Minnesota Heart Disease and Stroke Prevention Initiative
Literature Review – October 2004
Environmental Setting: Worksites

HDSP Literature Review Summary of Worksite-based Interventions

A literature review was commissioned by the Minnesota Department of Health with funding through the Centers for Disease Control and Prevention (CDC) for the purpose of seeking out information and research regarding cardiovascular health. The intended use for the study was defined in five environmental settings.

- Community and Community Organizations,
- Healthcare,
- Land and Transportation,
- Schools, and
- Worksites.

The literature reviews focused on policies and environmental strategies whenever possible; however literature on other evidence-based strategies was reviewed as well.

What is the evidence that environmental or policy change impacts behavior of individuals?
Recent evidence from the Association of State and Territorial Directors of Health Promotion and Public Health Education and the U.S. Centers for Disease Control and Prevention suggests that the most effective public health interventions are broad population-based strategies that focus on environmental change and/or the implementation of policies.[7] The Minnesota Heart Disease and Stroke Prevention Initiative plans to emphasize population-based strategies through environmental interventions and policy change as well as support the implementation of effective individual-based interventions when appropriate. The definitions of environmental interventions and policies are listed below:

Environmental Interventions
Environmental interventions can be defined as including changes to the economic, social and/or physical environments. Examples of this are:

- incorporating walking paths and recreation areas into new community development designs;
- making low-fat choices available in cafeterias;
- moving ashtrays from meeting rooms.

Policy Interventions
Policy interventions are defined as including laws, regulations, and rules (formal and informal). Examples of policy interventions are:

- laws and regulations that restrict smoking in public buildings;
- organizational rules that provide time-off during the work hours for physical activity (Centers for Disease Control and Prevention, 2001).

Whenever possible, this summary of the literature will highlight worksite environmental interventions and policies to improve cardiovascular health; however, a significant portion of the

literature focuses on individual-based interventions or a combination of organization-wide interventions and individual-based interventions. In many cases, the literature does not fully evaluate the effect of environmental and/or policy approaches to reducing the health risks associated with cardiovascular disease (CVD).

What does environmental or policy change mean in the worksite setting?
A review of worksite health promotion programs, both large and small, indicated that there were multiple interventions that can be introduced into the worksite setting which have positive outcomes. The following table [4] summarizes focus areas of heart disease and stroke, the interventions found to be effective and the documented effects:

Focus Area	Interventions	Documented Effects
Hypertension	- screening, treatment, long-term monitoring; - group education and training.	- decrease blood pressure (BP), - increase knowledge.
Multi-component Programs	- screening, - personalized feedback based on results of screening, - modifications in organizational policy, or - physical work environment.	- multiple outcomes including improved health risks and absenteeism rates.
Weight Control	- behavior modification, - education topics, and - incentive system.	- weight loss, - decrease attrition.
Stress Management	- progressive relaxation, - meditation, - biofeedback, - cognitive-behavioral skills, or combination.	- decrease blood pressure, - decrease anxiety, - increase job satisfaction.
Nutrition/ Cholesterol	*Nutrition:* - group education and individual counseling; - cafeteria-based, - group education. *Cholesterol:* - individual counseling, - group education, - media, - combination of all three.	*Nutrition:* - attitude and dietary change, - decrease cholesterol level. *Cholesterol:* - decrease cholesterol level, - decrease weight, - dietary change.
Smoking	*Cessation programs:* - group and incentive programs; - minimal interventions, competitions, and medical interventions; - testing of treatment components; - policy interventions.	- increase quit rates, - decrease consumption, - change in smoking status, - reduced exposure to smoke in work area.
Exercise	- self-regulated program, - fitness class, - programs include compliance strategies.	- decrease weight, skinfolds, percent of body fat, total cholesterol, smoking level, and absenteeism; - increase muscle strength and endurance, life satisfaction and well-being.

What works?

