. The result was a very large diagram depicting many fragmented and disconnected processes. The group proposed one simplified pathway for members in the KP Bellflower Service Area receiving breast evaluation (Figure 1).

The group developed referral guidelines (Figure 2) to inform physicians where to refer members for screening and evaluation. The breast care clinical pathway and the referral guidelines were combined onto a single sheet, which was laminated as a desk reference for use by referring physicians. The guidelines referred patients with a suspect mammogram to the Radiology Breast Care Center for complete diagnostic evaluation. Patients who had a palpable mass in a breast were directed to the Surgery Breast Clinic for further evaluation. If indicated, these pa-

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**Sidebar: The Sacramento Experience**

by Harold J Wadley, MD

Since 1997, the Kaiser Permanente (KP) Sacramento facility and its adjacent medical offices have streamlined the handling of abnormal mammograms. Instead of continuing to use the surgery clinic for needle localization and open surgical biopsy for such cases, most such procedures are now managed in a radiology interventional mammography clinic set up according to protocols agreed on by both the Surgery and Radiology Department. When an abnormal mammogram is logged, the patient is contacted by the Radiology Department to schedule a minimally invasive breast biopsy (MIBB) using either stereotactic or handheld vacuum-assisted biopsy techniques. The referring physician is notified, and the procedure is performed. If the pathology report indicates presence of malignancy or atypical findings, the patient is immediately referred to the Surgery Department for appropriate follow-up. This process has greatly reduced the time from mammography interpretation to diagnosis, an interval which is currently between seven and 14 days, depending on current demand.

MIBB statistics show that from January 1998 to August 2000, 1600 biopsy procedures were done and that of these, 35% showed malignancy, 5% showed atypical results, and 60% showed benign results. An additional 200 patients scheduled for MIBB did not have biopsy. Reasons included inability to target with either the stereotactic equipment or with ultrasound, patient weight exceeding table limits, allergies to lidocaine, or a history of bleeding. The radiologist is responsible for talking to the patient before the procedure about risks and complications, educating the patient about postbiopsy instructions, and informing the patient about biopsy results.

This process has resulted in several advantages. An intermediate physician visit is not required, because the patient is routed directly from identification of an abnormal mammogram to biopsy—thus saving patient time and reducing “sleepless nights.” At KP Sacramento, a mean seven days has been saved. The primary care physician, although still in the notification loop, can use these appointments for other patients. Surgeons are saved clinic appointment and surgical time by not having to deal with the benign cases. The operating suite in the inpatient and ambulatory centers is made available for other surgical procedures. Instead of more invasive excisional biopsy, patients also benefit from having minimal surgery, which results in less pain and scarring as sequelae. The Health Plan has been shown benefit from lower overall cost for this procedure than for excisional biopsy. ❖
patients were then referred to the Radiology Breast Care Center for full diagnostic evaluation.

The pathway depicts a process coordinated by an interdisciplinary team of physicians and supporting staff. Individuals involved in providing breast diagnostic services understand the whole process, the connections between each of the medical specialties represented on the pathway, and the standards expected of each of these specialties.

For members, this pathway results in fewer “handoffs” and the need for fewer appointments. From the beginning, members are informed of what to expect, and they interact with one set of caregivers throughout the process. The breast case manager and breast imaging radiologist work together on the patient’s case and respond to the patient’s fears and anxieties. Less time is spent waiting and worrying between tests, and the patient consults more closely with fewer caregivers, who explain the process and the patient’s options.

All test results and clinical findings are recorded on one document and are placed in the medical record. Previously, results and findings from different medical specialties were recorded separately.

After a patient is referred to the Radiology Breast Care Center and a decision is made to do a breast biopsy, the procedure can be done that same day in the Radiology Department. The breast imaging radiologist can use either ultrasound or stereotactic image guidance to locate the suspect mass and perform a needle biopsy. This procedure is done on an outpatient basis, is much quicker (averaging 20 minutes of physician time), and leaves minimal to no scarring of the breast. Previously, these procedures were done in a surgical setting and often required an inpatient stay at the hospital.

The Breast Care Program at KP Bellflower compares favorably with more progressive breast care programs in the United States in implementing an interdisciplinary and comprehensive breast care center for diagnosing breast problems. Specifically, the most innovative program elements include the radiologist’s enhanced role (ie, in coordinating the case and in delivering biopsy results) and greatly reduced wait time for diagnosis of breast problems.

Previously, radiologists at KP Bellflower read and interpreted mammograms. If the mammogram showed an abnormality, the patient was either called back for another study or referred to the Surgery Department.
for a biopsy and diagnosis. In the revised process, abnormal mammogram results are followed up with comprehensive breast evaluation and biopsy in the Radiology Department. If indicated, an ultrasound or stereotactic core-needle biopsy is done, and the specimen is sent to the Pathology Department. The pathology report is returned to the radiologist, who reports the result to the patient. This procedure represents a departure from more common practice, ie, where the biopsy is done in the Surgery Department and results are reported by the referring physician or surgeon. Patients’ positive responses to this change exceeded all expectations and were reflected by the consistently high scores shown in ongoing surveys of patient satisfaction. Results of patient satisfaction surveys are regularly reported back to the Breast Care Task Force and to clinical departments.

The dramatic improvement in reducing Sleepless Nights for patients in whom a breast lesion is suspected also sets this program apart as a “best practices” model. Results have been shared with other KP Southern California Medical Centers in the California Division, and similar projects are underway at other facilities.

Substantial, Measurable Improvements in Quality

Substantial improvements have been measured in wait time, patient satisfaction, and cost-effectiveness for obtaining diagnoses for breast abnormalities.

Since 1994, time from initial suspicion of a breast lesion to time of biopsy has been measured at the medical center as a “key medical center performance indicator” with a goal of not longer than 14 days. Before the Radiology Breast Care Center was established, mean performance on this indicator was 37.5 days. After its implementation and accompanying process changes, performance improved to a mean 11.1 days. Figure 3 shows this improvement trend by month.

Patient satisfaction with the new process is measured through an internally developed telephone survey of all patients who had a biopsy at the Radiology Breast Care Center. Patients are surveyed within a few days of their biopsy, and results are compiled and

Figure 3. Mean number of days from initial clinical suspicion of breast lesion to date of biopsy

Table 2. Response rates for patient satisfaction survey conducted at KP Bellflower Radiology Breast Center

<table>
<thead>
<tr>
<th>Month</th>
<th>No. of survey interviews*</th>
<th>Completed</th>
<th>Attempted</th>
<th>Response rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>21</td>
<td>37</td>
<td>57</td>
<td></td>
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<tr>
<td>August</td>
<td>20</td>
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<td>September</td>
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<td>October</td>
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<td>26</td>
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<tr>
<td>January</td>
<td>35</td>
<td>43</td>
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</tr>
<tr>
<td>February</td>
<td>37</td>
<td>48</td>
<td>77</td>
<td></td>
</tr>
</tbody>
</table>

* Unsuccessful attempts to interview some patients resulted from wrong or disconnected phone number for patient, phone not answered, or refusal of patient to participate in survey.
reported monthly (Table 2). One survey question asks patients to rate their overall satisfaction with the care and services they received at the Radiology Breast Care Center. Overall satisfaction with the process is rated on a Likert scale (1 = “very dissatisfied,” 5 = “very satisfied”). The percentage of patients that report being “satisfied” or “very satisfied” has consistently been 95% or greater (Figure 4).

This result corresponds to findings reported in the 1997-1998 Breast Cancer Patient Satisfaction Survey commissioned by the KP Southern California Regional Breast Cancer Committee. This survey found a strong relation between patient satisfaction and length of time from suspicion to diagnosis. The highest satisfaction levels were among patients diagnosed within one week.\textsuperscript{7,11-2}

**Interdisciplinary Approach**

This project has resulted in practices that can be replicated at other KP Medical Centers that have ultrasonography or stereotactic imaging equipment and a radiologist willing to manage breast cases. Once these elements are in place, referral guidelines (such as those shown in Figure 2) and a care pathway (such as shown in Figure 1) can be developed and implemented. Indeed, implementation of similar approaches and processes are underway at other KP facilities in the California Division.

