

Successful Business Strategies to Prevent Heart Disease and Stroke



TOOLKIT GUIDE

Heart-Healthy and Stroke-Free Worksites



Successful Business Strategies to Prevent Heart Disease and Stroke Toolkit

Table of Contents

- I. Mission of CDC's State Heart Disease and Stroke Prevention Program
- II. Authors and Acknowledgements
- III. Working Group
- IV. Description of Toolkit Components
- V. A Six-Step Guide for Employers
- VI. Worksheet to Evaluate Health Plan Benefits and Services
- VII. Promising Practices in Health Care and Worksite Settings
- VIII. Koop Award Winners
- IX. Power Point Presentation
- X. Glossary
- XI. Additional Resources
- XII. Selected Articles
- XIII. Toolkit Contents CDs

**Mission of CDC's State Heart Disease
and Stroke Prevention Program:**

To provide public health leadership to improve cardiovascular health for all,
reduce the burden of cardiovascular disease, and eliminate
disparities associated with heart disease and stroke.

Authors and Acknowledgements

The *Toolkit of Successful Business Strategies to Prevent Heart Disease and Stroke* was developed by the Division for Heart Disease and Stroke Prevention, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, US Department of Health and Human Services.

Dyann Matson Koffman was the lead author, with contributions by Lori Agin, Victoria Anwuri, Tim LaPier, Bernadette Ford Lattimore, Diane Orenstein, Karen Shore, Lynn Sokler, and other members of the working group.

Victoria Anwuri, Steve Garfinkel, Suzanne Mercure, and Karen Shore conducted research for the *Toolkit* and developed the *Promising Practices* document.

Meg Molloy led the development of *Reducing the Risk of Heart Disease and Stroke: A Six-Step Guide for Employers*. Dyann Matson Koffman and Suzanne Mercure led the development of the document *Evaluating Health Plans Benefits and Services to Promote Cardiovascular Health and Prevent Heart Disease and Stroke*.

The authors would like to acknowledge Nancy Watkins, Kurt Greenlund, and Belinda Minta for their valuable review of the components of this *Toolkit*.

Working Group

A working group of professionals and national leaders involved with business, worksite health promotion, and disease management and prevention provided insights and guidance for the *Toolkit's* research and development.

Lori Agin, BS
Senior Account Manager
American Institutes for Research

Claire Aldridge, PhD
Former Senior Manager, Strategic Alliances
American Heart Association

Victoria V. Anwuri, MPH
Former ASPH/CDC Public Health Fellow
US Centers for Disease Control and Prevention

Odalys Bigler
Former Program Manager, CalPERS and the Center for Health Improvement
Blue Shield of California

William R. "Robbie" Burlas, BS
Health Navigators, LLC

Cia Byrnes
Former Vice President,
Medical Affairs/Government Programs
Alliance of Community Health

Caroline M. Erceg, MJ
Director, Medical Affairs
America's Health Insurance Plans

Marianne Fazen, PhD
Executive Director
Dallas–Fort Worth Business Group on Health

Ron Finch, EdD
Director, Center for Prevention and Health Services
National Business Group on Health

Steve Garfinkel, PhD
Managing Research Scientist
American Institutes for Research

Ron Z. Goetzel, PhD
Vice President, Consulting and Applied Research
Medstat

Tim LaPier, MA, CHES
Public Health Educator/Project Officer
US Centers for Disease Control and Prevention

Joseph Leutzinger, PhD
Former Senior Consultant
Wellness Councils of America

Garry M. Lindsay, MPH, CHES
Director of Business Partnerships
Partners in Prevention

Dyann Matson Koffman, DrPH, MPH, CHES
Public Health Educator/Behavioral Scientist
US Centers for Disease Control and Prevention

Diane R. Orenstein, PhD
Research Psychologist
US Centers for Disease Control and Prevention

Kenneth R. Pelletier, PhD, MD (hc)
Clinical Professor of Medicine and
Director Corporate Health Improvement Program (CHIP)
University of Arizona School of Medicine
University of California (UCSF) School of Medicine

Karen Shore, PhD
Senior Research Scientist
American Institutes for Research

Lynn Sokler, BS, BS
Former Managing Regional Director
American Institutes for Research

Charles Taylor, MD
Medical Director
Taylor-High Clinic,
The Center for Preventive Medicine

Mr. Peter Townsley, BA
Executive Director
Taylor-High Clinic,
The Center for Preventive Medicine
Principal
Health Navigators, LLC

Deborah Wheeler, MSPH
Director, Quality Initiatives and Industry Standards
America's Health Insurance Plans

Debra A. Wigand, MEd, CHES
Program Manager, Cardiovascular Health Program
Maine Department of Human Services

Pamela Southers Wilson, RD/LD
Director, Cardiovascular Health Program
Georgia Division of Public Health

Successful Business Strategies to Prevent Heart Disease and Stroke: Toolkit Components

The materials in this Toolkit are intended to motivate employers to provide prevention health benefits and services for their employees and establish effective worksite programs to prevent heart disease and stroke. State program staff may use all or some of these materials, depending on the type of meeting or presentation conducted with an employer, business group, or health association. A CD-ROM with all the Toolkit materials is included for easy reproduction and adaptation. Materials will also be available online at www.cdc.gov/dhdsp/library/toolkit/. The *Toolkit* provides the following resources:

Tool	Purpose
<i>Reducing the Risk of Heart Disease and Stroke: A Six-Step Guide for Employers</i>	A handout that allows users to make a strong case to employers for investing in comprehensive programs and services to prevent heart disease and stroke. It includes information about promising employer practices and effective interventions. It will also allow employers to estimate how much they can save on costs related to health care, absenteeism, and lost productivity by investing in these programs.
<i>Evaluating Health Plan Benefits and Services to Promote Cardiovascular Health and Prevent Heart Disease and Stroke</i>	A checklist to help employers choose and negotiate a health benefits package that fits their business and workforce.
<i>Promising Practices Summary and Koop Award Winners</i>	A summary of successful heart disease and stroke prevention programs in different worksite and health care settings.
PowerPoint Presentation	A presentation for employers and business groups using the information in the <i>Six-Step Guide for Employers</i> .
CVD and Business Glossary	Definitions and business terms related to heart disease and stroke prevention and disease management.
Additional Resources	Information such as national guidelines, additional worksite toolkits and assessment tools, performance measurement tools, and associations and agencies that address heart disease and stroke prevention.
Articles	Selected articles on prevention benefits and services that support the business case for cardiovascular health.

Evaluating Health Plans Benefits and Services to Promote Cardiovascular Health and Prevent Heart Disease and Stroke

Employers should select a health care plan that will provide their employees with important services to promote cardiovascular health. The attached checklist can be used as a guide to determine how well a health plan's programs and services address heart disease, stroke, and related risk factors, such as high blood pressure and high cholesterol prevention and treatment.

Employers or health benefits managers can ask health plans to respond to the questions listed in the checklist if they are unable to find the answers when reviewing health plan benefits and services for their employees, retirees, and dependents. In general, a high number of "yes" responses indicates that the plan will provide sufficient comprehensive and high-quality services to promote cardiovascular health and prevent and treat heart disease and stroke. However, health benefits managers should get detailed information about the cost, quality, and effectiveness of the program and services offered. Managers can use this information when negotiating the purchase of specific health plan benefits and services.

The checklist allows employers to determine whether the health plan supports:

- **Heart disease and stroke risk identification:** Strategies to identify employees at risk for heart disease, stroke, and related risk factors and conditions.
- **Heart disease and risk reduction programs:** Programs and services to help employees prevent heart disease and stroke and improve overall health.
- **National guidelines:** Use of national guidelines for treating and preventing heart disease and stroke.
- **Health care quality assurance systems:** Systems to reinforce and evaluate the delivery of quality care.
- **Strategies to eliminate CVD disparities:** Tailored strategies to reach diverse groups who may be at increased risk for heart disease and stroke.
- **Patient satisfaction surveys:** Evaluations to ensure a high level of patient satisfaction with heart disease and stroke prevention program and services.
- **Cost savings information:** Reports that show cost savings associated with heart disease, stroke, and risk factor prevention over time.
- **Community collaboration:** Evidence of collaboration with other health plans, local, state, and national health organizations around heart disease and stroke prevention.

The checklist below was developed from a number of resources, including:

- American Heart Association (AHA) guidelines for primary prevention of cardiovascular disease and stroke.¹
- AHA and the American College of Cardiology's guidelines for preventing heart attack and death in patients with atherosclerotic cardiovascular disease.²
- AHA and the American Stroke Association's guidelines for the early management of patients with ischemic stroke (2005 update)³
- U.S. Preventive Services Task Force's *Guide to Clinical Preventive Services* (2nd and 3rd editions).⁴
- *The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*.⁵
- National Heart, Lung and Blood Institute's National Cholesterol Education Program (NCEP)—Adult Treatment Panel III.⁶
- A review of literature from 2000–2003 through the National Library of Medicine and selected articles that report on interventions in health care settings with positive clinical outcomes for preventing and treating heart disease, stroke, high blood cholesterol, and high blood pressure.^{7–9}
- An Institute of Medicine report on confronting racial and ethnic disparities in health care.¹⁰

Experts in health promotion and disease prevention in health care and worksite settings representing the following organizations provided input on the checklist: American Heart Association, America's Health Insurance Plans, Alliance of Community Health, American Institutes for Research, Blue Shield of California, U.S. Centers for Disease Control and Prevention, Dallas–Fort Worth Business Group on Health, Georgia Division of Public

Health, Maine Department of Human Services, Medstat, National Business Group on Health, Partnership for Prevention, The Center for Prevention Medicine, UCLA Corporate Health Improvement Program, and the Wellness Councils of America.

