

# OCCUPATIONAL HEALTH & SAFETY

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# 20

## Fitness Programs

by Kenneth R. Pelletier  
Thomas J. Coates  
Edwin B. Fisher  
Joan M. Heins

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### INTRODUCTION

Every year in the United States, billions of dollars are spent on largely preventable diseases and conditions, such as heart disease, cancer, stroke, alcohol and chemical dependency, obesity, and stress-related disabilities (Fielding, 1984). These costs include the direct costs of medical treatment as well as the indirect costs of lost productivity due to absenteeism, job turnover, disability, workers' compensation, impaired on-the-job performance, and reductions in the quantity or quality of products and services. Employers bear a major portion of the direct costs and also absorb the productivity losses resulting from reduced job performance, premature retirement, and death (Fielding, 1984). According to estimates by the President's Council on Physical Fitness, preventable deaths alone cost American industry more than \$2.5 billion and 132 million workdays of lost production each year (Bonica, 1980). Preventable disabilities and deaths are a human tragedy and add to the cost of every product and service. These additional costs limit the ability of U.S. businesses to compete in our increasingly global economy.

As a result, employers have a strong motivation to prevent or reduce the occurrence of acute and chronic health conditions among their employees (Fielding, 1984). Employer-sponsored programs in disease prevention and health promotion are becoming an integral part of an overall strategy to improve the management of medical care costs and to minimize the occurrence of productivity-reducing conditions (Jones & Dosedel, 1986; Felton & Cole, 1963). Beyond involving employees in such programs, employers are extending their efforts to dependents and the burgeoning retiree population.

### WORKPLACE HEALTH PROMOTION

*Health-promotion programs* educate employees on how to maintain or enhance psychological and physical health. These programs can be comprehensive or focused on a single risk factor, such as smoking or hypertension. Comprehensive health-promotion programs show greater health and cost efficacy than single-factor programs. The comprehensive programs identify organizational high-risk factors, such as environmental toxins, in addition to individual risk factors. Problems are addressed through policy-level organizational changes, and personal treatments and referrals. Disease-prevention programs focus on the early detection of and behavioral intervention into one or more detectable risk factors.

The workplace is an excellent setting for health-promotion programs (Pelletier et al, 1988a; Pelletier et al, 1988b). Workplace programs have access to large numbers of people, and the programs are relatively easy and efficient to implement. Most people spend the majority of their waking hours at work, so there can be a relatively large "dose" of the program. The workplace offers psychosocial supports, including peer support and peer pressure. Time and travel barriers to employee participation are less than at other locations. The target population is relatively stable, which facilitates follow-up. There also can be related programs and existing facilities in place, such as an employee medical department or an employee assistance pro-

gram (EAP) with on-site health staff. Finally, many employers are willing to sponsor and fund some or all program costs. Of the private workplaces in the United States with 50 or more employees, approximately 66% sponsor one or more types of health-promotion activities, and the employer pays the costs in the majority of cases (Fielding & Piserchia, 1989).

### Coordinating Mechanism

Characteristics that differentiate workplaces are an important but often neglected consideration in the evaluation of health-promotion programs. Organizational characteristics do not constitute a formula for successful introduction of worksite health promotion. But failure to recognize the magnitude of these influential factors will continue to frustrate individual efforts to implement a program.

Organizations can be defined in many ways. Mintzberg (1981) provides a classification system that is easy to apply to the study of workplace health-promotion programs. He describes five basic organizational types: *simple structures*, *machine bureaucracies*, *professional bureaucracies*, *divisional forms*, and *adhocracies*.

One distinguishing variable in Mintzberg's description is the "coordinating mechanism" that each of the five types uses. Simple structures, such as a small manufacturing firm owned by the president, use direct supervision; most information and decisions are centralized in the top person, who personally orchestrates the activities of others. In the machine bureaucracy, work is coordinated through the standardization of work rules, procedures, and technology—fast-food chains are a classic example. The professional bureaucracy (e.g., a hospital) relies on standardized performance from persons trained in their professions. The divisional form is essentially a series of independent entities loosely integrated by an administrative overlay and a common output or product. Most Fortune 500 companies adopted this configuration. Finally, the adhocracy relies on mutual adjustment (i.e., informal communication) among those doing the work—usually specialists collaborating on an ill-defined task. The adhocracy offers flexibility for creative organizations, such as consulting firms, advertising agencies, and research and development companies.

The coordinating style of an organization suggests which programs will succeed or fail. In the simple structure, the success or failure of health-promotion programs can simply reflect the interest of the CEO. Highly structured, standardized programs supported with manuals, procedures, and materials will match the operating system of a machine bureaucracy. Creative, interactive approaches would complement the coordinating style of adhocracies.

### Response to Innovation

Another influence on the way a company implements a new program is the routineness or uniqueness of the activity. (Although U.S. companies have a long history of providing health benefits for their employees, workplace health-promotion programs are a novel and innovative approach.) Programs that succeeded in introducing new ideas in a community hospital (i.e., a professional bureaucracy) required no changes in profes-

sional roles or in relationships among professional groups. By contrast, new programs that required coordination between departments or integration of several professional disciplines were less successful or failed (Fisher et al, 1988). Traditionally, highly mechanized organizations are considered good at introducing innovations. However, a study (Nord & Tucker, 1987) of the introduction of NOW accounts in financial institutions found that flexibility, more than standardization, was important to successful introduction of the innovation.

## BEHAVIORAL MEDICINE IN BUSINESS AND INDUSTRY

Health-promotion and disease-prevention programs derive their empirical and clinical base from the academic discipline of behavioral medicine. This field seeks to balance and fuse the best of medical interventions and the best of behavioral interventions into a health care approach that is more health-effective and cost-effective than either alone. (Many health-promotion and behavioral-medicine activities have been applied in clinical settings but not at the workplace.)

Research in the traditional biomedical sciences and the practice of medicine is devoted to discovering which biomedical variables affect which other biomedical variables (e.g., identifying the pathogen that causes disease, and the chemical or surgical procedure to eradicate disease). The social and behavioral sciences are devoted to discovering which social/psychological variables influence other social/psychological variables, and how to modify these in order to modify behavior, cognition, or affect. These sciences have influenced education and advertising to a considerable degree. Health-promotion programs in the workplace depend on these research approaches to identify the determinants of high-risk behaviors, such as heart disease or carcinogenic exposure, in various groups, as well as the best methods for developing and implementing programs to modify those behaviors.