The table [4] listed previously indicates that multiple interventions in worksite environments result in multiple outcomes with varying degrees of effectiveness. For example in a recent series of literature reviews [2-3, 5-6, & 8-10] that evaluated 316 worksite strategies, it was found that cause-effect relationships between the intervention and the outcome ranged from suggestive to conclusive in nature. The cause-effective relationships were defined in the following manner:

- *Conclusive:* Cause-effect relationship between intervention and outcome by substantial number of well-designed studies with randomized control groups. Nearly universal agreement by experts in the field regarding impact.
- *Acceptable:* Cause-effect relationship supported by well-designed studies with randomized control groups. Agreement by majority of experts in the field regarding impact.
- *Indicative:* Relationship supported by substantial number of well-designed studies, but few or no studies with randomized control groups. Majority of experts believe that relationship is causal based on existing body of evidence but view as tentative due to lack of randomized studies and potential alternative explanations.
- *Suggestive:* Multiple studies consistent with relationship, but no well-designed studies with randomized control groups. Majority of experts in the field believe causal impact is consistent with knowledge in related areas but see support as limited and acknowledge plausible explanations.
- *Weak:* Research evidence supporting relationship is fragmentary, non-experimental, and/or poorly operationalized. Majority of experts in the field believe causal impact is plausible but no more so than alternative explanations.

According to the definitions above, areas that were given low ratings do not necessarily suggest that they are ineffective interventions. Rather, studies are often not designed well enough to draw a stronger conclusion.

In addition, a meta-analysis of peer review literature [1] regarding the return on investment (ROI) of worksite health promotion programs was conducted. The following results were found from 42 studies:

- there was a lack of standardization in the methodology used in economic analysis of worksite health promotion programs;
- there was a wide range of quality and rigor in the literature;
- about half of the studies were published after 1992;
- more recent studies had larger average effects and higher cost-benefit yields;
- health care costs will likely remain the most frequent economic variable in future program studies;
- sick leave effects were the second most prevalent economic variable used to examine the economic impact and return associated with worksite health promotion programs; and
- most studies examined a single economic variable, thus likely underestimating the return on the investment of a worksite health program.

The author of this meta-study[1] concluded that worksite health promotion represents one of the key strategies for maintaining the productivity of American workers at a time when their average age is increasing faster than others in the world.

What are the lessons learned?

The comprehensive review of worksite health promotion programs highlights the breadth of programs that have been evaluated in terms of interventions, study design, and documented effects. In addition, the review provides evidence for worksite health promotion programs suggesting that many interventions are at likely to be effective. However, the review was not able to suggest which specific aspects of worksite health promotion program are likely to be the most effective.

Additionally, in the last decade many articles have been written that examined the return on investment of health promotion programs in the worksite setting. The most effective approach to support healthy lifestyles and prevent heart disease and stroke is a comprehensive health promotion program that includes sustained individual risk reduction counseling for employees and lower-cost policy and environmental interventions. Program components include:

- screening and referrals of high-risk employees with effective treatment and individual follow-up risk factor education and counseling;
- organization-wide environmental supports for behavior change (e.g. frequent and simple prevention messages; health education classes and support groups, access to healthy low-cost food choices, and opportunities to engage in physical activity);
- financial and other incentives to motivate employees to participate and comply with prevention and treatment goals (e.g. gift cards, lower health insurance premiums, tuition reimbursement); and
- corporate policies that support healthy lifestyles (e.g. tobacco-free policies). [1]

Where are the gaps in the literature?

- In addition to the studies discussed here, many other worksite health promotion studies have evaluated the effectiveness of worksite interventions on health risk factors associated with CVD. There are several limitations to studies that have been conducted.[10]
- The majority of these studies evaluated worksite education as the primary behavioral interventions.
- Few interventions centered on or included organization-wide strategies.
- Few studies have demonstrated which specific strategies are effective since most studies have evaluated the effect of a compilation of strategies.
- Few interventions have focused on a long-term approach; therefore it is uncertain how effective many interventions are over time.
- In some cases interventions did not appear to be based on theory, so it is uncertain as to why some interventions resulted in positive results when others did not.

What has been done in Minnesota?

No peer reviewed literature was found specific to Minnesota worksites; however, many worksite health promotion programs are being implemented in various parts of the state of Minnesota. For

further information contact the *Minnesota Heart Disease and Stroke Prevention Program* at www.health.state.mn.us/cvh.

Summary

The literature summarized here is a compilation of some of the more recent large-scale studies. Findings from the comprehensive review of worksite health promotion programs were summarized demonstrating the breadth of evaluated programs and providing evidence for success from implementing worksite programs, as well as, return on investment (ROI) of worksite health promotion programs.

References

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