Checklist of Successful Health Plan Approaches to Heart Disease and Stroke Prevention

		YES	NO
Cardiovascular Risk Identification			
1	Does the health plan use some type of strategy to identify those most at risk for heart disease, stroke, and related conditions and risk factors (e.g., routine screenings, health risk assessments, chart reviews, analysis of claims data)?	<input type="checkbox"/>	<input type="checkbox"/>
2	Does the health plan stratify and use targeted approaches for members at different risk levels? For example, low risk = no risk factors; medium risk = one to two risk factors; high risk = three or more risk factors or those who have had a cardiovascular disease (CVD) event.	<input type="checkbox"/>	<input type="checkbox"/>
Cardiovascular Health and Risk Reduction Program and Services			
3	Does the health plan offer specialized disease management programs for members who have been diagnosed with heart disease, stroke, or related risk factors?	<input type="checkbox"/>	<input type="checkbox"/>
4	Does the health plan provide programs and services in the following areas to promote cardiovascular health and to prevent or manage heart disease and stroke? (<i>check all that apply, and see Key Services for Heart Disease and Stroke Management and Prevention</i>)		
	● Blood pressure control.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Lipid management.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Tobacco cessation.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Nutrition/dietary intake.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Weight management.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Physical activity.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Diabetes management.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Cardiac and stroke rehabilitation.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Depression management.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Other:	<input type="checkbox"/>	<input type="checkbox"/>
5	Does the health plan have a system to refer members who are at risk for heart disease and stroke to these programs and services?	<input type="checkbox"/>	<input type="checkbox"/>
6	Can members who are at risk for heart disease and stroke self-refer into these cardiovascular health programs?	<input type="checkbox"/>	<input type="checkbox"/>
7	Are these lifestyle and behavioral modification, education, and counseling programs available to members via: (<i>check all that apply</i>)		
	● Telephone.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Groups or classes at the worksite.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Groups or classes offered offsite, e.g., community clinic.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Websites.....	<input type="checkbox"/>	<input type="checkbox"/>
	● E-mail.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Regular mailings.....	<input type="checkbox"/>	<input type="checkbox"/>
	● Primary care providers.....	<input type="checkbox"/>	<input type="checkbox"/>
8	Does the health plan provide education and risk factor counseling and support to members at high risk?	<input type="checkbox"/>	<input type="checkbox"/>
9	Does the health plan offer members incentives to participate in lifestyle and behavior education/modification programs (e.g., free services for members, discounts to fitness centers)?	<input type="checkbox"/>	<input type="checkbox"/>
10	Does the health plan provide coverage for prescription drugs to prevent heart disease and stroke?	<input type="checkbox"/>	<input type="checkbox"/>

Checklist of Successful Health Plan Approaches to Heart Disease and Stroke Prevention (cont.)

		YES	NO
National Guidelines			
11	Does the health insurance plan encourage its health care providers to use standardized treatment and prevention protocols that are consistent with any of the following evidence-based guidelines for heart disease and stroke prevention? If yes, check which guidelines the health plan endorses:	<input type="checkbox"/>	<input type="checkbox"/>
	<ul style="list-style-type: none"> ● National Cholesterol Education Program (NCEP)—Adult Treatment Panel III ● The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure ● U.S. Preventive Services Task Force <i>Guide to Clinical Preventive Services</i>..... ● American Heart Association guidelines for primary prevention of heart disease and stroke ● American Heart Association/American College of Cardiology guidelines for patients with coronary and other vascular diseases ● American Stroke Association guidelines ● National Stroke Association guidelines ● Other (please describe) _____ 	<input type="checkbox"/>	<input type="checkbox"/>
Health Care Quality Assurance Systems			
12	Does the health plan have policies to encourage the adoption of electronic data systems (e.g., electronic medical records, automated prescription systems) in hospitals, primary care settings, or providers' offices?	<input type="checkbox"/>	<input type="checkbox"/>
13	Does the health plan have policies in place to foster the use of multidisciplinary clinical care teams to deliver coordinated and quality preventive care?	<input type="checkbox"/>	<input type="checkbox"/>
14	Does the health plan communicate with providers about patient conditions and prompt them to prescribe preventive care? (<i>check all that apply</i>)		
	<ul style="list-style-type: none"> ● Reminders to providers for patient tests and services ● Point-of-service notices or reports regarding a patient's condition and clinical measures needed ● Notices regarding a patient's conditions and goals for clinical outcomes ● Direct-to-physician office calls about a patient's condition ● Other: _____ 	<input type="checkbox"/>	<input type="checkbox"/>
15	Does the health plan provide incentives and feedback to providers to improve compliance with cardiovascular health guidelines noted in question #11? (<i>if yes, check all that apply</i>)		
	<ul style="list-style-type: none"> ● Feedback system on how provider's compliance compares with peer-based or national benchmarks..... ● Financial incentives for individual providers..... ● Financial incentives for groups of providers..... ● Public recognition through national, local or health insurance plan-specific programs (e.g., Heart/Stroke Physician Recognition Program (HSRP) developed by the National Committee for Quality Assurance and the American Heart Association/American Stroke Association (AHA/ASA)..... ● Feedback through other health plan publications ● Other: _____ 	<input type="checkbox"/>	<input type="checkbox"/>

Checklist of Successful Health Plan Approaches to Heart Disease and Stroke Prevention (cont.)

		YES	NO
16	Does the health plan systematically evaluate whether providers follow CVD guidelines for patient care (e.g., through chart review, claims data)?	<input type="checkbox"/>	<input type="checkbox"/>
17	Does the health plan track the Health Plan Employer Data and Information Set (HEDIS) ^{®*} performance or other cardiovascular health measures? If yes, please provide the most recent year results, expressed as a percentage: Controlling high blood pressure _____% Beta-blocker treatment after a heart attack _____% Persistence of beta-blocker treatment after a heart attack _____% Cholesterol management after acute cardiovascular event _____% Comprehensive diabetes care _____% Medical assistance with smoking cessation _____% Physical activity in older adults _____% Other (non-HEDIS) clinical quality indicators for cardiovascular health monitored by the plan: Indicator: _____ % Indicator: _____ % Indicator: _____ %	<input type="checkbox"/>	
Strategies To Eliminate CVD Disparities			
18	Does the health plan provide culturally and linguistically competent educational materials, newsletters, and other information aimed at diverse high-risk populations?	<input type="checkbox"/>	<input type="checkbox"/>
19	Does the health plan offer disease management programs that are tailored to diverse groups that are at increased risk for CVD?	<input type="checkbox"/>	<input type="checkbox"/>
Patient Satisfaction and Compliance			
20	Does the health plan evaluate—at least annually—member satisfaction with the cardiovascular health and risk reduction program and services?		
21	If yes to question #20, does the health plan evaluation show that members have a high level of satisfaction with program?	<input type="checkbox"/>	<input type="checkbox"/>
22	If yes to question #20, does the health plan evaluation show that members understand self-management and compliance techniques for risk factor control and cardiovascular health?	<input type="checkbox"/>	<input type="checkbox"/>
Cost Saving			
23	Does the health plan report cost savings over time as a result of its cardiovascular health and risk factor control program (e.g., reductions in the number of emergency room visits or hospitalizations directly related to CVD, pharmacy costs, or specialty physician visits)?	<input type="checkbox"/>	<input type="checkbox"/>
Community Collaboration			
24	Has the health plan collaborated with other plans and organizations in the local community or region on CVD prevention strategies, such as screening, educational events, and risk factor counseling?	<input type="checkbox"/>	<input type="checkbox"/>
25	Has the health plan collaborated with local, state, or national organizations on public health initiatives related to CVD prevention?	<input type="checkbox"/>	<input type="checkbox"/>

*HEDIS is a set of standardized performance measures designed to ensure that purchasers and consumers have the information they need to reliably compare the performance of managed health care plans. HEDIS is sponsored, supported, and maintained by the National Committee for Quality Assurance. (See their Web site at www.ncqa.org).

Key Services for Heart Disease and Stroke Management and Prevention

Concern over the burgeoning problem of heart disease and stroke has prompted health plan providers from across the nation to ask what they can do to help. In response, the National Center for Chronic Disease Prevention and Health Promotion at the U.S. Centers for Disease Control and Prevention has summarized the following national guidelines that are important elements of a program to manage and control heart disease and stroke. Employers can assess whether their provider groups follow these guidelines. More detailed information on the guidelines can be found in the attached references.

Primary Prevention

Screening: All people should receive recommended general preventive screenings (blood pressure, height, weight, waist circumference, pulse, glucose, and cholesterol levels).

Blood pressure control: People with either high blood pressure (systolic ≥ 140 mmHg or diastolic ≥ 90 mm Hg) or prehypertension (systolic 120–139 mmHg or diastolic 80–89 mmHg) should be provided with lifestyle modification counseling (weight control, physical activity, alcohol moderation, moderate sodium restriction, and emphasis on fruits, vegetables, and lowfat dairy products). Blood pressure medications should be prescribed according to guidelines.

