

Health Promotion

Volume 5, Number 4
March/April 1991

DataBase

Research and Evaluation Results

A Review and Analysis of the Health
and Cost-Effective Outcome Studies
of Comprehensive Health Promotion
and Disease Prevention Programs

Kenneth R. Pelletier

DataBase

Research and Evaluation Results

A Review and Analysis of the Health and Cost-Effective Outcome Studies of Comprehensive Health Promotion and Disease Prevention Programs

Kenneth R. Pelletier, Editor

Unequivocally, the question most frequently asked by decision makers prior to implementing comprehensive health promotion and disease prevention programs is "What is the data regarding the health and/or cost benefits?" Failure to provide compelling evidence documenting these benefits is the most pervasive deterrent to implementation of programs. This article and the accompanying chart provide a summary of the findings of research addressing the health and cost-effectiveness of comprehensive health promotion and disease prevention programs. Increasingly, all employers are experiencing uncontrolled medical costs which consistently exceed the overall Consumer Price Index and appear to be relatively immune to the economic containment strategies of utilization review. Recently, organizations have taken a greater interest in the relationship between the health practices of their employees and the expenditures incurred as a result of these behaviors. Employers are beginning to realize that there are no "quick fix" solutions to medical cost inflation and are now considering long-term solutions.

In short, the answer to "Do *comprehensive* worksite, health promotion programs save money?" — is yes! This evidence is *not* definitive, however, and its limitations need to be acknowledged in the context of the data and evidence limits expected for *any* medical and/or cost-effectiveness analysis. Writing in *Health Affairs*, Kenneth E. Warner of the University of Michigan has noted:

One of the great handicaps confronting the would-be health promotion program is that it is measured against a higher, more demanding standard than is conventional, treatment-oriented (and health insurance-covered) medical care. A medical care intervention simply has to represent accepted medical practice. By contrast, a health promotion intervention often has to prove its effectiveness (a standard not required of many surgical and medical procedures), and its cost savings (never required of a medical intervention)

Thus, as currently construed, the economic argument in health promotion implicitly forces the novel health promotion intervention to compete on the health side with established and insured patterns of medical care. On the fiscal side, it must vie with more effective restructuring of insurance benefits and delivery systems, each motivated exclusively by the desire to contain costs and neither needing to demonstrate a health outcome benefit. The proverbial deck is stacked against health promotion. The lack of solid evidence regarding worksite health promotion's economic yield should not be misinterpreted. The possibility remains that health promotion will be demonstrated to offer an excellent financial yield in many areas. The paucity of scientifically solid evidence merely highlights the need for additional research.¹

Given this caveat, several major studies have attempted to quantify the benefits associated with comprehensive corporate health promotion programs. These benefits include reductions in morbidity and mortality, employer health benefit savings, reductions in absenteeism and disability, and/or productivity increases. Although these studies have notable limitations which are generally found in any social science research, the concurrence of evidence pointing to the "success" of programs in improving employee health practices, reducing medical and disability costs, and improving productivity is indisputable. This research evidence is underscored by case studies of companies with successful health promotion programs who are now ready to expand and improve upon these through further investment of time and resources. As cited in the following grid, a growing body of documented successes and quantitative assessments of program effectiveness are now available.

In reviewing the literature it is clear that there are a number of factors which are common among successful corporate health promotion programs,^{2,3} including specific

program goals and objectives, easy access to the program and facilities, incentives for participation, respect and confidentiality, support of top management, and a corporate culture that encourages health promotion efforts. One of the key points that emerges from this review of the literature is that success is oftentimes measured through achievement of corporate objectives. Objectives may range from employee participation, to increased morale, to improved productivity, and/or reduced medical costs. Success is achieved when clear objectives are established at the start of a program, investment is made to achieve the stated goals, and accurate measurement is built into the program.