Success of this project was made possible through an interdisciplinary effort involving process owners and stakeholders from the Primary Care, Surgical Services, Imaging, and Quality Management Departments. Physician leaders and management staff worked together to create new processes and to streamline existing ones to improve breast evaluation and diagnosis.

The process for diagnosing a suspected breast abnormality crosses over multiple departments and medical specialties. Involving stakeholders and process owners from different affected disciplines ensured that any approved process change would be fully understood and achieve the necessary “buy-in.” This shared understanding was critical also for coordinating all the steps and referrals involved.

Process Improvement Teams at KP Bellflower use a common approach—one called Plan, Measure, Assess and Improve (PMAI)—to structure process improvement initiatives. The PMAI approach consists of a set of steps that can apply to all processes and that represent a continuous cycle. This approach parallels other performance improvement models in use nationwide.

**Conclusion**

This project achieved substantial and measurable improvements in access times, patient satisfaction, and cost-effectiveness. Specific improvements were developed, implemented, and monitored by an interdisciplinary team that addressed a comprehen-
sive process involving multiple departments and medical specialties. For patients, the improvements resulted in shorter wait time and more personalized care; for the medical center, the improvements increased cost-effectiveness. As accrediting and quality reporting organizations give higher priority to timely performance of follow-up after abnormal mammogram results, KP Bellflower will be well positioned to exceed the expectations for excellence in this area.

References

A Great Leader

A leader takes people where they want to go. A great leader takes people where they don’t necessarily want to go but ought to be.
Rosalynn Carter, Former First Lady, Author, Co-Founder of The Carter Center and Director of the Rosalynn Carter Institute for Human Development
Dr. Blau’s striking photographs of obese patients and the quotes from his patient interviews struck a responsive chord in many readers of the last issue of TPJ. To continue with the use of art in medicine, here is a diptych from a patient I asked to draw me a picture of what was inside a fat person. Following that are some clinic notes from the medical record of a man who had become obese. The autobiographical writing he supplied me as part of his treatment plan speaks for itself.

“I was born to a 16-year-old mother whose troubled marriage soon dissolved. My father remarried shortly to a woman who did not want me; he then died when I was five. My mother became alcoholic. When I was five, I was molested by a teenaged boy babysitter. At the age of ten, I was seduced into intercourse by a 19-year-old boy, who was a babysitter’s son. I started putting on weight in ninth grade. I went to college and became a teacher. I remain celibate and smoke heavily. I have struggled with depression for years . . .”

VINCENT J FELITTI, MD, has been with the Southern California Permanente Medical Group since its opening in the late 1960s. Educated at Dartmouth College and Johns Hopkins, he practiced many years both as a traditional internist and an infectious disease consultant and was an elected Director of SCPMG for ten years. E-mail: vincent.j.felitti@kp.org
Draw me a picture . . .
Found in the Medical Record of an Obese Man

Edwin X 1/15/99

In brief, patient grew up in a large family that his mother’s relatives rendered unhappy by the ramifications of “…everyone understood that my mother had married significantly below herself.” He repeatedly mentions that he grew up fearing that expectations would be raised that he could not meet. He went to college and became a naval pilot. He did well and married happily but was nevertheless a 2 ppd smoker. His weight maintained at about 200 pounds until he stopped smoking and gained some.

The major event in his life was his wife’s breast cancer, cerebral metastases, and her death in home hospice that he carried out for five months and by which he was overwhelmed. Asked of what she died, he tells me that although the death certificate states cerebral metastases, it was “…I believe really from leukoencephalopathy from the radiation.” He gained to 300 pounds after her death and became markedly withdrawn and depressed. Sleep disturbance with myoclonic jerks and “restless legs” coincided. Ultimately, he was treated with Klonopin and 40 mg of Prozac, which have helped significantly but partially.

He tells me that on Dec 20 he created “…a big event by giving a party; it was my stepping out after being a recluse; the first time since my wife died (in 1995).” He has been unable to sleep ever since. “I feel if I just had a full stomach I’d be able to sleep, and so I get up and eat.”

Patient has strong ties to the Episcopal Church; he is interested in Jungian psychology; and is a thought-full man. He speaks meaningfully of “inner voices.” He thwarted my discussion of options in the further treatment of depression, so I asked him to provide me autobiographical writing of his wife’s illness and death, to read Jaynes’ The Origin of Consciousness; and to return in three weeks. Ultimately, he might be a good candidate for hypnotherapy. Meanwhile, he will accomplish little in the weight program until the underlying problems are resolved.

On Jean’s Death (autobiographical writing by Edwin X)

One thing to remember is that Jean was meticulous about her health. Her mother died of cancer, and Jean and I took care of her (with Hospice help) during her final months, and she had a great deal of pain. Jean kept her weight down, monitored her cholesterol, had mammograms as recommended by Kaiser, had her shots kept up to date, her teeth kept in excellent condition, etc, etc, etc. She had a hysterectomy as recommended when numerous fibrous growths were found in her uterus. And she performed routine, thorough self-examinations, during one of which she found a very small lump in her left breast.

She went to the doctor promptly, and a biopsy showed the lump to be malignant—but very small. After careful discussion, reading, and much thought, she opted for a modified radical mastectomy, which was performed promptly. No signs were found of the cancer spreading, and all the lymph nodes were clear. She was put on hormonal therapy and given periodic blood tests.

Something over a year later on, a routine blood test showed a possible increase in tumor activity, and x-rays showed tumors in both lungs. We went to a family reunion in the Midwest with that knowledge, but the doctors said another couple of weeks delay in starting chemotherapy would not matter. The first two types of chemotherapy attempted had no effect on her cancer, and, just after Christmas 1995, she complained of a severe headache, and by the time we got her to the hospital, she was noticeably becoming comatose. She had a 5cm tumor in her brain at the lower rear area. She was given shots to reduce the swelling and was released the next day to proceed directly to radiation therapy. More tumors were found in the back and hip. All except the lung tumors were treated with radiation, and the chemotherapy was shifted to Taxol.

She recovered dramatically, with some weakness in walking and a lot of fatigue, and the monthly x-rays and the blood tests showed a dramatic lowering of cancer activity and all the tumors were shrinking in size. We were exultant. After a couple of months, she began to resume a fair amount of her normal daily activities. But in the summer, she began to lose some mental keenness. It was generally not noticeable, but if I asked her a question with an “or” in it, she had trouble. If asked, “Do you want pineapple juice? she would promptly answer yes or no; and answer just as quickly if asked, “Do you want orange juice?” But when asked, “Do you want pineapple juice or orange juice?” there would be this very long pause before I got an answer, and, more and more often, there was this puzzled look as if I had suddenly started speaking a strange language. And she began to walk with a kind of shuffle. We went in for another Taxol treatment and after observing her leg weakness, the oncologist delayed the next treatment for a couple of weeks.

She went downhill very rapidly. She had more and more trouble walking and had trouble getting to the toilet in time before her bladder emptied. Within a few days, she could not walk without help. Calls to the oncologist did not create any apparent concern on his part, and it reached the point where Jean could not walk at all and was demonstrating more and more confusion.

To me, as frightening as anything else was her continued good cheer and total unconcern with her condition except that she
hated soiling herself. When I demanded that the oncologist see her, he refused and suggested Hospice. This made no sense to me since at her last visit, he had been all good cheer and hopefulness. He got shouted at and finally agreed to see her if I would bring her in. When I pointed out that I didn’t think I could carry her, I was pretty much told that was my problem. The shouting got fairly nasty, and he finally ordered an ambulance and had her admitted to the emergency room. Didn’t want to admit her himself.

In the emergency room, the doctor asked Jean why she was there. She smiled her most charming smile at him and said, “I don’t know”—and turning to me she asked with great curiosity, “Why am I here?” And now I’m crying as I write this.