Lipid management: People with high lipids should be provided dietary therapy (goal: 7 percent saturated fat, <200 mg/day of dietary cholesterol), with emphasis on physical activity, weight management, and increased consumption of omega–3 fatty acids and soluble fiber.

Diabetes management: People with diabetes should be provided appropriate hypoglycemic therapy to achieve near–normal fasting plasma glucose or as indicated by near–normal HbA1c. Diet and exercise counseling should be provided, followed by the prescription of oral hypoglycemic drugs. Treatment for weight management and physical activity should also be provided to offset other risk factors.

Tobacco use: People should be provided with an assessment of tobacco use, and they and their families should be strongly encouraged to stop smoking and to avoid secondhand smoke. Counseling, pharmacological therapy (including nicotine replacement), and formal smoking cessation programs should be provided.

Dietary intake: All people should receive dietary counseling encouraging them to consume a variety of fruits and vegetables per day, as well as low–fat dairy products, lean meats, poultry, fish, and legumes; reduce sodium intake, and moderate alcohol intake.

Physical activity: All people should be advised/counseled to engage in moderate–intensity physical activity for at least 30 minutes each day.

Weight management: Body mass index (BMI) and waist circumference should be measured and monitored as part of evaluation and therapy for weight management and physical activity. All people who are overweight or obese should receive weight management advice or counseling to achieve and maintain a desirable weight.

Aspirin: People at higher risk of coronary heart disease (CHD) should be provided low–dose aspirin (especially those with 10–year risk of CHD ≥ 10 percent).

Comprehensive Risk Reduction for People with Coronary or Other Vascular Disease

People who have experienced a heart attack, stroke, or other coronary event, should get the following additional health care services:

Lipid management: Fasting lipid profile should be assessed in all people and within 24 hours of hospitalization for those with an acute event. If patients are hospitalized, drug therapy on discharge should be provided according to American Heart Association guidelines.

Antiplatelet agents/anticoagulants: People should be provided aspirin 75 to 325 mg/d, if not contraindicated.

Angiotensin-converting enzyme (ACE) inhibitors: People who are post-myocardial infarction (MI) should be provided ACE inhibitors on an indefinite basis. This therapy should be started early in stable high-risk patients (anterior MI, previous MI, Killip class II). All other patients with coronary or other vascular diseases, unless contraindicated, should be considered for chronic therapy.

Beta-blockers: All people who are post-MI and those with acute ischemic syndrome should get beta-blocker therapy indefinitely. Usual contraindications should be observed. Beta-blockers are used as needed to manage angina, heart rhythm, or blood pressure in all other patients.

Tissue plasminogen activator (tPA): This clot-busting drug should be provided to all people who are suffering acute ischemic stroke.

Cardiac and stroke rehabilitation: All people and caregivers should be provided with stroke recovery education. All post-MI patients should be referred to cardiac rehabilitation. All patients with congestive heart failure should be provided follow-up care after discharge.

References

1. Pearson TA, Blair SN, Daniels SR, et al. AHA Guidelines for primary prevention of cardiovascular disease and stroke (2002 update): consensus panel guide to comprehensive risk reduction for adult patients without coronary or other atherosclerotic vascular diseases. *Circulation* 2002;106:388–391.
 2. Smith SC, Jr., Blair SN, Bonow RO, et al. AHA/ACC guidelines for preventing heart attack and death in patients with atherosclerotic cardiovascular disease (2001 update): a statement for healthcare professionals from the American Heart Association and the American College of Cardiology. *Circulation* 2001;104:1577–1579.
 3. Adams H, Adams R, Del Zoppo G, Goldstein LB. Guidelines for the early management of patients with ischemic stroke (2005 guidelines update): a scientific statement from the Stroke Council of the American Heart Association/American Stroke Association. *Stroke* 2005;36:916–923.
 4. U.S. Preventive Services Task Force. *Guide to Clinical Preventive Services* (2nd and 3rd editions), McLean, Virginia: International Medical Publishing, 2002 and *Vol. 1: Methods And Screening*. Rockville, Maryland: U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality; 2003. Also see updates, available at <http://www.ahrq.gov/clinic/prevnew.htm>
 5. Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC). The Seventh Report of the JNC (JNC-7). *JAMA* 2003;289(19):2560–2572.
 6. National Cholesterol Education Program (NCEP), National Heart, Lung and Blood Institute. NCEP Adult Treatment Panel III. *JAMA* 2001;285:2486–2497.
 7. Matson Koffman, DM, Goetzel RZ, Anwuri VV, Shore K, Orenstein D, LaPier T, Mensah GA. Heart-healthy and stroke-free: making the business case to employers for the prevention of cardiovascular disease. *American Journal of Preventive Medicine*. In press.
- Huskamp HA, Deverka PA, Epstein AM, et al. The effect of incentive-based formularies on prescription-drug utilization and spending. *The New England Journal of Medicine* 2003;349(23):2224–2232.
8. Phillips CO, Wright SM, Kern DE, Singa RM, Shepperd S, Rubin HR. Comprehensive discharge planning with postdischarge support for older patients with congestive heart failure: A meta-analysis. *JAMA* 2004;291(11):1358–1367.
 9. Snedley BD, Stith AY, Nelson AR, editors. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, DC: Institute of Medicine, National Academies Press. 2002. Available at <http://www.nap.edu/books/030908265X/html/>

Promising Practices Introduction

This toolkit component provides examples of promising practices and programs in worksite and health care settings that have been successful at promoting cardiovascular health (CVH) and reducing the risk of heart disease and stroke. A “Promising Practice” is an innovative worksite or health care intervention that has field-based data showing positive outcomes for preventing heart disease and stroke and related risk factors, such as high blood pressure, but that may not have yet been studied under controlled research to allow for generalizable results.

Methods:

We conducted a review of published literature through the National Library of Medicine (PubMed and MEDLINE) from 1990–2003, as well as an Internet-based search, to identify worksite and health care programs with positive clinical outcomes for reducing the risk of heart disease and stroke among employees and members. We identified 19 studies conducted in worksite settings and 33 conducted in health care settings, including “promising practices” to promote CVH. The results of the literature review and recommendations from a panel of expert advisors were combined to identify companies with promising practices for heart disease and stroke prevention. Twenty-five employers were contacted for additional information about their practices. We then developed the following criteria in order to score the promising practices we found and select a smaller number for case study phone interviews:

Key program components: <ul style="list-style-type: none">▪ Focuses on blood pressure and cholesterol▪ Has been in place for at least one year▪ Offers individual counseling and follow-up▪ Has high (50% or greater) participation rates	Key evaluation components: <ul style="list-style-type: none">▪ Demonstrates improvements in high blood pressure and high cholesterol levels among employees▪ Has a favorable return on investment (ROI)
---	---

Results:

The expert panel selected the following promising practices for case study telephone interviews. These programs represent three health care plans and six companies, including three small and medium-sized companies and three large employers:

- Anthem Blue Cross Blue Shield of Ohio, Kentucky, Indiana: Coronary Services Centers Program and Coronary Artery Disease Management Program
- Blue Shield of California: *Shield Your Heart* Program
- Kaiser Permanente of Ohio: *MARS* Program
- Highsmith Company: *TAG* Program
- Fieldale Farms Corporation: Wellness Program
- L. L. Bean, Inc.: *Healthy Bean* Program
- Duke University: *LIVE FOR LIFE*® Program
- Johnson & Johnson Corporation: *LIVE FOR LIFE*® Health & Wellness Program
- General Motors Corporation: *UAW-GM LifeStep's* Program

We also identified company programs that received C. Everett Koop Awards (available at <http://healthproject.stanford.edu>) and have demonstrated effectiveness in influencing personal health habits and the cost-effective use of health care services related to improving CVH and preventing heart disease and stroke. These programs have the objectives of providing appropriate quality care, and reducing the alarming rate of health care inflation. Examples of such programs include:

- Caterpillar *Healthy Balance*™ Program (2000 Winner)
- Citibank Health Management Program (2001 Winner)
- DaimlerChrysler/UAW National Wellness Program (2000 Winner)
- Fannie Mae Partnership for Healthy Living (2000 Winner)
- Glaxo Wellcome, Inc. (1999 Winner)
- Johnson & Johnson Health and Wellness Program (2003 Winner)
- Northeast Utilities WellAware Program (2001 Winner)

Disclaimer – These practices are examples of the many promising practices for heart disease and stroke prevention that are in use in the United States. The selection of these promising practices was not based on rigorous review of the evaluation methods or data reported for each company. Rather, the data reported came from the case study interviews and reports received from the organization. For some programs, citations from published studies in peer-reviewed journals are included in the references to support the results.

Select C. Everett Koop National Health Awards 1999 – 2003

The C. Everett Koop National Health Awards are issued by The Health Project (THP). This private–public organization aims to bring about critical attitudinal and behavioral changes in the American health care system, so that providers and consumers employ its vast resources with increasing knowledge and understanding. The mission of THP is to seek out, evaluate, promote and distribute programs with demonstrated effectiveness in influencing personal health habits and the cost effective use of health care services. These programs have the objectives of (1) providing appropriate quality care, and (2) sharply reducing the alarming rate of health care inflation, by holding down unnecessary expenditures.