In identifying behaviors for change, behavioral medicine concerns itself with the interface of the behavioral and biomedical sciences and practices. The objective is to identify which behaviors are related directly to health and illness and then to determine how modifying these behaviors affects the health and illness of various groups of individuals. Biomedical variables in turn, have an impact on behavior, cognition, and affect. Clearly, this analysis also becomes important in the framework of a behavioral medicine. For example, many illnesses (e.g., diabetes) can interfere with the worker's ability to function effectively. Similarly, many medications to treat a common chronic illnesses (Mintzberg, 1981) (e.g., hypertension) can influence a person's ability to think clearly or respond quickly. A behavioral medicine analysis of these effects can lead to develop alternative ways to treat illnesses in the workplace. This can simultaneously reduce health care costs, improve the workers' well-being, and improve functioning.

Health-promotion, disease-prevention, and effective use of alternative methods for treating disease require that persons change their behavior and that organizations be reorganized to promote those changes. Behavioral medicine continues to pro-

vide a theoretical foundation for understanding how such change occurs and specific strategies for promoting changes in persons and organizations. Thus, success in realizing the goals of health-promotion programs (i.e., disease-prevention in a cost-effective way) depends in large part on the effectiveness of the intervention strategies used. Effective use of the scientific principles and the strategies derived from them is critical to the success and longevity of these programs.

To see how behavioral medicine can influence a program plan, consider the principles listed in the Table. Those principles were developed by the National Academy of Sciences to guide work in AIDS prevention, but they apply to any situation in which the desired end to changing behavior is to prevent disease. The logical starting point in any prevention program is to provide information, but information alone is rarely sufficient to produce significant behavioral change. Rather, producing change requires understanding motivations for risky behavior and potential motivations for behavioral change. Thus, many health-promotion programs begin by motivating through fear, though fear alone is unlikely to motivate as desired. To change their behavior significantly, people must believe that the changes will produce short-term as well as long-term benefits, that these changes are within their reach, and that they know how to accomplish the changes. Research on behavioral changes indicates that modifying behavior through incremental changes in life-style can be easier to accomplish than global changes in life-style; that people will be most likely to change if they can choose from among a variety of substitutes for risky behaviors; and that people need to be trained in specific skills for accomplishing behavioral changes. Relapse is common; programs need to be developed to assist persons with maintaining their changes once they occur. Help and support from the environment often are essential for change to occur and persist. In fact, behavioral change programs that target entire communities (and the workplace can be considered a community of individuals) can be more successful than those targeted only at individuals.

Evaluation is essential to this enterprise. Indeed, behavioral medicine is built upon a scientific foundation and proceeds carefully, using the principles of science. The application of behavioral medicine principles in the workplace will demand that programs be evaluated rigorously and specifically, using the principles of randomized designs in order to obtain unambiguous information about the efficacy of programs.

Despite the impressive and growing evidence of the clinical efficacy of health promotion and disease prevention programs, the transfer of such interventions into the workplace must be more fully developed. This is a critical issue because corporate health-promotion programs frequently adopt programs based upon the claims of vendors that their prepackaged interventions have proven efficacy (Bonica, 1980). Thus, be aware that some of these claims are based upon clinical experimental data derived outside the workplace. Evidence that prepackaged programs are effective in the workplace is limited to internal program evaluations conducted by large companies and is not conclusive. However, limited but promising unpublished reports indicate that effective clinical programs have

been transferred from hospitals and clinics into the workplace taking into account individual and corporate needs.

## BENEFITS

Employers have many direct and indirect reasons for undertaking health-promotion and disease-prevention programs. These benefits include improving the health of employees, providing additional employee benefits, and controlling the costs of health care, accidents, and absenteeism (Mullen, 1988). Employer-sponsored health-promotion programs can satisfy several employee health needs, such as promoting health and reducing risk, managing chronic illness, rehabilitation, and improving participation in the clinical process (Fielding & Piserchia, 1989). Reports from the Bureau of National Affairs indicate that about 50% of worker absenteeism was avoidable through appropriate attention to the physical and emotional needs of employees. However, there has been little empirical work that documents a link between implementing a health-promotion program and specific employer benefits such as increased productivity; lower costs and use of health, disability, and other insurance; reduced turnover; and better corporate image. Yet these questions are of increasing importance and interest. At the present time, Johnson & Johnson, Southwestern Bell Corporation, and Blue Shield of California are conducting longitudinal studies to address these critical issues.

**Table. The National Academy of Science's Recommendations for Preventive Action.**

The committee recommends

1. . . . making information available in clear, explicit language in the idiom of the target audience.
2. . . . that prevention messages strike a balance in the level of threat that is employed.
3. . . . that programs to initiate and sustain changes in risk-associated behavior take into account how the targeted population perceives and understands risk.
4. . . . that innovative approaches to prevention programs be introduced in a planned manner that reflects well-established principles about the adoption and diffusion of new ideas.
5. . . . that programs to facilitate behavioral change be approached as long-term efforts, with multiple and repeated strategies to initiate and sustain behavioral changes over time.
6. . . . that programs consider the psychological, social, biological, and environmental factors that may affect relapse; learned coping responses, including skills training and relapse rehearsal, should be taught to increase perceptions of self-efficacy.
7. . . . to the extent possible, (use) community-level interventions, to prevent disease and simultaneously promote health information, motivational factors, skills, prevailing norms, and methods for diffusing information.
8. . . . the expanded use of randomized field experiments of evaluating new intervention programs on both person and community levels.

(Reprinted with permission from National Academy of Science. *AIDS, Sexual Behavior, and Intravenous Drug Use*. Washington DC: National Academy Press, 1989.)

## Cost-Effectiveness and Cost-Benefit Analysis

The two usual measures of a program's economic benefits are cost-effectiveness and cost-benefit. *Cost-effectiveness* is "a mea-