Well, she didn’t know what year it was, or who was President; every weekend, my sister and her husband came down from Corona; every weekend, one or more daughters arrived, and the staying with us; every weekend, many days, I was more a personnel and logistics manager than a caregiver. And the logistics could be ferocious.

Another great blessing was the lack of pain. She hurt three times that I can recall: she became constipated, and fixing that really hurt; she got a severe case of diaper rash which was cured in about 48 hours, but it was agony to her each time she had to be cleaned; and once while flexing her wrists, I went too far and she yelled. The last great blessing was her mental deterioration, which seemed first to deprive her of any fear or concern about herself.

She came home at the last of June, I think, and we were told she would not live until September, probably. In September, we were told she could not live until Halloween and at Halloween, that she could not live until Thanksgiving, and then, that she could not live until Christmas.

But she had more and more difficulty eating and then could not swallow fluids. Everything had to be thickened or thinned to the right consistency so that she could swallow it, and it became more and more of an ordeal to get her to take fluids.

Eventually, the day arrived when she could not swallow anything. She had not spoken for weeks; she no longer responded to touch or to sound, but her eyes would blink if I waved my hand right in front of her face. We kept talking to her, but we did not know if she heard or, if she heard, whether she understood.

She died December 29, 1996, at the age of 64. She died in the last hours of the night, before morning came. She died with three of her four daughters and me around her, holding her hands and each others, reading the last rites from the Book of Common Prayer. Her daughters washed and dressed her. Her body was cremated as she desired, and her ashes are in Point Loma Cemetery overlooking the Pacific Ocean.

She, who was always so careful with her life, is dead, and I who was always so careless with mine, live on, trying to do something which in my worst nightmares I never imagined I would have to do: build a life without her.

Do any of us “see” these patients, or have they rendered themselves invisible?

If invisible, or seemingly unapproachable, what does this mean?

What should we do?

What can we do?

Who will do it?

When?
House Calls

Patients enter my space when they come to my office; I enter their space when I go to their home. I am invited into my patients’ kitchens, living rooms, and lives when I make house calls. Patients learn about me by observing the ambience of my waiting room; I learn about them by observing the colors, furnishings, art, and books in their dwellings. Once in their home, I may perceive, within minutes, what eludes me in the examination room. When I pick my way carefully to an elderly man’s bedroom, along a narrow path bordered on both sides with walls of piled-up newspapers, I at once understand the severity of his neurosis, which escapes me when I concentrate on his coronary artery disease in the office. A glance into the refrigerator, while getting a cold drink of water, tells me more about my patient’s diet than I will find out by exhaustive questioning.

When we stop making house calls, we lose the intimacy of the relationship in which doctors and patients alternate being hosts. Displaying family pictures on the desk is not exclusively the doctor’s privilege; patients also can share photographs when the physician visits in their home. The balance of power in the doctor-patient relationship shifts by changing the locale of the encounter from office to home. House calls can be surprising, frightening, sad, and, at times, inspiring. House calls make me feel humble because they teach me under what adverse conditions the human spirit can survive and even thrive. I also learn things about my patients of which I stay ignorant if I only see them in the office. A grand piano in the home of a lady who has hypertension and is no longer allowed to drive because of epilepsy leads me to ask her if she would play for me. I am deeply moved by the beauty of the music and her expertise. Both of us momentarily forget the reason for my visit and revel in the joyous sound.

House calls can also arouse pity. A childless couple, Mr and Mrs Peters, have been patients for several years. Both hold jobs in spite of Mr Peters’ excess use of alcohol. One sunny day, a neighbor of the Peters’ calls to say that she is concerned about them. Their car is in the driveway, and she has not seen either Mr or Mrs Peters leave for work. During my lunch hour, I check on my patients. Their house looks disheveled, beer cans scattered among the weeds in the yard, the door ajar. The unkempt appearance of the yard, however, does not prepare me for the scene that confronts me as I enter. Two human forms, on iron bedsprings, covered completely with worn sheets, rats scuttling across the floor, beer bottles and empty cans piled high, enmeshed in spider webs. I gently pull back the sheet from the head of one of the prone figures, expecting a corpse. Under the sheet lies Mrs Peters; the other sheet covers Mr Peters. Both are breathing air that reeks of alcohol, both passed out. Carefully I replace the sheets, as pity and pessimism overcome me. I realize that my ability to help this couple is minimal, the scope of their problems overwhelming. I am surprised, because, prior to this visit, I did not know that Mrs Peters, as well as her husband, has severe difficulties with alcohol; knowing this makes it clear to me why controlling Mrs Peters’ blood sugar has been unusually difficult. When I bill Mr Peters for the house call, he objects. He is unaware that I had been to his house; only my accurate description of the scenery convinces him that my bill is justified. During this discussion, my offer to support him and his wife in any and all efforts to overcome their addiction is firmly and politely rejected.

The element of surprise is ubiquitous in house calls. Sixty-eight-year-old Mrs Gerad has been in chronic mild heart failure for months. She leaves a message with the office nurse that her shortness of breath is getting worse and is told to expect me after office hours. When I arrive, Mrs Gerad is lying in bed, obviously dyspneic, with distended neck veins. I suggest she sit up to ease her breathing and therefore put a sofa pillow under her back. While fluffing up her bed pillow I feel something hard, a loaded revolver. I am scared and taken aback, but on further reflection, I realize that this weapon is meant to protect my helpless patient against unwelcome intruders. It might well have discharged while I rearranged the pillows, but I leave it where I found it, and resolve to be more careful in the future.

Usually I do not make house calls to a stranger. However, a concerned neighbor is desperate; therefore, I tell her I will come. From the appearance of the small, ramshackle house, I conclude that the owner has been sick for some time. The portly, white-haired lady who called me greets me on her doorstep. She reports that her neighbor has been moaning loudly all night and adamantly refuses to go to the emergency room.

My knocks go unanswered. When I open the door slowly so as not to startle anyone, a strong smell of vomit assails me. I leave the door open to let in some
fresh air; it is too early in the year to worry about flies following me in. The curtains are drawn, but a weak bulb sheds enough light to reveal a man, about sixty-four, in bed with a shotgun leaning against the bedframe. He greets me loudly: “Who the h... are you?” From the tenor of his voice, I conclude that he is deaf and therefore respond equally loudly that I am a doctor who has come at his neighbor’s request. “D... meddler,” he comments. After my eyes adjust to the dim light, I see the outline of the man’s greatly distended abdomen under the sheet. He is undoubtedly obstructed, given the pain, distention, and vomiting. “Do you want me to examine your stomach?” I query. He pulls down the sheet. He is fully dressed but has unzipped his pants to allow for the distention. I do not have a chance to lay a hand on him because he starts to retch and moan. When, exhausted, he lies back, he looks at me as if he has forgotten our previous exchange. In a hoarse but loud voice, he says: “What do you think you are doing here? Get the h... out.” At which point, he starts to reach for his gun. I hasten to tell him again who I am and that I have come to help ease his pain. “None of your d... business!” In my bag are a few demerol and codeine tablets, which I leave on his nightstand next to a glass of murky water. “You may take these if the pain gets too bad; your neighbor has my telephone number if you want me to return.” He responds: “I told you to get the h... out of here.” I do just that.

I never heard from the neighbor nor from the old man with the gun again. That he could not accept the help I offered, but insisted on suffering alone in his smelly, semi-dark room made me sad, but also I was frightened by his gun, his anger. Driving away from that scene, I wondered about this man’s life, his job, his family. What experiences made it impossible for him to accept help, or even to acknowledge that help was being offered in good faith? Also I mulled over my own actions. Would a different approach have been more successful? If I had moved the gun out of his reach when I entered, I would have been less threatened by him; and perhaps if I had stayed longer, he would have relaxed more in my presence? Should I go back and try again, or was it now too dangerous?