The following Koop Award winners exemplify successful comprehensive health interventions and include cardiovascular health benefits and services.

For more information on the Koop Awards, go to: <http://healthproject.stanford.edu>.

Caterpillar Healthy Balance (2000) Healthy BalanceSM Program

Goals

- Motivate positive change in modifiable health risk behaviors.
- Reduce health risks, improve health status long-term.
- Promote self-efficacy and informed decision-making.
- Reduce healthcare and related costs/trends.
- Achieve exceptional participation via strong incentives.

Intervention

The Healthy Balance Program (the Program) was developed over a three-year period, and incorporates best practice features. The health promotion literature was reviewed; 21 companies with outstanding health promotion programs were benchmarked. The Healthtrac® Program, significantly modified and enhanced by Caterpillar, is the Program's foundation.

Key Features

- Strong incentives.
- Top-down management "buy-in" and involvement.
- Spouses included.
- Continuous evaluation/improvement.

Components

- (DR = demand reduction strategy; BC = behavior change strategy).
- Low-cost confidential health assessment (HA).^(DR, BC)
- Focus on modifiable risks^(BC) and increasing self-efficacy.^(DR, BC)
- Personalized health education messages.^(DR, BC)
- Stratification: low/high risk^(BC), periodic assessment based on risk.^(BC)
- Individualized interventions, targeted to health risks and readiness-to-change.^(BC)
- Intensive high risk/chronic condition interventions, including disease management phone counseling.^(BC)
- Serial tracking,^(BC) ongoing monitoring/adjustment of interventions.^(BC)
- Coordination with related interventions (on-site classes, referral to community programs, etc.).^(DR, BC)
- Self-care book^(DR) and quarterly newsletters to all eligible.^(DR)
- Toll-free health information line and audio library.^(DR)
- Intranet website regularly updated, linked to sites providing scientifically validated information (e.g., drkoop.com).^(DR, BC)
- Ongoing evaluation using integrated data warehouse (claims, absenteeism, HA, etc.); communication of summary results to employees.

Target Population

All U.S.-based non-union employees (49% of workforce) and spouses (N = 41,500+). To be added: retirees, union workers (pending contract changes).

Funding Source

Executive Office.

Staffing

A division of Corporate Medical Department. Full-time staff: Health Promotion Manager, Program Administrator, Data Analysis Administrator, Communicator, and two Health Promotion Analysts. Part-time staff: nurses (diabetes, cardiac care), health educators. Guided by Corporate Medical Director, Director of Managed Care, and physicians representing (clinical psychology, infectious disease, public health, and occupational health). Additionally, 91 staff with part-time health promotion-related responsibilities and 5

full-time health promotion specialists coordinate the Program through local programs at more than 142 U.S. and international locations.

For more information about this program, go to:

<http://healthproject.stanford.edu/koop/2000winnerindex.html>.

Citibank Health Management Program (2001) Healthtrac Program

Goals

Citibank is a global financial services company with 130,000 employees worldwide and 51,000 in the U.S. The strategic goals of the Health Management Program (HMP) are to optimize employee health and productivity, reduce or stabilize costs associated with employee illness and injury and contribute to Citibank's efforts to be the employer of choice.

Since 1994, Citibank's Corporate Health Services department implemented health promotion programs and services targeted to U.S. employees and Expatriate Staff. Staffed with Master's level professionals, Nurses, Physicians combined with strategic vendors, the program included health awareness, behavior change, risk and demand reduction components, five on-site medical clinics and an extensive travel health program.

Key Features and Components

The major component, the Healthtrac Program (health risk appraisal/high risk intervention program) was funded on the corporate level as well as quarterly health education campaigns reaching nearly 80% of U.S. employees. Local businesses also funded site-specific health and safety initiatives and 11 on-site staffed fitness centers.

The Healthtrac program included a HRA, with all participants receiving health status and self-care materials. Approximately 20% "high-risk" participants were offered more intensive targeted follow up programs designed to improve health practices and behaviors, better manage chronic medical conditions, and reduce the demand and need for inappropriate health services. All outreach locations helped promote Healthtrac through displays, staff meetings and health fairs. Using site-specific aggregate Healthtrac data, Wellness coordinators at these locations then collaborated with on-site medical clinics, the fitness center, the Employee Assistance Program, HMO's and healthcare insurers to deliver programs targeted to site-specific needs.

Outcomes

With a financial return of 4.5:1, and now documented health status improvement in 8 of 10 risk areas, efforts are underway to convince the newly merged businesses under Citigroup's umbrella that Health Management Programs make sense for employees, the workplace and the bottom line.

For more information about this program, go to:

<http://healthproject.stanford.edu/koop/2001winnerindex.html>.

DaimlerChrysler/UAW National Wellness Program (2000)

DaimlerChrysler Corporation is an international automotive and transportation company with over 95,000 employees throughout the United States. The DaimlerChrysler/UAW National Wellness Program, which began in 1985, is a negotiated benefit between DaimlerChrysler Corporation and the International Union, UAW. Several national health and fitness service providers are contracted to deliver the Wellness Program to active employees. All U.S. sites with 500 or more employees have on-site contracted health and fitness business partners (over 100 FTEs) to administer the Program. The DaimlerChrysler Human Resources Department provides operating funds for the Program and with the UAW, provides administrative oversight.

Goals

The Program provides high quality, cost-effective wellness activities that empower employees to improve their health and become wise health care consumers while containing health care costs. Specific Program objectives for 2000 include:

- Screen 37% of population to assess risks and interests.
- Increase percent of employees who have fewer than 3 health risks.
- Increase participation in the NextSteps™ Program (phone-based lifestyle intervention targeted to high-risk individuals) by 1% at each site.
- Decrease percentage of smokers by 6%.

Key Features/Components

- Employees voluntarily participate.
- Targeted education programs, based on identified health risks and interests, provide an opportunity for individual health improvements.
- Interventions tailored to individual sites customize the program for each population while maintaining the objectives and quality standards required of all sites.
- Focused education programs support employees throughout the process of lifestyle change.
- The stages of change model is used for tailoring programs such as smoking cessation, weight management, cholesterol management and fitness activities.
- Program formats may include one-time workshops, multi-session classes, individual counseling, or self-directed modules.
- Maintenance strategies include ongoing awareness, interactive campaigns, group support, incentive opportunities, follow-up and cultural support with on-site services (e.g., fitness facilities, cafeteria/vending programs, and walking routes).
- Health plans that administer DaimlerChrysler Health Care Benefits are the primary managers of chronic disease conditions.
- The focused intervention model, NextSteps™, a personalized case management program administered via telephone risk counseling, supplements these efforts. Employees are further educated on self-management through publications on available hospital services and worksite self-care education.

Other Awards

The Program prides itself in achieving high standards in health promotion. Awards include:

- Well Workplace Gold Awards (WELCOA, 23 in 1998, 8 in 1999).
- Governor's Council on Physical Fitness (Gold Award, 1997).
- Healthiest Corporate Cafeteria (Physicians Committee for Responsible Medicine, 1997).

For more information about this program, go to:

<http://healthproject.stanford.edu/koop/2000winnerindex.html>.

Fannie Mae Partnership for Healthy Living (2000)

Goals

The PHLP goals are to improve employee health, enhance productivity, contain medical costs, and reduce sick leave usage. This program, which began in 1994, is offered free of charge to all Fannie Mae employees and their spouses/domestic partners.

Key Features/Components

- Hallmarks of the program include standardization across seven regional offices, confidentiality, on-site regional coordination, best health promotion practices, and outcome measurements.
- The annual PHLP management cycle includes screening, planning, health promotion, and evaluation. The health management systems and health program design was selected in 1994 based on a review of industry best practices and governmental guidelines.
- The screening phase begins with Health Fairs in every region including:
 - Health Assessment Questionnaire
 - Health Interest Surveys
 - Blood Pressure
 - Height/Weight
 - Laboratory Testing
 - Body Composition
 - Bone Mineral Density
 - Lung Function
 - Mammography
 - Influenza Vaccines
 - Hemocult
 - Glaucoma
 - Vision
 - Fitness Testing
 - Tuberculosis
 - Personal Wellness Profile (PWP)

Program managers develop an implementation plan based on screening and survey results, previous year's evaluation, and resource availability. The program is customized to meet the distinct needs of each regional office while conforming to general protocol.

- The health promotion phase includes group feedback sessions on the PWP, on-site behavioral modification programs (aerobics, yoga, smoking cessation, weight management), make-up health assessments, lunchtime seminars, walking programs, and a high-risk intervention program.
- Participation incentives support each health promotion event, including a Healthy Living day off for employees who participate in a health assessment and group feedback session.
- Evaluation of the program is based on participation, aggregate health data, health trends, high-risk outcomes, cost-benefit studies, anecdotal reports and surveys from employees. New screening and health promotion practices are reviewed and considered for inclusion.

Regional coordinators, educated and experienced in the health and/or medical field, are provided on-site by Health One at each Fannie Mae location (Washington, Herndon, Philadelphia, Atlanta, Dallas, Pasadena, Chicago) to plan, coordinate and implement the PHLP. They work closely with a Fannie Mae Human Resource Manager at the local level.