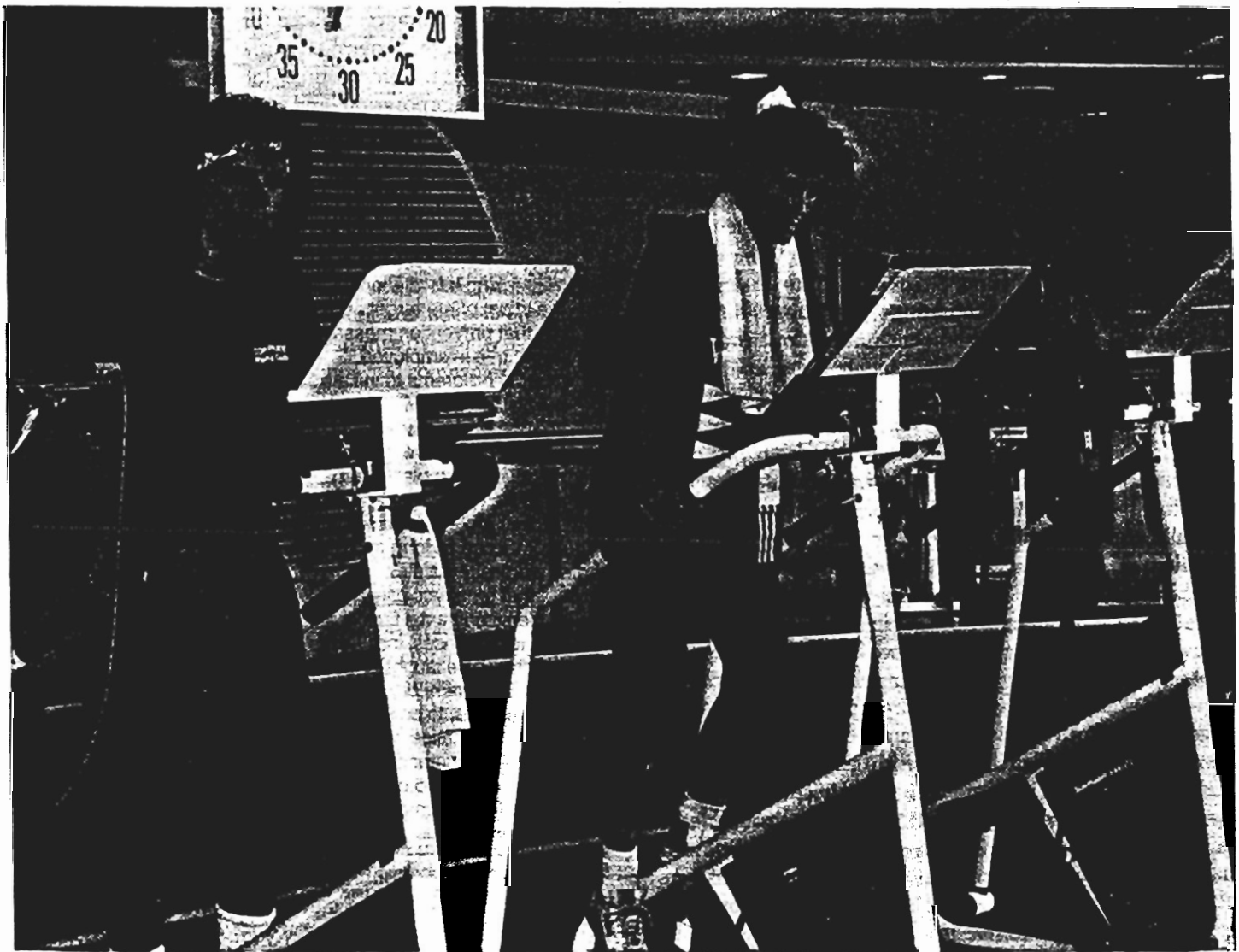
sure of the cost of an intervention relative to its impact, usually expressed in dollars per unit of effect." *Cost-benefit* is "a measure of the cost of an intervention relative to the benefit it yields, usually expressed as a ratio of dollars saved or gained for every dollar spent on the program" (Blair et al, 1986). These two definitions and others are often fused and therefore confused. Yet distinguishing these definitions is important in understanding the complexities of evaluating the health and/or economic efficacy of any program. The greatest difficulty of cost-benefit analysis is translating benefits into dollars.

Taking a smoking cessation program as an example, "cost-effectiveness" can be measured in terms of the program cost per successful quitter. If it costs \$2,000 to provide 20 people with a quit-smoking program in which five people would quit, the cost per quitter would be \$400. In such analysis, include all the costs directly associated with providing the course, including development and promotion costs, instructor fees, and material costs. In the same case, "cost-benefit" would compare quantifiable financial benefits with quantifiable financial costs. If quit-

ting smoking saved the company \$800 in health care claims and absenteeism reduction and the cost per quitter was still \$400, there would be \$2 benefit for every \$1 of expense.

### Indirect Benefits

To date, health-promotion programs focus on a single risk factor, such as hypertension, smoking, stress, low-back disability, and cholesterol screening. There is increasing interest in evaluating the health-effectiveness and/or cost-effectiveness of these single-factor programs. At the same time, the overall field of health-promotion programs in the workplace has not been evaluated adequately by rigorous design and appropriate data analysis. Given the lack of such analytic work, it is not surprising that no specific area has been evaluated adequately. Numerous workplace health-management programs are justified by the sponsoring corporation based solely on indirect benefits. In these instances, the direct cost-effectiveness and/or cost-benefit are not important.



**Figure 20-1.** Among the reported indirect benefits of workplace health-management programs are enhanced employee morale, consistency of a corporate product with the image of a healthy company, and availability of the program as a perk for key executives. (Courtesy Johnson & Johnson Health Management, Inc.)

Among the reported indirect benefits are enhanced employee morale, improved corporate image, ability to attract and retain key personnel, consistency of a corporate product with the image of a healthy company, and availability of the program as a perk for key executives (Figure 20-1). These are legitimate reasons, but in a decade of increasing competition, mergers, takeovers, and concern for the "bottom line," it is more likely than not that such good intentions can initiate a program but not sustain it. Overall, the trend is to seek objective evaluations of both health-effectiveness and cost-effectiveness in all aspects of medical benefits and health promotion. Health-effectiveness is evident in specific areas such as smoking cessation and hypertension, but the cost-effectiveness remains equivocal.

### What Benefits and Costs Weigh

The demand to show the "cost-effectiveness" of health promotion is often confusing. It sounds, on its face, reasonable and prudent; however, this demand may be too broad. Consider a company that is losing large amounts of money because of pilfering and petty theft after hours. Management might review security procedures and devise a new strategy for after-hours security and consider switching from internal security staff to vendors or vice versa. The company might decide to increase emphasis on electronic surveillance or on the presence of visible security officers. No doubt, there are many other possibilities. However, it is extremely doubtful that the company would consider eliminating security services altogether.