Years ago, a young woman called me to the home of her grandmother, who was in pain. The old lady lived in a one-room, wooden cabin. When I entered, she was stretched out on a narrow bed, softly moaning, but she greeted me in a warm, welcoming manner. The source of her pain was a large, creeping cancer, that had eaten away part of her face. She was small, frail, and her thin body left enough room for me to sit down on the edge of her mattress and hold her hand while I explained how to use the medicines I left for her. Her granddaughter took notes, and when I was finished, we three women held hands silently for a few minutes in that small cabin. I left after a gentle hug with both the young and the old woman, and with a renewed respect for, and joy in the human spirit. The dignity and quietude with which death was expected by this woman was inspiring; she had lived her life and left no major tasks unfinished.

It was different for Helen, the young mother who was dying of breast cancer. She struggled to stay alive; she wanted to celebrate her son’s third birthday. She cried, inconsolable, in my arms, unable to accept her fate. Before she died, she asked me to see her son, Thomas, regularly, whether or not he was sick. I promised. About four years after Helen’s death, I once again visited Thomas, now six years old. He knew me well and, on this occasion, introduced me to his “new mom.” He showed me the house into which he had recently moved with his dad and his stepmother. Once in his room, he sat down on a bean-bag and told me to sit in the rocking chair. Soon he inched closer and closer to the rocking chair, and then, taking a photograph of his mother off the shelf, he sat in my lap. “Tell me about Mom.” I had known her for longer than he had and could talk to him about how pretty she was as a teenager, and how smart. “She used to come to my office even before she knew your dad. After college, your mom got a good job and then met your dad. She was a happy, lovely bride, and Thomas, your grandfather loved your dad.” I told Thomas about the breast cancer and how sick his mother had been during the chemotherapy treatment, but that she and dad really wanted him to become part of their family. He was born when his mom felt better. “Your mom and dad had two wonderful, happy years with you until mom got sick again and died.” Thomas was now snuggled in my arms, and we rocked silently for a while; then he jumped down and went out to play. I sat there alone, thinking about his lovely young mother who did not want to die. Then I left the house, content that Thomas’ dad had found a new partner and a “new mom” for his son. This family no longer needed to be followed by me. Thomas and his father had recovered after Helen’s death. The new family was well established; the old, deep wounds had healed. After this visit, I stopped mourning for Helen. The task she had given me, to check on Thomas, was completed.
could let go, say my final goodbye. Home visits can be healing for physicians as well as for patients.

House calls are not part of today’s urban medical practice; not cost- or time-effective, they have all but disappeared from the daily routine of physicians. There are occasional articles urging the revival of house calls,\(^1\) and even a movement to create yet another specialty, home-care doctors,\(^2\) but it is likely that physicians will be dispensing medical care in hospitals, emergency rooms, and offices rather than in the home during the next few years. Having practiced during a time when house calls were part of every day’s schedule, as well as more recently, when I did not make any house calls, I feel strongly that I dispensed better patient care when house calls were part of my work. ❖

References

The Seventh-Decade Stretch

Certain changes are unmistakable.

Gratitude replaced attitude.

Blessings are not only counted, but also hoarded.

Kind acts are taken for anything but granted.

Affection is appreciated as a form of interest that has somehow been compounding itself behind your back.

Larry Gelbart, playwright and screenwriter, from The New York Times Magazine, September 24, 2000
Journal entry, June 14, 2000

Meditation: “How you spend your days is how you spend your life”

How do we make room for spirit in our patients and in ourselves? Whether we call it faith, or instilling hope, or ... there is much in healing that is beyond logic, beyond our medications, beyond our procedures ... not instead of these things but aligned with them.

What is it that the patient and the family bring to the table? What do we, by the gift of ourselves, bring? It is not only our knowledge and our experience as a physician, not even just our compassion ... The gift we also bring is in being there, present and whole: mind, body, and spirit, walking with the patient.

“Being present” is too easy to forget in the ordinariness of one more patient in one more long day ... and in the forgetting, and in the fatigue, we sometimes settle for the mechanical ... then we lose our own meaning ... the source of our own joy.

As people, it is the “ordinary” in our days that soothes and heals each one of us. When we experience a loved one in danger, it becomes so clear in that moment what is important ... The background noise fades and we pray for just an “ordinary day.”

“What from the hands of God to our hands ...” I don’t remember where those words come from, but I know as a physician that is what we are given in our daily work ...
"Mood Disorder"
by Mohamed Osman, MD

More of Dr Osman’s artwork can be seen on page 29,
The Message

Headlines from ReutersHealth.com1 from January 1999 through March 2000:

“Vaccine for HPV-induced tumors shows promise in mice”
“Wart virus test adds little to Pap smear diagnosis”
“Risk factors for cervical HPV infection vary by viral type”
“Chlamydia infection linked to cervical cancer”
“HPV test better than Pap test for cervical cancer screening in high-risk populations”
“Mildly abnormal Pap smears usually OK”
“Automated rescreening of negative Pap smears not cost effective” [on Jan. 28, 1999, one day after]
“Enhanced Pap testing cost effective for infrequent screening”
“Study determines HPV testing more effective than Pap smear”2 [The study was published in Br J Cancer 1999 Jul;80(9):1306-11.]

The Media

Trying to sort the wheat from the chaff in reporting on cervical cancer and human papillomavirus (HPV), anyone—patient, journalist, researcher, or clinician—could easily get confused. The messages—are those we hear and those we write—seem to change continually. Is HPV the best test? Is all cervical cancer caused by HPV? Are Pap smears obsolete? Is there a better Pap test?

April 5, 2000: Kaiser Permanente offers advanced screening for cervical cancer.3 [KP press release as posted on Business Wire]

Health care is one of the most frequent topics of news stories—in print, on TV, on the radio, and particularly on the Internet. Today’s “empowered” health care consumers are hungry for information about their health, their fitness, their family’s illnesses and injuries.

1987: Early research publication connecting HPV and cervical cancer: “...the strength, specificity and consistency of this relationship suggest that [subclinical papillomavirus infection] may be a precursor of cervical malignancy.”4 [Cancer]

Feeling the need to feed that hunger for information, journalists report on clinical research, the latest studies, presentations, and conferences that contain health care news. Often, the journalists are not health care experts themselves; almost as often, however, they have at least a basic understanding of research and can and do ask appropriate questions.

1997: On cervical cancer testing: ... The Food and Drug Administration has recently approved three new automated systems that show promise of substantially improving the accuracy of Pap tests. [ThinPrep, PAPNET, AutoPap 300 QC] ...none of these systems is perfect.5 [FDA Consumer]

Kaiser Permanente

The internal Kaiser Permanente (KP) debate over how to increase the accuracy of Papanicolaou tests in detecting new cases of cervical cancer has paralleled and at times been influenced by an external debate. Media coverage of new technologies has ranged from thoughtful, lengthy pieces in The New Yorker on HPV testing to inquiring articles directed at insurers who refuse to include the new technologies in health care coverage. The companies that own and manufacture the tests influence this media coverage by distributing to reporters and editors press releases that quote or reference specific studies favorable to the products the companies are trying to sell. Because those press releases are often placed on the Internet without being edited—and the average consumer doesn’t see or understand the difference between a press release and objective journalism—the debate is often controlled by those who get the first word.

January 1999: The Pap Test Still Best Bet, but New Technologies Show Promise of Improving Screening Outcomes6 [Agency for Healthcare Research and Quality]

Meanwhile, clinicians and researchers within KP debate and determine best practices—from personal observations, from reviews of the best and most recent external research, and from research conducted at our own research centers.

May 1999: For women with ASCUS Pap tests, HPV DNA testing of residual specimens collected for routine cervical cytology can help identify those who have underlying HSIL.7, 8 [JAMA]

Should clinical decisions and practice guidelines be determined by what’s reported on World News Tonight? No one would suggest that they should. But the reality...
is that media coverage of an issue, a drug, a type of therapy, or a new technology increases the pressure for any insurer to include that option as a covered benefit, whether or not it has been proved effective.

July 1999: WASHINGTON, DC—New cervical cancer screening technologies are not likely to help women most in need of cervical cancer testing and could even widen the economic gap between women who get Pap smears and those who don’t, argue commentators in the August issue of Obstetrics & Gynecology6 [ACOG news release]

Media Relations Role

In the media relations offices of every health plan, professionals who work daily with local and national media representatives have learned to expect the “Do you will you cover it?” call whenever new research results are released on a given drug, device, or treatment (or when its maker sends out a press release touting its benefits).