Studies cited in Table 1 are limited to reports of comprehensive health promotion programs since health promotion alone cannot be realistically expected to contain medical costs. Health promotion alone cannot change the tens of millions in medical costs and must be part of an integrated or comprehensive approach. "Comprehensive" programs refer to those programs that provide an ongoing, integrated program of health promotion and disease prevention that knits the particular components (smoking cessation, stress management, coronary risk reduction, etc.) into a coherent, ongoing program that is consistent with corporate objectives and includes program evaluation. Studies cited in this article meet this criteria while single focus components — even though health and cost-effective, as in the case of smoking cessation and hypertension screening — are not included. All of the above programs have been reviewed in peer review journals and have a high degree of reliability even though there are methodological issues with these or any other studies of such complexity. Overall, the data and outcomes can be considered reliable but specific programs and/or interventions are unique to each corporate culture, demographics, and employee population so generalization is somewhat limited. Finally, since the data presented in this table is intentionally minimal, the best source for a more comprehensive description of these studies and programs can be found in the original article describing the studies. Summary descriptions can be found in the report *Worksite Health Promotion: Review of the Literature and State of the Art Analysis* which is available from Johnson & Johnson Health Management Incorporated in New Brunswick, New Jersey. Restructuring of medical benefit plans; providing alternative delivery systems such as HMOs, PPOs, and point of service options; developing effective utilization review programs; redefining employee and retiree benefits packages; and reaching spouses and dependents are all necessary for a successful impact on rampant medical costs.

In Kenneth E. Warner's recently published overview, he considered evaluations of worksite health promotion programs from an economic perspective. Among his conclusions were:

Selected studies are finding financial savings from health promotion in such areas as health care utiliza-

tion and absenteeism. Yet a sound analytical and empirical case for health promotion's profitability has yet to be made. Some analysts characterize the economic argument as of limited importance, even if health promotion can be demonstrated to be cost saving, simply because "net savings would be small under most circumstances." The strength of worksite health promotion, such analysts have argued, lies not in its potential to save dollars, but rather to save and improve lives in a cost-effective manner. This conservative (but still positive) view contrasts strikingly with the both implicit and explicit argument that worksite health promotion can produce dramatic cost savings. In the explicit category are claims of reductions in employee health care costs and absenteeism of as much as 25 to 50 percent, one to five years following implementation of health promotion programs. In the implicit category is the compelling evidence that individual businesses spend millions of dollars on behavior-related health care costs, costs that many wellness analysts consider preventable through health promotion.¹

From a strict methodological and data analytic point of view this is an accurate assessment of the state of the art. However, benefits managers and medical directors, as well as all other professions, must make decisions in the absence of conclusive data. Given the lack of definitive data, it is important to recognize that the evidence for the cost-effectiveness of comprehensive health promotion programs is adequate for many business decision makers; however, that cannot be the sole basis for adoption.

In addressing the cost-effectiveness of worksite health promotion programs, Warner concludes:

By the time credible cost/benefit evidence accumulates, the fate of health promotion may be defined primarily by the attitudes of labor and management toward health promotion programs, which may have relatively little to do with bottom-line profitability. From the perspective of the health community, one hopes that the principal economic concern will have shifted from an intervention's ability to save money to its ability to improve employee health in a cost-effective manner.¹

Failure to clarify the potential health and/or economic impact of comprehensive, health promotion programs can lead to exaggerated claims on one hand or offhanded dismissal on the other. Neither extreme is warranted based on currently available research.

Looking toward the future, employers are focusing attention on the "demand" side of the equation (that is, the consumer demand and use of medical services) and ways to both educate and regulate regarding unrealistic demands or inappropriate utilization. Ultimately, the choices made by each individual aggregate into the billions of dollars of annual expenditures. New and more sophisticated data acquisition and analysis systems will

permit more focused program development and evaluation as well as open up the options of being self-insured and/or self-administered to intermediate and small corporations. Finally, there is the new and critically important area of "medical outcome studies" which has been termed the "third revolution" in medical care by Arnold Relman, editor-in-chief of the *New England Journal of Medicine*. Medical outcome standards focus on the outcomes for the patient of medical procedures. Concerns such as days of work lost, intervention related complications (iatrogenesis), residual pain or depression, and diminishment of normal functions become relevant to whether or not a given medical procedure is effective, appropriate, and produces a cost benefit. Such analyses and systems will enhance the evaluation of both the health and cost benefits for individuals and institutions.

