



Effective Public Health Practice Project Summary Statement

Date April, 2007

Review on which this summary statement is based:

Micucci, S., Thomas, H. (2007). The effectiveness of multi-faceted health promotion interventions in the workplace to reduce chronic disease. Effective Public Health Practice Project.

Review Content Summary:

The systematic review of randomized controlled trials (RCTs) was conducted to determine the effectiveness of multi-faceted studies in the workplace to reduce the chronic diseases cardiovascular disease, cancer, chronic obstructive lung disease, and diabetes, or their risk factors. Eleven multi-faceted studies and two sub-studies were found to be relevant. Two sub-studies were embedded in a larger study and were reported as separate studies for the reason that each added an additional component to the main intervention. One study compared two intervention groups to a control group and was reported separately where appropriate. Three studies looked at interventions combining nutrition and physical activity, two studies focused on nutrition and smoking cessation, and eight studies combined nutrition, physical activity and smoking cessation. Findings support the distribution of educational material and professional instruction to increase the likelihood of adopting healthy eating practices, increasing physical activity and decreasing smoking.

Comments on this Review's Methodology: This is a methodologically strong review. The literature search included health and psychological databases, abstracts of conferences, and web sites of governments of industrial countries, and academic institutions in the field of workplace health. As well, key journals and the references of relevant papers were searched and articles were identified by the working group. The reviewers' assessment of methodological quality included six criteria: selection bias, allocation bias, control of confounders, blinding of outcome assessors, data collection methods and withdrawals and dropouts. Data were extracted from all relevant studies. Given the heterogeneity of the populations, the weak quality of the studies, and the multiple intervention features and outcome measures the data was summarized in a narrative format (Deeks, Higgins, & Altman, 2006).

Why this issue is of interest to public health:

The four chronic diseases, cardiovascular disease including coronary artery disease and stroke, cancer, chronic obstructive lung disease, and diabetes are responsible for two-thirds of total deaths in Canada (Standing Senate Committee on Social Affairs, Science and Technology, 2002). The total cost of disability and death due to chronic disease on the health care system is greater than \$80 billion annually (Intersectoral Healthy Living Network, 2005). Poor nutrition, physical inactivity and tobacco use have

been recognized as the leading social/behavioural risk factors for these chronic diseases in Canada. Ninety-six percent of adults 18-74 years of age have a modifiable risk factor for cardiovascular disease. Twenty-one percent of Canadians 15+ smoke, only about 30 percent of Canadians are physically active and over 50 percent of Canadians are overweight (Chronic Disease Prevention Alliance of Canada, 2007). Through the Mandatory Health Programs and Services Guidelines (Ministry of Health and Long-Term Care, 1997), a requirement and standard for public health under the Chronic Diseases and Injuries Program is to “work with workplace personnel and local trade and business associations to improve awareness, skill development and the work environment to reduce the risk of chronic diseases. Topics must include one or more of the following: tobacco-free living, healthy eating, healthy weights and regular physical activity” (p16). The purpose of this systematic review of the literature is to provide evidence-based direction for policy in compliance with these guidelines.

Evidence points are not weighted or ranked

| What’s the evidence? | Implications for practice and policy |
|--|--|
| <ul style="list-style-type: none"> ➤ Interventions incorporating the distribution of educational material and professional instruction were more successful than interventions that did not | <ul style="list-style-type: none"> ➤ Public health practitioners should partner or offer their services to workplaces to ensure that educational material and instruction is applicable and of high quality |
| <ul style="list-style-type: none"> ➤ The heterogeneity of the populations, interventions and outcome measures made it problematic to compare studies. Interventions that were conducted in a single workplace were not repeated and the results of interventions conducted over multiple workplaces could not be associated with a particular type of workplace | <ul style="list-style-type: none"> ➤ Investigators should concentrate on implementing interventions on similar populations multiple times before expanding their sample population to determine if interventions are worksite specific or can be generalized ➤ Investigators conducting interventions in multiple worksites should consider reporting details and outcomes of single worksites to determine if the intervention is worksite specific or can be generalized |
| <ul style="list-style-type: none"> ➤ All studies scored Weak for methodological quality. Selection Bias, Blinding and Participation scored the lowest of all criteria | <ul style="list-style-type: none"> ➤ Participation rates at the workplace level might increase if industry were informed of the economic benefits of incorporating health promotion at the worksite ➤ Investigators should look to agencies such as public health to implement interventions so that the investigators can reduce bias due to the inability to be blinded |
| <ul style="list-style-type: none"> ➤ No studies reported a chronic disease as an outcome measurement. All studies reported on multiple intermediate outcome biomarkers for | <ul style="list-style-type: none"> ➤ Outcomes reported should be limited to chronic diseases, intermediate outcome biomarkers that affect chronic disease or their risk factors |