When the message received is uncertain—ie, when a phone call can’t be answered simply with, “Yes, we do” or “No, we don’t”—a journalist’s natural reaction is to wonder why the answer is complicated. This reaction isn’t necessarily effrontery; if the answer isn’t simple, human nature asks, “Why?” or “Why not?”

Answering these questions creates an opportunity to educate, but complexities are generally lost in a sound-bite-hungry world. Television sound bites average seven seconds each; quotes in print occupy only a sentence or two. Far more often, a complex answer to what seems a simple question (eg, “Do you or don’t you ...”) makes the respondent appear uncertain or deliberately obfuscating.

Good Reporting

Stories published and questions asked by their writers can change direction abruptly—and at any given time, these directions can appear completely divergent. One reporter will call us to ask, “Why don’t you allow more access to clinical trials?” minutes before another reporter asks, “Why don’t you better protect your patients from being experimented on?”

Outside a newsroom, it’s difficult to see that journalists are themselves hungry for information. Like most of us, they’d like the world to make sense—even though when it doesn’t, it gives them job security. At the same time, journalists are rewarded for being cynical: questioning authority is part of their job descriptions and produces the best sound bites and stories.

The Debate Continues

As clinical information on health care treatments and policies fluctuates daily, so do the stories we—and patients—read every day in newspapers and on the Internet. Similarly, fluctuation is evident in our internal debate and, by extension, in our answers to the questions we are asked by journalists, by our patients, and by the public. ❖

References

1. Reuters Health Information. Available at: http://www.reutershealth.com [Accessed June 1, 2000]
Hemochromatosis: Genetics, Pathophysiology, Diagnosis, and Treatment
by James C Barton, Corwin Q Edwards, editors.

Book Review by Vincent J Feletti, MD

Medical futurists have predicted that hemochromatosis will be the cholesterol of the 21st century in terms of public notice. Discovery of the HFE gene has now shown that one in 250 Americans has the homozygous genotype for hemochromatosis—the most common genetic disease in the country despite what most physicians currently believe. The patient panel of most Permanente primary care physicians includes about ten cases of hemochromatosis.

Almost no current cases of hemochromatosis are diagnosed. Of course, many affected patients are presymptomatic because they are young enough still to be in the process of accumulating toxic levels of iron. In other patients (for reasons not yet understood), complete penetrance never manifests. But many patients with hemochromatosis are symptomatic, manifesting the myriad signs and symptoms that most physicians still do not appreciate. Cardiomegaly, fatigue, arthralgias, episodic diarrhea, hypothyroidism, arrhythmias, impotence, diabetes, and joint replacement are among the numerous presentations of iron overload. Each of these conditions has other, more common explanations; these multiple signs and symptoms perpetuate the traditional belief that hemochromatosis can be considered—indeed, dismissed—as a rare disease.

Hemochromatosis is important—and is an ideal subject for preventive medicine—because of its prevalence, its easy early diagnosis, and the probability that early diagnosis and treatment will totally prevent every manifestation. Largely because of these factors, the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) have selected hemochromatosis as the prototype disease to be featured in a nationwide program to help practitioners move into the era of genetic disorders.

James Barton and Corwin Edwards are two American physicians with enormous clinical experience in hemochromatosis who have brought together 100 of the world’s experts on iron overload to create a major monograph about hemochromatosis that will dominate the field for years to come. Their book, Hemochromatosis, is clearly written, evenly edited, and well made. It is also timely because it is the only monograph available in a field that is rapidly expanding; the other two books on this disorder were published in 1935 and 1964, respectively.

The first section of Hemochromatosis discusses the history of this common hereditary disorder, which is the most common cause of all diseases of iron overload. The discussion of the genetics of hemochromatosis makes the important point that iron overload is the essence of the disease; and that the mechanism by which that iron overload is accomplished—genetic or not—is not the essential issue for patients. We learn that normal genetic analysis is therefore not at all reassuring when evidence shows the presence or likely development of iron overload.

Subsequent chapters discuss available diagnostic techniques, which range from serum iron saturation through tissue biopsy to magnetic resonance imaging (MRI); the limits of genetic analysis are also made clear. The chapters on clinical presentations remind us that Sir William Osler’s dictum “Know syphilis and you know all of medicine” could easily be rewritten as “Know hemochromatosis and you know much of medicine.” This view is quite different from what many of us vaguely recall about “bronze diabetes with cirrhosis,” that end-stage triad in which delayed diagnosis causes the benefits of therapy to be lost.

The book describes various aspects of treatment, ranging from the standard of phlebotomy through tissue biopsy to delayed transplantation. The book also discusses ways in which infection and malignancy are caused by diseases of iron overload (in particular, unusual types of septicemia and hepatoma). Subsequent chapters discuss screening, the combination of hemochromatosis with other disorders (eg, thalassemia trait, alcoholism), and hemochromatosis in animals. Screening is of particular importance because it provides the greatest opportunity for therapy. Closing chapters discuss general problems associated with screening for genetic diseases and transfusing blood from hemochromatosis patients. Changes in blood bank regulations may soon allow this blood to be used within Kaiser Permanente (KP).

This skillful organization of knowledge into a highly readable monograph is a pleasure to use. All KP medical libraries will want this book. I suspect that many Permanente physicians will refer to Hemochromatosis as they start recognizing the possibility—perhaps even the likelihood—that some of their patients have hemochromatosis that is undiagnosed. To the degree that this diagnosis is facilitated, patients gain the opportunity for effective treatment of this disease.


References
It’s Never Easy: The Terminal Diagnosis

Review by Vincent J Felitti, MD

This teaching videotape opens with a line that will resonate with most of us: “Medical school only prepared me for about half of what I experience daily.” The words are spoken by a young physician who has just diagnosed a friend with a fatal illness.

This story line is the basis of this continuing medical education (CME) videotape, which is so well made that we can be proud it is produced in-house at Kaiser Permanente (KP). Moreover, the actors are our own in-house CareActors troupe, which supports educational training for SCPMG and TPMG via live theatrical productions as well as video. How many medical groups have an actors’ troupe on staff? And what is the role of the arts in treating illness (as opposed to treating disease)? Although the original version of this program about coping with fatal illness was created by the KP Ohio Region, the current, revised version was developed by a nationwide KP committee. I hope they extend their work into other problem areas of clinical practice.

The videotape is divided into three segments, each depicting a major problem in practice: 1) delivering bad news, 2) coping with difficult emotions, and 3) end-of-life care and follow-up. The accompanying Facilitator’s Guide is designed to stimulate meaningful discussion among caregivers who view the tape. Of course, the tape can be viewed individually, but the questions posed at the three nodal points make it clear that we all would benefit from hearing the opinions of others on these difficult and conflictual matters.

It’s Never Easy is an excellent prototype for thinking about the way we deal with life-threatening illness or with the complexities of disagreement within a patient’s family. The tape realistically shows disagreement, passivity, anger, and agitation in family members and shows physicians not anticipating having to treat a whole family; physicians being kind; physicians being socially inept; and physicians facing hostility. The questions provided in the Facilitators’ Guide help us explore our own emotions, the emotions of patients and their families, and the difficult problem of conveying information when denial fills the air. The tape closes by discussing the task of helping a patient live as well as possible when faced with the actuality of dying.

At a purchase price of six dollars, this videotape has got to be the best medical education buy of the year! After all, who was taught about this most-important topic in medical school? We can all be proud that this program originated as part of the Kaiser Permanente Endowed Lectureship in Bioethics at Case Western Reserve School of Medicine, where the tape was used to advance bioethical discussion among health professionals in the community.


Showdown with Diabetes

By Deb Butterfield.