Given the limitations and caveats cited above, there is a clear and growing body of evidence indicating that comprehensive health promotion programs are both health and cost-effective. Most importantly, any efforts in health promotion and disease prevention must be an integral part of a tripartite approach which includes quality, appropriate medical care; managed care with utilization review to insure neither excessive nor underutilization of appropriate services; and health promotion and disease prevention programs. By maintaining the health of the vast majority of people who already experience good health at any point in time, by eliminating excessive or inappropriate medical care which costs dollars and lives, there is the beginning of a solution to provide more equitable access for all Americans including the 35 million uninsured, the elderly, minorities, and children. That is the ultimate challenge to be resolved in the coming decade to develop a true health care system with equitable, quality access for all individuals.

Acknowledgements

Thank you to Ron Z. Goetzel, Jonathan E. Fielding, Jon Showstack, and Patti Katz for their help on earlier drafts of this manuscript.

References

- Warner, K., Wickizer, T., et al. Economic implication of workplace health promotion programs: Review of the literature. *Journal of Occupational Medicine*, 1988; 30:106-112.
- O'Donnell, M. Design of Workplace Health Promotion Programs. *American Journal of Health Promotion*, Birmingham, Michigan, 1986. Pp. 4-5.
- Solomon, B. Consensus on wellness programs. *Personnel*, November 1985; 76-82.
- Shepard, R., Corey, P., Ruezland, P., Cox, M. The influence of an employee fitness program and lifestyle modification program upon medical care costs. *Canadian Journal of Public Health*, 1982; 73:259-262.
- Bernacki, E., Baun, W. The relationship of job performance to exercise adherence in a corporate fitness program. *Journal of Occupational Medicine*, 1984; 26:529-531.
- Bowne, D., Russell, M., Morgan, J., et al. Reduced disability and health care costs in an industrial fitness program. *Journal of Occupational Medicine*, 1984; 26:809-816.
- Gibbs, J., Mulvaney, D., Henes, C., et al. Worksite health promotion: Five-year trend in employee health care costs. *Journal of Occupational Medicine*, 1985; 27:826-830.
- Lorig, K., et al. A Workplace Education Program that Reduces Outpatient Visits. *Medical Care*, 1985; 23(89):1044-1054.
- Baun, W., Bernacki, E., Tsai, S. A preliminary investigation: Effect of a corporate fitness program on absenteeism and health care cost. *Journal of Occupational Medicine*, 1986; 28:18-22.
- Blair, S., Piserchia, P., Wilbur, C., et al. A public health intervention model for work-site health promotion: Impact on exercise and physical fitness in a health promotion plan after 24 months. *Journal of the American Medical Association*, 1986; 255:921-926.
- Bly, J., Jones, R., Richardson, J. Impact of worksite health promotion on health care costs and utilization: Evaluation of Johnson & Johnson's Live For Life Program. *Journal of the American Medical Association*, 1986; 256:3235-3240.
- Harris, J. Northern Telecom: A million dollar medically based program in a rapidly changing high tech environment. *American Journal of Health Promotion*, 1986; 1(1):50-59,84.
- Spilman, M., Goetz, A., Schultz, J., Bellingham, R., Johnson, D. Effects of a corporate health promotion program. *Journal of Occupational Medicine*, 1986; 28:285-289.
- Bellingham, R., Johnson, D., McCauley, M., Mendes, T. Projected cost savings from AT&T Communications Total Life Concept (TLC) Process. *Health Promotion Evaluation: Measuring the Organizational Impact*. J. Opatz (Ed.). National Wellness Institute/Association Publication, Stevens Point, Wisconsin, 1987. Pp. 35-42.
- Jose, W., Anderson, D., Haight, S. The StayWell strategy for health care cost containment. *Health Promotion Evaluation: Measuring the Organizational Impact*. J. Opatz (Ed.). National Wellness Institute/Association, Stevens Point, Wisconsin, 1987. Pp. 15-34.
- Tsai, S., Baun, W., Bernacki, E. Relationship of employee turnover to exercise adherence in a corporate fitness program. *Journal of Occupational Medicine*, 1987; 29:572-575.
- Conrad, K., Riedel, J., Gibbs, J. Executive Summary. Health promotion: A new direction in health care. Evaluation of four Blue Cross and Blue Shield plans' worksite health promotion programs. Health Services Foundation, June 1988.
- Shiple, R., Orleans, C., Wilbur, C., et al. Effect of the Johnson & Johnson Live for Life program on employee smoking. *Preventive Medicine*, 1988; 17:25-34.
- Tsai, S., Bernacki, E., Baun, W. Injury prevalence and associated costs among participants of an employee fitness program. *Preventive Medicine*, 1988; 17:475-482.
- Henritze, J., Brammell, H. Phase II cardiac wellness at the Adolph Coors Company. *American Journal of Health Promotion*, September/October 1989; 4(1):25-31.
- Wood, E., Olmstead, G., Craig, J. An evaluation of lifestyle risk factors and absenteeism after two years in a worksite health promotion program. *American Journal of Health Promotion*, 1989; 4(2):128-133.
- Bertera, R. The effects of workplace health promotion on absenteeism and employee costs in a large industrial population. *American Journal of Public Health*, September 1990; 80(9):1101-1105.
- Erfurt, J., et al. Improving participation in worksite wellness programs: Comparing health education classes, a menu approach, and follow-up counseling. *American Journal of Health Promotion*, March/April 1990; 4(4):270-278.
- Goetzel, R., Thrope, K., Fielding, J., Bruno, C., Duann, S., Hillman, J., Knight, K., Wade, S., Wilson, A., Wong, J., Pelletier, K., et al. Southwestern Bell Corporation: Customcare — A managed health care plan — Summary of evaluation results. (In progress, 1990).
- Holzbach, R., Piserchia, P., McFadden, D., et al. Effort of a comprehensive health promotion program on employee attitudes. *Journal of Occupational Medicine*, in press.
- Jones, R., Bly, J., Richardson, J. A study of work site health promotion programs and absenteeism. *Journal of Occupational Medicine*, 1990; 32:95-99.
- Lynch, W., Golaszewski, T., Clearie, A., Snow, D., Vickery, D. Impact of a facility-based corporate fitness program on the number of absences from work due to illness. *Journal of Occupational Medicine*, 1990; 32(1):9-12.