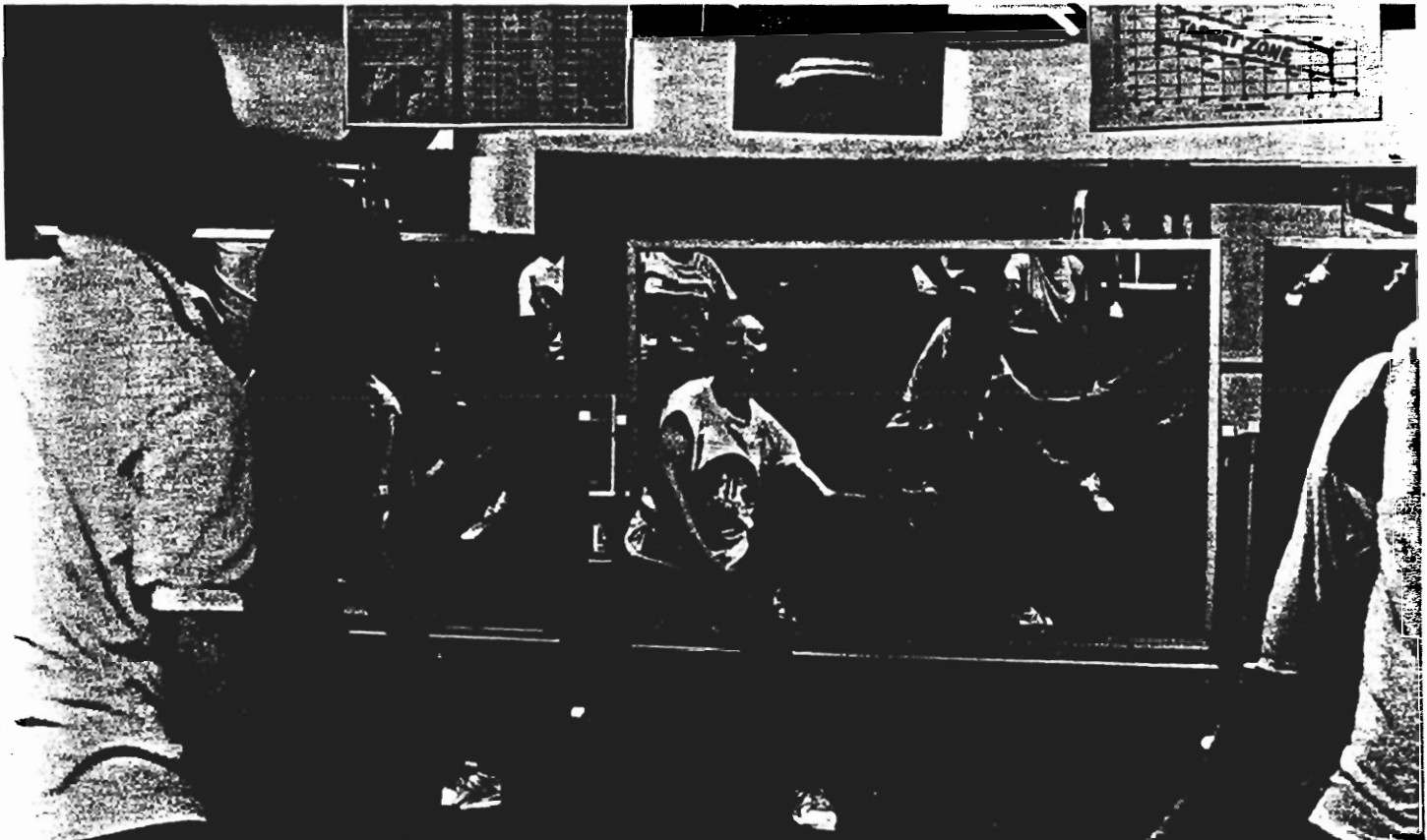
Questioning the cost-effectiveness of health promotion in general is like considering the use of security because losses are resulting from pilfering. The meaningful question is not whether health promotion is effective or needed, but what approach to health promotion is most effective:

- What health needs most require attention?
- What health programs can effectively address those needs?
- How can choices of needs or programs be influenced by the nature of the company, by the nature of the work force, or by other local conditions?

As another analogy, asking whether health promotion is effective is similar to asking whether health care is effective. Obviously, some health care strategies are more effective than others. Effectiveness needs to be considered in terms of specific procedures and circumstances, rather than globally.

Putting these points into concrete terms, measures to alter risk factors related to life-style are adequately justified by the demonstrated costs attributable to diseases associated with these risk factors, and by the fact that conventional health care does not alter these risk factors effectively. Then, the general commitment to health promotion is validated by the cost of unhealthy lifestyles to companies and employees.

Cost-effectiveness or cost-benefit analysis can, however, indicate results of a company's general commitment to health promotion. Evaluating the effects and costs of specific approaches to health promotion can help the company focus and refine those approaches. Is the cost of ongoing smoking cessation activities



**Figure 20-2.** Certified aerobics instructors work with groups of employees in the worksite wellness program offered by Johnson & Johnson Health Management, Inc., which benefits the employees of more than 60 major U.S. companies. (Courtesy Johnson & Johnson Health Management, Inc.)

within a workplace more effective than simple screening, self-help manuals for quitting smoking and implementation of a policy to limit smoking at the worksite? Are weight-loss clinics more cost-effective than weight-loss competitions backed up by self-help manuals on losing weight?

The costs attributable to a problem in a specific setting can guide decisions about whether or not to address that problem. For instance, a low prevalence of obesity in a work force can obviate a weight-loss clinic; however, improved nutrition might still be a worthwhile goal. Questions about programming need to reflect local circumstances, including the nature of the work force. Such specific, adequately focused questions are important when weighing the benefits and costs of a health-promotion program.

### EVALUATIONS OF WORKSITE HEALTH-PROMOTION PROGRAMS

The majority of evaluations of health-promotion programs are focused on health outcomes, such as changes in relatively objective health risk factors (e.g., smoking, blood pressure, fitness) and changes in subjective indicators (e.g., stress, feeling of support for health change, self-efficacy). Based on such measures, there is growing evidence that workplace health-promotion programs can improve employee health behavior and health status (Figure 20-2). For example, projects at the work-

place achieve much higher rates of hypertension control than the national average of other types of programs (Leviton, 1987). Workplace outcomes for smoking cessation and cholesterol reduction are on a par with what can be expected in clinics (Fisher et al, 1988). Physical activity and fitness levels also have increased through worksite programs. Evidence of enduring changes in other outcomes, such as weight control, is less well documented but positive outcomes are reported (Fielding, 1982). There is growing emphasis on evaluation of stress management programs in small-to-large corporations, but outcome data are limited (Leviton, 1987).

There have been few published evaluations of the cost-effectiveness of worksite health-promotion programs (Elias & Murphy, 1986). Some studies have reported related outcomes, such as reductions in absenteeism and turnover and improvements in employee morale and job satisfaction. However, in most studies of the effects that workplace health-promotion programs have on health care costs, the researchers failed to use rigorous research methods or sophisticated data analysis.

### Evaluations of Comprehensive Programs

Only nine accepted studies (of sufficient precision) evaluated comprehensive health-promotion programs. Among the rigorous studies of overall health-promotion programs to date are those from AT&T (Spilman, 1986), Prudential Insurance (McLeroy et al, 1984), Canada Life and North American Life



**Figure 20-3.** Eight of nine accepted studies evaluating health-promotion programs showed clear efficacy in improving health. (Courtesy Johnson & Johnson Health Management, Inc.)