Steelcase, 1994 C. Everett Koop National Health Award Winner. Coors Health Promotion Program. US Preventative Services Task Force Report, 1989. Healthy People 2000, September 1990. Health

Promotion Goes to Work: Program with an Impact by Office of Disease Prevention and Health Promotion, 1993.

Funding Source

Fannie Mae and administered under contractual agreement with Health One, Inc.

For more information on this program, go to: <http://healthproject.stanford.edu/koop/2000winnerindex.html>.

Glaxo Wellcome, Inc. (1999)

Glaxo Wellcome is a research-based pharmaceutical company with approximately 8,900 U.S. employees who are committed to fighting disease by bringing innovative medicines to patients and their healthcare providers. Our employees are our most valuable asset. The company is committed to providing employees with high quality healthcare and benefits, safe working environments, entrepreneurial/independent work and management practices that support balance on and off the job.

Goals/Philosophy

Glaxo Wellcome, Inc. was created in 1995, following the merger of Glaxo, Inc. and Burroughs Wellcome Co. Glaxo Wellcome Occupational Health Services (OHS) adopted a statement of purpose to deliver high quality healthcare to help keep people well, working and vital partners in corporate success.

Its integrated and comprehensive program is based on a prevention model that ensures that employees have the resources needed to stay well, participate in screening and surveillance programs for early detection of disease and have easy access to high quality health care if they become ill. An integrated disability management program ensures that employees with medical problems receive needed assistance and accommodations to ensure timely return to work. All programs and services are holistic and encompass aspects of physical, mental, intellectual, social and spiritual health.

Key Features/Components

Using a prevention model the following elements represent the scope of the programming available to employees from OHS.

Evaluation

OHS uses a data-driven approach to continuously evaluate and improve programs. Analysis of process and outcome measures is performed both internally and with the assistance of external organizations with special expertise. To improve the management of workers at the time they use medical, disability, and workers' compensation benefits: to manage various employee benefit plans; and to develop programs and policies that improve employee health and productivity, OHS performs health analyses using an integrated health benefits data warehouse. This approach incorporates a person-centric human capital management approach to the integrated management of health benefits cost. In collaboration with Options and Choices, Inc. (OCI), person-centric, demand-side integrated information has been developed regarding patterns of health benefits use.

For more information on this program, go to: <http://healthproject.stanford.edu/koop/1999winnerindex.html>.

Johnson & Johnson Health & Wellness (2003 Winner)

Goals/Vision

Johnson & Johnson Health & Wellness integrates disability management, occupational health, employee assistance, work–life programs, wellness and fitness. Its Vision is to optimize the health, well–being and productivity of Johnson & Johnson employees. It is an outgrowth of Johnson & Johnson LIVE FOR LIFE®, which originated in 1979 and brought together experts in health education, behavioral change, and disease management to create a program to improve employee health and productivity. The program underwent transformations in the past two decades to respond to changing business requirements and employee health needs.

Key Features/Components

- The cornerstone of the enhanced Health & Wellness health promotion initiative is the Health Risk Assessment (HRA) and Intervention Program. More than 90% of eligible domestic employees chose to participate in the HRA, a dramatic increase from 26% participation in 1995. Participation increases correlated to an incentive of \$500 in benefit credits. The program achieved savings of about \$9–10 million per year primarily from reduced medical utilization (\$3.96 million) and lower administrative expenses (\$5.22 million).
- Based on an analysis of the impact of the integrated Health & Wellness Programs, a strategy was put in place in 2002 to link health promotion measurable outcomes and risk reduction goals and cost savings. The company recently launched its new strategy, Healthy People 2005. Healthy People 2005 focuses on: smoking/tobacco use, blood pressure, cholesterol and inactivity. Over the next two years, Johnson & Johnson will measure progress toward goals aligned with national Healthy People 2010 objectives.
- Other health indicators, including obesity and stress, are currently addressed and will have set targets in the next phase of implementation.
- As part of Healthy People 2005, Health & Wellness works collaboratively with management and employees providing resources and support to implement leading–edge programs. The impact of achieving our Healthy People 2005 goals will result in an estimated cost avoidance of \$7.5 million annually. Productivity gains will also contribute to a positive bottom line.

For more information about this program, go to:

<http://healthproject.stanford.edu/koop/2003winnerindex.html>.

Northeast Utilities WellAware (2001 Winner)

Goal

To improve the health and well-being of employees and families through participation in targeted programs and services that address lifestyle related health risks and to reduce health care costs.

Key Features and Components

- A Modifiable Claims Audit (MCA) evaluated 1992 health care claims to establish benchmark levels of lifestyle and behavior-related costs. The results showed that nearly 17% of Northeast Utilities (NU) 1992 health care claims were attributed to modifiable, lifestyle behaviors. Based upon established best of class health enhancement programs as well as the MCA findings, the WellAware program was designed. Annual refinements, are considered, evaluated and implemented. The key features of the program are:
 - Financial incentives for participation
 - Employees and spouses are eligible
 - Strong senior management support
 - Ongoing evaluation and re-design

- The components of the program include:
 - Health Risk Assessment as the "ticket" into the program; available in paper or online
 - Incentive program drives participation in programs/services that address targeted risks
 - Telephonic high risk intervention
 - Secondary coronary artery disease (CAD) management program
 - Telephonic smoking cessation counseling and rebate for purchasing smoking cessation aids
 - Integration with internal departments (Health Units, Safety, EAP) and external partners (health plans, local hospitals, etc.)
 - Flexible program formats allow accessibility to all employees and spouses via on-site programs, communication of community programs, guidebooks, videos and telephonic intervention programs
 - Quarterly health newsletter mailed to all homes
 - Internet site allows access at both work and home
 - Toll free hotline allows participants to request materials, ask questions

For more information about this project, go to:

<http://healthproject.stanford.edu/koop/2001winnerindex.html>.

Glossary

The following brief definitions or explanations are of terms used in the *Successful Business Strategies to Prevent Heart Disease and Stroke Toolkit*. References for these definitions are cited at the end of the document. For more detailed definitions, standard reference sources should be consulted.

Acute myocardial infarction (AMI): See *heart attack*.

Automated external defibrillator (AED): A small, lightweight device that analyzes a person's heart rhythm (through special pads placed on the torso) and can detect ventricular fibrillation, also referred to as sudden cardiac arrest. The device prompts the operator to deliver a harmless electrical shock if needed. AEDs are designed to be used by lay rescuers or first responders.

Assessment: The obligation of every public health agency to monitor the health status and needs of its community regularly and systematically; one of the three core functions of public health, along with policy development and assurance.

Blood cholesterol: The blood concentration of a family of lipid or "fatty" molecular compounds obtained directly from the diet or produced in the body from fatty dietary components. Subtypes of cholesterol differ in their relation to CVD risk; high-density lipoprotein (HDL) cholesterol is considered "good," and low-density lipoprotein (LDL) cholesterol is considered "bad."

Body mass index (BMI): A measurement of the relative percentages of fat and muscle mass in the human body, in which weight (in kilograms) is divided by height² (in meters²); the result is used as an index of obesity.

Cardiac arrest: The sudden stopping of heartbeat and cardiac function due to electrical malfunction of the heart and resulting in the loss of effective circulation.

Cardiopulmonary resuscitation (CPR): An emergency procedure often used after cardiac arrest, in which cardiac massage, artificial respiration, and drugs are used to maintain the circulation of oxygenated blood to the brain.

Cardiovascular disease (CVD): May refer to any of the disorders that can affect the circulatory system, but often refers to coronary heart disease (CHD), heart failure, and stroke, taken together.

Cardiovascular health (CVH): A combination of favorable health habits and conditions that protects against the development of cardiovascular diseases.

Carotid artery: A major artery in the neck that supplies blood to the brain.

Champion: A person who advocates for policy, environment, and systems to support a comprehensive cardiovascular health promotion program. A champion has leadership, special status, or abilities to leverage resources or convince others of the importance of a program and its activities.

Circulatory system: The network of arteries, veins, capillaries, and lymphatic vessels throughout the body, including the heart, that pumps blood to the lungs, other organs, and body tissues.

Comprehensive worksite health promotion: Refers to programs that are offered to improve employee health, decrease healthcare costs, reduce absenteeism, and increase productivity. These programs may involve a combination of policy, environmental, and educational approaches including: (1) health risk assessments and medical screenings to identify and refer high risk employees for treatment, (2) follow-up one-on-one risk factor education and counseling, (3) health education classes or workshops, support groups, or web-based tools with individual goal setting, (4) incentives to motivate employees to participate and comply with prevention and treatment measures, (5) heart and stroke prevention messages to employees throughout the organizations, (6) accessible blood pressure monitors and automated external defibrillators, (7) heart-healthy and low-cost cafeteria and vending machine foods and beverages with point-of-purchase nutrition information, (8) smoke-free policies (e.g., smoke-free campus, bans on smoking in company vehicles), (9) policies to allow employees to use work time for health promotion activities, (10) clearly marked walking paths and accessible places to exercise, and

signage to encourage stair use, (11) mentoring programs with employees who have made successful heart healthy lifestyle changes, and (12) partnerships with larger wellness programs in the community.

Congestive heart failure: See *heart failure*.