Health Promotion

Volume 19, Number 3 Supplement
January/February 2005

SPECIAL ISSUE: HEALTH PROMOTION IN JAPAN:
COMPARISONS WITH U.S. PERSPECTIVES
YUMIKO NISHIMURA & YOSUKE CHIKAMOTO, EDITORS

Michael P. O'Donnell	iv	Editor's Notes: The Future of Health Promotion in Japan: Vision, Strategy, and Influence
Yumiko Nishimura Yosuke Chikamoto	213	Special Issue Editors' Notes: Health Promotion in Japan: Comparisons With U.S. Perspectives
Kenneth R. Pelletier	216	International Collaboration in Health Promotion and Disease Management: Implications of U.S. Health Promotion Efforts on Japan's Health Care System
Yosuke Chikamoto Isao Igarashi Rina Yamada	230	Relationships Between Behavioral Risk Factors and Dental Care Costs in a Japanese Worksite
Wendy D. Lynch Yosuke Chikamoto Kumiko Imai Tsui-Fang Lin Donald S. Kenkel Ronald J. Ozminkowski Ron Z. Goetzel	238	The Association Between Health Risks and Medical Expenditures in a Japanese Corporation
Yumiko Nishimura Yosuke Chikamoto Hideaki Arima	249	Association Between Lifestyle-disease Diagnosis or Risk Status and Medical Care Costs in a Japanese Corporation
Jamie Hwang	255	The Evolution of Tobacco Use and Control in the United States: An Interview With Dr. John Farquhar
Yumiko Asukai Yoichi Torii Yosuke Chikamoto	260	Tobacco Control: Recent Movements in Japan