(Shephard et al, 1982), Tenneco (Baum et al, 1985), Blue Cross and Blue Shield of Indiana, Blue Cross of California (Gibbs et al, 1985), Control Data Corporation (Fisher et al, 1988), and two studies from Johnson & Johnson. These show the health efficacy of a systems approach and overall positive impact of the program in comparative worksites (Jose & Anderson, 1986). Eight of the nine studies showed clear efficacy in improving health, with one exercise program (Schwartz & Weiss, 1978) evidencing equivocal results due to self selection of exercisers to the program (Figure 20-3). Cost reduction is evident in three (Cataldo & Coates, 1986; Jacobson et al, 1988; Mullen, 1988) out of nine, although the Prudential, Canada Life, and Johnson & Johnson studies were challenged on methods used and on cost-effectiveness of workplace health-promotion programs.

Of the studies that evaluated cost and health effects of comprehensive health-promotion programs, only two (Bly et al, 1986; Spilman et al, 1986) have documented changes across several risk factors, through programs that were offered to all employees and succeeded in recruiting a majority of them. Working with the Southwestern Bell Telephone Company in Missouri, researchers at Washington University developed "Working Hearts," a two-year program to reduce cardiovascular risk. The program was offered to all employees of 17 work groups in six locations of the company (Barzilai et al, 1989; Fisher et al, 1990). At each site, the program offered the following activities:

- Screening for lipoproteins, blood pressure, obesity, smoking, and Type A coronary-prone behavior pattern at no cost to the employee.
- An individual counseling session with a nurse to review the results of the screening.
- Awareness Month: a series of four weekly presentations on risk factors and subsequent program offerings. A series of 21 on-site workshops and activities to promote and teach skills for risk reduction. Action courses—intensive small-group classes in weight loss, smoking cessation, and stress reduction.

From approximately 1,670 employees at the 17 sites, 1,003 (roughly 60%) enrolled in the program. Excluding those who retired, transferred, and resigned, 84.8% of these completed final assessments at the end of the two-year program. Among those who completed the program, some of the benefits were that almost 25% quit smoking, blood pressure declined, cholesterol levels fell somewhat, and employees seemed to maintain greater than average control over weight.

The "Working Hearts" program adds to the weight of others (Bly et al, 1986; Spilman et al, 1986) in showing reductions across a variety of risk factors in a broad range of employees. Results of previous research were replicated across the 17 sites in which the "Working Hearts" Program was implemented. This was accomplished with one full-time employee from Southwestern Bell Telephone Company and 2.5 full-time university employees helping develop and implement the program. Further replication of the program would require less staff, since the program is already developed.

### Environment and Process of Health-Promotion Programs

An additional evaluation priority is to identify and monitor the environment in which the program is delivered. Environmental factors can be physical (e.g., availability of showers and lockers, presence of scales, incentives to walk) and subjective (e.g., degree of perceived stress and sources and degree to which policies such as drug screening and smoking restriction are perceived to support health).

Many experts believe that two critical ingredients in a successful comprehensive program are targeting the entire workplace or work force for the program and achieving high rates of active participation. Potentially, the use of peer influence in the workplace, and an environment that supports health activities, influence increasing rates of participation and minimize recidivism. Thus, developing a reproducible process that can account for site-specific differences and still produce high participation is an important prerequisite to effective programming and improved return on investment. In an ideal situation, because of environmental and peer cues and supports, a health promotion program should cause changes in health behavior among much of the work force, not only those who participate in specific program components (Shephard et al, 1982). By focusing on all the employees at a workplace, it is possible to assess the impact of the program on passive participants, and avoid some of the evaluation problems related to participant self-selection.

### Evaluating the process

Researchers have not systematically documented how (or whether) the process of establishing and managing health-promotion programs at the workplace affects the achievement of the program's objectives. Most published evaluations provide too little data on the process and content of the intervention to allow it to be replicated in other workplaces. In determining program effects, we must know exactly what took place, since the programs are tailored to individual workplaces and communities. The reproducible and documented process for developing and implementing the program increases its generalizability beyond that of previously published studies. Few studies address how well an intervention can be generalized to different work forces, especially blue-collar employees. Reports from individual-component programs (e.g., hypertension control) (Erfurt & Foote, 1983) and comprehensive programs (e.g., Johnson & Johnson) (Spilman et al, 1986), suggest that programs can obtain similar effects in white-collar and blue-collar populations.

### Indirect versus active participation

When we think of workplace health promotion as offering specific individual or group clinics or classes, those who do not attend and participate actively are unlikely to benefit. However, when we broaden perspectives on workplace programs to emphasize *promoting healthier life-styles*, the importance of active program attendance and participation can diminish. Employees can make changes instigated by any one or several of the elements of a promotional campaign: general meetings,

leaflets, screening opportunities, and required clinics on weight loss, smoking cessation, or stress management. Employees can also be influenced merely by changes in their colleagues' behavior, even if they don't participate in the program. Such diffuse, or indirect, effects are exactly the objective of promotion, as opposed to simple provision of direct services.

Evidence for indirect effects of health-promotion activities at the workplace comes from several sources. In the work of Fisher and his colleagues in St. Louis (Fisher et al, 1988a; Lankester & Tormey, 1988; Lankester & Tormey, 1988a), by the American Lung Association of Eastern Missouri, broad promotion of smoking cessation was coordinated through employee-based steering committees. These employees took responsibility for scheduling and organizing all aspects of the program, developing and implementing promotional events and materials, distributing American Lung Association self-help manuals, and identifying workers to be trained to implement the American Lung Association's "Freedom from Smoking Clinic" in a version adapted for the workplace. All of these activities were designed to create a general atmosphere encouraging nonsmoking at the workplace, and a cessation clinic was provided for those who wanted it. The program, EASE, began in 14 companies in the St. Louis area, 12 of which succeeded in establishing its essential components through the employee-based steering committees. Among participants in the cessation clinics directed by workers themselves, cessation rates generally averaged 30%, common in the literature. In addition, among those who did not join the formal cessation clinics, cessation rates across workplaces ranged from about 9.5%–25%, substantially higher than the 3%–5% rate of cessation in the general population. In several sites, there were more quitters among the nonparticipants than among the participants. Thus, the program succeeded in establishing a climate promoting nonsmoking behavior. In doing so, it triggered substantial numbers of "quits." Much of the success would have gone unobserved if researchers considered only active participants in formal clinics.