Coronary heart disease: Heart disease caused by impaired circulation in one or more coronary arteries, often manifesting as chest pain (angina pectoris) or heart attack.

Cost effectiveness: The minimum cost for a given benefit, the maximum benefit for a given cost, or a balance of low cost and high benefit that has maximum utility.

Cost-effectiveness analysis: An economic analysis useful for selecting among competing needs wherever resources are limited. It can be used to inform decisions about which interventions provide the greatest amount of specific desired outcomes per dollar spent.

Cost-effectiveness ratio: The ratio of the extra cost for each extra unit of health improvement gained by using an intervention, compared to the next most effective alternative.

Cost, indirect: Economic value not directly attributable to an action, purchase, program or initiative; may include secondary costs, opportunity costs, or costs of remedying side effects or complications.

Cost, out-of-pocket: Cost for which an individual is directly responsible (i.e., cost not covered by a health plan or other third party).

Cost, total: The sum of all direct and indirect costs.

Culturally appropriate: Responsive to, and respectful of, the history, traditions, and cultural values of the various race and ethnicity groups in society.

Culturally-competent intervention strategies (State CVH Program): Interventions that have been designed by or with guidance from relevant cultural or population groups, and that demonstrate sensitivity to cultural dimensions of risk factors and behaviors important for cardiovascular health.

Cultural competence: The design, implementation, and evaluation process that accounts for special issues of select population groups (ethnic and racial, linguistic) as well as differing educational levels and physical abilities.

Diabetes (or diabetes mellitus): A metabolic disorder resulting from insufficient production or utilization of insulin that commonly leads to cardiovascular complications.

Dyslipidemia: Abnormal blood lipids.

Emergency medical services (EMS): The prehospital medical stabilization or transportation of persons who are sick, injured, wounded, or otherwise incapacitated or helpless by any person who is in that service or who regularly provides that service.

Federal, state, or local public health agency: A government or nongovernmental entity authorized to provide one or more essential public health services. Included are health, mental health, substance abuse, environmental health, occupational health, health education, and public health agencies.

Health disparities: Differences in the burden and impact of disease among different populations, defined, for example, by sex, race or ethnicity, education, income, disability, place of residence, or sexual orientation.

Health outcomes: The results or consequences of a process of care. Health outcomes may include satisfaction with care as well as the use of health care resources. Included are clinical outcomes, such as changes in health status and changes in the length and quality of life as a result of detecting or treating disease.

Health promotion: Any combination of health education and related organizational, economic, and environmental supports for behavior of individuals, groups, or communities conducive to health.

Health risk appraisal (HRA): An assessment of employee and other beneficiaries' health risks, interest in participating in specific programs, and readiness to change unhealthy lifestyle habits.

Healthy People 2010: A document that presents health–related goals and objectives for the United States, to be achieved by the year 2010.

Heart attack: An acute event in which the heart muscle is damaged because of a lack of blood flow from the coronary arteries, typically accompanied by chest pain and other warning signs, but sometimes occurring with no recognized symptoms (i.e., “silent heart attack”).

Heart disease: Any affliction that impairs the structure or function of the heart (e.g., atherosclerotic and hypertensive diseases, congenital heart disease, rheumatic heart disease, cardiomyopathies).

Heart Disease and Stroke Prevention Program: A CDC program initiated in 1998 that supports states in their efforts to prevent heart disease and stroke. (For more information, see http://www.cdc.gov/cvh/state_program.)

Heart failure: Impairment of the pumping functions of the heart as the result of heart disease; heart failure often causes physical disability and increased risk for other CVD events.

High blood pressure: A condition in which the pressure in the arterial circulation is greater than desired. It is associated with increased risk for heart disease, stroke, chronic kidney disease, and other conditions; blood pressure is considered “high” if systolic pressure (measured at the peak of contraction of the heart) is ≥ 140 mm Hg or if diastolic pressure (measured at the fullest relaxation of the heart) is ≥ 90 mm Hg.

Hypercholesterolemia: An excess of cholesterol in the blood.

Hypertension: See *high blood pressure*.

Hypertensive heart disease: Abnormality in the structure and function of the heart caused by long–standing high blood pressure, often manifesting as heart failure.

Inventory: A written assessment of existing policy and environmental conditions that function as resources for, or barriers to, cardiovascular health in a specified setting at the state, regional, or community level.

JNC–7: An abbreviation for the *Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*. This report, published in 2003, provides an evidence–based approach to preventing and managing hypertension.

Lipids: Fat and fat–like substances such as cholesterol that are present in blood and body tissues.

Managed care: According to the Institute of Medicine, managed care is “a set of techniques used by or on behalf of purchasers of health care benefits to manage health care costs by influencing patient care decision–making through case–by–case assessments of the appropriateness of care prior to its provision.”

Managed care organizations (MCOs): MCOs are systems that integrate the financing and delivery of health care services to covered individuals by means of arrangements with selected providers to furnish health care services to members. MCOs include health maintenance organizations, preferred provider organizations, and point–of–service plans.

Mortality rate: Rate of death expressed as the number of deaths occurring in a population of a given size within a specified time interval (e.g., 265 annual deaths from heart disease per 100,000 U.S. Hispanic women, 1991–1995).

Organizational policy: A formal rule or regulation that governs behavior and practice within an organization or setting.

Peripheral vascular disease: Disease in the large blood vessels of the arms, legs, and feet.

Policy and environmental change: An intervention approach to reducing the burden of chronic diseases that focuses on enacting effective policies (e.g., laws, regulations, formal and informal rules) or promoting environmental change (e.g., changes to economic, social, or physical environments).

Population-based strategies: Interventions that focus on an identified population (e.g., women age 35–65) or community (e.g., residents of Madison County) rather than on individual behavior change. These strategies should include policy and environmental approaches or education and awareness supportive of the need for policy and environmental changes to support heart health.

Primary CVD prevention: A set of interventions, including the detection and control of risk factors, designed to prevent the first occurrence of heart attack, heart failure, or stroke among people with identifiable risk factors.

Priority populations: Groups at especially high risk for CVD (e.g., those identified by sex, race or ethnicity, education, income, disability, place of residence, sexual orientation).

Public policy: A formal statement of standards made by a public official, a legislative body, or through the general election of the public.

Quality of care: According to the Institute of Medicine, “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.” Simply stated, it is doing the right thing, for the right patient, at the right time, with the right outcome.

Quality of life: An expression that, in general, connotes an overall sense of well-being when applied to an individual and a pleasant and supportive environment when applied to a community. On the individual level, health-related quality of life (HRQOL) has a strong relationship to a person’s health perceptions and ability to function. On the community level, HRQOL can be viewed as including all aspects of community life that have a direct and quantifiable influence on the physical and mental health of its members.

Return on investment (ROI): The ratio of capital investment in dollars to accrued return in dollars.

Risk behavior: A behavioral pattern associated with increased frequency of specified health problems; for example, high salt intake, smoking, and binge drinking are all associated with CVD.

Risk factor: An individual characteristic associated with increased frequency of specified health problems; for example, high LDL cholesterol, high blood pressure, and diabetes are all associated with CVD.

Secondary CVD prevention: A set of interventions aimed at survivors of acute CVD events (e.g., heart attack, heart failure, stroke) or others with known CVD in which long-term case management is used to reduce disability and risk for subsequent CVD events.

Social marketing: The application of marketing principles and techniques to program development, implementation, and evaluation related to promoting healthy behaviors or reducing risky ones.

Stroke: Sudden interruption of blood supply to the brain caused by an obstruction or the rupture of a blood vessel.

Sudden cardiac arrest (SCA): See *cardiac arrest*.

Tertiary CVD prevention: An intervention approach included in secondary prevention; sometimes defined as reducing disability among survivors of CVD events through rehabilitation.

References

Centers for Disease Control and Prevention. *Charting the Course: State Heart Disease and Stroke Prevention Programs*. Atlanta: U.S. Department of Health and Human Services Centers for Disease Control and Prevention, 2004.

Centers for Disease Control and Prevention. *A Public Health Action Plan to Prevent Heart Disease and Stroke*. Atlanta, GA: US Department of Health and Human Services; 2003.

Glossary of Clinical and Economic Terms [online]. 2005. Available at www.wbgh.org/services/glossary/cfm.

Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st Century*. Washington, DC: Institute of Medicine; 2001. Available at <http://www.nap.edu/books/0309072808/html/>.

Glanz K, Lewis FM, Rimer BK. *Health Behavior and Health Education: Theory, Research, and Practice 2nd Edition*, San Francisco, CA: Jossey-Boss; 1997.

Additional Resources

This section provides links to national guidelines, worksite toolkits, assessment and performance measurement tools, associations, and federal agencies, all of which can provide guidance to employers in establishing or improving heart disease and stroke prevention programs.

National Guidelines for Heart Disease and Stroke Prevention and Management

Chobanian AV, Bakris GL, Black HR, et al. The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (the JNC-7 Report). *JAMA* 2003;289(19):2560-2572.

Available at: <http://www.nhlbi.nih.gov/guidelines/hypertension/jncintro.htm>

National Heart, Lung, and Blood Institute. Executive summary of the third report of the National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol. *JAMA* 2001;285:2486-2497.