| | |
|---|--|
| <p>chronic diseases or behaviours that affect these biomarkers</p> <ul style="list-style-type: none"> ➤ No studies were successful at improving all outcome measures they reported | <p>that are scientifically shown to be influenced by behaviour</p> |
| <ul style="list-style-type: none"> ➤ Studies reporting outcomes nine months or less from commencement were more successful than studies reporting outcomes twelve months or later ➤ Studies reporting outcomes at twelve months or later showed that many outcomes improved initially then returned to baseline | <ul style="list-style-type: none"> ➤ Although there is short-term gain, long term benefits have not yet been demonstrated |

| |
|---|
| <p>General Implications:</p> <ul style="list-style-type: none"> • Public health practitioners need to work with public, private, and not-for-profit organizations to ensure high quality educational material and instruction are offered at worksites • Investigators should take into consideration the agencies that would be providing the educational material and instruction in the long run and incorporate them in the intervention • The workplace is a complex venue to promote health. It is important to acknowledge the challenge of meeting the needs of all size workplaces, all industrial classifications, public/private/not-for-profit sectors in many geographical locations • Interventions must take into consideration that the workplace is constantly evolving with many changes to the traditional definition of work and where it is performed, for example telework options, compressed work week, removal of mandatory retirement legislation etc. • Public, private and not-for-profit organizations need to realize that health promotion is a long-term commitment that has been shown to reduce sick leave, absenteeism, and workers' compensation and disability costs thereby increasing productivity (Chapman, 2005 & Pelletier, 2005) |
|---|

Cost Benefit or Cost-effectiveness Information

Cost benefit and cost-effectiveness outcomes were included in one study (Proper et al, 2004). Intervention costs were compared to reduced sick leave. The cost benefit results were then compared to the resulting effects of the intervention (physical activity, energy expenditure, cardio respiratory fitness). The net total costs for the intervention period were 305 EU. The net total benefits for the same period the following year were 205 EU. The intervention was cost-effective for energy expenditure and cardio respiratory fitness only. Other reviews have investigated economic outcomes for workplace interventions and in most cases found a reduction in absenteeism, sick leave, health plan costs, workers' compensation and disability for a net total benefit (see Chapman, 2005, Pelletier, 2005).

References Used to Outline Issue:

Chapman, L.S., (2005). Meta-evaluation of worksite health promotion economic return studies: 2005 update. *The Art of Health Promotion*, 4, 1-11.

Deeks, J.J., Higgins, J.P.T., Altman, D.G., editors. (2006). Analysing and presenting results. In: J.P.T. Higgins, & S. Green, editors. *Cochrane Handbook for Systematic Reviews of Interventions 4.2.6* [updated September 2006]; Section 8. Retrieved March 10, 2007 from <http://www.cochrane.org/resources/handbook/hbook.htm>.

Intersectoral Healthy Living Network. (2005). *The integrated pan-Canadian healthy living strategy*. Ottawa: Minister of Health. Retrieved from http://www.healthcouncilcanada.ca/docs/rpts/2006/References_HCC_2006_AnnualReport.pdf on March 10, 2007.

Ministry of Health and Long-Term Care, Public Health Division. (1997). *Mandatory Health Programs and Service Guidelines*. Retrieved March 10, 2007, from <http://www.health.gov.on.ca/english/providers/pub/pubhealth/manprog/manprog.html>.

Pelletier, K.R. (2005). A review and analysis of the clinical and cost-effectiveness studies of comprehensive health promotion and disease management programs at the worksite: update VI 2000-2004. *Journal of Occupational and Environmental Medicine*, 47, 1051-1058.

Standing Senate Committee on Social Affairs, Science and Technology. (2002). *The Health of Canadians – The Federal Role*. Volume 6. Retrieved March 10, 2007 from <http://www.parl.gc.ca/37/2/parlbus/commbus/senate/com-e/SOCI-E/rep-e/repoct02vol6-e.htm>.

Review Author Contact Information:

Sandra Micucci, PhD Candidate, School of Geography and Earth Sciences, McMaster University for the Effective Public Health Practice Project, Public Health and Community Services, City of Hamilton

Contact Information for the Effective Public Health Practice Project (EPHPP)

Hamilton Public Health Services
Epidemiology and Evaluation
Effective Public Health Practice Project
1685 Main St. W.,
Hamilton, ON, L8S 1G5

Phone: 905-585-9140 ext. 20470

Fax: 905-529-4184

Email: ephpp@hamilton.ca

Website: www.hamilton.ca/ephpp

The format of this summary statement has been adapted from health-evidence.ca (www.health-evidence.ca)