Looking at how behavior changes in individuals suggests another way to understand that active participation may not be a necessary condition for obtaining program benefits. Prochaska, DiClemente, and their colleagues (Prochaska & DiClemente, 1983) identified several phases of behavioral change: *precontemplation*, *contemplation*, *action*, *relapse*, *recycling*, and *maintenance*. These phases appear pertinent to a variety of behavior changes, from smoking cessation to the diverse changes sought in psychotherapy. Active participation in a program is a part of the action stage. However, important development (e.g., from precontemplation to contemplation of change or from relapse and recycling to maintenance) might occur in those who do not formally join a clinic. For example, precontemplators were much more likely to have their lung function checked or to participate in other "awareness" events in a workplace smoking program than to commit to a quit attempt (Biener et al, 1988). Educational events can benefit those who would be scared off if their only choice was a cessation clinic that assumed a resolute decision to quit. Such workers might at least move another step toward smoking cessation.

### **Long-term changes in behavior**

Finally, monitor the effects of a program over time. To date, the majority of evaluations do not exceed one year. There are few evaluations of the long-term effects of either individual or comprehensive programs. Since the trend among the general population toward improved health habits is part of the rationale for employer sponsorship, the ability to show continued improvement over time is an important issue.

## **COMMUNITY/CORPORATE-BASED PROGRAMS**

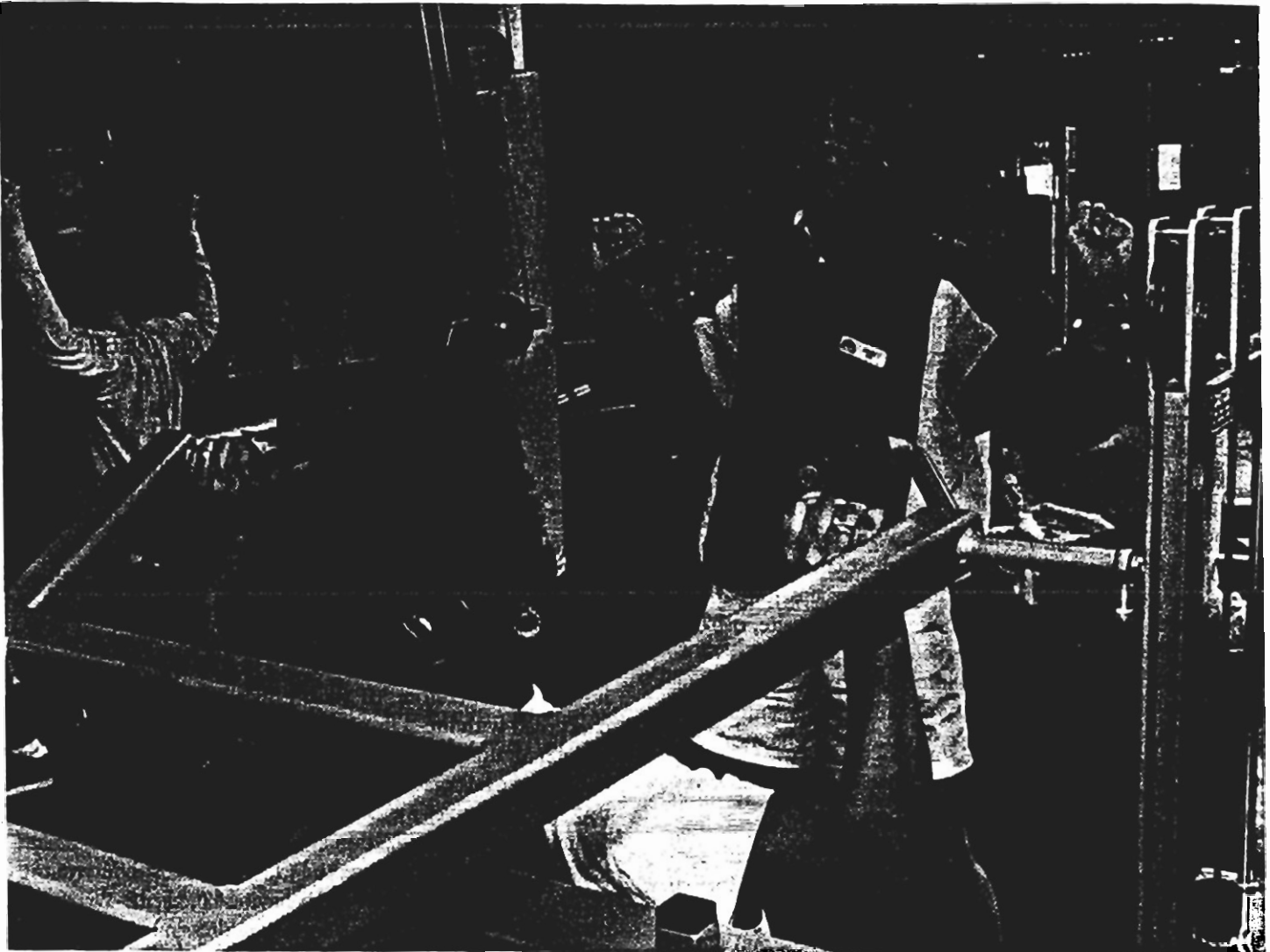
Company-sponsored workplace programs and community-based programs can enhance their effectiveness by joining efforts. At present, the largest community-based workplace health-promotion program is "A Plan for Life," sponsored by IBM. This program uses community resources to provide health-promotion activities both on site and off site. More recently, Ford Motor Company implemented a comprehensive community-based health promotion program modeled after the IBM program. The Ford program, entitled "Total Health," includes some important modifications while retaining a basic community provider model. Because the program uses a network of community providers, dependents and retirees can more easily participate.

Another demonstrably effective model of a health-promotion program is AT&T's "Total Life Concept" (TLC). The TLC program addresses many of the programmatic and methodologic concerns cited earlier in this chapter. For example, TLC attempts to affect organizational and environmental characteristics that can influence employee health. The TLC includes all levels of employees in the intervention process, which makes the impact of the program more generalizable and replicable.

A more recent example is an innovative medical plan, "Custom Care," at Southwestern Bell Corporation in St. Louis. This program combines quality medical care with disease prevention and health promotion. It is considered to be a prototype of a corporate medical plan plus health-promotion program. "Custom Care" is the subject of a coordinated three-year research effort by Southwestern Bell, Prudential Insurance, and Johnson & Johnson Health Management, Inc. (Biener et al, 1988). Input from the corporate health program will be used to develop a comprehensive research design, and data from the results with Southwestern Bell Corporation are now available. A reproducible process for employer sponsorship of a health promotion program should include a demonstration of how employer programs can spur growing interest in health promotion throughout the employers' communities. By employers providing off-hours access to programs, by promoting free materials to nonprofit groups, or by sponsoring community events, the company can benefit the larger community.