Review by Alberto Hayek, MD

“It is just diabetes. Don’t worry, just take your insulin shots, follow a diet, and you will be just like everybody else.” Words like these were commonly heard when I was a pediatrics house officer. In those days, children with diabetes were seen in the general pediatrics clinic. Then, with great reluctance, the pediatric endocrine clinic began to see diabetic children. It was in this medical era that Deb Butterfield was first diagnosed with childhood diabetes. This book is a vigorous statement about her own fight with Type 1 diabetes and about how a person who is motivated to change the status quo may be energized to do so by her own personal experience and by the sincere motivation to help others.

In the decades of the 1960s and 1970s, very little research in diabetes was being done in areas critical to clinical care. Current standards such as daily, multiple, home-based glucose measurements were not easy to implement. Unfortunately, we doctors played a major role in slowing the changes that allowed patients and their families to become more involved with their treatment and its outcome. Because the medical community widely accepted the intensive insulin therapy supported by the Diabetes Control and Complications Trial (DCCT)1-3 around 1990, we might well assume that more definitive procedures to treat Type 1 diabetes would have been pursued more vigorously in the late 1990s. However, this has not been the case, and procedures such as pancreas transplantation are still not widely available to patients with Type 1 diabetes.

Out of the “health consumer” field now comes the voice of Deb Butterfield, Executive Director of the Insulin-free World Foundation. Her book, Showdown with Diabetes, tells the story of a dramatic treatment advance—and who better than a diabetic patient can authoritatively tell the diabetic community that great strides are being taken in the battle to actually cure Type 1 diabetes? The author’s description of her improved quality of life after receiving two pancreas transplantations—the first ending in rejection—is so well described that this description serves as the subjective counterpoint to the scientific data presented later in the book. This counterpoint technique shows that in diabetic patients monitored for ten years after pancreas transplantation, complications of diabetes were reversed. Indeed, conventional views of diabetes undoubtedly limit our understanding of the full benefits of pancreas transplantation.


Review by Alberto Hayek, MD

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In the author’s instance, pancreas transplantation resulted in an unexpected but clinically significant reversal of diabetic neuropathy.

Because of advocates like Deb Butterfield, we can be honest with our patients and agree that conventional treatment of insulin-dependent diabetes with multiple daily doses of insulin (whether by syringe or pump) is time-consuming, demanding, and creates constant worry about hypoglycemic coma. In the daily lives of diabetic persons, insulin allows no breaks from treatment. The great success of pancreas transplantation (today equal to that of kidney transplantation) and the more recent success of islet-cell transplantation (invigorated by results obtained in Edmonton, Alberta, Canada4) are the best indication that a new era in the treatment of insulin-dependent diabetes is beginning at several progressive transplantation centers. In its July 27 lead article, The New England Journal of Medicine published the best results ever reported for diabetic transplantation recipients: after islet-cell transplantation, all seven patients in one series became independent of the need for insulin injections.4,5 A procedure with a former success rate under 8% has suddenly become the most promising approach to curing diabetes.4,5 Because a major requisite step—immunosuppression—will already be in place, pancreas transplantation must now be given serious consideration for all patients with Type 1 diabetes who undergo renal transplantation.6 We are approaching the point where stopping short of cure will seem unreasonable.

This book enlightens, provides an intimate account of the daily tribulations of living with diabetes, and allows the reader to participate in a real-life story in which a determined person makes the world a better place for people affected with chronic disease. The author is a champion of hope based on her personal knowledge of diabetes. If her book carries but one message—that perseverance, knowledge, and a passion to help others can advance medical practice—then this book can be considered an overwhelming success. ❖


Dr Hayek is Whittier Investigator in Diabetes and Professor of Pediatrics at the UCSD School of Medicine.

References

Encouragement

... encouragement increases the chance that people will actually achieve higher levels of performance.

James M. Kouzes,

*Encouraging the Heart, A Leader’s Guide to Rewarding and Recognizing Others*
Transplant Seminars
Kaiser Permanente’s National Transplant Network is pleased to announce three upcoming educational seminars on “Transplant and Kaiser Permanente in the 21st Century.”

Topics include:
- Updates on immunosuppressive medications
- The future of pancreas transplantation—is it islet cells?
- Clinical management strategies for patients both pre and post transplant
- Advancements in heart and lung transplantation, including VAD and living lobar
- Liver and intestinal transplantation: right lobe procedures
- New protocols in bone marrow/stem cell transplantation (nonmyeloablative)

Speakers will include transplant physicians from the National Transplant Network’s contracted Centers of Excellence, many of whom are pioneers and recognized leaders in the field of transplantation.

Dates and Location of seminars:
- January 19, 2001 ......................... Oakland, CA
- January 26, 2001 ....................... Los Angeles, CA

Accreditation Designation Statement
The Kaiser Permanente National CME Program is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Statement
The Kaiser Permanente National CME Program designates this educational activity for a maximum of 6.50 hours in Category 1 credit toward the AMA Physician’s Recognition Award. Each physician should claim only those hours of credit that were actually spent in the educational activity.

For more information on the upcoming seminars, please contact:
- Christy Edwards, Director, National Transplant Network; 510/267-2887
- Gordon Loo, Contract Associate, National Transplant Network; 510/267-2894

Kaiser Permanente Primary Care Conference
April 9-13, 2001
Outrigger Wailea Resort
Wailea, Maui, HI

For a Conference Brochure
Contact Helen Taylor at helen.taylor@kp.org or phone (510) 987-4374

For Travel and Lodging Information
Contact CMX Travel at cmxtravel@cmxtravel.com or phone (877) 843-8500 (toll free)
**Nephrology Symposium**

The Third Annual Nephrology Symposium will be held March 30-31, 2001 at the Westin Hotel in Long Beach, California. Topics to be discussed will include:

- Optimization of Pre-ESRD Care
- Treatment of Hypertension
- Care of the Pre-ESRD Patient with Diabetes
- Prevention of ESRD;
- Nutrition and the DOQI Guidelines
- End of Life Issues
- CRRT
- Hyperphosphatemia and Hyperparathyroidism
- Pharmacological Management
- Calcifications in ESRD
- Using the Internet for Effective Health Care
- Vascular Access Update
- Pre-ESRD Research Study Results
- SPK and PAK Update

For more information contact Lisa Butterworth, 626/564-5378, LQButterwo@kp.org.

**Permanente Physicians Recognized**

In the annual cardiology update for the *Annals of Internal Medicine*, Drs Carlos Iribarren, Irene Tekawa, Stephen Sidney and Gary Friedman’s article “Effect of Cigar Smoking on the Risk of Cardiovascular Disease, Chronic Obstructive Pulmonary Disease and Cancer in Men,” (N Engl J Med 1999 Jun 10; 340(23):1773-80) was recently selected as one of the most important contributions to the field of cardiology during the past year. Abstract is accessible in the Fall 1999 issue of *The Permanente Journal*, p 14. The article is accessible on *The New England Journal of Medicine* Web site: www.nejm.org.

**Stories of Identity**

... the artful creation and articulation of stories constitutes a fundamental part of the leader’s vocation. Stories speak to both parts of the human mind—its reason and emotion...further...it is stories of identity—narratives that help individuals think about and feel who they are, where they come from, and where they are headed ...

*Howard Gardner,*
*Leading Minds*
Kaiser Permanente Milestone: John Graham Smillie, MD
By Steve Gilford
(Mr. Gilford is a film maker, writer and historian who specializes in the history of Kaiser Permanente.)

On September 6, 2000, John Smillie, TPMG pioneer, pediatrician, and author of “Can Physicians Manage the Quality and Costs of Health Care? The Story of The Permanente Medical Group” passed away. Born in 1917, in Eaton, Colorado, Jack couldn’t remember a time when he didn’t want to be a doctor. After earning a Bachelor of Science degree at UCLA, he entered the University of Southern California (USC) medical school in 1938. His choice of medical schools affected his entire career, because this was a time when many of the future leaders of the Permanente Medical Groups were in training or on the hospital staff. These included Ray Kay, who would lead the Southern Permanente Medical Group for several decades, and Morrie Colleen, a founder and long-time leader of The Permanente Medical Group.