Available at: <http://www.nhlbi.nih.gov/guidelines/cholesterol/>

Pearson TA, Blair SN, Daniels SR, et al. American Heart Association guidelines for primary prevention of cardiovascular disease and stroke (2002 update): consensus panel guide to comprehensive risk reduction for adult patients without coronary or other atherosclerotic vascular diseases. *Circulation* 2002;106:388-391.

Available at: <http://circ.ahajournals.org/cgi/content/full/circulationaha;106/3/388>

Smith SC, Jr., Blair SN, Benow RO, et al. AHA/ACC guidelines for preventing heart attack and death in patients with atherosclerotic cardiovascular disease (2001 update): a statement for healthcare professionals from the American Heart Association and the American College of Cardiology. *Circulation* 2001;104:1577-1579.

Available at: http://www.acc.org/clinical/guidelines/atherosclerosis/atherosclerosis_pdf.pdf

U.S. Preventive Services Task Force. *Guide to Clinical Preventive Services 2005*. McLean, Virginia: International Medical Publishing; 2005. Available at: <http://www.ahrq.gov/clinic/pocketgd.htm>; please also see updates, posted at www.ahrq.gov/clinic/prevnew.htm.

Heart Disease and Stroke Prevention Toolkits and Assessment Tools for Worksites

ConnectiFIT

State of Connecticut Department of Public Health and University of Connecticut Department of Health Promotion

www.connectifit.uconn.edu

The State of Connecticut Department of Public Health (DPH) and University of Connecticut Department of Health Promotion developed ConnectiFIT, a comprehensive health and wellness program for DPH employees. ConnectiFIT is a worksite health and wellness program designed to provide health awareness, lifestyle, and environmental change programming that is targeted to improve the health of DPH employees. Programs include exercise groups, educational sessions, healthy eating programs, ergonomics at work guidelines, stress management, smoking cessation, and education on the identification of warning signs of cardiovascular events and how to respond to those warning signs.

Diabetes At Work

National Diabetes Education Program

www.diabetesatwork.org

This online resource tool developed by the National Diabetes Education Program provides information to help employers assess the impact of diabetes in the workplace. It provides easy-to-understand information on the link between heart disease and diabetes, as well as guidance on how employers can help employees manage their diabetes and take steps toward reducing the risk of diabetes-related complications such as heart disease. Some materials are also available in Spanish.

Employer's Guide to Health Improvement and Preventive Services

National Business Group on Health

www.businessgrouphealth.org

This online guide provides employers with information on prevention and health promotion programs, as well as easy-to-understand information on the effectiveness of clinical preventive services such as screenings, counseling, and immunizations.

Good Work! Resource Kit: Linking Health to the Bottom Line (Cost-Effective Strategies for a Healthier Workplace)

Healthy Maine Partnerships

Maine Cardiovascular Health Program, Bureau of Health, Maine Department of Human Resources

<http://www.healthymainepartnerships.org/mcvhp2.html>

This online resource kit provides tools for Maine employers to improve employee health. The kit includes information on the link between healthy work environments and a business's bottom line, key elements of successful worksite wellness programs, and cardiovascular health program strategies used by large and small Maine employers. These programs include cholesterol screenings, nutrition, physical activity, tobacco avoidance, and communicating about health issues with employees.

Healthy Workforce 2010: An Essential Health Promotion Sourcebook for Employers, Large and Small

Partnerships for a Healthy Workforce

www.prevent.org/phw.htm

This resource book helps employers understand why they should invest in comprehensive employee health benefits and services, discusses the *Healthy People 2010* objectives that focus on employers, and provides resources to help companies start a comprehensive health program.

Heart At Work

American Heart Association

<http://216.185.102.50/haw/>

This online health–promotion program includes awareness, education, and behavior change activities focusing on blood pressure, physical activity, nutrition, stress management, smoking avoidance, risk assessment, and signs and symptoms of heart disease. For each type of activity, the program provides all the tools needed to make implementation fun and easy, including step–by–step guidelines for conducting events, challenges, assessments, quizzes, and seminars.

Heart Check: Assessing Worksite Support for a Heart Healthy Lifestyle

New York State Department of Health, Heart Healthy Program

<http://www.health.state.ny.us/nysdoh/heart/healthy/heartcheck.pdf>

This tool, which has been scientifically validated, assesses a company's worksite environmental supports, resources, and policies that encourage and reinforce heart–healthy behaviors among employees.

Heart Healthy and Stroke Safe: The Business Case for Cardiovascular Health

National Business Group on Health

www.businessgrouphealth.org/prevention/heart.cfm

The NBGH held a consultation, Heart Healthy and Stroke Safe: The Business Case for Cardiovascular Health, with business and health leaders. The Centers for Disease Control and Prevention sponsored the event, which was held on March 19, 2003, in Washington, DC. The online issue brief summarizes information and key issues presented during this business consultation.

Tools to Help Employers Measure Health Plan Performance and Quality of Care

C. Everett Koop National Health Awards

The Health Project

<http://healthproject.stanford.edu>

The Health Project is a private–public organization dedicated to making critical changes in the U.S. health care system to encourage better health behavior and improved use of health care services. The goal is to improve health care outcomes throughout the country. The C. Everett Koop National Health Awards are given each year to worksite, community, or provider programs that have documented improved health and decreased medical costs. These programs are success stories of providing appropriate quality care while reducing the alarming rate of health care inflation by holding down unnecessary expenditures.

eValue8

National Business Coalition on Health

<http://www.evaluate8.org/eValue8/>

eValue8 is an Internet–based tool to help organizations evaluate their benefits programs and improve health care. eValue8 uses standardized questions to gather vendor–specific health care information. The information is analyzed using an automated scoring system that is based on best practice standards.

Heart/Stroke Recognition Program

American Heart Association/American Stroke Association and NCQA.

www.ncqa.org/hsrp/

This program provides training to physicians who provide services to people who have heart disease or who have had a stroke, and recognizes physicians who meet quality of care standards in this area.

Health Plan Employer Data Information Set

National Committee for Quality Assurance

<http://www.ncqa.org/Programs/HEDIS/>

The Health Plan Employer Data Information Set (HEDIS) is a set of standardized performance measures that purchasers and consumers can use to reliably compare the performance of managed health care plans. The performance measures in HEDIS address many significant public health issues, such as cancer, heart disease, smoking, asthma, and diabetes. HEDIS also includes a standardized survey of consumers' experiences, which can be used to evaluate plan performance in areas such as customer service, access to care, and claims processing.

Primary Stroke Center Certification Program

American Stroke Association

<http://strokeassociation.org/presenter.jhtml?identifier=3016808>

The Primary Stroke Center Certification Program uses the *Recommendations for Primary Stroke Centers*, published by the Brain Attack Coalition and American Stroke Association, to evaluate the quality of hospital–provided stroke care.

The State of Health Care Quality: 2004 Report
National Committee for Quality Assurance (NCQA)
<http://www.ncqa.org>

The State of Health Care Quality: 2004 report is NCQA's eighth annual assessment and interpretation of key trends in the health care industry and their effect on the nation's overall health. This edition is based on data collected for Quality Compass, NCQA's database of managed-care information, and on NCQA's accreditation and recognition programs. Quality Compass 2004 contains audited, plan-specific information on clinical performance, accreditation, and member satisfaction from 563 commercial, Medicaid, and Medicare organizations—collectively covering more than 69 million lives—that submitted performance results to NCQA for public dissemination.

The 2005 report will be available in October, 2005.

Associations

Alliance of Community Health Plans

www.achp.org

The Alliance of Community Health Plans (ACHP) brings together innovative, not-for-profit or provider-sponsored health plans and provider organizations to identify problems, share best practices, and collaborate on solutions to improve health care quality. Its mission is to promote the highest standards of health care quality and health improvement through collaborative learning, innovation, and advocacy. ACHP helps its members lead their communities in providing affordable, high-quality health care and coverage.

America's Health Insurance Plans

www.ahip.org

America's Health Insurance Plans is a national association representing nearly 1,300 members that provide health benefits to more than 200 million Americans. Its mission is to provide a unified voice for the health care financing industry; to expand access to high-quality, cost-effective health care to all Americans; and to ensure Americans' financial security through robust insurance markets, product flexibility and innovation, and an abundance of consumer choices.

American Heart Association

<http://americanheart.org>

The American Heart Association is a national voluntary health agency whose mission is to reduce disability and death from cardiovascular diseases and stroke. The AHA website offers consumer health information on preventing and managing heart disease and stroke.

American Red Cross

<http://www.redcross.org>

The American Red Cross is a nationwide network of nearly 900 field units dedicated to saving lives and helping people prevent, prepare for, and respond to emergencies. The American Red Cross is the largest supplier of blood and blood products to more than 3,000 hospitals across the nation; it also assists victims of international disasters and conflicts at locations worldwide. The organization offers courses on how to administer cardio-pulmonary resuscitation and how to use automated external defibrillators.

American Stroke Association

www.strokeassociation.org

The American Stroke Association is a division of the American Heart Association that is solely focused on reducing disability and death from stroke through research, education, fundraising, and advocacy. The association develops and supports programs, products, and services that help fight stroke along the full continuum of care.

National Business Coalition on Health

www.nbch.org

The National Business Coalition on Health provides expertise, resources, and a voice to its member coalitions across the country and represents each community coalition at the national level. As a "coalition of coalitions," the National Business Coalition on Health spreads the tenets and practical applications of community health reform to areas where employers have yet to organize their purchasing power.