### **UCSF Corporate Health-Promotion Program**

Beginning on January 1, 1985, the Division of General Internal Medicine (DGIM) at the University of California School of Medicine in San Francisco engaged in a seven-year program to develop and assess innovative medical plans and health pro-



**Figure 20-4.** A corporate work force provides large, stable populations with which large-scale longitudinal research studies can be conducted. (Courtesy Johnson & Johnson Health Management, Inc.)

motion in the workplace (Warner et al, 1988; Fielding & Piserchia, 1989). This project is still in operation as the “Stanford Corporate Health Program” at the Stanford University School of Medicine. The research project involves a unique collaboration between the Stanford University School of Medicine and major corporations, including Apple Computer, AT&T, Bank of America, Chevron, Hewlett-Packard, Levi-Strauss, Pacific Telesis, the Office of Prevention of the State of California, Wells Fargo Bank, and Xerox. It has two main objectives: (1) to develop and evaluate innovative medical plans, as well as disease-prevention and health-promotion programs at the workplace, and (2) to coordinate and facilitate community resources for health promotion. A corporate work force provides large, stable populations with which large-scale longitudinal research studies can be conducted (Figure 20-4). The results of this project are disseminated to business and other national organizations. These results are helping to determine which health-promotion programs can work most effectively in the business environment and how to develop and evaluate such programs in a practical, cost-effective manner. Once initiated, such programs will be self-sustaining as well as a source

of financial support for an ongoing program of research and evaluation to improve the delivery and efficacy of medical and health-promotion programs.

University and corporate planners interested in replicating such a program in their community can take the following steps:

1. Identify a group of managers interested in developing the idea of health promotion within their company and supporting the formation of a local collaborative effort.
2. Approach relevant researchers at local universities, medical schools, schools of public health, or business schools to collaborate in the effort.
3. Ask local foundations and corporations for core funds to use for coordinating the effort.
4. Work with local business coalitions devoted to health promotion or cost containment to identify interested companies.
5. Work with local business leadership organizations (e.g., Rotary Clubs) to gather support from high-level personnel in major companies.
6. Develop a network of professionals and organizations with relevant expertise in workplace health promotion.

Drawing upon these steps, corporate medical benefit plans of the future likely will be composed of three elements: medical care plus cost containment plus health-promotion programs. With this order of complexity, no one company or professional organization has all the answers, and that limitation needs to be acknowledged from the outset. Despite the pressing humanitarian and economic issues in this intricate restructuring of health care, it is increasingly clear that the coalition of a major university and local corporations, with the shared objective of program development and evaluation, is a model that can be replicated to the mutual benefit of individuals and organizations.

### Community/Corporate Organization Approaches to Reaching Hard-to-Reach Workers

Extending programs to "hard-to-reach" employees or those at heightened risk can be accomplished through communication networks. Often, these workers can be remote from formal communication channels offering health-promotion programs or encouraging healthier life-styles. While isolated from or unresponsive to such formal channels, these employees may be linked by strong informal channels such as discussions among co-workers, educational television programs on site, or noon lecture series. Thus, one way to reach these employees is via an informal network. For example, informal networks are important in low-income and minority communities in supporting health activities and providing connections to the more formal services (Pilisuk et al, 1982).

One way to enlist informal networks is to increase links between informal networks of co-workers talking among themselves and formal program networks, which provide specific classes or interventions. A program can include formal roles for members of hard-to-reach, informal networks, thereby recruiting those networks to carry the program's message to other members of the networks. Asking representatives of such groups to join a program steering committee is a widely applicable way of linking informal networks to a health promotion program. Another approach is to make sure that programs include activities that are highly valued by hard-to-reach groups. Basketball or bowling (although not the best aerobic activity) can recruit into a fitness program those who initially reject jogging suits and exercise bicycles. To enhance the linkage, ask the leaders of the basketball or bowling league to join the program committee.

In research on community health promotion, *local ownership* is a prominent approach to reaching broad audiences through a range of formal and informal networks (Elder et al, 1986). This means that in contrast to experts directing and implementing programs, the target audiences themselves identify goals and design programs (Rothman, 1968). Professionals consult with the participants and teach skills to identify and solve problems, rather than providing direct service.

Minkler (1990) calls such approaches *community organization*, a term that connotes communities defined other than geographically. Having shown the use of community organization with senior outreach programs in San Francisco's Tenderloin district (1985), Minkler identifies key characteristics of community organization:

- Empowerment and instigating community competence,
- Community identification of goals, problems, and issues,
- Creation of critical consciousness.

A thorny problem is harmonizing the professional's health promotion goals with the principle of setting priorities locally. Minkler (1990) argues that the professional can still "apply with effectiveness many of the core principles and approaches of community organization practice."

### SUMMARY

The stakes are very high in developing workplace life-style interventions to prevent chronic disease and disability. The Carter Center report "Closing the Gap" (Gibbs et al, 1985) indicates that, given our present medical knowledge and capabilities, approximately 66% of all deaths in this country are premature and, further, about 66% of all years of life lost before age 65 years are savable. Given the 1992 medical budget of more than \$850 billion, or 14% of the GNP, it is tragic and ironic that less than 5% of that budget was expended in primary prevention or health-promotion programs.

The problem of preventing 66% of all morbidity and mortality before age 65 and reallocating \$850 billion is overwhelming. The cornerstone of such efforts should be programs concerned with life-style intervention. However, the resolution of such an undertaking depends upon the effective coordination of three basic elements of a true health care system: (1) quality, cost-effective medical care; (2) procedures for cost containment and utilization review to guard against overutilization or underutilization; and (3) quality, cost-effective programs in health promotion and behavioral medicine. At present, there are a few promising instances of addressing these three elements in health care and occupational settings.

Businesses are beginning to see that, instead of being reactive and spending great sums of money only after employees become ill, it makes good sense to institute programs designed to prevent employees from becoming ill in the first place. With such programs, corporations not only improve the health of their employees (a worthy objective in its own right), but they contribute to containing medical costs at the same time—clearly a "win-win" situation for all concerned. In short, businesses are finding that an ongoing, active interest in the health of their employees has a direct bearing on their own long-range health as a business.