At that time, Dr. Kay was in private practice, but the young doctor noticed that he seemed to get much more professional satisfaction from his practice at USC/LA County in what amounted to a non-fee-based group practice. Instead of focusing on building up his practice, he saw that Dr Kay was spending more than half of his time at the USC Hospital.

In 1943, Jack Smillie had been married to Ruth Bliss Smillie for three years when his internship was cut short by World War II and he was inducted into the US Army Medical Corps. Dr. Smillie enjoyed telling how years later, after his retirement while going through his personal papers, he had come across his old Army physical examination. When he looked at the signature of the examining medical officer, he discovered that it had been Lt Sidney R Garfield. Jack would joke that he was probably the only TPMG doctor who had met the Permanente founding physician while in his underwear.

At this time, the military was still segregated, and the medical units were no exception. African-American physicians and corpsmen treated African-American servicemen, and the white servicemen were treated by an all-white medical staff. Dr Smillie, now stationed in the Philippines, convinced his commanding officer to let him integrate their medical unit. To the surprise of many, the change went smoothly. His group became one of the first integrated medical units in the US Armed Forces.

After spending nearly two years in the Pacific, Dr Smillie returned home to his wife and to an extended residency in Pediatrics at USC/LA County Hospital. Soon, his interest in solving administrative problems was getting him noticed. According to hospital policy, any child with a temperature of over 103 degrees was automatically admitted to the Pediatrics Ward. This policy had been in effect since before the war, and Dr Smillie remembered how, by the next morning, the children’s temperatures would most often have returned to normal. They could be released without any treatment. Several years later, that same policy was still in effect, but now interns and residents were routinely prescribing penicillin for these children on admission. Not surprisingly, these children were well the next day and could be released. To the new crop of physicians, it seemed as though this was yet another example of the power of the new “miracle drug,” but Dr Smillie, remembering the prewar experience, was sure that the policy of admitting these young patients, taking them away from their homes and families, and treating them with penicillin, was purposeless. At his urging, the hospital administration set up a small examination room on the Pedi Ward, where a pediatrician saw every child the Emergency Room physician thought might need admission. Most could be sent home immediately, thus avoiding needless hospitalization and treatment. Admissions fell off and the hospital was able to close down a 35-bed ward. He said later, “This was an eye-opener to me—that I could save money in the cost of care and improve the quality of care at the same time.”

Toward the end of his residency at USC/LA County, Dr Smillie began working part-time for two pediatricians in Hollywood, whose offices were on the corner of Hollywood and Vine. They had a very successful practice and took care of some of the movies’ most famous families, including the children of Bing Crosby and Frank Sinatra. When the partners invited him to join this very successful and lucrative practice, Dr Smillie was tempted. Before accepting, though, he decided to discuss the offer with his friend and mentor, Ray Kay, who was now the Director of Postgraduate Education for USC at LA County. Dr. Kay suggested that before he made up his mind, he should go up to the Bay Area and talk to the people at Permanente. They were looking for physicians. The physician doing the recruiting was Paul Fitzgibbon, one of the founders of TPMG and a physician from USC. Dr Fitzgibbon offered him a job, $700/month, with one half-day off for education out of eleven half-days a week, but it was for San Francisco, not Oakland. Dr Smillie became the first, and until Irving Klitsner’s arrival from USC/LA County, the only San Francisco pediatrician serving both the 515 Market Street clinic and the 35-bed Permanente Harbor Hospital across town on Potrero Hill.

The physician in charge of the clinic and the hospital was Wallace Neighbor. Dr Neighbor had been involved with the Medical Group since the earliest days. He had run the hospital at Grand Coulee Dam and had later been selected by Sidney Garfield to run the Medical Program for the shipyard workers on the Columbia River. During their trips between Market Street and Potrero Hill, Wally Neighbor would tell the new Permanente physician about the history of the Medical Group, its ideals, values, and goals. Dr Smillie became sure that he had made the right decision in coming to Permanente.

In 1952, Dr Garfield asked Dr Smillie to run a new hospital which he was opening in Dragerton, a remote town in Northeastern Utah’s Carbon County. Utah Permanente was to serve coal miners in that area, some of whom worked for Kaiser. It was important to open the hospital as soon as possible, because the

In Memoriam

John Graham Smillie, MD
April 17, 1917 - September 6, 2000
miners were at that time without medical care and there was an epidemic of measles and of streptococcal tonsillopharyngitis underway. Dr Smillie and his staff must have set a record getting the local hospital back into operation.

Although Utah Permanente later closed, a victim of a downturn in the coal market, Dr Smillie took pride in the work done there and pointed out that the relationship of respect and trust established with the United Mine Workers of America that developed there, helped to make possible the later development of the Colorado Region. Over the past 15 years, I have made three trips to Dragerton, and it is clear that the miners and their families remember Utah Permanente with much affection.

While at Dragerton, Dr Smillie began recording the history of the Medical Group. His movies of Dragerton are the only ones of which I am aware. When the Medical Care Program began building the Geary Street Hospital in San Francisco, Dr Smillie was there, too, with his movie camera. He edited his footage of the construction of the hospital and medical office building into a short documentary he called, “The Building of a Medical Center.”

One of the innovations that set Kaiser Hospitals apart from others was their early introduction of the rooming-in concept. During the time that Dr Garfield was designing the hospitals in Walnut Creek and in San Francisco, Dr Smillie had read about a rooming-in concept introduced at Yale University’s hospital. When the topic of a nursery design for the new hospital came up in conversation, Dr Smillie told Dr Garfield about the Yale idea. As a result, Dr Garfield designed the baby-in-a-drawer concept, a system that allowed the newborn to be moved between a small hospital nursery and the mother, at the mother’s convenience, by using a drawer that slid back and forth through the wall near the mother’s bed. The baby-in-a-drawer caught the public imagination for patient-based innovation, and for a while, it was a kind of trademark of the Kaiser Hospitals.

When Dr Smillie came to San Francisco and the Permanente Harbor Hospital, he’d set as lifetime goals building up a pediatrics staff to about ten physicians and starting a residency program in his specialty. By 1960, he had accomplished both. His administrative abilities and his gentle but effective form of leadership were soon recognized, and he was selected as Assistant Physician-in-Chief in San Francisco under Dr Collen.

Then, from 1961 to 1971, Dr Smillie was PIC in San Francisco, one of the longest terms in the history of the Medical Groups. Today, Dr Collen recalled that “[Dr Smillie] was fond of saying that his greatest reward from his many years as a practicing pediatrician was seeing the children he had taken care of later bringing their children to him for care. John Smillie was a great physician who always practiced good quality and compassionate medicine; and he was an excellent medical executive who was admired and respected by all of his associates for his dedication and commitment to providing good quality medical care to Kaiser Foundation Health Plan members.”

In 1971, Dr Smillie retired from medical practice to become assistant to TPMG Executive Director, Cecil Cutting. One of Dr Smillie’s major responsibilities was to coordinate a physician-recruiting service for the entire KP Northern California Region. During this period, with Dr Cutting, he also helped develop a system to monitor accessibility and worked on plans to comply with equal employment opportunity requirements as well as an affirmative action program for physicians. In 1977, the six Regional Medical Directors decided that although the Health Plan had government relations people in Washington, DC, the physicians did not have effective access to that office. As a result, they were being saddled with legislative ideas that did not encompass their points of view. They wanted their own person in Washington. Dr Smillie who had already served as Chairman of the Board of the Group Health Association of America, who had testified before Congressional committees, and whose standards for GHAA membership had been incorporated into the HMO Act, seemed to be a natural for the position. He proved to have been an excellent choice and served as a representative of the Permanente Medical Groups in Washington until 1980—in effect as the first interregional Permanente physician. In 1980, until his retirement in 1981, he represented the Medical Directors in what was then called the Central Office, today’s Program Office.