National Business Group on Health

www.businessgrouphealth.org

The National Business Group on Health—formerly the Washington Business Group on Health—represents 186 large employers and is the nation's only nonprofit organization devoted exclusively to

finding innovative and forward-thinking solutions to the nation's most important health care and related benefits issues. The group also supports its members in the areas of disability, health and productivity, health-related paid time off, and work/life balance issues. The group's mission is to serve its corporate members by providing business solutions and addressing policy, legislation, and regulations. It provides a voice for large employers when corporate America's most important health policy interests and health and disability practices are at risk.

National Center for Health Education

www.nche.org

The National Center for Health Education (NCHE) provides access to health education resources and current news. NCHE conducts programs and initiatives in advocacy, information exchange, technical assistance, and research and evaluation—all focused on improving the health of Americans. NCHE's work has been supported by grants from numerous corporate and charitable foundations, including the Metropolitan Life Foundation, Rockefeller Brothers Fund, the W.K. Kellogg Foundation, the U.S. Centers for Disease Control and Prevention, as well as charitable donations from individuals.

National Committee for Quality Assurance (NCQA)

www.ncqa.org

NCQA's mission is to improve health care quality everywhere. NCQA evaluates health care through (1) accreditation (a rigorous onsite review of key clinical and administrative processes), (2) HEDIS (a tool used to measure performance in key areas like immunization and mammography screening rates; see above for more information), and (3) a comprehensive member satisfaction survey. Although participation in its accreditation and certification programs is voluntary, more than half of the nation's HMOs currently participate, and almost 90 percent of all health plans measure their performance using HEDIS.

National Stroke Association

www.stroke.org

The National Stroke Association (NSA) provides national expertise and leadership for those at risk for, or recovering from this devastating condition. NSA is working to push stroke to the top of the national health agenda and to create greater awareness of stroke prevention measures. Local NSA chapters in communities across the country are helping people understand the urgency of symptom recognition and teaching them how to respond.

Partnership for Prevention

www.prevent.org

Partnership for Prevention is a national nonprofit, nonpartisan organization dedicated to improving people's health by preventing disease and injury. Partnership for Prevention's science-based policy tools and recommendations leverage America's investments in disease and injury prevention to ensure that they make the greatest impact.

Wellness Councils of America

www.welcoa.org

The Wellness Councils of America (WELCOA) is a national nonprofit membership organization dedicated to promoting healthier lifestyles for all Americans, especially through health promotion initiatives at the worksite. WELCOA links communities and coalitions into a supportive network that includes locally affiliated Wellness Councils, Well City initiatives, Well Workplaces, and individual and corporate members throughout the United States. Well Workplaces are companies dedicated to the health of their employees. Well Workplace Award winners are recognized as one of America's Healthiest Companies.

Federal Agencies

Agency for Healthcare Research and Quality

www.ahrq.gov/consumer/

The mission of the Agency for Healthcare Research and Quality (AHRQ) is to support research designed to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. AHRQ sponsors and conducts research that provides evidence-based information on health care outcomes and health services quality and cost, use, and access. The information helps health care decisionmakers—patients and clinicians, health system leaders, purchasers, and policymakers—make more informed decisions and improve the quality of health care services.

U.S. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention

www.cdc.gov/dhdsp/

The mission of the CDC's Division for Heart Disease and Stroke Prevention is to provide public health leadership to improve cardiovascular health for, and reduce the burden of cardiovascular disease, and eliminate disparities associated with heart disease and stroke. This Division's website offers statistical information regarding cardiovascular health, fact sheets, and journal publications and references. It also provides information on heart disease and stroke activities of state health departments.

U.S. Centers for Disease Control and Prevention, Division of Nutrition and Physical Activity

www.cdc.gov/nccdphp/dnpa/

CDC's Division of Nutrition and Physical Activity (DNPA) takes a public health approach to addressing the role of nutrition and physical activity in improving the public's health and preventing and controlling chronic diseases. The scope of DNPA activities includes epidemiological and behavioral research, surveillance, training and education, intervention development, health promotion and leadership, policy and environmental change, communication and social marketing, and partnership development

DNPA offers employers information and suggestions for incorporating physical activity into an employee's daily routine and guidance on selecting healthier food options for meetings and offering employees healthier food choices at worksite cafeterias and vending machines. Click on the links below for more information

StairWELL for Better Health: A Worksite Intervention: www.cdc.gov/nccdphp/dnpa/stairwell/index.htm

Worksite Walkability:

www.cdc.gov/nccdphp/dnpa/walkability/index.htm

Guidance on Healthier Food at Meetings: www.cdc.gov/nccdphp/dnpa/pdf/Healthy_Worksite_Food.pdf

U.S. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion

www.cdc.gov/nccdphp

The National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) provides national leadership in health promotion and chronic disease prevention by conducting public health surveillance, epidemiologic studies, and behavioral interventions; by disseminating guidelines and recommendations; and by assisting state health and education agencies to increase their capacity to prevent chronic diseases and promote healthful behaviors.

NCCDPHP works with partners to develop, implement, and promote effective prevention efforts nationwide. These partners include state and local health and education departments; other federal health agencies; international and national health organizations; academic institutions; philanthropic foundations; industry and labor groups; and professional, voluntary and community organizations. NCCDPHP works with partners to develop, implement, and promote effective prevention efforts nationwide.

National Institutes of Health, National Heart, Lung, and Blood Institute

www.nhlbi.nih.gov

The National Heart, Lung, and Blood Institute offers information on health grants and funding, current news and events pertaining to scientific research, and education pertaining to cardiovascular and circulatory health issues.

National Institutes of Health, National Institute of Neurological Disorders and Stroke

www.ninds.nih.gov

The mission of the National Institute of Neurological Disorders and Stroke (NINDS) is to reduce the burden of neurological disease—a burden borne by every age group, every segment of society, and by people all over the world. To support this mission, NINDS conducts, fosters, coordinates, and guides research on the causes, prevention, diagnosis, and treatment of neurological disorders and stroke and supports basic research in related scientific areas. The Institute supports research projects, program projects, and research center grants. It provides individual and institutional fellowships to increase scientific expertise in neurological fields; conducts a diversified program of intramural and collaborative research in its own laboratories, branches, and clinics; and collects and disseminates research information related to neurological disorders.

Selected Articles

The following articles are provided to you as additional references in providing a heart-healthy and stroke-free worksite.

- Matson Koffman DM, Goetzel RZ, Anwuri VV, Shore KK, Orenstein D, LaPier T. Heart healthy and stroke free: Successful business strategies to prevent cardiovascular disease. *Am J of Prev Med.* 2005; 29(5S1): 113–121.
- Chapman LS. Meta-evaluation of worksite health promotion economic return studies. *The Art of Health Promotion.* 2003; 6:1–10.
- Goetzel RZ, Long SR, Ozminkowski RJ, Hawkins K, Wang S, Lynch W. Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. *J Occup Environ Med.* 2004; 46:398–412.
- Goetzel RZ, Ozminkowski RJ, Meneades L, Stewart M, Schutt D. Pharmaceuticals—cost or investment?: An employers perspective. *J Occup Environ Med.* 2000; 42:338–351.
- Goetzel RZ, Hawkins K, Ozminkowski RJ, Wang S. The health and productivity cost burden of the “top 10” physical and mental health conditions affecting six large U.S. employers in 1999. *J Occup Environ Med.* 2003; 45:5–14.
- Goetzel RZ, Anderson DR, Whitmer RW, Ozminkowski RJ, Dunn RL, Wasserman J. The relationship between modifiable health risks and health care expenditures: an analysis of the multi-employer HERO health risk and cost database. The Health Enhancement Research Organization (HERO) Research Committee. *J Occup Environ Med.* 1998; 40:843–854.
- Goetzel RZ, Juday TR, Ozminkowski RJ. What's the ROI? – A systematic review of return on investment (ROI) studies of corporate health and productivity management initiatives. *AHWP's Worksite Health.* 1999; 6:12–21.
- Koopman C, Pelletier KR, Murray JF, Sharda CE, Berger ML, Turpin RS, Hackleman P, Gibson P, Holmes DM, Bendel T. Stanford presenteeism scale: health status and employee productivity. *J Occup Environ Med.* 2002; 44:14–20.
- Pelletier, KR. A review and analysis of the clinical and cost-effectiveness studies of comprehensive health promotion and disease management programs at the worksite: 1995–1998 update (IV). *Am J Health Promotion.* 1999; 13:333–345.
- Pelletier, KR. A review and analysis of the clinical- and cost-effectiveness studies of comprehensive health promotion and disease management programs at the worksite: 1998–2000 update. *Am J Health Promotion.* 2001; 16:107–116.
- Pelletier KR. Clinical and cost outcomes in multifactorial cardiovascular risk management interventions in worksites: a comprehensive review and analysis. *J Occup Environ Med.* 1997; 39:1154–1169.
- Pelletier, KR. ROI research and worksite health promotion. *Am J Health Promotion.* 1999; 14: 44–45.
- Whitmer RW, Pelletier KR, Anderson DR, Baase CM, Frost GJ. A wake-up call for corporate America. *J Occup Environ Med.* 2003; 45:916–925.