### REFERENCES

- Barzilai B, Fisher EB, Rost K, et al. Cardiovascular risk reduction through worksite health promotion. *Proceedings. American College of Cardiology*, Anaheim, CA, 1989.
- Baum W, Bernacki E, Tsai S. A preliminary investigation: Effect of a corporate fitness program on absenteeism and health care costs. *J Occ Med* 27:826-830, 1985.
- Biener L, Abrahms DB, Follick MJ. Maximizing the impact of self-help smoking cessation programs at the worksite: The

- recruitment problem. Annual Meeting of American Public Health Association, Boston, 1988.
- Blair S, Piserchia P, et al. A public health intervention model for worksite health promotion. *JAMA* 225(7):921-926, 1986.
- Bly JL, Jones R, Richardson J. Impact of worksite health promotion on health care costs and utilization: Evaluation of Johnson & Johnson's "Live for Life" Program. *JAMA* 256:3235-3240, 1986.
- Bonica J. Pain research therapy: Past and current status and future needs. In Ng L, Bonica J (eds). *Pain, Discomfort and Humanitarian Care*. New York: Elsevier, 1980.
- Bowne D, Russell M, Morgan J, et al. Reduced disability and health care costs in an industrial fitness program. *J Occ Med* 26:809-816, 1984.
- Cataldo MF, Coates TJ (eds). *Health and Industry: A Behavioral Medicine Perspective*. New York: Wiley, 1986.
- Elder JP, McGraw SA, Abrams DB, et al. Organizational and community approaches to community-wide prevention of heart disease: The first two years of the Pawtucket Heart Health Program. *Prev Med* 15:107-117, 1986.
- Elias WS, Murphy RJ. The case for health-promotion programs containing health care costs: A review of the literature. *Am J Occ Ther* 40:759-763, 1986.
- Erfurt JC, Foote A. Hypertension control at the worksite: Comparison of screening and referral alone, referral and follow-up, and on-site treatment. *N Engl J Med* 308:809-813, 1983.
- Erfurt JC, Foote A, Henrich MA. Worksite wellness programs: Incremental comparison of screening and referral alone, health education, follow-up counseling, and plant organization. *Am J Health Promotion* 6:438-448, July/August, 1991.
- Felton J, Cole R. The high cost of heart disease. *Circulation* 27:957-962, 1963.
- Fielding JE. Effectiveness of employee health improvement programs. *J Occ Med* 24:907-916, 1982.
- Fielding JE. Health promotion and disease prevention at the worksite. *Ann Rev Pub Health* 5:237-265, 1984.
- Fielding JE, Piserchia PV. Frequency of worksite health promotion activities. *Am J Pub Health* 79:16-20, 1989.
- Fisher EB, Bishop DB, Mayer J, et al. The physician's contribution to smoking cessation in the workplace. *Chest* 93(2):56S-65S, 1988a.
- Fisher EB, Nord W, Warren-Boulton E. Organizational factors in implementing patient education. *Diabetes* 37:175A, 1988.
- Fisher EB, Schectman K, Barzilai B, et al. Results of "Working Hearts" cardiovascular risk reduction program. *Proceedings of Society of Behavioral Medicine*, Chicago, 1990.
- Foote W. Public health and preventive medicine. *JAMA* 254(16):2330-2332, October 1985.
- Foote A, Erfurt JC. The benefit to cost ratio of worksite blood pressure control programs. *JAMA* 265:1238-1285, March 1991.
- Gibbs J, Mulvaney D, Henes C, et al. Worksite health promotion: Five-year trend in employee health care costs. *J Occ Med* 27:826-830, 1985.
- Jacobson M, Yenney S, Biscard JC. Investing in prevention. *Business & Health*, December 1988, pp 16-18.
- Jones J, Dosedel J. The impact of corporate stress management on insurance losses. *Legal Insight* 1(4):24-27, 1986.
- Jose W, Anderson D. Control Data: The "Stay Well" program. *Corporate Commentary* 2:1-13, 1986.
- Lankester L, Tormey B. Impacts on smoking prevalence of organizational and social support in worksite smoking cessation. *Proceedings of the Society of Behavioral Medicine*, Boston, April 1988.
- Lankester L, Tormey B. Process of smoking cessation in the workplace. *Proceedings of the Association for Advancement of Behavior Therapy*, New York, November 1988a.
- Leviton LC. The yield from work site cardiovascular risk reduction. *J Occ Med* 29:931-936, 1987.
- McLeroy K, Green L, Mullin K, et al. Assessing the effects of health promotion in worksites: A review of stress program evaluations. *Health Ed Q* 11(4):339-409, 1984.
- Minkler M. Building supportive ties and sense of community among the inner-city elderly: The Tenderloin Senior Outreach Project. *Health Ed Q* 12(4):303-314, 1985.
- Minkler M. Improving health through community organization. In Glantz K, Lewis F, Rimer B (eds). *Health Behavior and Health Education: Theory, Research & Practice*. San Francisco: Jossey-Bass, 1990.
- Mintzberg H. Organizational design: Fashion or fit? *Harvard Bus Rev* 59:103-116, 1981.
- Mullen PD. Health promotion and patient education benefits for employees. *Ann Rev Pub Health* 9:305-332, 1988.
- Nord W, Tucker S. *Implementing Routine and Radical Renovations*. Lexington, MA: Lexington, 1987.
- Pelletier KR. *Mind as Healer, Mind as Slayer*. New York: Delacorte & Delta/Seymour Lawrence, 1992.
- Pelletier KR, Klehr NL, McPhee SJ. Town and gown: A lesson in collaboration. *Business & Health* February 1988a, pp 34-39.
- Pelletier KR, Klehr NL, McPhee SJ. Developing workplace health-promotion programs through university and corporate collaboration. *Am J Health Promotion* (2)75-81, 1988b.

- Pelletier KR, Lutz R. Healthy people—healthy business: A critical review of stress management programs in the workplace. *Am J Health Promotion* 2:5-12, 1988.
- Pilisuk M, Parks SH, Kelly J, et al. The helping network approach: Community promotion of mental health. *J Primary Prev* 3(2):237-242, 1982.
- Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: Toward an integrative model of change. *J Consulting & Clinical Psych* 51(3):390-395, 1983.
- Rogers EM, Kincaid DL. *Communication Networks: Toward a New Paradigm for Research*. New York: Free Press, 1981.
- Rothman J. Three models of community organization practice: Social work practice. *Proceedings of the National Conference on Social Welfare*. New York: Columbia University Press, 1968.
- Schwartz GEM, Weiss SM. Yale Conference on Behavioral Medicine: A proposed definition and statement of goals. *J Behavioral Med* 1:3-12, 1978.
- Shephard R, Corey P, Ruezland P, et al. The influence of an employee fitness program and lifestyle modification program upon medical care costs. *Can J Public Health* 73:259-263, 1982.
- Spilman MA, Goetz A, Schultz J, et al. Effects of a corporate health promotion program. *J Occ Med* 28:285-289, 1986.
- Warner KE, Wickizer TM, Wolfe RA, et al. Economic implications of workplace health promotion: Review of literature. *J Occ Med* 30:106-112, 1988.