Remembering the effect that learning about the history had on him when he joined the KP Medical Care Program, Dr Smillie had decided to write a history of The Permanente Medical Group and to grapple with the central problem raised by the KP Program: Can physicians manage the quality and costs of health care? Drawing on not only his considerable firsthand experience, Dr Smillie also went through decades of minutes of the TPMG Executive Committee, interviewed all of the surviving “Old Guard,” and dedicated himself to preserving as much of the history of the Program as he could. In 1991, with the support of TPMG, the book was published by McGraw Hill. Dr Smillie lived to hear that nearly a decade later, his book is still so appreciated that it is going to be republished by The Permanente Federation and will soon be available to a new generation of physicians, probably before the first of the year. Eagerly awaited by many, Can Physicians Manage the Quality and Costs of Health Care? The Story of The Permanente Medical Group may well be Dr Smillie’s most lasting contribution, among many, to the Kaiser Permanente Medical Care Program.

In an interview conducted by the Regional Oral History Office of the University of California’s Bancroft Library, Dr Smillie looked back on his career: “I had an enormous satisfaction in dealing with the patients because I could do anything I wanted without worrying about how much it cost them, because it didn’t cost them anything. They had already paid me and our group for their care, and for their hospitalization. And I was free to practice the kind of medicine I had learned to practice as a resident at Los Angeles County Hospital. It was a source of enormous satisfaction.”
Instructions to Authors

Send all manuscripts to:
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(503) 813-2659

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Types of Papers

There is no required length, although concise, readable, and practical articles within the ranges listed are preferred. Emphasize information that clinicians can use in their practice, that gives practical articles within the ranges listed are preferred. Emphasis on Kaiser Permanente’s research contributions through original, empirically-based research in areas of great clinical importance. This includes outcomes research, studies that use Kaiser Permanente databases, and rigorous evaluations of best practices and innovations in clinical care.

Notes About Specific Sections

• Clinical Contributions
  Clinical articles on the practice of medicine within the Permanente Medical Groups and their affiliates. Article topics may include reviews of “successful” practices, programs and policies, and analyses of new technologies.
  (word count range is 725-2500)

• Original Research
  Articles on Kaiser Permanente’s research contributions through original, empirically-based research in areas of great clinical importance. This includes outcomes research, studies that use Kaiser Permanente databases, and rigorous evaluations of best practices and innovations in clinical care.
  (word count range is 725-2500)

• Health Systems
  Articles from a “systems” perspective, recognizing that medicine is practiced in the larger context of health care, including ambulatory care delivery, hospital strategy, program expansion, and network development and is supported by information technology and the Internet. Growth in this system occurs through the leadership, education, and development of clinicians.
  (word count range is 725-2500)

• External Affairs
  Nonclinical articles on external issues related to the practice and perception of Permanente Medicine. These may include articles by customers and consumer groups, as well as internally generated articles on health policy, the media, the marketplace, and our social mission.
  (word count range is 725-2500)

• Medical Legal Update
  Articles educating clinicians about medical-legal issues, including risk management, claims review, loss prevention, and ethical issues. Improved clinician communication with patients, families, and the health care team is the goal.
  (word count range is 725-1400)

• Soul of the Healer
  Poetry, stories, musings, and nonfiction articles written by Permanente physicians as an expression of the soul of the healer. This is a forum to appreciate each other personally through creativity in the humanities.
  (word count range is 725-1400)

• A Moment in Time
  A look back at milestones in the history of the Permanente Medical Groups.
  (word count range is 700-740)

• Abstracts
  Abstracts from articles published in other journals, preferentially featuring the work of Permanente physicians.

• Announcements
  Significant achievements related to the practice or management of medicine by Permanente physicians or Permanente Medical Groups. Also posted will be upcoming courses, meetings, and conferences sponsored by the Permanente Medical Groups or Kaiser Permanente.

• The Lighter Side of Permanente Medicine
  Jokes, stories, and humorous encounters tied to the practice of Permanente medicine, managed care, or health care in general.

Cover Letter

In a cover letter, please give a concise statement of the authors’ view of the importance and uniqueness of the article. Also provide several names and addresses of non-Kaiser Permanente experts who could provide informed, objective reviews of the work. The names of any persons considered unlikely by the authors to supply nonbiased reviews may also be submitted; this request will be honored. It is important that the cover letter also include the names, addresses, phone numbers, and fax numbers of all coauthors.

Manuscript Preparation and Processing

A 3-1/2” disk containing the article and one complete paper copy of the manuscript must be submitted, along with a photograph of the author(s) labeled with name and a 2-3 sentence author profile. (Please, no photos smaller than 2” X 3” or larger than 5” X 7”). If more than four authors, submit the authors’ profiles only—no photographs.

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The first page of the manuscript should contain the following information: 1) title of paper; 2) authors' names; 3) name(s) of Kaiser Permanente Division and medical office in which work was done; 4) name and address of author to whom communications regarding the manuscript should be directed; 5) telephone and fax number of the communicating author; 6) word count.

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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. This form must be returned (fax or mail to the address listed on the back of this form) to The Permanente Journal by December 30, 2000 in order to receive credit. You will receive an acknowledgment by January 31, 2001. **You must complete all sections to receive credit.**

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Section A.

**Article 1. Uterine Artery Embolization for Treatment of Uterine Fibroids** (page 22)

Which of the following statements about Uterine Artery Embolization (UAE) for treatment of fibroids is FALSE?

a. Women who have had prior myomectomy are candidates for UAE.

b. Prior hormonal therapy is not a contraindication to UAE.

c. Women who have had prior pelvic radiation therapy are good candidates for UAE.

d. Women with poorly controlled diabetes mellitus, vasculitis, or bleeding diathesis are not good candidates for UAE.

Which of the following statements about Uterine Artery Embolization (UAE) for the treatment of fibroids is TRUE?

a. UAE must be done with general anesthesia, and all patients must be admitted for overnight hospital observation following the procedure.

b. UAE treats the symptoms related to fibroids (including bleeding, pain, and pelvic pressure) with a high degree of success.

c. Women who have had prior myomectomy are not candidates for UAE.

d. The uterus and fibroids usually do not change in size following UAE.

**Article 2. Improving Breast Care at the Kaiser Permanente Bellflower Medical Center** (page 43)

Which statement is FALSE?

a. Approximately one million breast biopsies are performed each year in the US.

b. One woman in eight will have breast cancer in her lifetime, and one in 33 women will die from the disease.

c. Breast cancer is the leading cause of cancer death for all women.

d. In 1998, it was estimated that 178,700 women were newly diagnosed with breast cancer.

Indicate which statement is FALSE among the following:

Success of the project was dependent on:

a. Willingness of several departments to work collaboratively.

b. Development of a simplified pathway including referral guidelines for physicians.

C. Mandatory establishment of better access to mammography services.

d. Increased coordination of care between the breast case manager and the breast imaging radiologist.

**Article 3. A Breast Cancer Tracking System** (page 36)

The goals of the Breast Cancer Tracking System (BCTS) are:

a. To improve clinical continuity and consistency of breast cancer care throughout KPNC.

b. To reduce delay in diagnosis and treatment.

C. To serve as a safety net for breast cancer treatment.

d. All of the above.
BCTS does all of the following except:
   a. Provide statistical reports to all radiology departments in region for quality assurance and to meet MQSA requirements.
   b. Update the Preventive Health Prompting to indicate when members being tracked by BCTS are due for mammograms and breast exams.
   c. Call patients to schedule appointments.
   d. Track all radiologist referrals for surgical consultation and/or biopsy following suspicious mammograms and breast ultrasounds to ensure members receive timely appointments.

Article 4. **Osteoarthritis and Exercise: Does Increased Activity Wear Out Joints?** *(page 26)*

The type of loading that is the least well tolerated by articular cartilage is:
   a. Cyclic loading
   b. A large, slowly applied load
   c. Impact loading

The most important factor in development of osteoarthritis as a result of athletic activity is:
   a. If the sport involves significant impact to the joints (ie running and jumping).
   b. If the sport involves lifting of heavy weights.
   c. If the sport is associated with a high incidence of injury to the joints.

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

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<thead>
<tr>
<th>Article 1</th>
<th>Article 2</th>
<th>Article 3</th>
<th>Article 4</th>
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<td>The article covered the stated objectives.</td>
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**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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